



CATALOGUE 2026-2027  
————— VISIBLE LED

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**EVERLIGHT**



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# CONDITIONS OF RoHS

From July 1st, 2006, RoHS requires that all electrical equipment should not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBBs) or poly brominated diphenyl ethers (PBDEs), and the elements are restricted to certain amount (such as mercury in a wound lighting tube <5 mg, lead in CRT glass, soldering tin, etc.). Before the date every member of European Union must obey of environment on chemical regulation.



- According to RoHS part, the norm of restrict and limit used substance adopted by EVERLIGHT.

| Name                                                                | Description                                                                                                                                                                                                                                                     | Criteria                                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Cadmium                                                             | Cadmium and its compounds must not be present in parts, components, materials or products. Cadmium and its compounds must not used as stabilizers, coloring agent or as a surface coating treatment in parts, components, materials or products.                | < 5 ppm (Plastics)<br>< 75 ppm (Metals)     |
| Lead restrictions                                                   | Lead and/or lead compounds shall not be present in hardware components or parts, however, except solder, electrical components and interconnect materials. Lead carbonates and sulfates must not be used in any paint applied to parts, component, or products. | < 100 ppm (Plastics)<br>< 1000 ppm (Others) |
| Mercury restrictions                                                | Mercury must not be contained in any part, material, components or product, including, but not limited to switches, relays or electrical contacts. This restriction does not apply to lamps with less than 10 mg if mercury.                                    | < 5 ppm                                     |
| Hexavalent chromium (chromium VI) and hexavalent chromium compounds | Hexavalent chromium (chromium VI) and hexavalent chromium compounds must not be present in parts, components, materials or products.                                                                                                                            | < 2 ppm                                     |
| Polybrominated Biphenyls (PBBs)                                     | Plastics parts, pomponents, materials and products must not contain Polybrominated Biphenyls as flame retardants, specific PBBs, but are not limited to those listed in attachment item.                                                                        | < 5 ppm                                     |
| Polybrominated Diphenyl Ethers (PBDEs)                              | Plastic parts, components, materials and products must not contain Polybrominated Biphenyl Ethers, known as flame retardants, specific PBBEs, including, but are not limited to, those listed in attachment item.                                               | < 5 ppm                                     |

Compliant with the following condition :

- Please visit EVERLIGHT website for more updated information about third party test reports and RoHS declarations.  
( [www.everlight.com](http://www.everlight.com) )

# APPLICATION NOTICE

Since we are continuously improving all of our products, the information listed in this Catalogue, which includes specifications, characteristics, data, materials used, structure, etc., are subject to change without prior notice. It is necessary that you request the newest specification sheet from EVERLIGHT when you place any inquiry or purchase order.

Please carefully read the specification sheet, and confirm your acceptance of the content. EVERLIGHT does not accept any liabilities for damages occurred due to the customer's lack of confirming the newest product specification.

It is important to strictly follow the maximum limit and other important instructions listed on the specifications sheet when using EVERLIGHT's products. The following is a list of special notes for products used in specific applications. It is recommended that customers read the instructions carefully before installing the products. Again, EVERLIGHT does not accept any liabilities for any improper use of EVERLIGHT's product or failure to follow the instructions listed herein:

## Special Instruction:

1. Products listed in this Catalogue are designed primarily for the application listed below:  
A : Calculators  
B : Measurement equipment  
C : AV machines  
D : QA machines  
E : Operating machines  
F : Consumer electronics  
G : Telecommunications

While products meet the application listed above, additional attention is required when products are to be utilized in the instruments listed under Special Instruction Notes 2 and 3.

2. When high reliability and safety concerns are required, it is very important that the design be made to focus on safety and long term reliability. Special care should be given to assure that EVERLIGHT's products integrate and function properly with all other parts of the instrument. Instruments fall into these categories include:

- A : Instruments attached to transportation tools  
(aircraft, train, automobile)
- B : Traffic signs
- C : Gas leaking detectors and gas shutters
- D : Fire detectors
- E : Other safety detectors

3. When extremely high reliability and safety concerns are required, it is necessary that you contact EVERLIGHT for additional information before use. Instruments fall into these categories include:

- A : Aerospace instruments
- B : Telecommunication tools (main line)
- C : Nuclear weapon controls
- D : Medical instruments

4. Should you have any additional questions, please contact EVERLIGHT for details.

本資料所記載之製品的規格、特性、**DATA**、使用原料、構造...等，有時為了改良製品，無法事前通知，而逕行與予變更。因此請務必使用最新的規格書，並請針對內容加以確認。若因未確認規格書，導致使用次製品之機器或其他應用產品發生瑕疵時，敝公司將不負此責任。

使用本資料所記載之製品時，請遵守規格書所記載之絕對最大定格，使用上之注意事項，以及下列之注意點，若因不遵守規格書所記載之絕對最大定格，使用上之注意事項，以及下述之注意點，而導致發生損害問題時，敝公司將不負此責任。

## 注意項目：

1. 本資料所記載之製品，原則是為了下述之用途而製造出來的產品  
A: 電算機  
B: OA機器  
C: 通信機器  
D: 計測機器  
E: 工作機器  
F: AV機器  
G: 家電製品

若雖合乎上述用途，但是屬於下述2或3所記載之機器時，則需遵守個別產品之使用注意事項。

2. 若本資料所記載之製品用於下述講求高信賴性與安全性之用途時，因牽涉到機能與精度方面，為了維持這類機器的信賴性與安全性，請務必注重安全設計與長期性設計，並且需考慮整體機構間的關係，依機器整體之安全設計來使用。  
A: 運送機器(飛機、火車、汽車)與控制安全性等相關之產品  
B: 交通信號機  
C: 瓦斯漏氣檢測關閉機  
D: 防災裝置  
E: 各種安全裝置
3. 若本資料所記載之製品用於下述講求高信賴性與安全性之用途時，因牽涉到機能與精度方面，請事先與敝公司聯絡。  
A: 太空機器(航太儀器)  
B: 通信機器(幹線)  
C: 原子彈控制機器  
D: 醫療機器
4. 涉及上述注意事項之任何一項時，如有疑問，請和敝公司業務人員聯絡。

# TECHNICAL DATA

## HIGH POWER LED ( SHWO, SHWO(N) )

### CIE BINNING RANKS

#### Cool-White Bin Coordinates

| 5000K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 50K-1 | 50K-2 | 50K-3 | 50K-4 |
| CIE X | 0.346 | 0.338 | 0.337 | 0.345 |
|       | 0.345 | 0.337 | 0.337 | 0.344 |
|       | 0.353 | 0.345 | 0.344 | 0.352 |
|       | 0.355 | 0.346 | 0.345 | 0.353 |
| CIE Y | 0.369 | 0.362 | 0.349 | 0.356 |
|       | 0.356 | 0.349 | 0.337 | 0.343 |
|       | 0.362 | 0.356 | 0.343 | 0.349 |
|       | 0.376 | 0.369 | 0.356 | 0.362 |

| 5700K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 57K-1 | 57K-2 | 57K-3 | 57K-4 |
| CIE X | 0.329 | 0.321 | 0.321 | 0.329 |
|       | 0.329 | 0.321 | 0.322 | 0.329 |
|       | 0.337 | 0.329 | 0.329 | 0.337 |
|       | 0.338 | 0.329 | 0.329 | 0.337 |
| CIE Y | 0.354 | 0.346 | 0.335 | 0.342 |
|       | 0.342 | 0.335 | 0.324 | 0.331 |
|       | 0.349 | 0.342 | 0.331 | 0.337 |
|       | 0.362 | 0.354 | 0.342 | 0.349 |

| 6500K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 65K-1 | 65K-2 | 65K-3 | 65K-4 |
| CIE X | 0.312 | 0.303 | 0.305 | 0.313 |
|       | 0.313 | 0.305 | 0.307 | 0.315 |
|       | 0.321 | 0.313 | 0.315 | 0.322 |
|       | 0.321 | 0.312 | 0.313 | 0.321 |
| CIE Y | 0.339 | 0.330 | 0.321 | 0.329 |
|       | 0.329 | 0.321 | 0.311 | 0.319 |
|       | 0.337 | 0.329 | 0.319 | 0.326 |
|       | 0.348 | 0.339 | 0.329 | 0.337 |

#### Warm-White Bin Coordinates

| 2700K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 27K-1 | 27K-2 | 27K-3 | 27K-4 |
| CIE X | 0.469 | 0.456 | 0.447 | 0.459 |
|       | 0.459 | 0.447 | 0.437 | 0.448 |
|       | 0.470 | 0.459 | 0.448 | 0.459 |
|       | 0.481 | 0.469 | 0.459 | 0.470 |
| CIE Y | 0.429 | 0.426 | 0.408 | 0.410 |
|       | 0.410 | 0.408 | 0.389 | 0.392 |
|       | 0.413 | 0.410 | 0.392 | 0.394 |
|       | 0.432 | 0.429 | 0.410 | 0.413 |

| 3000K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 30K-1 | 30K-2 | 30K-3 | 30K-4 |
| CIE X | 0.443 | 0.430 | 0.422 | 0.435 |
|       | 0.435 | 0.422 | 0.415 | 0.426 |
|       | 0.447 | 0.435 | 0.426 | 0.437 |
|       | 0.456 | 0.443 | 0.435 | 0.447 |
| CIE Y | 0.421 | 0.417 | 0.399 | 0.403 |
|       | 0.403 | 0.399 | 0.381 | 0.385 |
|       | 0.408 | 0.403 | 0.385 | 0.389 |
|       | 0.426 | 0.421 | 0.403 | 0.408 |

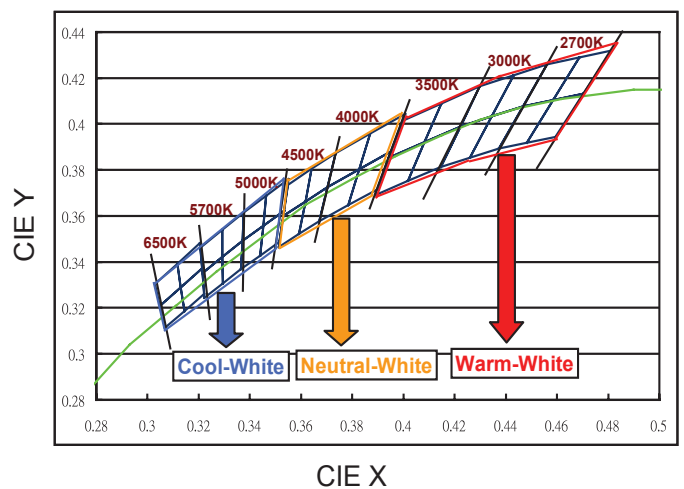
| 3500K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 35K-1 | 35K-2 | 35K-3 | 35K-4 |
| CIE X | 0.415 | 0.400 | 0.394 | 0.408 |
|       | 0.408 | 0.394 | 0.389 | 0.402 |
|       | 0.422 | 0.408 | 0.402 | 0.415 |
|       | 0.430 | 0.415 | 0.408 | 0.422 |
| CIE Y | 0.409 | 0.402 | 0.385 | 0.392 |
|       | 0.392 | 0.385 | 0.369 | 0.375 |
|       | 0.399 | 0.392 | 0.375 | 0.381 |
|       | 0.417 | 0.409 | 0.392 | 0.399 |

#### Natural-White Bin Coordinates

| 4000K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 40K-1 | 40K-2 | 40K-3 | 40K-4 |
| CIE X | 0.387 | 0.374 | 0.370 | 0.383 |
|       | 0.383 | 0.370 | 0.367 | 0.378 |
|       | 0.395 | 0.383 | 0.378 | 0.390 |
|       | 0.401 | 0.387 | 0.383 | 0.395 |
| CIE Y | 0.396 | 0.387 | 0.373 | 0.380 |
|       | 0.380 | 0.373 | 0.358 | 0.365 |
|       | 0.388 | 0.380 | 0.365 | 0.372 |
|       | 0.404 | 0.396 | 0.380 | 0.388 |

| 4500K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 45K-1 | 45K-2 | 45K-3 | 45K-4 |
| CIE X | 0.364 | 0.355 | 0.353 | 0.362 |
|       | 0.362 | 0.353 | 0.351 | 0.359 |
|       | 0.370 | 0.362 | 0.359 | 0.367 |
|       | 0.374 | 0.364 | 0.362 | 0.370 |
| CIE Y | 0.381 | 0.374 | 0.360 | 0.366 |
|       | 0.366 | 0.360 | 0.347 | 0.352 |
|       | 0.373 | 0.366 | 0.352 | 0.358 |
|       | 0.387 | 0.381 | 0.366 | 0.373 |

#### White Color Bin Structure



# TECHNICAL DATA

HIGH POWER LED ( SHWO ,SHWO(N) )

BRIGHTNESS BINNING RANKS

Shwo  
Brightness (lm)  
Luminous Flux Bins

| Group | Binning | Minimum Photometric Flux (lm) | Maximum Photometric Flux (lm) |
|-------|---------|-------------------------------|-------------------------------|
| E     | 1       | 4                             | 5                             |
|       | 2       | 5                             | 6                             |
|       | 3       | 6                             | 8                             |
|       | 4       | 8                             | 10                            |
|       | 5       | 10                            | 13                            |
|       | 6       | 13                            | 17                            |
|       | 7       | 17                            | 20                            |
|       | 8       | 20                            | 23                            |
|       | 9       | 23                            | 27                            |
| F     | 1       | 27                            | 33                            |
|       | 2       | 33                            | 39                            |
|       | 3       | 39                            | 45                            |
|       | 4       | 45                            | 52                            |
|       | 5       | 52                            | 60                            |
|       | 6       | 60                            | 70                            |
|       | 7       | 70                            | 80                            |
|       | 8       | 80                            | 90                            |
|       | 9       | 90                            | 100                           |
| J     | 1       | 100                           | 110                           |
|       | 2       | 110                           | 120                           |
|       | 3       | 120                           | 130                           |
|       | 4       | 130                           | 140                           |
|       | 5       | 140                           | 150                           |
|       | 6       | 150                           | 160                           |
|       | 7       | 160                           | 180                           |
|       | 8       | 180                           | 200                           |
|       | 9       | 200                           | 225                           |
| K     | 1       | 225                           | 250                           |
|       | 2       | 250                           | 275                           |
|       | 3       | 275                           | 300                           |
|       | 4       | 300                           | 325                           |
|       | 5       | 325                           | 350                           |
|       | 6       | 350                           | 375                           |
|       | 7       | 375                           | 400                           |
|       | 8       | 400                           | 425                           |
|       | 9       | 425                           | 450                           |
| N     | 1       | 450                           | 475                           |
|       | 2       | 475                           | 500                           |
|       | 3       | 500                           | 525                           |
|       | 4       | 525                           | 550                           |

Shwo  
Wavelength (nm)

| Group                        | Binning | Minimum Dominant | Maximum Dominant |
|------------------------------|---------|------------------|------------------|
|                              |         | Wavelength (nm)  | Wavelength (nm)  |
| B<br>Blue/<br>Royal-<br>Blue | 1       | 430              | 435              |
|                              | 2       | 435              | 440              |
|                              | 3       | 440              | 445              |
|                              | 4       | 445              | 450              |
|                              | 5       | 450              | 455              |
|                              | 6       | 455              | 460              |
|                              | 7       | 460              | 465              |
|                              | 8       | 465              | 470              |
| G<br>Green                   | 1       | 520              | 525              |
|                              | 2       | 525              | 530              |
|                              | 3       | 530              | 535              |
|                              | 4       | 535              | 540              |
|                              | 5       | 540              | 545              |
|                              | 6       | 545              | 550              |
| A<br>Amber                   | 1       | 580              | 582.5            |
|                              | 2       | 582.5            | 585              |
|                              | 3       | 585              | 587.5            |
|                              | 4       | 587.5            | 590              |
|                              | 5       | 590              | 592.5            |
|                              | 6       | 592.5            | 595              |
| R<br>Red                     | 3       | 610              | 615              |
|                              | 4       | 615              | 620              |
|                              | 5       | 620              | 625              |
|                              | 6       | 625              | 630              |
|                              | 7       | 630              | 635              |
|                              | 1       | 635              | 640              |
| D<br>Deep-<br>Red            | 2       | 640              | 645              |
|                              | 3       | 645              | 650              |
|                              | 4       | 650              | 655              |
|                              | 5       | 655              | 660              |
|                              | 6       | 660              | 665              |
|                              | 7       | 665              | 670              |
|                              | 8       | 670              | 675              |
| F<br>Far-<br>Red             | 1       | 700              | 710              |
|                              | 2       | 710              | 715              |
|                              | 3       | 715              | 720              |
|                              | 4       | 720              | 725              |
|                              | 5       | 725              | 730              |
|                              | 6       | 730              | 735              |
|                              | 7       | 735              | 740              |
|                              | 8       | 740              | 745              |



HIGH POWER LED ( SHWO, SHWO(N) )

FORWARD VOLTAGE BINNING RANKS

Shwo

Forward Voltage Bins

| Group Name | Bins                        |                             |  |
|------------|-----------------------------|-----------------------------|--|
| A          | U1+U2+U3                    |                             |  |
| B          | U2+U3+U4                    |                             |  |
| C          | V1+V2+V3                    |                             |  |
| D          | V2+V3+V4                    |                             |  |
| E          | V3+V4+V5                    |                             |  |
| F          | V1+V2                       |                             |  |
| G          | V1                          |                             |  |
| Bin        | Minimum Forward Voltage (V) | Maximum Forward Voltage (V) |  |
| U1         | 1.75                        | 2.05                        |  |
| U2         | 2.05                        | 2.35                        |  |
| U3         | 2.35                        | 2.65                        |  |
| U4         | 2.65                        | 2.95                        |  |
| V1         | 2.95                        | 3.25                        |  |
| V2         | 3.25                        | 3.55                        |  |
| V3         | 3.55                        | 3.85                        |  |
| V4         | 3.85                        | 4.15                        |  |
| V5         | 4.15                        | 4.45                        |  |

# TECHNICAL DATA

For Lighting Application Only

## LOW MIDDLE POWER LED - SMD TYPE CIE BINNING RANKS

### Cool-White Bin Coordinates

| 5000K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.3551 | 0.3464 | 0.3371 | 0.3533 | 0.3487 | 0.3482 |
|       | 0.3464 | 0.3376 | 0.3366 | 0.3482 | 0.3425 | 0.3422 |
|       | 0.3456 | 0.3371 | 0.3441 | 0.3477 | 0.3422 | 0.3418 |
|       | 0.3487 | 0.3422 | 0.3448 | 0.3448 | 0.3482 | 0.3477 |
|       | 0.3482 | 0.3425 | 0.3418 | 0.3441 | --     | --     |
|       | 0.3533 | 0.3456 | 0.3422 | 0.3515 | --     | --     |
| CIE Y | 0.3760 | 0.3688 | 0.3493 | 0.3624 | 0.3629 | 0.3583 |
|       | 0.3688 | 0.3616 | 0.3369 | 0.3583 | 0.3579 | 0.3533 |
|       | 0.3604 | 0.3493 | 0.3428 | 0.3530 | 0.3533 | 0.3483 |
|       | 0.3629 | 0.3533 | 0.3507 | 0.3507 | 0.3583 | 0.3530 |
|       | 0.3583 | 0.3579 | 0.3483 | 0.3428 | --     | --     |
|       | 0.3624 | 0.3604 | 0.3533 | 0.3487 | --     | --     |
| 5700K |        |        |        |        |        |        |
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.3376 | 0.3292 | 0.3215 | 0.3371 | 0.3321 | 0.3321 |
|       | 0.3292 | 0.3207 | 0.3222 | 0.3321 | 0.3261 | 0.3262 |
|       | 0.3292 | 0.3215 | 0.3294 | 0.3320 | 0.3262 | 0.3263 |
|       | 0.3321 | 0.3262 | 0.3293 | 0.3293 | 0.3321 | 0.3320 |
|       | 0.3321 | 0.3261 | 0.3263 | 0.3294 | --     | --     |
|       | 0.3371 | 0.3292 | 0.3262 | 0.3366 | --     | --     |
| CIE Y | 0.3616 | 0.3539 | 0.3353 | 0.3493 | 0.3490 | 0.3447 |
|       | 0.3539 | 0.3462 | 0.3243 | 0.3447 | 0.3436 | 0.3395 |
|       | 0.3464 | 0.3353 | 0.3306 | 0.3401 | 0.3395 | 0.3350 |
|       | 0.3490 | 0.3395 | 0.3377 | 0.3377 | 0.3447 | 0.3401 |
|       | 0.3447 | 0.3436 | 0.3350 | 0.3306 | --     | --     |
|       | 0.3493 | 0.3464 | 0.3395 | 0.3369 | --     | --     |
| 6500K |        |        |        |        |        |        |
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.3205 | 0.3117 | 0.3048 | 0.3213 | 0.3157 | 0.3161 |
|       | 0.3117 | 0.3028 | 0.3068 | 0.3161 | 0.3093 | 0.3100 |
|       | 0.3125 | 0.3048 | 0.3145 | 0.3166 | 0.3100 | 0.3106 |
|       | 0.3157 | 0.3100 | 0.3136 | 0.3136 | 0.3161 | 0.3166 |
|       | 0.3161 | 0.3093 | 0.3106 | 0.3145 | --     | --     |
|       | 0.3213 | 0.3125 | 0.3100 | 0.3221 | --     | --     |
| CIE Y | 0.3481 | 0.3393 | 0.3209 | 0.3371 | 0.3360 | 0.3320 |
|       | 0.3393 | 0.3304 | 0.3113 | 0.3320 | 0.3297 | 0.3259 |
|       | 0.3328 | 0.3209 | 0.3187 | 0.3281 | 0.3259 | 0.3222 |
|       | 0.3360 | 0.3259 | 0.3251 | 0.3251 | 0.3320 | 0.3281 |
|       | 0.3320 | 0.3297 | 0.3222 | 0.3187 | --     | --     |
|       | 0.3371 | 0.3328 | 0.3259 | 0.3261 | --     | --     |

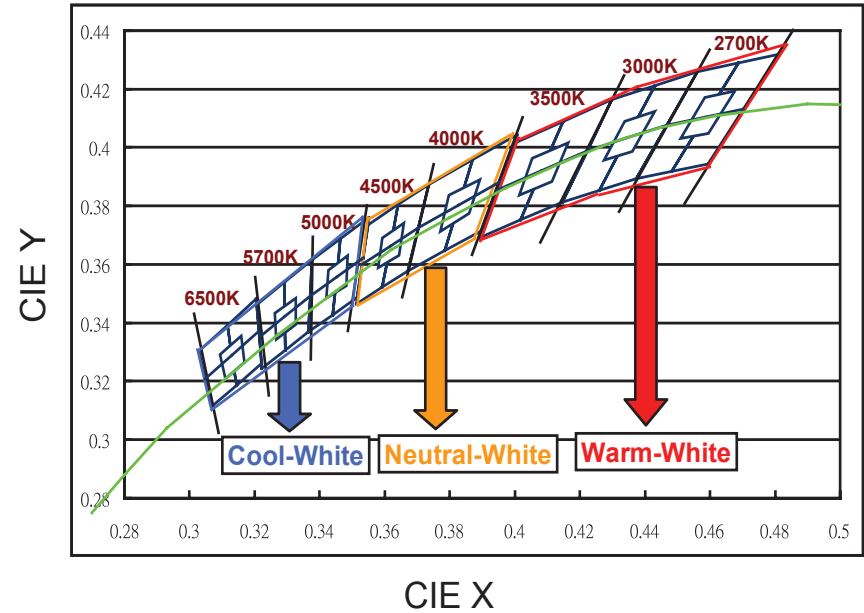
### Natural-White Bin Coordinates

| 4000K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.4006 | 0.3871 | 0.3703 | 0.3952 | 0.3890 | 0.3873 |
|       | 0.3871 | 0.3736 | 0.3670 | 0.3873 | 0.3793 | 0.3779 |
|       | 0.3843 | 0.3703 | 0.3784 | 0.3854 | 0.3779 | 0.3764 |
|       | 0.3890 | 0.3779 | 0.3810 | 0.3810 | 0.3873 | 0.3854 |
|       | 0.3873 | 0.3793 | 0.3764 | 0.3784 | --     | --     |
|       | 0.3952 | 0.3843 | 0.3779 | 0.3898 | --     | --     |
| CIE Y | 0.4044 | 0.3959 | 0.3726 | 0.3880 | 0.3887 | 0.3831 |
|       | 0.3959 | 0.3874 | 0.3578 | 0.3831 | 0.3828 | 0.3773 |
|       | 0.3858 | 0.3726 | 0.3647 | 0.3768 | 0.3773 | 0.3713 |
|       | 0.3887 | 0.3773 | 0.3741 | 0.3741 | 0.3831 | 0.3768 |
|       | 0.3831 | 0.3828 | 0.3713 | 0.3647 | --     | --     |
|       | 0.3880 | 0.3858 | 0.3773 | 0.3716 | --     | --     |
| 4500K |        |        |        |        |        |        |
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.3736 | 0.3642 | 0.3530 | 0.3703 | 0.3658 | 0.3648 |
|       | 0.3642 | 0.3548 | 0.3512 | 0.3648 | 0.3592 | 0.3584 |
|       | 0.3626 | 0.3530 | 0.3591 | 0.3637 | 0.3584 | 0.3575 |
|       | 0.3658 | 0.3584 | 0.3607 | 0.3607 | 0.3648 | 0.3637 |
|       | 0.3648 | 0.3592 | 0.3575 | 0.3591 | --     | --     |
|       | 0.3703 | 0.3626 | 0.3584 | 0.3670 | --     | --     |
| CIE Y | 0.3874 | 0.3805 | 0.3601 | 0.3726 | 0.3738 | 0.3686 |
|       | 0.3805 | 0.3736 | 0.3465 | 0.3686 | 0.3689 | 0.3640 |
|       | 0.3714 | 0.3601 | 0.3522 | 0.3630 | 0.3640 | 0.3585 |
|       | 0.3738 | 0.3640 | 0.3608 | 0.3608 | 0.3686 | 0.3630 |
|       | 0.3686 | 0.3689 | 0.3585 | 0.3522 | --     | --     |
|       | 0.3726 | 0.3714 | 0.3640 | 0.3578 | --     | --     |

Warm-White Bin Coordinates

| 2700K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.4813 | 0.4687 | 0.4465 | 0.4700 | 0.4667 | 0.4627 |
|       | 0.4687 | 0.4562 | 0.4373 | 0.4627 | 0.4576 | 0.4539 |
|       | 0.4621 | 0.4465 | 0.4483 | 0.4588 | 0.4539 | 0.4502 |
|       | 0.4667 | 0.4539 | 0.4544 | 0.4544 | 0.4627 | 0.4588 |
|       | 0.4627 | 0.4576 | 0.4502 | 0.4483 | --     | --     |
| CIE Y | 0.4700 | 0.4621 | 0.4539 | 0.4593 | --     | --     |
|       | 0.4319 | 0.4289 | 0.4071 | 0.4126 | 0.4180 | 0.4109 |
|       | 0.4289 | 0.4260 | 0.3893 | 0.4109 | 0.4158 | 0.4088 |
|       | 0.4169 | 0.4071 | 0.3919 | 0.4041 | 0.4088 | 0.4020 |
|       | 0.4180 | 0.4088 | 0.4030 | 0.4030 | 0.4109 | 0.4041 |
|       | 0.4109 | 0.4158 | 0.4020 | 0.3919 | --     | --     |
|       | 0.4126 | 0.4169 | 0.4088 | 0.3944 | --     | --     |
| 3000K |        |        |        |        |        |        |
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.4562 | 0.4430 | 0.4221 | 0.4465 | 0.4422 | 0.4388 |
|       | 0.4430 | 0.4299 | 0.4147 | 0.4388 | 0.4328 | 0.4297 |
|       | 0.4375 | 0.4221 | 0.4259 | 0.4355 | 0.4297 | 0.4267 |
|       | 0.4422 | 0.4297 | 0.4311 | 0.4311 | 0.4388 | 0.4355 |
|       | 0.4388 | 0.4328 | 0.4267 | 0.4259 | --     | --     |
| CIE Y | 0.4465 | 0.4375 | 0.4297 | 0.4373 | --     | --     |
|       | 0.4260 | 0.4212 | 0.3984 | 0.4071 | 0.4113 | 0.4043 |
|       | 0.4212 | 0.4165 | 0.3814 | 0.4043 | 0.4079 | 0.4011 |
|       | 0.4096 | 0.3984 | 0.3853 | 0.3977 | 0.4011 | 0.3946 |
|       | 0.4113 | 0.4011 | 0.3962 | 0.3962 | 0.4043 | 0.3977 |
|       | 0.4043 | 0.4079 | 0.3946 | 0.3853 | --     | --     |
|       | 0.4071 | 0.4096 | 0.4011 | 0.3893 | --     | --     |
| 3500K |        |        |        |        |        |        |
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.4299 | 0.4148 | 0.3943 | 0.4221 | 0.4159 | 0.4134 |
|       | 0.4148 | 0.3996 | 0.3889 | 0.4134 | 0.4051 | 0.4029 |
|       | 0.4106 | 0.3943 | 0.4018 | 0.4108 | 0.4029 | 0.4006 |
|       | 0.4159 | 0.4029 | 0.4057 | 0.4057 | 0.4134 | 0.4108 |
|       | 0.4134 | 0.4051 | 0.4006 | 0.4018 | --     | --     |
| CIE Y | 0.4221 | 0.4106 | 0.4029 | 0.4147 | --     | --     |
|       | 0.4165 | 0.4090 | 0.3853 | 0.3984 | 0.4007 | 0.3943 |
|       | 0.4090 | 0.4015 | 0.3690 | 0.3943 | 0.3954 | 0.3893 |
|       | 0.3981 | 0.3853 | 0.3752 | 0.3878 | 0.3893 | 0.3829 |
|       | 0.4007 | 0.3893 | 0.3853 | 0.3853 | 0.3943 | 0.3878 |
|       | 0.3943 | 0.3954 | 0.3829 | 0.3752 | --     | --     |
|       | 0.3984 | 0.3981 | 0.3893 | 0.3814 | --     | --     |

■ White Color Bin Structure



Chromaticity specification defined by ANSI

# TECHNICAL DATA

For Lighting Application Only

## LOW MIDDLE POWER LED - SURFACE MOUNT PLCC TYPE LED BRIGHTNESS BINNING RANKS

### Luminous Flux Bins

Unit : lm

| Bin code | Range |       |
|----------|-------|-------|
|          | Min.  | Max.  |
| D1       | 0.5   | 1.0   |
| D2       | 1.0   | 1.5   |
| D3       | 1.5   | 2.0   |
| D4       | 2.0   | 2.5   |
| D5       | 2.5   | 3.0   |
| D6       | 3.0   | 3.5   |
| D7       | 3.5   | 4.0   |
| D8       | 4.0   | 4.5   |
| D9       | 4.5   | 5.0   |
| BA       | 5.0   | 5.5   |
| B1       | 5.5   | 6.0   |
| B2       | 6.0   | 6.5   |
| B3       | 6.5   | 7.0   |
| B4       | 7.0   | 7.5   |
| B5       | 7.5   | 8.0   |
| B6       | 8.0   | 8.5   |
| B7       | 8.5   | 9.0   |
| B8       | 9.0   | 9.5   |
| B9       | 9.5   | 10.0  |
| L1       | 10.0  | 11.0  |
| L2       | 11.0  | 12.0  |
| L3       | 12.0  | 13.0  |
| L4       | 13.0  | 14.0  |
| L5       | 14.0  | 15.0  |
| L6       | 15.0  | 16.0  |
| L7       | 16.0  | 17.0  |
| L8       | 17.0  | 18.0  |
| L9       | 18.0  | 19.0  |
| M3       | 19.0  | 21.0  |
| M4       | 21.0  | 24.0  |
| N3       | 24.0  | 27.0  |
| N4       | 27.0  | 33.0  |
| P3       | 33.0  | 39.0  |
| P4       | 39.0  | 45.0  |
| Q3       | 45.0  | 52.0  |
| NB       | 32.0  | 36.0  |
| PA       | 36.0  | 40.0  |
| PB       | 40.0  | 45.0  |
| QA       | 45.0  | 50.0  |
| R1       | 50.0  | 55.0  |
| R2       | 55.0  | 60.0  |
| R3       | 60.0  | 65.0  |
| R4       | 65.0  | 70.0  |
| R5       | 70.0  | 76.0  |
| R6       | 76.0  | 83.0  |
| R7       | 83.0  | 90.0  |
| R8       | 90.0  | 100.0 |
| S1       | 100.0 | 110.0 |
| S2       | 110.0 | 120.0 |
| S3       | 120.0 | 130.0 |
| S4       | 130.0 | 140.0 |
| S5       | 140.0 | 150.0 |
| S6       | 150.0 | 160.0 |
| S7       | 160.0 | 170.0 |

### VF Group Bin Code

Unit : V

| Forward Voltage Group | Bin | Min. | Max. |
|-----------------------|-----|------|------|
| B2                    | B42 | 35   | 2.80 |
|                       |     | 36   | 2.90 |
|                       |     | 37   | 3.00 |
|                       |     | 38   | 3.10 |
|                       |     | 39   | 3.20 |
|                       |     | 40   | 3.30 |
|                       |     | 41   | 3.40 |
|                       | 42  | 3.50 | 3.60 |

| Forward Voltage Group | Bin | Min. | Max. |
|-----------------------|-----|------|------|
| 5670                  | 5#6 | 5.6  | 5.7  |
|                       | 5#7 | 5.7  | 5.8  |
|                       | 5#8 | 5.8  | 5.9  |
|                       | 5#9 | 5.9  | 6.0  |
|                       | 6#0 | 6.0  | 6.1  |
|                       | 6#1 | 6.1  | 6.2  |
|                       | 6#2 | 6.2  | 6.3  |
|                       | 6#3 | 6.3  | 6.4  |
|                       | 6#4 | 6.4  | 6.5  |
|                       | 6#5 | 6.5  | 6.6  |
|                       | 6#6 | 6.6  | 6.7  |
|                       | 6#7 | 6.7  | 6.8  |
|                       | 6#8 | 6.8  | 6.9  |
|                       | 6#9 | 6.9  | 7.0  |

| Forward Voltage Group | Bin | Min. | Max. |
|-----------------------|-----|------|------|
| 8499                  | 84C | 8.4  | 8.7  |
|                       | 87C | 8.7  | 9.0  |
|                       | 90C | 9.0  | 9.3  |
|                       | 93C | 9.3  | 9.6  |
|                       | 96C | 9.6  | 9.9  |

SMD LED : SURFACE MOUNT CHIP LED ( PCB TYPE )  
BRIGHTNESS BIN SELECTION

Luminous Intensity Groups

Unit : mcd

|     |                   |     |                   |
|-----|-------------------|-----|-------------------|
|     | C0: 0.28 ... 0.45 | Q ▶ | Q1: 72.0 ... 90.0 |
|     | D0: 0.45 ... 0.70 |     | Q2: 90.0 ... 112  |
|     | E0: 0.70 ... 1.1  | R ▶ | R1: 112 ... 140   |
|     | F0: 1.1 ... 1.8   |     | R2: 140 ... 180   |
|     | G0: 1.8 ... 2.8   | S ▶ | S1: 180 ... 225   |
|     | H0: 2.8 ... 4.5   |     | S2: 225 ... 285   |
|     | J0: 4.5 ... 7.2   | T ▶ | T1: 285 ... 360   |
|     | K0: 7.2 ... 11.5  |     | T2: 360 ... 450   |
| L ▶ | L1: 11.5 ... 14.5 | U ▶ | U1: 450 ... 565   |
|     | L2: 14.5 ... 18.0 |     | U2: 565 ... 715   |
| M ▶ | M1: 18.0 ... 22.5 |     | V0: 715 ... 1120  |
|     | M2: 22.5 ... 28.5 |     | W0: 1120 ... 1800 |
| N ▶ | N1: 28.5 ... 36.0 |     | X0: 1800 ... 2850 |
|     | N2: 36.0 ... 45.0 |     | Y0: 2850 ... 4500 |
| P ▶ | P1: 45.0 ... 57.0 |     |                   |
|     | P2: 57.0 ... 72.0 |     |                   |

Note: The luminous intensity data did not include ±15% testing tolerance.

V<sub>F</sub> (Forward Voltage Spec. Setup)

Unit : V

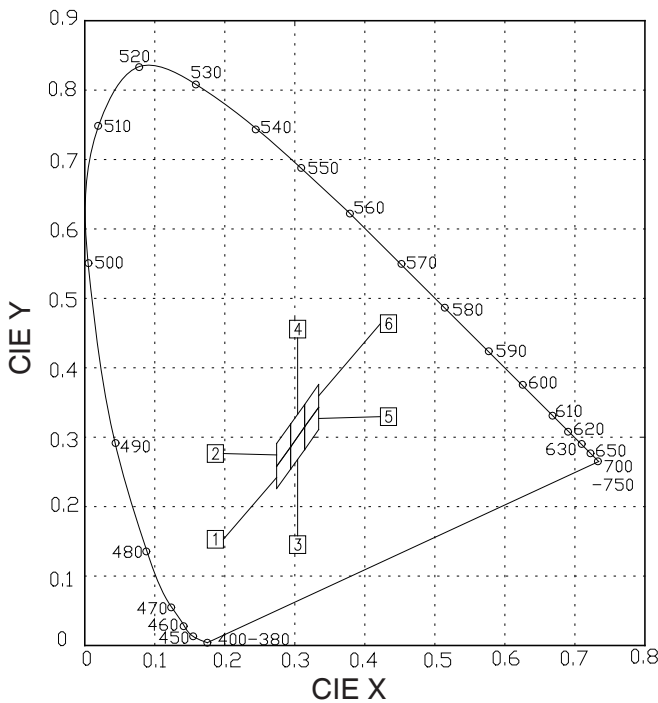
| Forward Voltage Groups |  | Bin | Min. | Max. |
|------------------------|--|-----|------|------|
|                        |  | 00  | 1.55 | 1.75 |
|                        |  | 0   | 1.75 | 1.95 |
|                        |  | 1   | 1.95 | 2.15 |
|                        |  | 2   | 2.15 | 2.35 |
|                        |  | 3   | 2.35 | 2.55 |
|                        |  | 4   | 2.55 | 2.75 |
|                        |  | 5   | 2.75 | 3.05 |
|                        |  | 6   | 3.05 | 3.35 |
|                        |  | 7   | 3.35 | 3.65 |
|                        |  | 8   | 3.65 | 3.95 |
|                        |  | 10  | 2.70 | 2.90 |
|                        |  | 11  | 2.90 | 3.10 |
|                        |  | 12  | 3.10 | 3.30 |
|                        |  | 13  | 3.30 | 3.50 |
|                        |  | 14  | 3.50 | 3.70 |
|                        |  | 15  | 2.70 | 2.85 |
|                        |  | 16  | 2.85 | 3.00 |
|                        |  | 17  | 3.00 | 3.15 |
|                        |  | 18  | 3.15 | 3.30 |

Note: The forward voltage data did not include ±0.1V testing tolerance.

Bin Coordinate

| Group | Bin Code | CIE_X | CIE_Y |
|-------|----------|-------|-------|
| A     | 1        | 0.274 | 0.226 |
|       |          | 0.274 | 0.258 |
|       |          | 0.294 | 0.286 |
|       |          | 0.294 | 0.254 |
|       | 2        | 0.274 | 0.258 |
|       |          | 0.274 | 0.291 |
|       |          | 0.294 | 0.319 |
|       |          | 0.294 | 0.286 |
|       | 3        | 0.294 | 0.254 |
|       |          | 0.294 | 0.286 |
|       |          | 0.314 | 0.315 |
|       |          | 0.314 | 0.282 |
|       | 4        | 0.294 | 0.286 |
|       |          | 0.294 | 0.319 |
|       |          | 0.314 | 0.347 |
|       |          | 0.314 | 0.315 |
|       | 5        | 0.314 | 0.282 |
|       |          | 0.314 | 0.315 |
|       |          | 0.334 | 0.343 |
|       |          | 0.334 | 0.311 |
|       | 6        | 0.314 | 0.315 |
|       |          | 0.314 | 0.347 |
|       |          | 0.334 | 0.376 |
|       |          | 0.334 | 0.343 |

Bin Structure ( White Light )



# TECHNICAL DATA

For Lighting Application Only

SMD LED : SURFACE MOUNT PLCC LED ( REFLECTOR ) / LOW POWER LED  
BRIGHTNESS BIN SELECTION

## Luminous Intensity Groups

Unit : mcd

| Bin Code | Min. | Max. | Bin Code | Min.  | Max.  |
|----------|------|------|----------|-------|-------|
| D1       | 0.5  | 1.0  | NB       | 32.0  | 36.0  |
| D2       | 1.0  | 1.5  | PA       | 36.0  | 40.0  |
| D3       | 1.5  | 2.0  | PB       | 40.0  | 45.0  |
| D4       | 2.0  | 2.5  | QA       | 45.0  | 50.0  |
| D5       | 2.5  | 3.0  | R1       | 50.0  | 55.0  |
| D6       | 3.0  | 3.5  | R2       | 55.0  | 60.0  |
| D7       | 3.5  | 4.0  | R3       | 60.0  | 65.0  |
| D8       | 4.0  | 4.5  | R4       | 65.0  | 70.0  |
| D9       | 4.5  | 5.0  | R5       | 70.0  | 76.0  |
| BA       | 5.0  | 5.5  | R6       | 76.0  | 83.0  |
| B1       | 5.5  | 6.0  | R7       | 83.0  | 90.0  |
| B2       | 6.0  | 6.5  | R8       | 90.0  | 100.0 |
| B3       | 6.5  | 7.0  | S1       | 100.0 | 110.0 |
| B4       | 7.0  | 7.5  | S2       | 110.0 | 120.0 |
| B5       | 7.5  | 8.0  | S3       | 120.0 | 130.0 |
| B6       | 8.0  | 8.5  | S4       | 130.0 | 140.0 |
| B7       | 8.5  | 9.0  | S5       | 140.0 | 150.0 |
| B8       | 9.0  | 9.5  | S6       | 150.0 | 160.0 |
| B9       | 9.5  | 10.0 | S7       | 160.0 | 170.0 |
| L1       | 10.0 | 11.0 | S8       | 170.0 | 180.0 |
| L2       | 11.0 | 12.0 | T1       | 180.0 | 190.0 |
| L3       | 12.0 | 13.0 | T2       | 190.0 | 200.0 |
| L4       | 13.0 | 14.0 | T3       | 200.0 | 220.0 |
| L5       | 14.0 | 15.0 | T4       | 220.0 | 240.0 |
| L6       | 15.0 | 16.0 | T5       | 240.0 | 260.0 |
| L7       | 16.0 | 17.0 | T6       | 260.0 | 280.0 |
| L8       | 17.0 | 18.0 | T7       | 280.0 | 300.0 |
| L9       | 18.0 | 19.0 | T8       | 300.0 | 320.0 |
| M3       | 19.0 | 21.0 |          |       |       |
| M4       | 21.0 | 24.0 |          |       |       |
| N3       | 24.0 | 27.0 |          |       |       |
| N4       | 27.0 | 33.0 |          |       |       |
| P3       | 33.0 | 39.0 |          |       |       |
| P4       | 39.0 | 45.0 |          |       |       |
| Q3       | 45.0 | 52.0 |          |       |       |

## V<sub>F</sub> (Forward Voltage Spec. Setup)

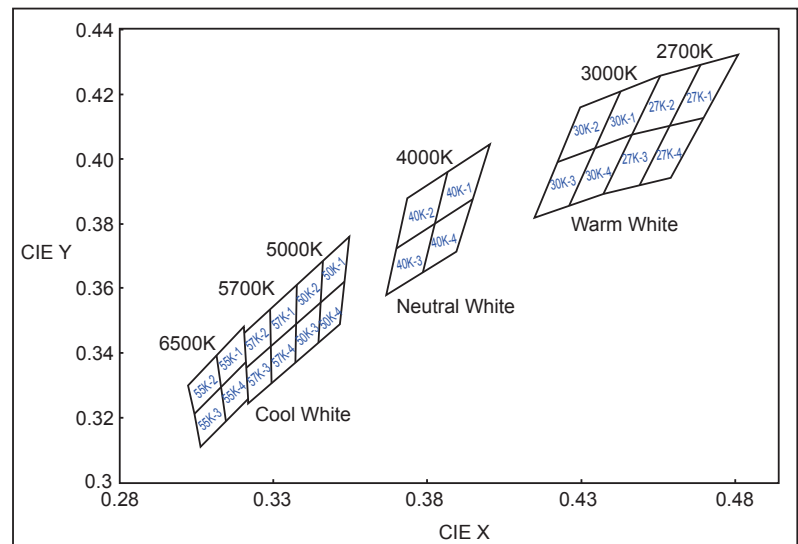
Unit : V ( I<sub>F</sub>=150mA )

| Bin Group | Bin Code | Min. | Max. |
|-----------|----------|------|------|
| B42       | B2       | 35   | 2.8  |
|           |          | 36   | 2.9  |
|           |          | 37   | 3.0  |
|           |          | 38   | 3.1  |
|           |          | 39   | 3.2  |
|           |          | 40   | 3.3  |
|           |          | 41   | 3.4  |
|           |          | 42   | 3.5  |

## Table of Color Rendering Index

| Symbol | Description    |
|--------|----------------|
| M      | CRI(Min.) : 60 |
| N      | CRI(Min.) : 65 |
| L      | CRI(Min.) : 70 |
| Q      | CRI(Min.) : 75 |
| K      | CRI(Min.) : 80 |
| P      | CRI(Min.) : 85 |
| H      | CRI(Min.) : 90 |

## Bin Structure



## Bin Coordinate

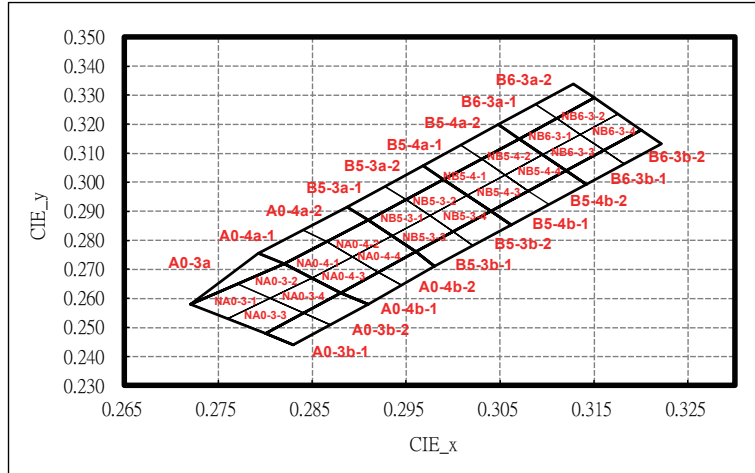
| CCT   | Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  |
|-------|----------|--------|--------|----------|--------|--------|
| 6500K | 65K-1    | 0.3205 | 0.3481 | 65K-3    | 0.3131 | 0.3290 |
|       |          | 0.3117 | 0.3393 |          | 0.3048 | 0.3209 |
|       |          | 0.3131 | 0.3290 |          | 0.3068 | 0.3113 |
|       |          | 0.3213 | 0.3371 |          | 0.3145 | 0.3187 |
|       | 65K-2    | 0.3117 | 0.3393 | 65K-4    | 0.3213 | 0.3371 |
|       |          | 0.3028 | 0.3304 |          | 0.3131 | 0.3290 |
|       |          | 0.3048 | 0.3209 |          | 0.3145 | 0.3187 |
|       |          | 0.3131 | 0.3290 |          | 0.3221 | 0.3261 |
| 5700K | 57K-1    | 0.3376 | 0.3616 | 57K-3    | 0.3293 | 0.3423 |
|       |          | 0.3292 | 0.3539 |          | 0.3215 | 0.3353 |
|       |          | 0.3293 | 0.3423 |          | 0.3222 | 0.3243 |
|       |          | 0.3371 | 0.3493 |          | 0.3294 | 0.3306 |
|       | 57K-2    | 0.3292 | 0.3539 | 57K-4    | 0.3371 | 0.3493 |
|       |          | 0.3207 | 0.3462 |          | 0.3293 | 0.3423 |
|       |          | 0.3215 | 0.3353 |          | 0.3294 | 0.3306 |
|       |          | 0.3293 | 0.3423 |          | 0.3366 | 0.3369 |
| 5000K | 50K-1    | 0.3551 | 0.3760 | 50K-3    | 0.3452 | 0.3558 |
|       |          | 0.3464 | 0.3688 |          | 0.3371 | 0.3493 |
|       |          | 0.3452 | 0.3558 |          | 0.3366 | 0.3369 |
|       |          | 0.3533 | 0.3624 |          | 0.3441 | 0.3428 |
|       | 50K-2    | 0.3464 | 0.3688 | 50K-4    | 0.3533 | 0.3624 |
|       |          | 0.3376 | 0.3616 |          | 0.3452 | 0.3558 |
|       |          | 0.3371 | 0.3493 |          | 0.3441 | 0.3428 |
|       |          | 0.3452 | 0.3558 |          | 0.3515 | 0.3487 |
| 4000K | 40K-1    | 0.4006 | 0.4044 | 40K-3    | 0.3828 | 0.3803 |
|       |          | 0.3871 | 0.3959 |          | 0.3703 | 0.3726 |
|       |          | 0.3828 | 0.3803 |          | 0.3670 | 0.3578 |
|       |          | 0.3952 | 0.3880 |          | 0.3784 | 0.3647 |
|       | 40K-2    | 0.3871 | 0.3959 | 40K-4    | 0.3952 | 0.3880 |
|       |          | 0.3736 | 0.3874 |          | 0.3828 | 0.3803 |
|       |          | 0.3703 | 0.3726 |          | 0.3784 | 0.3647 |
|       |          | 0.3828 | 0.3803 |          | 0.3898 | 0.3716 |
| 3000K | 30K-1    | 0.4562 | 0.4260 | 30K-3    | 0.4345 | 0.4033 |
|       |          | 0.4431 | 0.4213 |          | 0.4223 | 0.3990 |
|       |          | 0.4345 | 0.4033 |          | 0.4147 | 0.3814 |
|       |          | 0.4468 | 0.4077 |          | 0.4260 | 0.3854 |
|       | 30K-2    | 0.4431 | 0.4213 | 30K-4    | 0.4468 | 0.4077 |
|       |          | 0.4299 | 0.4165 |          | 0.4345 | 0.4033 |
|       |          | 0.4223 | 0.3990 |          | 0.4260 | 0.3854 |
|       |          | 0.4345 | 0.4033 |          | 0.4373 | 0.3893 |
| 2700K | 27K-1    | 0.4813 | 0.4319 | 27K-3    | 0.4585 | 0.4104 |
|       |          | 0.4688 | 0.4290 |          | 0.4468 | 0.4077 |
|       |          | 0.4585 | 0.4104 |          | 0.4373 | 0.3893 |
|       |          | 0.4703 | 0.4132 |          | 0.4483 | 0.3919 |
|       | 27K-2    | 0.4688 | 0.4290 | 27K-4    | 0.4703 | 0.4132 |
|       |          | 0.4562 | 0.4260 |          | 0.4585 | 0.4104 |
|       |          | 0.4468 | 0.4077 |          | 0.4483 | 0.3919 |
|       |          |        | 0.4104 |          |        | 0.3944 |



# TECHNICAL DATA

## SMD LED ( 99 SERIES ) BRIGHTNESS BIN SELECTION

Chromaticity Diagram



Bin Code of Chromaticity Coordinates

| Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  |
|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| NA0-3-1  | 0.2760 | 0.2530 | NA0-3-2  | 0.2805 | 0.2600 | NA0-4-1  | 0.2850 | 0.2670 | NA0-4-2  | 0.2893 | 0.2743 |
|          | 0.2720 | 0.2580 |          | 0.2770 | 0.2650 |          | 0.2820 | 0.2720 |          | 0.2865 | 0.2795 |
|          | 0.2770 | 0.2650 |          | 0.2820 | 0.2720 |          | 0.2865 | 0.2795 |          | 0.2910 | 0.2870 |
|          | 0.2805 | 0.2600 |          | 0.2850 | 0.2670 |          | 0.2893 | 0.2743 |          | 0.2935 | 0.2815 |
| NA0-3-3  | 0.2800 | 0.2480 | NA0-3-4  | 0.2840 | 0.2550 | NA0-4-3  | 0.2880 | 0.2620 | NA0-4-4  | 0.2920 | 0.2690 |
|          | 0.2760 | 0.2530 |          | 0.2805 | 0.2600 |          | 0.2850 | 0.2670 |          | 0.2893 | 0.2743 |
|          | 0.2805 | 0.2600 |          | 0.2850 | 0.2670 |          | 0.2893 | 0.2743 |          | 0.2935 | 0.2815 |
|          | 0.2840 | 0.2550 |          | 0.2880 | 0.2620 |          | 0.2920 | 0.2690 |          | 0.2960 | 0.2760 |
| A0-3b-1  | 0.2830 | 0.2440 | A0-3b-2  | 0.2870 | 0.2510 | A0-4b-1  | 0.2910 | 0.2580 | A0-4b-2  | 0.2945 | 0.2645 |
|          | 0.2800 | 0.2480 |          | 0.2840 | 0.2550 |          | 0.2880 | 0.2620 |          | 0.2920 | 0.2690 |
|          | 0.2840 | 0.2550 |          | 0.2880 | 0.2620 |          | 0.2920 | 0.2690 |          | 0.2960 | 0.2760 |
|          | 0.2870 | 0.2510 |          | 0.2910 | 0.2580 |          | 0.2945 | 0.2645 |          | 0.2980 | 0.2710 |
| A0-4a-1  | 0.2820 | 0.2720 | A0-4a-2  | 0.2865 | 0.2795 | B5-3a-1  | 0.2910 | 0.2870 | B5-3a-2  | 0.2950 | 0.2940 |
|          | 0.2793 | 0.2755 |          | 0.2840 | 0.2836 |          | 0.2887 | 0.2916 |          | 0.2928 | 0.2987 |
|          | 0.2840 | 0.2836 |          | 0.2887 | 0.2916 |          | 0.2928 | 0.2987 |          | 0.2968 | 0.3058 |
|          | 0.2865 | 0.2795 |          | 0.2910 | 0.2870 |          | 0.2950 | 0.2940 |          | 0.2990 | 0.3010 |
| A0-3a    | 0.2720 | 0.2580 | NB5-3-1  | 0.2935 | 0.2815 | NB5-3-2  | 0.2910 | 0.2870 | NB5-3-3  | 0.2975 | 0.2885 |
|          | 0.2793 | 0.2755 |          | 0.2910 | 0.2870 |          | 0.2950 | 0.2940 |          | 0.2990 | 0.3010 |
|          | 0.2820 | 0.2720 |          | 0.2975 | 0.2885 |          | 0.2975 | 0.2885 |          | 0.3015 | 0.2955 |
|          | 0.2720 | 0.2580 |          | 0.3000 | 0.2830 |          | 0.3062 | 0.2853 |          | 0.3102 | 0.2923 |
| NB5-3-3  | 0.2935 | 0.2815 | NB5-3-4  | 0.2975 | 0.2885 | B5-4b-1  | 0.3040 | 0.2900 | B5-4b-2  | 0.3080 | 0.2970 |
|          | 0.2975 | 0.2885 |          | 0.3015 | 0.2955 |          | 0.3080 | 0.2970 |          | 0.3120 | 0.3040 |
|          | 0.3000 | 0.2830 |          | 0.3040 | 0.2900 |          | 0.3102 | 0.2923 |          | 0.3142 | 0.2993 |
|          | 0.2980 | 0.2710 |          | 0.3021 | 0.2782 |          | 0.3070 | 0.3150 |          | 0.3110 | 0.3220 |
| B5-3b-1  | 0.2960 | 0.2760 | B5-3b-2  | 0.3000 | 0.2830 | B6-3a-1  | 0.3048 | 0.3198 | B6-3a-2  | 0.3088 | 0.3268 |
|          | 0.3000 | 0.2830 |          | 0.3040 | 0.2900 |          | 0.3088 | 0.3268 |          | 0.3128 | 0.3338 |
|          | 0.3021 | 0.2782 |          | 0.3062 | 0.2853 |          | 0.3110 | 0.3220 |          | 0.3150 | 0.3290 |
|          | 0.2990 | 0.3010 |          | 0.3030 | 0.3080 |          | 0.3095 | 0.3095 |          | 0.3135 | 0.3165 |
| B5-4a-1  | 0.2968 | 0.3058 | B5-4a-2  | 0.3008 | 0.3128 | NB6-3-1  | 0.3070 | 0.3150 | NB6-3-2  | 0.3110 | 0.3220 |
|          | 0.3008 | 0.3128 |          | 0.3048 | 0.3198 |          | 0.3110 | 0.3220 |          | 0.3150 | 0.3290 |
|          | 0.3030 | 0.3080 |          | 0.3070 | 0.3150 |          | 0.3135 | 0.3165 |          | 0.3175 | 0.3235 |
|          | 0.3015 | 0.2955 |          | 0.3055 | 0.3025 |          | 0.3120 | 0.3040 |          | 0.3160 | 0.3110 |
| NB5-4-1  | 0.2990 | 0.3010 | NB5-4-2  | 0.3030 | 0.3080 | NB6-3-3  | 0.3095 | 0.3095 | NB6-3-4  | 0.3135 | 0.3165 |
|          | 0.3030 | 0.3080 |          | 0.3070 | 0.3150 |          | 0.3135 | 0.3165 |          | 0.3175 | 0.3235 |
|          | 0.3055 | 0.3025 |          | 0.3095 | 0.3095 |          | 0.3160 | 0.3110 |          | 0.3200 | 0.3180 |
|          | 0.3040 | 0.2900 |          | 0.3080 | 0.2970 |          | 0.3142 | 0.2993 |          | 0.3182 | 0.3063 |
| NB5-4-3  | 0.3015 | 0.2955 | NB5-4-4  | 0.3055 | 0.3025 | B6-3b-1  | 0.3120 | 0.3040 | B6-3b-2  | 0.3160 | 0.3110 |
|          | 0.3055 | 0.3025 |          | 0.3095 | 0.3095 |          | 0.3160 | 0.3110 |          | 0.3200 | 0.3180 |
|          | 0.3080 | 0.2970 |          | 0.3120 | 0.3040 |          | 0.3182 | 0.3063 |          | 0.3222 | 0.3133 |
|          |        |        |          |        |        |          |        |        |          |        |        |

### V<sub>F</sub> (Forward Voltage Spec. Setup)

Unit : V

| Bin | Unit: V |      |
|-----|---------|------|
|     | Min.    | Max. |
| D26 | 2.60    | 2.70 |
| D27 | 2.70    | 2.80 |
| D28 | 2.80    | 2.90 |
| D29 | 2.90    | 3.00 |
| D30 | 3.00    | 3.10 |
| D31 | 3.10    | 3.20 |
| D32 | 3.20    | 3.30 |
| D33 | 3.30    | 3.40 |
| D34 | 3.40    | 3.50 |

Note: Tolerance of Forward Voltage: ±0.05V

### Luminous Flux

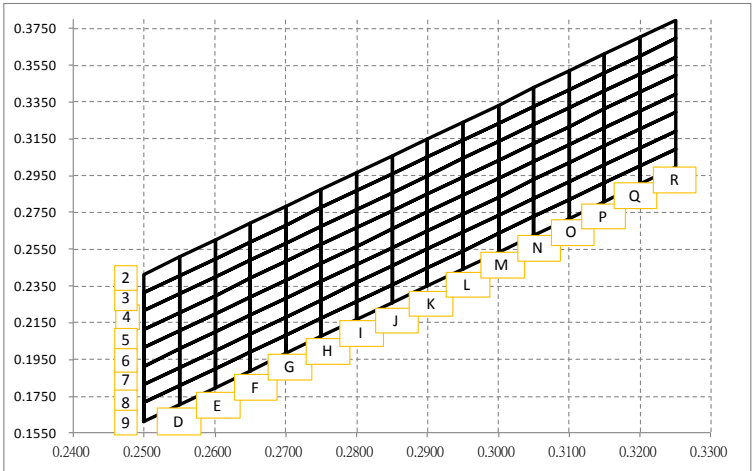
| Bin | Unit: lm |       | Unit: mcd. |      |
|-----|----------|-------|------------|------|
|     | Min      | Max   | Min        | Max  |
| B45 | 4.50     | 4.75  | 1605       | 1695 |
| B47 | 4.75     | 5.00  | 1695       | 1785 |
| B50 | 5.00     | 5.25  | 1785       | 1875 |
| B52 | 5.25     | 5.50  | 1875       | 1965 |
| B55 | 5.50     | 5.75  | 1965       | 2055 |
| B57 | 5.75     | 6.00  | 2055       | 2145 |
| B60 | 6.00     | 6.25  | 2145       | 2235 |
| B62 | 6.25     | 6.50  | 2235       | 2325 |
| B65 | 6.50     | 6.75  | 2325       | 2415 |
| B67 | 6.75     | 7.00  | 2415       | 2505 |
| B70 | 7.00     | 7.25  | 2505       | 2595 |
| B72 | 7.25     | 7.50  | 2595       | 2685 |
| B75 | 7.50     | 7.75  | 2685       | 2775 |
| B77 | 7.75     | 8.00  | 2775       | 2865 |
| B80 | 8.00     | 8.25  | 2865       | 2955 |
| B82 | 8.25     | 8.50  | 2955       | 3045 |
| B85 | 8.50     | 8.75  | 3045       | 3135 |
| B87 | 8.75     | 9.00  | 3135       | 3225 |
| B90 | 9.00     | 9.25  | 3225       | 3315 |
| B92 | 9.25     | 9.50  | 3315       | 3405 |
| B95 | 9.50     | 9.75  | 3405       | 3495 |
| B97 | 9.75     | 10.00 | 3495       | 3585 |

Note: Tolerance of Luminous Flux: ±7%.

# TECHNICAL DATA

## SMD LED (3003,3006 SERIES) BRIGHTNESS BIN SELECTION

### Chromaticity Diagram



### Bin code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| D2  | 0.2500 | 0.2314 | E2  | 0.2550 | 0.2406 | F2  | 0.2600 | 0.2498 | G2  | 0.2650 | 0.2590 | H2  | 0.2700 | 0.2682 |
|     | 0.2500 | 0.2414 |     | 0.2550 | 0.2506 |     | 0.2600 | 0.2598 |     | 0.2650 | 0.2690 |     | 0.2700 | 0.2782 |
|     | 0.2550 | 0.2506 |     | 0.2600 | 0.2598 |     | 0.2650 | 0.2690 |     | 0.2700 | 0.2782 |     | 0.2750 | 0.2874 |
|     | 0.2550 | 0.2406 |     | 0.2600 | 0.2498 |     | 0.2650 | 0.2590 |     | 0.2700 | 0.2682 |     | 0.2750 | 0.2774 |
| D3  | 0.2500 | 0.2314 | E3  | 0.2550 | 0.2406 | F3  | 0.2600 | 0.2498 | G3  | 0.2650 | 0.2590 | H3  | 0.2700 | 0.2682 |
|     | 0.2500 | 0.2214 |     | 0.2550 | 0.2306 |     | 0.2600 | 0.2398 |     | 0.2650 | 0.2490 |     | 0.2700 | 0.2582 |
|     | 0.2550 | 0.2406 |     | 0.2600 | 0.2498 |     | 0.2650 | 0.2590 |     | 0.2700 | 0.2682 |     | 0.2750 | 0.2774 |
|     | 0.2550 | 0.2306 |     | 0.2600 | 0.2398 |     | 0.2650 | 0.2490 |     | 0.2700 | 0.2582 |     | 0.2750 | 0.2674 |
| D4  | 0.2500 | 0.2214 | E4  | 0.2550 | 0.2306 | F4  | 0.2600 | 0.2398 | G4  | 0.2650 | 0.2490 | H4  | 0.2700 | 0.2582 |
|     | 0.2500 | 0.2114 |     | 0.2550 | 0.2206 |     | 0.2600 | 0.2298 |     | 0.2650 | 0.2390 |     | 0.2700 | 0.2482 |
|     | 0.2550 | 0.2306 |     | 0.2600 | 0.2398 |     | 0.2650 | 0.2490 |     | 0.2700 | 0.2582 |     | 0.2750 | 0.2674 |
|     | 0.2550 | 0.2206 |     | 0.2600 | 0.2298 |     | 0.2650 | 0.2390 |     | 0.2700 | 0.2482 |     | 0.2750 | 0.2574 |
| D5  | 0.2500 | 0.2114 | E5  | 0.2550 | 0.2206 | F5  | 0.2600 | 0.2298 | G5  | 0.2650 | 0.2390 | H5  | 0.2700 | 0.2482 |
|     | 0.2500 | 0.2014 |     | 0.2550 | 0.2106 |     | 0.2600 | 0.2198 |     | 0.2650 | 0.2290 |     | 0.2700 | 0.2382 |
|     | 0.2550 | 0.2206 |     | 0.2600 | 0.2298 |     | 0.2650 | 0.2390 |     | 0.2700 | 0.2482 |     | 0.2750 | 0.2574 |
|     | 0.2550 | 0.2106 |     | 0.2600 | 0.2198 |     | 0.2650 | 0.2290 |     | 0.2700 | 0.2382 |     | 0.2750 | 0.2474 |
| D6  | 0.2500 | 0.2014 | E6  | 0.2550 | 0.2106 | F6  | 0.2600 | 0.2198 | G6  | 0.2650 | 0.2290 | H6  | 0.2700 | 0.2382 |
|     | 0.2500 | 0.1914 |     | 0.2550 | 0.2006 |     | 0.2600 | 0.2098 |     | 0.2650 | 0.2190 |     | 0.2700 | 0.2282 |
|     | 0.2550 | 0.2106 |     | 0.2600 | 0.2198 |     | 0.2650 | 0.2290 |     | 0.2700 | 0.2382 |     | 0.2750 | 0.2474 |
|     | 0.2550 | 0.2006 |     | 0.2600 | 0.2098 |     | 0.2650 | 0.2190 |     | 0.2700 | 0.2282 |     | 0.2750 | 0.2374 |
| D7  | 0.2500 | 0.1814 | E7  | 0.2550 | 0.2006 | F7  | 0.2600 | 0.2098 | G7  | 0.2650 | 0.2190 | H7  | 0.2700 | 0.2282 |
|     | 0.2500 | 0.1714 |     | 0.2550 | 0.1906 |     | 0.2600 | 0.1998 |     | 0.2650 | 0.2090 |     | 0.2700 | 0.2182 |
|     | 0.2550 | 0.2006 |     | 0.2600 | 0.2098 |     | 0.2650 | 0.2190 |     | 0.2700 | 0.2282 |     | 0.2750 | 0.2374 |
|     | 0.2550 | 0.1906 |     | 0.2600 | 0.1998 |     | 0.2650 | 0.2090 |     | 0.2700 | 0.2182 |     | 0.2750 | 0.2274 |
| D8  | 0.2500 | 0.1614 | E8  | 0.2550 | 0.1806 | F8  | 0.2600 | 0.1898 | G8  | 0.2650 | 0.1990 | H8  | 0.2700 | 0.2082 |
|     | 0.2500 | 0.1514 |     | 0.2550 | 0.1706 |     | 0.2600 | 0.1798 |     | 0.2650 | 0.1890 |     | 0.2700 | 0.1982 |
|     | 0.2550 | 0.1806 |     | 0.2600 | 0.1998 |     | 0.2650 | 0.2090 |     | 0.2700 | 0.2182 |     | 0.2750 | 0.2274 |
|     | 0.2550 | 0.1706 |     | 0.2600 | 0.1898 |     | 0.2650 | 0.1890 |     | 0.2700 | 0.1982 |     | 0.2750 | 0.2074 |
| D9  | 0.2500 | 0.1414 | E9  | 0.2550 | 0.1606 | F9  | 0.2600 | 0.1698 | G9  | 0.2650 | 0.1790 | H9  | 0.2700 | 0.1882 |
|     | 0.2500 | 0.1314 |     | 0.2550 | 0.1506 |     | 0.2600 | 0.1598 |     | 0.2650 | 0.1690 |     | 0.2700 | 0.1782 |
|     | 0.2550 | 0.1606 |     | 0.2600 | 0.1898 |     | 0.2650 | 0.2090 |     | 0.2700 | 0.2182 |     | 0.2750 | 0.2274 |
|     | 0.2550 | 0.1506 |     | 0.2600 | 0.1798 |     | 0.2650 | 0.1790 |     | 0.2700 | 0.1882 |     | 0.2750 | 0.2174 |

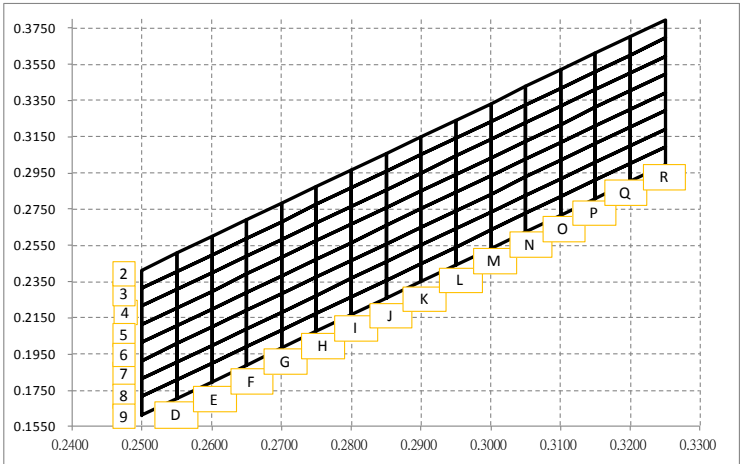
### Bin code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| I2  | 0.2750 | 0.2774 | J2  | 0.2800 | 0.2866 | K2  | 0.2850 | 0.2958 | L2  | 0.2900 | 0.3050 | M2  | 0.2950 | 0.3142 |
|     | 0.2750 | 0.2874 |     | 0.2800 | 0.2966 |     | 0.2850 | 0.3058 |     | 0.2900 | 0.3150 |     | 0.2950 | 0.3242 |
|     | 0.2800 | 0.2966 |     | 0.2850 | 0.3058 |     | 0.2900 | 0.3150 |     | 0.2950 | 0.3242 |     | 0.3000 | 0.3334 |
|     | 0.2800 | 0.2866 |     | 0.2850 | 0.2958 |     | 0.2900 | 0.3050 |     | 0.2950 | 0.3142 |     | 0.3000 | 0.3234 |
| I3  | 0.2750 | 0.2774 | J3  | 0.2800 | 0.2866 | K3  | 0.2850 | 0.2958 | L3  | 0.2900 | 0.3050 | M3  | 0.2950 | 0.3142 |
|     | 0.2750 | 0.2674 |     | 0.2800 | 0.2766 |     | 0.2850 | 0.2858 |     | 0.2900 | 0.2950 |     | 0.2950 | 0.3042 |
|     | 0.2800 | 0.2866 |     | 0.2850 | 0.2958 |     | 0.2900 | 0.3050 |     | 0.2950 | 0.3142 |     | 0.3000 | 0.3234 |
|     | 0.2800 | 0.2766 |     | 0.2850 | 0.2858 |     | 0.2900 | 0.2950 |     | 0.2950 | 0.3042 |     | 0.3000 | 0.3134 |
| I4  | 0.2750 | 0.2674 | J4  | 0.2800 | 0.2766 | K4  | 0.2850 | 0.2858 | L4  | 0.2900 | 0.2950 | M4  | 0.2950 | 0.3042 |
|     | 0.2750 | 0.2574 |     | 0.2800 | 0.2666 |     | 0.2850 | 0.2758 |     | 0.2900 | 0.2850 |     | 0.2950 | 0.2942 |
|     | 0.2800 | 0.2766 |     | 0.2850 | 0.2858 |     | 0.2900 | 0.2950 |     | 0.2950 | 0.3042 |     | 0.3000 | 0.3134 |
|     | 0.2800 | 0.2666 |     | 0.2850 | 0.2758 |     | 0.2900 | 0.2850 |     | 0.2950 | 0.2942 |     | 0.3000 | 0.3034 |
| I5  | 0.2750 | 0.2574 | J5  | 0.2800 | 0.2666 | K5  | 0.2850 | 0.2758 | L5  | 0.2900 | 0.2850 | M5  | 0.2950 | 0.2942 |
|     | 0.2750 | 0.2474 |     | 0.2800 | 0.2566 |     | 0.2850 | 0.2658 |     | 0.2900 | 0.2750 |     | 0.2950 | 0.2842 |
|     | 0.2800 | 0.2666 |     | 0.2850 | 0.2758 |     | 0.2900 | 0.2850 |     | 0.2950 | 0.2942 |     | 0.3000 | 0.3034 |
|     | 0.2800 | 0.2566 |     | 0.2850 | 0.2658 |     | 0.2900 | 0.2750 |     | 0.2950 | 0.2842 |     | 0.3000 | 0.2934 |
| I6  | 0.2750 | 0.2474 | J6  | 0.2800 | 0.2566 | K6  | 0.2850 | 0.2658 | L6  | 0.2900 | 0.2750 | M6  | 0.2950 | 0.2842 |
|     | 0.2750 | 0.2374 |     | 0.2800 | 0.2466 |     | 0.2850 | 0.2558 |     | 0.2900 | 0.2650 |     | 0.2950 | 0.2742 |
|     | 0.2800 | 0.2566 |     | 0.2850 | 0.2658 |     | 0.2900 | 0.2750 |     | 0.2950 | 0.2842 |     | 0.3000 | 0.2934 |
|     | 0.2800 | 0.2466 |     | 0.2850 | 0.2558 |     | 0.2900 | 0.2650 |     | 0.2950 | 0.2742 |     | 0.3000 | 0.2834 |
| I7  | 0.2750 | 0.2374 | J7  | 0.2800 | 0.2466 | K7  | 0.2850 | 0.2558 | L7  | 0.2900 | 0.2650 | M7  | 0.2950 | 0.2742 |
|     | 0.2750 | 0.2274 |     | 0.2800 | 0.2366 |     | 0.2850 | 0.2458 |     | 0.2900 | 0.2550 |     | 0.2950 | 0.2642 |
|     | 0.2800 | 0.2466 |     | 0.2850 | 0.2558 |     | 0.2900 | 0.2650 |     | 0.2950 | 0.2742 |     | 0.3000 | 0.2834 |
|     | 0.2800 | 0.2366 |     | 0.2850 | 0.2458 |     | 0.2900 | 0.2550 |     | 0.2950 | 0.2642 |     | 0.3000 | 0.2734 |
| I8  | 0.2750 | 0.2274 | J8  | 0.2800 | 0.2366 | K8  | 0.2850 | 0.2458 | L8  | 0.2900 | 0.2550 | M8  | 0.2950 | 0.2642 |
|     | 0.2750 | 0.2174 |     | 0.2800 | 0.2266 |     | 0.2850 | 0.2358 |     | 0.2900 | 0.2450 |     | 0.2950 | 0.2542 |
|     | 0.2800 | 0.2466 |     | 0.2850 | 0.2558 |     | 0.2900 | 0.2650 |     | 0.2950 | 0.2742 |     | 0.3000 | 0.2834 |
|     | 0.2800 | 0.2366 |     | 0.2850 | 0.2458 |     | 0.2900 | 0.2550 |     | 0.2950 | 0.2642 |     | 0.3000 | 0.2734 |
| I9  | 0.2750 | 0.2074 | J9  | 0.2800 | 0.2166 | K9  | 0.2850 | 0.2258 | L9  | 0.2900 | 0.2350 | M9  | 0.2950 | 0.2442 |
|     | 0.2750 | 0.2074 |     | 0.2800 | 0.2166 |     | 0.2850 | 0.2258 |     | 0.2900 | 0.2350 |     | 0.2950 | 0.2442 |
|     | 0.2800 | 0.2266 |     | 0.2850 | 0.2358 |     | 0.2900 | 0.2450 |     | 0.2950 | 0.2542 |     | 0.3000 | 0.2634 |
|     | 0.2800 | 0.2166 |     | 0.2850 | 0.2258 |     | 0.2900 | 0.2350 |     | 0.2950 | 0.2442 |     | 0.3000 | 0.2534 |
|     | 0.2750 | 0.2074 |     | 0.2800 | 0.2166 |     | 0.2850 | 0.2258 |     | 0.2900 | 0.2350 |     | 0.2950 | 0.2442 |

# TECHNICAL DATA

## SMD LED (3003,3006 SERIES) BRIGHTNESS BIN SELECTION

### Chromaticity Diagram



### Bin code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| N2  | 0.3000 | 0.3234 | O2  | 0.3050 | 0.3326 | P2  | 0.3100 | 0.3418 | Q2  | 0.3150 | 0.3510 | R2  | 0.3200 | 0.3602 |
|     | 0.3000 | 0.3334 |     | 0.3050 | 0.3426 |     | 0.3100 | 0.3518 |     | 0.3150 | 0.3610 |     | 0.3200 | 0.3702 |
|     | 0.3050 | 0.3426 |     | 0.3100 | 0.3518 |     | 0.3150 | 0.3610 |     | 0.3200 | 0.3702 |     | 0.3250 | 0.3794 |
|     | 0.3050 | 0.3326 |     | 0.3100 | 0.3418 |     | 0.3150 | 0.3510 |     | 0.3200 | 0.3602 |     | 0.3250 | 0.3694 |
| N3  | 0.3000 | 0.3234 | O3  | 0.3050 | 0.3326 | P3  | 0.3100 | 0.3418 | Q3  | 0.3150 | 0.3510 | R3  | 0.3200 | 0.3602 |
|     | 0.3000 | 0.3134 |     | 0.3050 | 0.3226 |     | 0.3100 | 0.3318 |     | 0.3150 | 0.3410 |     | 0.3200 | 0.3502 |
|     | 0.3050 | 0.3326 |     | 0.3100 | 0.3418 |     | 0.3150 | 0.3510 |     | 0.3200 | 0.3602 |     | 0.3250 | 0.3694 |
|     | 0.3050 | 0.3226 |     | 0.3100 | 0.3318 |     | 0.3150 | 0.3410 |     | 0.3200 | 0.3502 |     | 0.3250 | 0.3594 |
| N4  | 0.3000 | 0.3134 | O4  | 0.3050 | 0.3226 | P4  | 0.3100 | 0.3318 | Q4  | 0.3150 | 0.3410 | R4  | 0.3200 | 0.3502 |
|     | 0.3000 | 0.3034 |     | 0.3050 | 0.3126 |     | 0.3100 | 0.3218 |     | 0.3150 | 0.3310 |     | 0.3200 | 0.3402 |
|     | 0.3050 | 0.3226 |     | 0.3100 | 0.3318 |     | 0.3150 | 0.3410 |     | 0.3200 | 0.3502 |     | 0.3250 | 0.3594 |
|     | 0.3050 | 0.3126 |     | 0.3100 | 0.3218 |     | 0.3150 | 0.3310 |     | 0.3200 | 0.3402 |     | 0.3250 | 0.3494 |
| N5  | 0.3000 | 0.3034 | O5  | 0.3050 | 0.3126 | P5  | 0.3100 | 0.3218 | Q5  | 0.3150 | 0.3310 | R5  | 0.3200 | 0.3402 |
|     | 0.3000 | 0.2934 |     | 0.3050 | 0.3026 |     | 0.3100 | 0.3118 |     | 0.3150 | 0.3210 |     | 0.3200 | 0.3302 |
|     | 0.3050 | 0.3126 |     | 0.3100 | 0.3218 |     | 0.3150 | 0.3310 |     | 0.3200 | 0.3402 |     | 0.3250 | 0.3494 |
|     | 0.3050 | 0.3026 |     | 0.3100 | 0.3118 |     | 0.3150 | 0.3210 |     | 0.3200 | 0.3302 |     | 0.3250 | 0.3394 |
| N6  | 0.3000 | 0.2934 | O6  | 0.3050 | 0.3026 | P6  | 0.3100 | 0.3118 | Q6  | 0.3150 | 0.3210 | R6  | 0.3200 | 0.3302 |
|     | 0.3000 | 0.2834 |     | 0.3050 | 0.2926 |     | 0.3100 | 0.3018 |     | 0.3150 | 0.3110 |     | 0.3200 | 0.3202 |
|     | 0.3050 | 0.3026 |     | 0.3100 | 0.3118 |     | 0.3150 | 0.3210 |     | 0.3200 | 0.3302 |     | 0.3250 | 0.3394 |
|     | 0.3050 | 0.2926 |     | 0.3100 | 0.3018 |     | 0.3150 | 0.3110 |     | 0.3200 | 0.3202 |     | 0.3250 | 0.3294 |
| N7  | 0.3000 | 0.2834 | O7  | 0.3050 | 0.2926 | P7  | 0.3100 | 0.3018 | Q7  | 0.3150 | 0.3110 | R7  | 0.3200 | 0.3202 |
|     | 0.3000 | 0.2734 |     | 0.3050 | 0.2826 |     | 0.3100 | 0.2918 |     | 0.3150 | 0.3010 |     | 0.3200 | 0.3102 |
|     | 0.3050 | 0.2926 |     | 0.3100 | 0.3018 |     | 0.3150 | 0.3110 |     | 0.3200 | 0.3202 |     | 0.3250 | 0.3294 |
|     | 0.3050 | 0.2826 |     | 0.3100 | 0.2918 |     | 0.3150 | 0.3010 |     | 0.3200 | 0.3102 |     | 0.3250 | 0.3194 |
| N8  | 0.3000 | 0.2734 | O8  | 0.3050 | 0.2826 | P8  | 0.3100 | 0.2918 | Q8  | 0.3150 | 0.3010 | R8  | 0.3200 | 0.3102 |
|     | 0.3000 | 0.2634 |     | 0.3050 | 0.2726 |     | 0.3100 | 0.2818 |     | 0.3150 | 0.2910 |     | 0.3200 | 0.3002 |
|     | 0.3050 | 0.2826 |     | 0.3100 | 0.2918 |     | 0.3150 | 0.3010 |     | 0.3200 | 0.3102 |     | 0.3250 | 0.3194 |
|     | 0.3050 | 0.2726 |     | 0.3100 | 0.2818 |     | 0.3150 | 0.2910 |     | 0.3200 | 0.3002 |     | 0.3250 | 0.3094 |
| N9  | 0.3000 | 0.2634 | O9  | 0.3050 | 0.2726 | P9  | 0.3100 | 0.2818 | Q9  | 0.3150 | 0.2910 | R9  | 0.3200 | 0.3002 |
|     | 0.3000 | 0.2534 |     | 0.3050 | 0.2626 |     | 0.3100 | 0.2718 |     | 0.3150 | 0.2810 |     | 0.3200 | 0.2902 |
|     | 0.3050 | 0.2726 |     | 0.3100 | 0.2818 |     | 0.3150 | 0.2910 |     | 0.3200 | 0.3002 |     | 0.3250 | 0.3094 |
|     | 0.3050 | 0.2626 |     | 0.3100 | 0.2718 |     | 0.3150 | 0.2810 |     | 0.3200 | 0.2902 |     | 0.3250 | 0.2994 |
|     | 0.3000 | 0.2534 |     | 0.3050 | 0.2626 |     | 0.3100 | 0.2718 |     | 0.3150 | 0.2810 |     | 0.3200 | 0.2902 |

### Luminous Flux

| Bin | Unit: lm |       | Unit: mcd |      |
|-----|----------|-------|-----------|------|
|     | Min.     | Max.  | Min.      | Max. |
| B45 | 4.50     | 4.75  | 1605      | 1695 |
| B47 | 4.75     | 5.00  | 1695      | 1785 |
| B50 | 5.00     | 5.25  | 1785      | 1875 |
| B52 | 5.25     | 5.50  | 1875      | 1965 |
| B55 | 5.50     | 5.75  | 1965      | 2055 |
| B57 | 5.75     | 6.00  | 2055      | 2145 |
| B60 | 6.00     | 6.25  | 2145      | 2235 |
| B62 | 6.25     | 6.50  | 2235      | 2325 |
| B65 | 6.50     | 6.75  | 2325      | 2415 |
| B67 | 6.75     | 7.00  | 2415      | 2505 |
| B70 | 7.00     | 7.25  | 2505      | 2595 |
| B72 | 7.25     | 7.50  | 2595      | 2685 |
| B75 | 7.50     | 7.75  | 2685      | 2775 |
| B77 | 7.75     | 8.00  | 2775      | 2865 |
| B80 | 8.00     | 8.25  | 2865      | 2955 |
| B82 | 8.25     | 8.50  | 2955      | 3045 |
| B85 | 8.50     | 8.75  | 3045      | 3135 |
| B87 | 8.75     | 9.00  | 3135      | 3225 |
| B90 | 9.00     | 9.25  | 3225      | 3315 |
| B92 | 9.25     | 9.50  | 3315      | 3405 |
| B95 | 9.50     | 9.75  | 3405      | 3495 |
| B97 | 9.75     | 10.00 | 3495      | 3585 |

Note: Tolerance of Luminous Flux:  $\pm 7\%$

### $V_F$ (Forward Voltage Spec. Setup)

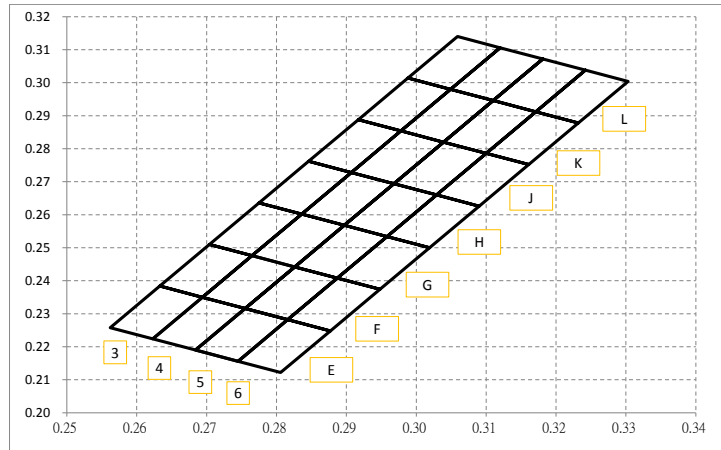
| Bin | Unit: V |      |
|-----|---------|------|
|     | Min.    | Max. |
| D26 | 2.60    | 2.70 |
| D27 | 2.70    | 2.80 |
| D28 | 2.80    | 2.90 |
| D29 | 2.90    | 3.00 |
| D30 | 3.00    | 3.10 |
| D31 | 3.10    | 3.20 |
| D32 | 3.20    | 3.30 |
| D33 | 3.30    | 3.40 |
| D34 | 3.40    | 3.50 |

Note: Tolerance of Forward Voltage:  $\pm 0.05V$ .

# TECHNICAL DATA

## SMD LED (2604/3004 SERIES) BRIGHTNESS BIN SELECTION

### Chromaticity Diagram



### Bin code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| E5  | 0.2755 | 0.2316 | E4  | 0.2755 | 0.2316 | E3  | 0.2694 | 0.2350 | E6  | 0.2816 | 0.2282 |
|     | 0.2684 | 0.2190 |     | 0.2684 | 0.2190 |     | 0.2623 | 0.2224 |     | 0.2745 | 0.2156 |
|     | 0.2745 | 0.2156 |     | 0.2623 | 0.2224 |     | 0.2562 | 0.2258 |     | 0.2806 | 0.2122 |
|     | 0.2816 | 0.2282 |     | 0.2694 | 0.2350 |     | 0.2633 | 0.2384 |     | 0.2877 | 0.2248 |
|     | 0.2755 | 0.2316 |     | 0.2755 | 0.2316 |     | 0.2694 | 0.2350 |     | 0.2816 | 0.2282 |
| F5  | 0.2826 | 0.2442 | F4  | 0.2826 | 0.2442 | F3  | 0.2765 | 0.2476 | F6  | 0.2887 | 0.2408 |
|     | 0.2755 | 0.2316 |     | 0.2755 | 0.2316 |     | 0.2694 | 0.2350 |     | 0.2816 | 0.2282 |
|     | 0.2816 | 0.2282 |     | 0.2694 | 0.2350 |     | 0.2633 | 0.2384 |     | 0.2877 | 0.2248 |
|     | 0.2887 | 0.2408 |     | 0.2765 | 0.2476 |     | 0.2704 | 0.2510 |     | 0.2948 | 0.2374 |
|     | 0.2826 | 0.2442 |     | 0.2826 | 0.2442 |     | 0.2765 | 0.2476 |     | 0.2887 | 0.2408 |
| G5  | 0.2897 | 0.2568 | G4  | 0.2897 | 0.2568 | G3  | 0.2836 | 0.2602 | G6  | 0.2958 | 0.2534 |
|     | 0.2826 | 0.2442 |     | 0.2826 | 0.2442 |     | 0.2765 | 0.2476 |     | 0.2887 | 0.2408 |
|     | 0.2887 | 0.2408 |     | 0.2765 | 0.2476 |     | 0.2704 | 0.2510 |     | 0.2948 | 0.2374 |
|     | 0.2958 | 0.2534 |     | 0.2836 | 0.2602 |     | 0.2775 | 0.2636 |     | 0.3019 | 0.2500 |
|     | 0.2897 | 0.2568 |     | 0.2897 | 0.2568 |     | 0.2836 | 0.2602 |     | 0.2958 | 0.2534 |
| H5  | 0.2968 | 0.2694 | H4  | 0.2968 | 0.2694 | H3  | 0.2907 | 0.2728 | H6  | 0.3029 | 0.2660 |
|     | 0.2897 | 0.2568 |     | 0.2897 | 0.2568 |     | 0.2836 | 0.2602 |     | 0.2958 | 0.2534 |
|     | 0.2958 | 0.2534 |     | 0.2836 | 0.2602 |     | 0.2775 | 0.2636 |     | 0.3019 | 0.2500 |
|     | 0.3029 | 0.2660 |     | 0.2907 | 0.2728 |     | 0.2846 | 0.2762 |     | 0.3090 | 0.2626 |
|     | 0.2968 | 0.2694 |     | 0.2968 | 0.2694 |     | 0.2907 | 0.2728 |     | 0.3029 | 0.2660 |
| J5  | 0.3039 | 0.2820 | J4  | 0.3039 | 0.2820 | J3  | 0.2978 | 0.2854 | J6  | 0.3100 | 0.2786 |
|     | 0.2968 | 0.2694 |     | 0.2968 | 0.2694 |     | 0.2907 | 0.2728 |     | 0.3029 | 0.2660 |
|     | 0.3029 | 0.2660 |     | 0.2907 | 0.2728 |     | 0.2846 | 0.2762 |     | 0.3090 | 0.2626 |
|     | 0.3100 | 0.2786 |     | 0.2978 | 0.2854 |     | 0.2917 | 0.2888 |     | 0.3161 | 0.2752 |
|     | 0.3039 | 0.2820 |     | 0.3039 | 0.2820 |     | 0.2978 | 0.2854 |     | 0.3100 | 0.2786 |
| K5  | 0.3110 | 0.2946 | K4  | 0.3110 | 0.2946 | K3  | 0.3049 | 0.2980 | K6  | 0.3171 | 0.2912 |
|     | 0.3039 | 0.2820 |     | 0.3039 | 0.2820 |     | 0.2978 | 0.2854 |     | 0.3100 | 0.2786 |
|     | 0.3100 | 0.2786 |     | 0.2978 | 0.2854 |     | 0.2917 | 0.2888 |     | 0.3161 | 0.2752 |
|     | 0.3171 | 0.2912 |     | 0.3049 | 0.2980 |     | 0.2988 | 0.3014 |     | 0.3232 | 0.2878 |
|     | 0.3110 | 0.2946 |     | 0.3110 | 0.2946 |     | 0.3049 | 0.2980 |     | 0.3171 | 0.2912 |
| L5  | 0.3181 | 0.3072 | L4  | 0.3181 | 0.3072 | L3  | 0.3120 | 0.3106 | L6  | 0.3242 | 0.3038 |
|     | 0.3110 | 0.2946 |     | 0.3110 | 0.2946 |     | 0.3049 | 0.2980 |     | 0.3171 | 0.2912 |
|     | 0.3171 | 0.2912 |     | 0.3049 | 0.2980 |     | 0.2988 | 0.3014 |     | 0.3232 | 0.2878 |
|     | 0.3242 | 0.3038 |     | 0.3120 | 0.3106 |     | 0.3059 | 0.3140 |     | 0.3303 | 0.3004 |
|     | 0.3181 | 0.3072 |     | 0.3181 | 0.3072 |     | 0.3120 | 0.3106 |     | 0.3242 | 0.3038 |

### Luminous Flux

| Bin | Unit: lm |       | Unit: mcd |      |
|-----|----------|-------|-----------|------|
|     | Min.     | Max.  | Min.      | Max. |
| B45 | 4.50     | 4.75  | 1605      | 1695 |
| B47 | 4.75     | 5.00  | 1695      | 1785 |
| B50 | 5.00     | 5.25  | 1785      | 1875 |
| B52 | 5.25     | 5.50  | 1875      | 1965 |
| B55 | 5.50     | 5.75  | 1965      | 2055 |
| B57 | 5.75     | 6.00  | 2055      | 2145 |
| B60 | 6.00     | 6.25  | 2145      | 2235 |
| B62 | 6.25     | 6.50  | 2235      | 2325 |
| B65 | 6.50     | 6.75  | 2325      | 2415 |
| B67 | 6.75     | 7.00  | 2415      | 2505 |
| B70 | 7.00     | 7.25  | 2505      | 2595 |
| B72 | 7.25     | 7.50  | 2595      | 2685 |
| B75 | 7.50     | 7.75  | 2685      | 2775 |
| B77 | 7.75     | 8.00  | 2775      | 2865 |
| B80 | 8.00     | 8.25  | 2865      | 2955 |
| B82 | 8.25     | 8.50  | 2955      | 3045 |
| B85 | 8.50     | 8.75  | 3045      | 3135 |
| B87 | 8.75     | 9.00  | 3135      | 3225 |
| B90 | 9.00     | 9.25  | 3225      | 3315 |
| B92 | 9.25     | 9.50  | 3315      | 3405 |
| B95 | 9.50     | 9.75  | 3405      | 3495 |
| B97 | 9.75     | 10.00 | 3495      | 3585 |

Note: Tolerance of Luminous Flux:  $\pm 7\%$

### $V_F$ (Forward Voltage Spec. Setup)

| Bin | Unit: V |      |
|-----|---------|------|
|     | Min.    | Max. |
| D26 | 2.60    | 2.70 |
| D27 | 2.70    | 2.80 |
| D28 | 2.80    | 2.90 |
| D29 | 2.90    | 3.00 |
| D30 | 3.00    | 3.10 |
| D31 | 3.10    | 3.20 |
| D32 | 3.20    | 3.30 |
| D33 | 3.30    | 3.40 |
| D34 | 3.40    | 3.50 |

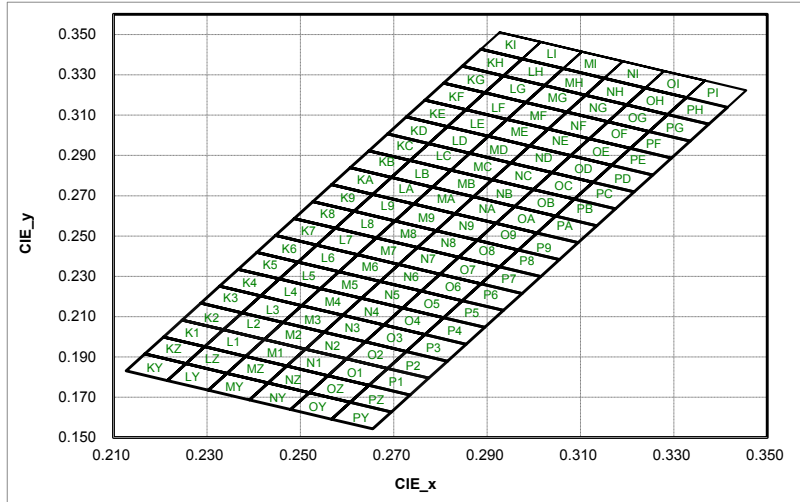
Note: Tolerance of Forward Voltage:  $\pm 0.05V$ .



# TECHNICAL DATA

## SMD LED (3030/50/62 SERIES) BRIGHTNESS BIN SELECTION

### Chromaticity Diagram



### Bin Code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|
| KY  | 0.2167 | 0.1915 | KZ  | 0.2207 | 0.1999 |
|     | 0.2255 | 0.1867 |     | 0.2295 | 0.1951 |
|     | 0.2215 | 0.1783 |     | 0.2255 | 0.1867 |
|     | 0.2127 | 0.1831 |     | 0.2167 | 0.1915 |
| KE  | 0.2767 | 0.3175 | KF  | 0.2807 | 0.3259 |
|     | 0.2855 | 0.3127 |     | 0.2895 | 0.3211 |
|     | 0.2815 | 0.3043 |     | 0.2855 | 0.3127 |
|     | 0.2727 | 0.3091 |     | 0.2767 | 0.3175 |
| L9  | 0.2655 | 0.2707 | LA  | 0.2695 | 0.2791 |
|     | 0.2743 | 0.2659 |     | 0.2783 | 0.2743 |
|     | 0.2703 | 0.2575 |     | 0.2743 | 0.2659 |
|     | 0.2615 | 0.2623 |     | 0.2655 | 0.2707 |
| M4  | 0.2543 | 0.2239 | M5  | 0.2583 | 0.2323 |
|     | 0.2631 | 0.2191 |     | 0.2671 | 0.2275 |
|     | 0.2591 | 0.2107 |     | 0.2631 | 0.2191 |
|     | 0.2503 | 0.2155 |     | 0.2543 | 0.2239 |
| NY  | 0.2431 | 0.1771 | NZ  | 0.2471 | 0.1855 |
|     | 0.2519 | 0.1723 |     | 0.2559 | 0.1807 |
|     | 0.2479 | 0.1639 |     | 0.2519 | 0.1723 |
|     | 0.2391 | 0.1687 |     | 0.2431 | 0.1771 |
| NE  | 0.3031 | 0.3031 | NF  | 0.3071 | 0.3115 |
|     | 0.3119 | 0.2983 |     | 0.3159 | 0.3067 |
|     | 0.3079 | 0.2899 |     | 0.3119 | 0.2983 |
|     | 0.2991 | 0.2947 |     | 0.3031 | 0.3031 |
| O9  | 0.2919 | 0.2563 | OA  | 0.2959 | 0.2647 |
|     | 0.3007 | 0.2515 |     | 0.3047 | 0.2599 |
|     | 0.2967 | 0.2431 |     | 0.3007 | 0.2515 |
|     | 0.2879 | 0.2479 |     | 0.2919 | 0.2563 |
| P4  | 0.2807 | 0.2095 | P5  | 0.2847 | 0.2179 |
|     | 0.2895 | 0.2047 |     | 0.2935 | 0.2131 |
|     | 0.2855 | 0.1963 |     | 0.2895 | 0.2047 |
|     | 0.2767 | 0.2011 |     | 0.2807 | 0.2095 |

### Bin Code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| K1  | 0.2247 | 0.2083 | K2  | 0.2287 | 0.2167 | K3  | 0.2327 | 0.2251 | K4  | 0.2367 | 0.2335 | K5  | 0.2407 | 0.2419 | K6  | 0.2447 | 0.2503 |
|     | 0.2335 | 0.2035 |     | 0.2375 | 0.2119 |     | 0.2415 | 0.2203 |     | 0.2455 | 0.2287 |     | 0.2495 | 0.2371 |     | 0.2535 | 0.2455 |
|     | 0.2295 | 0.1951 |     | 0.2335 | 0.2035 |     | 0.2375 | 0.2119 |     | 0.2415 | 0.2203 |     | 0.2455 | 0.2287 |     | 0.2495 | 0.2371 |
|     | 0.2207 | 0.1999 |     | 0.2247 | 0.2083 |     | 0.2287 | 0.2167 |     | 0.2327 | 0.2251 |     | 0.2367 | 0.2335 |     | 0.2407 | 0.2419 |
| KG  | 0.2847 | 0.3343 | KH  | 0.2887 | 0.3427 | KI  | 0.2927 | 0.3511 | LY  | 0.2255 | 0.1867 | LZ  | 0.2295 | 0.1951 | L1  | 0.2335 | 0.2035 |
|     | 0.2935 | 0.3295 |     | 0.2975 | 0.3379 |     | 0.3015 | 0.3463 |     | 0.2343 | 0.1819 |     | 0.2383 | 0.1903 |     | 0.2423 | 0.1987 |
|     | 0.2895 | 0.3211 |     | 0.2935 | 0.3295 |     | 0.2975 | 0.3379 |     | 0.2303 | 0.1735 |     | 0.2343 | 0.1819 |     | 0.2383 | 0.1903 |
|     | 0.2807 | 0.3259 |     | 0.2847 | 0.3343 |     | 0.2887 | 0.3427 |     | 0.2215 | 0.1783 |     | 0.2255 | 0.1867 |     | 0.2295 | 0.1951 |
| LB  | 0.2735 | 0.2875 | LC  | 0.2775 | 0.2959 | LD  | 0.2815 | 0.3043 | LE  | 0.2855 | 0.3127 | LF  | 0.2895 | 0.3211 | LG  | 0.2935 | 0.3295 |
|     | 0.2823 | 0.2827 |     | 0.2863 | 0.2911 |     | 0.2903 | 0.2995 |     | 0.2943 | 0.3079 |     | 0.2983 | 0.3163 |     | 0.3023 | 0.3247 |
|     | 0.2783 | 0.2743 |     | 0.2823 | 0.2827 |     | 0.2863 | 0.2911 |     | 0.2903 | 0.2995 |     | 0.2943 | 0.3079 |     | 0.2983 | 0.3163 |
|     | 0.2695 | 0.2791 |     | 0.2735 | 0.2875 |     | 0.2775 | 0.2959 |     | 0.2815 | 0.3043 |     | 0.2855 | 0.3127 |     | 0.2895 | 0.3211 |
| M6  | 0.2623 | 0.2407 | M7  | 0.2663 | 0.2491 | M8  | 0.2703 | 0.2575 | M9  | 0.2743 | 0.2659 | MA  | 0.2783 | 0.2743 | MB  | 0.2823 | 0.2827 |
|     | 0.2711 | 0.2359 |     | 0.2751 | 0.2443 |     | 0.2791 | 0.2527 |     | 0.2831 | 0.2611 |     | 0.2871 | 0.2695 |     | 0.2911 | 0.2779 |
|     | 0.2671 | 0.2275 |     | 0.2711 | 0.2359 |     | 0.2751 | 0.2443 |     | 0.2791 | 0.2527 |     | 0.2831 | 0.2611 |     | 0.2871 | 0.2695 |
|     | 0.2583 | 0.2323 |     | 0.2623 | 0.2407 |     | 0.2663 | 0.2491 |     | 0.2703 | 0.2575 |     | 0.2743 | 0.2659 |     | 0.2783 | 0.2743 |
| N1  | 0.2511 | 0.1939 | N2  | 0.2551 | 0.2023 | N3  | 0.2591 | 0.2107 | N4  | 0.2631 | 0.2191 | N5  | 0.2671 | 0.2275 | N6  | 0.2711 | 0.2359 |
|     | 0.2599 | 0.1891 |     | 0.2639 | 0.1975 |     | 0.2679 | 0.2059 |     | 0.2719 | 0.2143 |     | 0.2759 | 0.2227 |     | 0.2799 | 0.2311 |
|     | 0.2559 | 0.1807 |     | 0.2599 | 0.1891 |     | 0.2639 | 0.1975 |     | 0.2679 | 0.2059 |     | 0.2719 | 0.2143 |     | 0.2759 | 0.2227 |
|     | 0.2471 | 0.1855 |     | 0.2511 | 0.1939 |     | 0.2551 | 0.2023 |     | 0.2591 | 0.2107 |     | 0.2631 | 0.2191 |     | 0.2671 | 0.2275 |
| NG  | 0.3111 | 0.3199 | NH  | 0.3151 | 0.3283 | NI  | 0.3191 | 0.3367 | OY  | 0.2519 | 0.1723 | OZ  | 0.2559 | 0.1807 | O1  | 0.2599 | 0.1891 |
|     | 0.3199 | 0.3151 |     | 0.3239 | 0.3235 |     | 0.3279 | 0.3319 |     | 0.2607 | 0.1675 |     | 0.2647 | 0.1759 |     | 0.2687 | 0.1843 |
|     | 0.3159 | 0.3067 |     | 0.3199 | 0.3151 |     | 0.3239 | 0.3235 |     | 0.2567 | 0.1591 |     | 0.2607 | 0.1675 |     | 0.2647 | 0.1759 |
|     | 0.3071 | 0.3115 |     | 0.3111 | 0.3199 |     | 0.3151 | 0.3283 |     | 0.2479 | 0.1639 |     | 0.2519 | 0.1723 |     | 0.2559 | 0.1807 |
| OB  | 0.2999 | 0.2731 | OC  | 0.3039 | 0.2815 | OD  | 0.3079 | 0.2899 | OE  | 0.3119 | 0.2983 | OF  | 0.3159 | 0.3067 | OG  | 0.3199 | 0.3151 |
|     | 0.3087 | 0.2683 |     | 0.3127 | 0.2767 |     | 0.3167 | 0.2851 |     | 0.3207 | 0.2935 |     | 0.3247 | 0.3019 |     | 0.3287 | 0.3103 |
|     | 0.3047 | 0.2599 |     | 0.3087 | 0.2683 |     | 0.3127 | 0.2767 |     | 0.3167 | 0.2851 |     | 0.3207 | 0.2935 |     | 0.3247 | 0.3019 |
|     | 0.2959 | 0.2647 |     | 0.2999 | 0.2731 |     | 0.3039 | 0.2815 |     | 0.3079 | 0.2899 |     | 0.3119 | 0.2983 |     | 0.3159 | 0.3067 |
| P6  | 0.2887 | 0.2263 | P7  | 0.2927 | 0.2347 | P8  | 0.2967 | 0.2431 | P9  | 0.3007 | 0.2515 | PA  | 0.3047 | 0.2599 | PB  | 0.3087 | 0.2683 |
|     | 0.2975 | 0.2215 |     | 0.3015 | 0.2299 |     | 0.3055 | 0.2383 |     | 0.3095 | 0.2467 |     | 0.3135 | 0.2551 |     | 0.3175 | 0.2719 |
|     | 0.2935 | 0.2131 |     | 0.2975 | 0.2215 |     | 0.3015 | 0.2299 |     | 0.3055 | 0.2383 |     | 0.3095 | 0.2467 |     | 0.3135 | 0.2551 |
|     | 0.2847 | 0.2179 |     | 0.2887 | 0.2263 |     | 0.2927 | 0.2347 |     | 0.2967 | 0.2431 |     | 0.3007 | 0.2515 |     | 0.3047 | 0.2599 |

## Bin Code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| K8  | 0.2527 | 0.2671 | K9  | 0.2567 | 0.2755 | KA  | 0.2607 | 0.2839 | KB  | 0.2647 | 0.2923 | KC  | 0.2687 | 0.3007 | KD  | 0.2727 | 0.3091 |
|     | 0.2615 | 0.2623 |     | 0.2655 | 0.2707 |     | 0.2695 | 0.2791 |     | 0.2735 | 0.2875 |     | 0.2775 | 0.2959 |     | 0.2815 | 0.3043 |
|     | 0.2575 | 0.2539 |     | 0.2615 | 0.2623 |     | 0.2655 | 0.2707 |     | 0.2695 | 0.2791 |     | 0.2735 | 0.2875 |     | 0.2775 | 0.2959 |
|     | 0.2487 | 0.2587 |     | 0.2527 | 0.2671 |     | 0.2567 | 0.2755 |     | 0.2607 | 0.2839 |     | 0.2647 | 0.2923 |     | 0.2687 | 0.3007 |
| L3  | 0.2415 | 0.2203 | L4  | 0.2455 | 0.2287 | L5  | 0.2495 | 0.2371 | L6  | 0.2535 | 0.2455 | L7  | 0.2575 | 0.2539 | L8  | 0.2615 | 0.2623 |
|     | 0.2503 | 0.2155 |     | 0.2543 | 0.2239 |     | 0.2583 | 0.2323 |     | 0.2623 | 0.2407 |     | 0.2663 | 0.2491 |     | 0.2703 | 0.2575 |
|     | 0.2463 | 0.2071 |     | 0.2503 | 0.2155 |     | 0.2543 | 0.2239 |     | 0.2583 | 0.2323 |     | 0.2623 | 0.2407 |     | 0.2663 | 0.2491 |
|     | 0.2375 | 0.2119 |     | 0.2415 | 0.2203 |     | 0.2455 | 0.2287 |     | 0.2495 | 0.2371 |     | 0.2535 | 0.2455 |     | 0.2575 | 0.2539 |
| LI  | 0.3015 | 0.3463 | MY  | 0.2343 | 0.1819 | MZ  | 0.2383 | 0.1903 | M1  | 0.2423 | 0.1987 | M2  | 0.2463 | 0.2071 | M3  | 0.2503 | 0.2155 |
|     | 0.3103 | 0.3415 |     | 0.2431 | 0.1771 |     | 0.2471 | 0.1855 |     | 0.2511 | 0.1939 |     | 0.2551 | 0.2023 |     | 0.2591 | 0.2107 |
|     | 0.3063 | 0.3331 |     | 0.2391 | 0.1687 |     | 0.2431 | 0.1771 |     | 0.2471 | 0.1855 |     | 0.2511 | 0.1939 |     | 0.2551 | 0.2023 |
|     | 0.2975 | 0.3379 |     | 0.2303 | 0.1735 |     | 0.2343 | 0.1819 |     | 0.2383 | 0.1903 |     | 0.2423 | 0.1987 |     | 0.2463 | 0.2071 |
| MD  | 0.2903 | 0.2995 | ME  | 0.2943 | 0.3079 | MF  | 0.2983 | 0.3163 | MG  | 0.3023 | 0.3247 | MH  | 0.3063 | 0.3331 | MI  | 0.3103 | 0.3415 |
|     | 0.2991 | 0.2947 |     | 0.3031 | 0.3031 |     | 0.3071 | 0.3115 |     | 0.3111 | 0.3199 |     | 0.3151 | 0.3283 |     | 0.3191 | 0.3367 |
|     | 0.2951 | 0.2863 |     | 0.2991 | 0.2947 |     | 0.3031 | 0.3031 |     | 0.3071 | 0.3115 |     | 0.3111 | 0.3199 |     | 0.3151 | 0.3283 |
|     | 0.2863 | 0.2911 |     | 0.2903 | 0.2995 |     | 0.2943 | 0.3079 |     | 0.2983 | 0.3163 |     | 0.3023 | 0.3247 |     | 0.3063 | 0.3331 |
| N8  | 0.2791 | 0.2527 | N9  | 0.2831 | 0.2611 | NA  | 0.2871 | 0.2695 | NB  | 0.2911 | 0.2779 | NC  | 0.2951 | 0.2863 | ND  | 0.2991 | 0.2947 |
|     | 0.2879 | 0.2479 |     | 0.2919 | 0.2563 |     | 0.2959 | 0.2647 |     | 0.2999 | 0.2731 |     | 0.3039 | 0.2815 |     | 0.3079 | 0.2899 |
|     | 0.2839 | 0.2395 |     | 0.2879 | 0.2479 |     | 0.2919 | 0.2563 |     | 0.2959 | 0.2647 |     | 0.2999 | 0.2731 |     | 0.3039 | 0.2815 |
|     | 0.2751 | 0.2443 |     | 0.2791 | 0.2527 |     | 0.2831 | 0.2611 |     | 0.2871 | 0.2695 |     | 0.2911 | 0.2779 |     | 0.2951 | 0.2863 |
| O3  | 0.2679 | 0.2059 | O4  | 0.2719 | 0.2143 | O5  | 0.2759 | 0.2227 | O6  | 0.2799 | 0.2311 | O7  | 0.2839 | 0.2395 | O8  | 0.2879 | 0.2479 |
|     | 0.2767 | 0.2011 |     | 0.2807 | 0.2095 |     | 0.2847 | 0.2179 |     | 0.2887 | 0.2263 |     | 0.2927 | 0.2347 |     | 0.2967 | 0.2431 |
|     | 0.2727 | 0.1927 |     | 0.2767 | 0.2011 |     | 0.2807 | 0.2095 |     | 0.2847 | 0.2179 |     | 0.2887 | 0.2263 |     | 0.2927 | 0.2347 |
|     | 0.2639 | 0.1975 |     | 0.2679 | 0.2059 |     | 0.2719 | 0.2143 |     | 0.2759 | 0.2227 |     | 0.2799 | 0.2311 |     | 0.2839 | 0.2395 |
| OI  | 0.3279 | 0.3319 | PY  | 0.2607 | 0.1675 | PZ  | 0.2647 | 0.1759 | P1  | 0.2687 | 0.1843 | P2  | 0.2727 | 0.1927 | P3  | 0.2767 | 0.2011 |
|     | 0.3367 | 0.3271 |     | 0.2695 | 0.1627 |     | 0.2735 | 0.1711 |     | 0.2775 | 0.1795 |     | 0.2815 | 0.1879 |     | 0.2855 | 0.1963 |
|     | 0.3327 | 0.3187 |     | 0.2655 | 0.1543 |     | 0.2695 | 0.1627 |     | 0.2735 | 0.1711 |     | 0.2775 | 0.1795 |     | 0.2815 | 0.1879 |
|     | 0.3239 | 0.3235 |     | 0.2567 | 0.1591 |     | 0.2607 | 0.1675 |     | 0.2647 | 0.1759 |     | 0.2687 | 0.1843 |     | 0.2727 | 0.1927 |
| PD  | 0.3167 | 0.2851 | PE  | 0.3207 | 0.2935 | PF  | 0.3247 | 0.3019 | PG  | 0.3287 | 0.3103 | PH  | 0.3327 | 0.3187 | PI  | 0.3367 | 0.3271 |
|     | 0.3255 | 0.2803 |     | 0.3295 | 0.2887 |     | 0.3335 | 0.2971 |     | 0.3375 | 0.3055 |     | 0.3415 | 0.3139 |     | 0.3455 | 0.3223 |
|     | 0.3215 | 0.2719 |     | 0.3255 | 0.2803 |     | 0.3295 | 0.2887 |     | 0.3335 | 0.2971 |     | 0.3375 | 0.3055 |     | 0.3415 | 0.3139 |
|     | 0.3127 | 0.2767 |     | 0.3167 | 0.2851 |     | 0.3207 | 0.2935 |     | 0.3247 | 0.3019 |     | 0.3287 | 0.3103 |     | 0.3327 | 0.3187 |

## Luminous Flux

| Bin  | Unit: lm |      | Bin | Unit: lm |      | Bin | Unit: lm |      |
|------|----------|------|-----|----------|------|-----|----------|------|
|      | Min.     | Max. |     | Min.     | Max. |     | Min.     | Max. |
| H85  | 85       | 90   | D10 | 10       | 11   | E20 | 20       | 22   |
| H90  | 90       | 95   | D11 | 11       | 12   | E22 | 22       | 24   |
| H95  | 95       | 100  | D12 | 12       | 13   | E24 | 24       | 26   |
| H100 | 100      | 105  | D13 | 13       | 14   | E26 | 26       | 28   |
| H105 | 105      | 110  | D14 | 14       | 15   | E28 | 28       | 30   |
| H110 | 110      | 115  | D15 | 15       | 16   | E30 | 30       | 32   |
| H115 | 115      | 120  | D16 | 16       | 17   | E32 | 32       | 34   |
| H120 | 120      | 125  | D17 | 17       | 18   | E34 | 34       | 36   |
| H125 | 125      | 130  | D18 | 18       | 19   | E36 | 36       | 38   |
| H130 | 130      | 135  | D19 | 19       | 20   | E38 | 38       | 40   |
| H135 | 135      | 140  | D20 | 20       | 21   | E40 | 40       | 42   |
| H140 | 140      | 145  | D21 | 21       | 22   | E42 | 42       | 44   |
| H145 | 145      | 150  | D22 | 22       | 23   | E44 | 44       | 46   |
| H150 | 150      | 155  | D23 | 23       | 24   | E46 | 46       | 48   |
| H155 | 155      | 160  | D24 | 24       | 25   | E48 | 48       | 50   |
| H160 | 160      | 165  | D25 | 25       | 26   | E50 | 50       | 52   |
| H165 | 165      | 170  | D26 | 26       | 27   | E52 | 52       | 54   |
| H170 | 170      | 175  | D27 | 27       | 28   | E54 | 54       | 56   |
| H175 | 175      | 180  | D28 | 28       | 29   | E56 | 56       | 58   |
| H180 | 180      | 185  | D29 | 29       | 30   | E58 | 58       | 60   |
| H185 | 185      | 190  | D30 | 30       | 31   | E60 | 60       | 62   |
| H190 | 190      | 195  | D31 | 31       | 32   | E62 | 62       | 64   |
| H195 | 195      | 200  | -   | -        | -    | -   | -        | -    |

Note: Tolerance of Luminous Intensity:  $\pm 7\%$ .

## V<sub>F</sub> (Forward Voltage Spec. Setup)

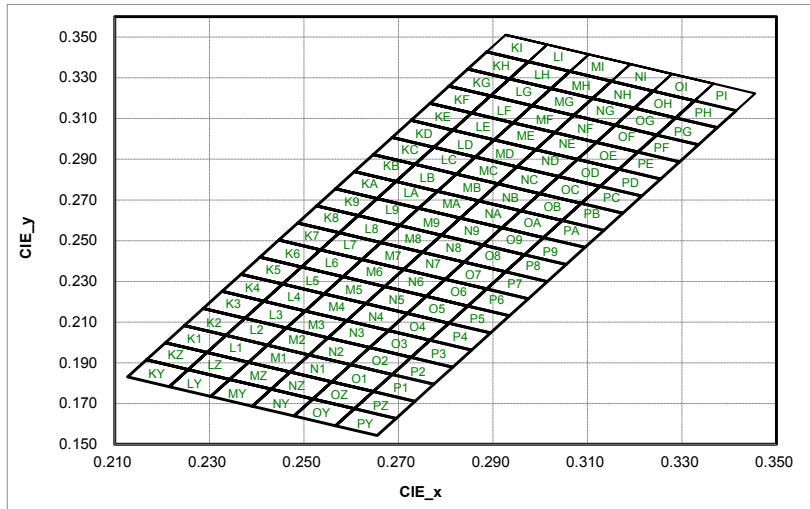
| Bin | Unit: lm |      |
|-----|----------|------|
|     | Min.     | Max. |
| E28 | 2.8      | 3    |
| E30 | 3        | 3.2  |
| E32 | 3.2      | 3.4  |
| E34 | 3.4      | 3.6  |
| E36 | 3.6      | 3.8  |
| E38 | 3.8      | 4.0  |
| D28 | 2.8      | 2.9  |
| D29 | 2.9      | 3    |
| D30 | 3        | 3.1  |
| D31 | 3.1      | 3.2  |
| D32 | 3.2      | 3.3  |
| D33 | 3.3      | 3.4  |
| D34 | 3.4      | 3.5  |
| D35 | 3.5      | 3.6  |

Note: Tolerance of Forward Voltage:  $\pm 0.05V$ .

# TECHNICAL DATA

## SMD LED (Local Dimming) BRIGHTNESS BIN SELECTION

Chromaticity Diagram



Bin Code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|
| KY  | 0.2167 | 0.1915 | KZ  | 0.2207 | 0.1999 |
|     | 0.2255 | 0.1867 |     | 0.2295 | 0.1951 |
|     | 0.2215 | 0.1783 |     | 0.2255 | 0.1867 |
|     | 0.2127 | 0.1831 |     | 0.2167 | 0.1915 |
| KE  | 0.2767 | 0.3175 | KF  | 0.2807 | 0.3259 |
|     | 0.2855 | 0.3127 |     | 0.2895 | 0.3211 |
|     | 0.2815 | 0.3043 |     | 0.2855 | 0.3127 |
|     | 0.2727 | 0.3091 |     | 0.2767 | 0.3175 |
| L9  | 0.2655 | 0.2707 | LA  | 0.2695 | 0.2791 |
|     | 0.2743 | 0.2659 |     | 0.2783 | 0.2743 |
|     | 0.2703 | 0.2575 |     | 0.2743 | 0.2659 |
|     | 0.2615 | 0.2623 |     | 0.2655 | 0.2707 |
| M4  | 0.2543 | 0.2239 | M5  | 0.2583 | 0.2323 |
|     | 0.2631 | 0.2191 |     | 0.2671 | 0.2275 |
|     | 0.2591 | 0.2107 |     | 0.2631 | 0.2191 |
|     | 0.2503 | 0.2155 |     | 0.2543 | 0.2239 |
| NY  | 0.2431 | 0.1771 | NZ  | 0.2471 | 0.1855 |
|     | 0.2519 | 0.1723 |     | 0.2559 | 0.1807 |
|     | 0.2479 | 0.1639 |     | 0.2519 | 0.1723 |
|     | 0.2391 | 0.1687 |     | 0.2431 | 0.1771 |
| NE  | 0.3031 | 0.3031 | NF  | 0.3071 | 0.3115 |
|     | 0.3119 | 0.2983 |     | 0.3159 | 0.3067 |
|     | 0.3079 | 0.2899 |     | 0.3119 | 0.2983 |
|     | 0.2991 | 0.2947 |     | 0.3031 | 0.3031 |
| O9  | 0.2919 | 0.2563 | OA  | 0.2959 | 0.2647 |
|     | 0.3007 | 0.2515 |     | 0.3047 | 0.2599 |
|     | 0.2967 | 0.2431 |     | 0.3007 | 0.2515 |
|     | 0.2879 | 0.2479 |     | 0.2919 | 0.2563 |
| P4  | 0.2807 | 0.2095 | P5  | 0.2847 | 0.2179 |
|     | 0.2895 | 0.2047 |     | 0.2935 | 0.2131 |
|     | 0.2855 | 0.1963 |     | 0.2895 | 0.2047 |
|     | 0.2767 | 0.2011 |     | 0.2807 | 0.2095 |

Bin Code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| K1  | 0.2247 | 0.2083 | K2  | 0.2287 | 0.2167 | K3  | 0.2327 | 0.2251 | K4  | 0.2367 | 0.2335 | K5  | 0.2407 | 0.2419 | K6  | 0.2447 | 0.2503 |
|     | 0.2335 | 0.2035 |     | 0.2375 | 0.2119 |     | 0.2415 | 0.2203 |     | 0.2455 | 0.2287 |     | 0.2495 | 0.2371 |     | 0.2535 | 0.2455 |
|     | 0.2295 | 0.1951 |     | 0.2335 | 0.2035 |     | 0.2375 | 0.2119 |     | 0.2415 | 0.2203 |     | 0.2455 | 0.2287 |     | 0.2495 | 0.2371 |
|     | 0.2207 | 0.1999 |     | 0.2247 | 0.2083 |     | 0.2287 | 0.2167 |     | 0.2327 | 0.2251 |     | 0.2367 | 0.2335 |     | 0.2407 | 0.2419 |
| KG  | 0.2847 | 0.3343 | KH  | 0.2887 | 0.3427 | KI  | 0.2927 | 0.3511 | LY  | 0.2255 | 0.1867 | LZ  | 0.2295 | 0.1951 | L1  | 0.2335 | 0.2035 |
|     | 0.2935 | 0.3295 |     | 0.2975 | 0.3379 |     | 0.3015 | 0.3463 |     | 0.2343 | 0.1819 |     | 0.2383 | 0.1903 |     | 0.2423 | 0.1987 |
|     | 0.2895 | 0.3211 |     | 0.2935 | 0.3295 |     | 0.2975 | 0.3379 |     | 0.2303 | 0.1735 |     | 0.2343 | 0.1819 |     | 0.2383 | 0.1903 |
|     | 0.2807 | 0.3259 |     | 0.2847 | 0.3343 |     | 0.2887 | 0.3427 |     | 0.2215 | 0.1783 |     | 0.2255 | 0.1867 |     | 0.2295 | 0.1951 |
| LB  | 0.2735 | 0.2875 | LC  | 0.2775 | 0.2959 | LD  | 0.2815 | 0.3043 | LE  | 0.2855 | 0.3127 | LF  | 0.2895 | 0.3211 | LG  | 0.2935 | 0.3295 |
|     | 0.2823 | 0.2827 |     | 0.2863 | 0.2911 |     | 0.2903 | 0.2995 |     | 0.2943 | 0.3079 |     | 0.2983 | 0.3163 |     | 0.3023 | 0.3247 |
|     | 0.2783 | 0.2743 |     | 0.2823 | 0.2827 |     | 0.2863 | 0.2911 |     | 0.2903 | 0.2995 |     | 0.2943 | 0.3079 |     | 0.2983 | 0.3163 |
|     | 0.2695 | 0.2791 |     | 0.2735 | 0.2875 |     | 0.2775 | 0.2959 |     | 0.2815 | 0.3043 |     | 0.2855 | 0.3127 |     | 0.2895 | 0.3211 |
| M6  | 0.2623 | 0.2407 | M7  | 0.2663 | 0.2491 | M8  | 0.2703 | 0.2575 | M9  | 0.2743 | 0.2659 | MA  | 0.2783 | 0.2743 | MB  | 0.2823 | 0.2827 |
|     | 0.2711 | 0.2359 |     | 0.2751 | 0.2443 |     | 0.2791 | 0.2527 |     | 0.2831 | 0.2611 |     | 0.2871 | 0.2695 |     | 0.2911 | 0.2779 |
|     | 0.2671 | 0.2275 |     | 0.2711 | 0.2359 |     | 0.2751 | 0.2443 |     | 0.2791 | 0.2527 |     | 0.2831 | 0.2611 |     | 0.2871 | 0.2695 |
|     | 0.2583 | 0.2323 |     | 0.2623 | 0.2407 |     | 0.2663 | 0.2491 |     | 0.2703 | 0.2575 |     | 0.2743 | 0.2659 |     | 0.2783 | 0.2743 |
| N1  | 0.2511 | 0.1939 | N2  | 0.2551 | 0.2023 | N3  | 0.2591 | 0.2107 | N4  | 0.2631 | 0.2191 | N5  | 0.2671 | 0.2275 | N6  | 0.2711 | 0.2359 |
|     | 0.2599 | 0.1891 |     | 0.2639 | 0.1975 |     | 0.2679 | 0.2059 |     | 0.2719 | 0.2143 |     | 0.2759 | 0.2227 |     | 0.2799 | 0.2311 |
|     | 0.2559 | 0.1807 |     | 0.2599 | 0.1891 |     | 0.2639 | 0.1975 |     | 0.2679 | 0.2059 |     | 0.2719 | 0.2143 |     | 0.2759 | 0.2227 |
|     | 0.2471 | 0.1855 |     | 0.2511 | 0.1939 |     | 0.2551 | 0.2023 |     | 0.2591 | 0.2107 |     | 0.2631 | 0.2191 |     | 0.2671 | 0.2275 |
| NG  | 0.3111 | 0.3199 | NH  | 0.3151 | 0.3283 | NI  | 0.3191 | 0.3367 | OY  | 0.2519 | 0.1723 | OZ  | 0.2559 | 0.1807 | O1  | 0.2599 | 0.1891 |
|     | 0.3199 | 0.3151 |     | 0.3239 | 0.3235 |     | 0.3279 | 0.3319 |     | 0.2607 | 0.1675 |     | 0.2647 | 0.1759 |     | 0.2687 | 0.1843 |
|     | 0.3159 | 0.3067 |     | 0.3199 | 0.3151 |     | 0.3239 | 0.3235 |     | 0.2567 | 0.1591 |     | 0.2607 | 0.1675 |     | 0.2647 | 0.1759 |
|     | 0.3071 | 0.3115 |     | 0.3111 | 0.3199 |     | 0.3151 | 0.3283 |     | 0.2479 | 0.1639 |     | 0.2519 | 0.1723 |     | 0.2559 | 0.1807 |
| OB  | 0.2999 | 0.2731 | OC  | 0.3039 | 0.2815 | OD  | 0.3079 | 0.2899 | OE  | 0.3119 | 0.2983 | OF  | 0.3159 | 0.3067 | OG  | 0.3199 | 0.3151 |
|     | 0.3087 | 0.2683 |     | 0.3127 | 0.2767 |     | 0.3167 | 0.2851 |     | 0.3207 | 0.2935 |     | 0.3247 | 0.3019 |     | 0.3287 | 0.3103 |
|     | 0.3047 | 0.2599 |     | 0.3087 | 0.2683 |     | 0.3127 | 0.2767 |     | 0.3167 | 0.2851 |     | 0.3207 | 0.2935 |     | 0.3247 | 0.3019 |
|     | 0.2959 | 0.2647 |     | 0.2999 | 0.2731 |     | 0.3039 | 0.2815 |     | 0.3079 | 0.2899 |     | 0.3119 | 0.2983 |     | 0.3159 | 0.3067 |
| P6  | 0.2887 | 0.2263 | P7  | 0.2927 | 0.2347 | P8  | 0.2967 | 0.2431 | P9  | 0.3007 | 0.2515 | PA  | 0.3047 | 0.2599 | PB  | 0.3087 | 0.2683 |
|     | 0.2975 | 0.2215 |     | 0.3015 | 0.2299 |     | 0.3055 | 0.2383 |     | 0.3095 | 0.2467 |     | 0.3135 | 0.2551 |     | 0.3175 | 0.2719 |
|     | 0.2935 | 0.2131 |     | 0.2975 | 0.2215 |     | 0.3015 | 0.2299 |     | 0.3055 | 0.2383 |     | 0.3095 | 0.2467 |     | 0.3135 | 0.2551 |
|     | 0.2847 | 0.2179 |     | 0.2887 | 0.2263 |     | 0.2927 | 0.2347 |     | 0.2967 | 0.2431 |     | 0.3007 | 0.2515 |     | 0.3047 | 0.2599 |

## Bin Code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| K8  | 0.2527 | 0.2671 | K9  | 0.2567 | 0.2755 | KA  | 0.2607 | 0.2839 | KB  | 0.2647 | 0.2923 | KC  | 0.2687 | 0.3007 | KD  | 0.2727 | 0.3091 |
|     | 0.2615 | 0.2623 |     | 0.2655 | 0.2707 |     | 0.2695 | 0.2791 |     | 0.2735 | 0.2875 |     | 0.2775 | 0.2959 |     | 0.2815 | 0.3043 |
|     | 0.2575 | 0.2539 |     | 0.2615 | 0.2623 |     | 0.2655 | 0.2707 |     | 0.2695 | 0.2791 |     | 0.2735 | 0.2875 |     | 0.2775 | 0.2959 |
|     | 0.2487 | 0.2587 |     | 0.2527 | 0.2671 |     | 0.2567 | 0.2755 |     | 0.2607 | 0.2839 |     | 0.2647 | 0.2923 |     | 0.2687 | 0.3007 |
| L3  | 0.2415 | 0.2203 | L4  | 0.2455 | 0.2287 | L5  | 0.2495 | 0.2371 | L6  | 0.2535 | 0.2455 | L7  | 0.2575 | 0.2539 | L8  | 0.2615 | 0.2623 |
|     | 0.2503 | 0.2155 |     | 0.2543 | 0.2239 |     | 0.2583 | 0.2323 |     | 0.2623 | 0.2407 |     | 0.2663 | 0.2491 |     | 0.2703 | 0.2575 |
|     | 0.2463 | 0.2071 |     | 0.2503 | 0.2155 |     | 0.2543 | 0.2239 |     | 0.2583 | 0.2323 |     | 0.2623 | 0.2407 |     | 0.2663 | 0.2491 |
|     | 0.2375 | 0.2119 |     | 0.2415 | 0.2203 |     | 0.2455 | 0.2287 |     | 0.2495 | 0.2371 |     | 0.2535 | 0.2455 |     | 0.2575 | 0.2539 |
| LI  | 0.3015 | 0.3463 | MY  | 0.2343 | 0.1819 | MZ  | 0.2383 | 0.1903 | M1  | 0.2423 | 0.1987 | M2  | 0.2463 | 0.2071 | M3  | 0.2503 | 0.2155 |
|     | 0.3103 | 0.3415 |     | 0.2431 | 0.1771 |     | 0.2471 | 0.1855 |     | 0.2511 | 0.1939 |     | 0.2551 | 0.2023 |     | 0.2591 | 0.2107 |
|     | 0.3063 | 0.3331 |     | 0.2391 | 0.1687 |     | 0.2431 | 0.1771 |     | 0.2471 | 0.1855 |     | 0.2511 | 0.1939 |     | 0.2551 | 0.2023 |
|     | 0.2975 | 0.3379 |     | 0.2303 | 0.1735 |     | 0.2343 | 0.1819 |     | 0.2383 | 0.1903 |     | 0.2423 | 0.1987 |     | 0.2463 | 0.2071 |
| MD  | 0.2903 | 0.2995 | ME  | 0.2943 | 0.3079 | MF  | 0.2983 | 0.3163 | MG  | 0.3023 | 0.3247 | MH  | 0.3063 | 0.3331 | MI  | 0.3103 | 0.3415 |
|     | 0.2991 | 0.2947 |     | 0.3031 | 0.3031 |     | 0.3071 | 0.3115 |     | 0.3111 | 0.3199 |     | 0.3151 | 0.3283 |     | 0.3191 | 0.3367 |
|     | 0.2951 | 0.2863 |     | 0.2991 | 0.2947 |     | 0.3031 | 0.3031 |     | 0.3071 | 0.3115 |     | 0.3111 | 0.3199 |     | 0.3151 | 0.3283 |
|     | 0.2863 | 0.2911 |     | 0.2903 | 0.2995 |     | 0.2943 | 0.3079 |     | 0.2983 | 0.3163 |     | 0.3023 | 0.3247 |     | 0.3063 | 0.3331 |
| N8  | 0.2791 | 0.2527 | N9  | 0.2831 | 0.2611 | NA  | 0.2871 | 0.2695 | NB  | 0.2911 | 0.2779 | NC  | 0.2951 | 0.2863 | ND  | 0.2991 | 0.2947 |
|     | 0.2879 | 0.2479 |     | 0.2919 | 0.2563 |     | 0.2959 | 0.2647 |     | 0.2999 | 0.2731 |     | 0.3039 | 0.2815 |     | 0.3079 | 0.2899 |
|     | 0.2839 | 0.2395 |     | 0.2879 | 0.2479 |     | 0.2919 | 0.2563 |     | 0.2959 | 0.2647 |     | 0.2999 | 0.2731 |     | 0.3039 | 0.2815 |
|     | 0.2751 | 0.2443 |     | 0.2791 | 0.2527 |     | 0.2831 | 0.2611 |     | 0.2871 | 0.2695 |     | 0.2911 | 0.2779 |     | 0.2951 | 0.2863 |
| O3  | 0.2679 | 0.2059 | O4  | 0.2719 | 0.2143 | O5  | 0.2759 | 0.2227 | O6  | 0.2799 | 0.2311 | O7  | 0.2839 | 0.2395 | O8  | 0.2879 | 0.2479 |
|     | 0.2767 | 0.2011 |     | 0.2807 | 0.2095 |     | 0.2847 | 0.2179 |     | 0.2887 | 0.2263 |     | 0.2927 | 0.2347 |     | 0.2967 | 0.2431 |
|     | 0.2727 | 0.1927 |     | 0.2767 | 0.2011 |     | 0.2807 | 0.2095 |     | 0.2847 | 0.2179 |     | 0.2887 | 0.2263 |     | 0.2927 | 0.2347 |
|     | 0.2639 | 0.1975 |     | 0.2679 | 0.2059 |     | 0.2719 | 0.2143 |     | 0.2759 | 0.2227 |     | 0.2799 | 0.2311 |     | 0.2839 | 0.2395 |
| OI  | 0.3279 | 0.3319 | PY  | 0.2607 | 0.1675 | PZ  | 0.2647 | 0.1759 | P1  | 0.2687 | 0.1843 | P2  | 0.2727 | 0.1927 | P3  | 0.2767 | 0.2011 |
|     | 0.3367 | 0.3271 |     | 0.2695 | 0.1627 |     | 0.2735 | 0.1711 |     | 0.2775 | 0.1795 |     | 0.2815 | 0.1879 |     | 0.2855 | 0.1963 |
|     | 0.3327 | 0.3187 |     | 0.2655 | 0.1543 |     | 0.2695 | 0.1627 |     | 0.2735 | 0.1711 |     | 0.2775 | 0.1795 |     | 0.2815 | 0.1879 |
|     | 0.3239 | 0.3235 |     | 0.2567 | 0.1591 |     | 0.2607 | 0.1675 |     | 0.2647 | 0.1759 |     | 0.2687 | 0.1843 |     | 0.2727 | 0.1927 |
| PD  | 0.3167 | 0.2851 | PE  | 0.3207 | 0.2935 | PF  | 0.3247 | 0.3019 | PG  | 0.3287 | 0.3103 | PH  | 0.3327 | 0.3187 | PI  | 0.3367 | 0.3271 |
|     | 0.3255 | 0.2803 |     | 0.3295 | 0.2887 |     | 0.3335 | 0.2971 |     | 0.3375 | 0.3055 |     | 0.3415 | 0.3139 |     | 0.3455 | 0.3223 |
|     | 0.3215 | 0.2719 |     | 0.3255 | 0.2803 |     | 0.3295 | 0.2887 |     | 0.3335 | 0.2971 |     | 0.3375 | 0.3055 |     | 0.3415 | 0.3139 |
|     | 0.3127 | 0.2767 |     | 0.3167 | 0.2851 |     | 0.3207 | 0.2935 |     | 0.3247 | 0.3019 |     | 0.3287 | 0.3103 |     | 0.3327 | 0.3187 |

## Luminous Flux

| Bin | Unit: lm |      |
|-----|----------|------|
|     | Min.     | Max. |
| C0  | 0.00     | 0.50 |
| C5  | 0.50     | 1.00 |
| C10 | 1.00     | 1.50 |
| C15 | 1.50     | 2.00 |
| C20 | 2.00     | 2.50 |
| C25 | 2.50     | 3.00 |
| C30 | 3.00     | 3.50 |
| C35 | 3.50     | 4.00 |
| C40 | 4.00     | 4.50 |
| C45 | 4.50     | 5.00 |
| C50 | 5.00     | 5.50 |
| C55 | 5.50     | 6.00 |
| C60 | 6.00     | 6.50 |
| C65 | 6.50     | 7.00 |
| C70 | 7.00     | 7.50 |
| C75 | 7.50     | 8.00 |
| C80 | 8.00     | 8.50 |

## Radiant Power

| Bin | Unit: lm |       |
|-----|----------|-------|
|     | Min.     | Max.  |
| E0  | 0.00     | 2.00  |
| E2  | 2.00     | 4.00  |
| E4  | 4.00     | 6.00  |
| E6  | 6.00     | 8.00  |
| E8  | 8.00     | 10.00 |
| E10 | 10.00    | 12.00 |
| E12 | 12.00    | 14.00 |
| E14 | 14.00    | 16.00 |
| E16 | 16.00    | 18.00 |
| E18 | 18.00    | 20.00 |
| E20 | 20.00    | 22.00 |
| E22 | 22.00    | 24.00 |
| E24 | 24.00    | 26.00 |
| E26 | 26.00    | 28.00 |
| E28 | 28.00    | 30.00 |

## V<sub>F</sub> (Forward Voltage Spec. Setup)

| Bin  | Unit: lm |      |
|------|----------|------|
|      | Min.     | Max. |
| D28  | 2.80     | 2.90 |
| D29  | 2.90     | 3.00 |
| D30  | 3.00     | 3.10 |
| D31  | 3.10     | 3.20 |
| D32  | 3.20     | 3.30 |
| C270 | 2.70     | 2.75 |
| C275 | 2.75     | 2.80 |
| C280 | 2.80     | 2.85 |
| C285 | 2.85     | 2.90 |
| C290 | 2.90     | 2.95 |

Note: Tolerance of Luminous Intensity: ±7%.

Note: Tolerance of Luminous Intensity: ±7%.

Note: Tolerance of Forward Voltage: ±0.05

TECHNICAL DATA

LED LAMPs  
BRIGHTNESS BIN SELECTION

Brightness Bin Selection

Unit : mcd

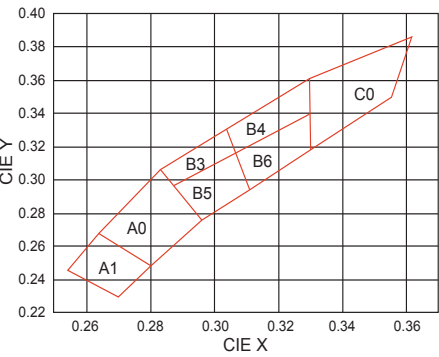
| Item     | Intensity Iv (mcd) |        |
|----------|--------------------|--------|
| Bin Code | Min.               | Max.   |
| a7       | 6.0                | 8.0    |
| a6       | 8.0                | 10.0   |
| a5       | 10.0               | 12.0   |
| a4       | 12.0               | 15.0   |
| a3       | 15.0               | 18.0   |
| a2       | 18.0               | 22.0   |
| a1       | 22.0               | 28.0   |
| 0        | 28.0               | 35.0   |
| 1        | 35.0               | 42.0   |
| 2        | 42.0               | 50.0   |
| 3        | 50.0               | 60.0   |
| 4        | 60.0               | 70.0   |
| 5        | 70.0               | 85.0   |
| 6        | 85.0               | 100    |
| 7        | 100                | 120    |
| 8        | 120                | 140    |
| 9        | 140                | 170    |
| A        | 170                | 200    |
| B        | 200                | 240    |
| C        | 240                | 285    |
| D        | 285                | 360    |
| E        | 360                | 450    |
| F        | 450                | 565    |
| G        | 565                | 715    |
| H        | 715                | 900    |
| J        | 900                | 1,125  |
| K        | 1,125              | 1,425  |
| L        | 1,425              | 1,800  |
| M        | 1,800              | 2,250  |
| N        | 2,250              | 2,850  |
| P        | 2,850              | 3,600  |
| Q        | 3,600              | 4,500  |
| R        | 4,500              | 5,650  |
| S        | 5,650              | 7,150  |
| T        | 7,150              | 9,000  |
| U        | 9,000              | 11,250 |
| V        | 11,250             | 14,250 |
| W        | 14,250             | 18,000 |
| X        | 18,000             | 22,500 |
| Y        | 22,500             | 28,500 |
| Z        | 28,500             | 36,000 |

Cool White / CIE Chromaticity Diagram

(If=20mA / Ta=25°C)

| Color Ranks |   | CIE   |       |       |       |
|-------------|---|-------|-------|-------|-------|
| A1          | X | 0.255 | 0.264 | 0.280 | 0.270 |
|             | Y | 0.245 | 0.267 | 0.248 | 0.230 |
| A0          | X | 0.264 | 0.283 | 0.296 | 0.280 |
|             | Y | 0.267 | 0.305 | 0.267 | 0.248 |
| B3          | X | 0.283 | 0.304 | 0.307 | 0.287 |
|             | Y | 0.305 | 0.330 | 0.315 | 0.295 |
| B4          | X | 0.304 | 0.330 | 0.330 | 0.307 |
|             | Y | 0.330 | 0.360 | 0.339 | 0.315 |
| B5          | X | 0.287 | 0.307 | 0.311 | 0.296 |
|             | Y | 0.295 | 0.315 | 0.294 | 0.276 |
| B6          | X | 0.307 | 0.330 | 0.330 | 0.311 |
|             | Y | 0.315 | 0.339 | 0.318 | 0.294 |
| C0          | X | 0.330 | 0.361 | 0.355 | 0.330 |
|             | Y | 0.360 | 0.385 | 0.350 | 0.318 |

Note: Measurement uncertainty of the color coordinates ±0.01.

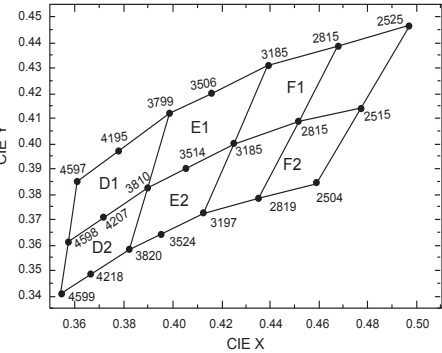


Warm White / CIE Chromaticity Diagram

(If=20mA / Ta=25°C)

| Color Ranks |   | CIE   |       |       |       |
|-------------|---|-------|-------|-------|-------|
| D1          | X | 0.357 | 0.361 | 0.398 | 0.389 |
|             | Y | 0.361 | 0.385 | 0.411 | 0.382 |
| D2          | X | 0.354 | 0.357 | 0.389 | 0.382 |
|             | Y | 0.340 | 0.361 | 0.382 | 0.358 |
| E1          | X | 0.389 | 0.398 | 0.439 | 0.425 |
|             | Y | 0.382 | 0.411 | 0.431 | 0.400 |
| E2          | X | 0.382 | 0.389 | 0.425 | 0.412 |
|             | Y | 0.358 | 0.382 | 0.400 | 0.372 |
| F1          | X | 0.425 | 0.439 | 0.497 | 0.477 |
|             | Y | 0.400 | 0.431 | 0.466 | 0.413 |
| F2          | X | 0.412 | 0.425 | 0.477 | 0.458 |
|             | Y | 0.372 | 0.400 | 0.413 | 0.383 |

Note: Measurement uncertainty of the color coordinates ±0.01.

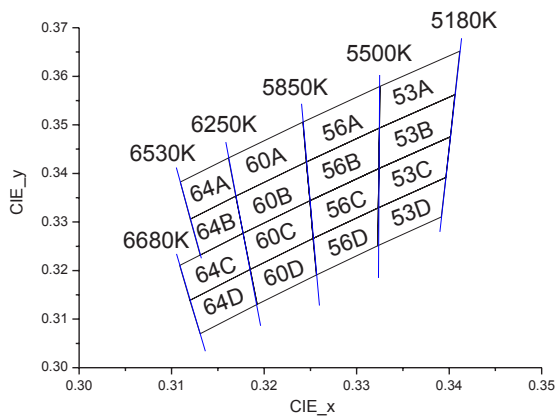


DIGITAL DISPLAY  
BRIGHTNESS BIN SELECTION

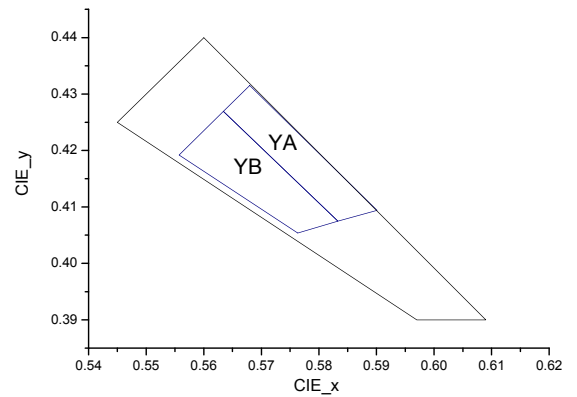
| Bin Code | Brightness Range (μcd) |        |
|----------|------------------------|--------|
|          | Min.                   | Max.   |
| C        | 70                     | 140    |
| D        | 110                    | 220    |
| E        | 180                    | 360    |
| F        | 280                    | 560    |
| G        | 450                    | 900    |
| H        | 750                    | 1200   |
| J        | 1050                   | 1680   |
| K        | 1400                   | 2300   |
| L        | 2000                   | 3200   |
| M        | 2800                   | 4500   |
| N        | 4000                   | 6400   |
| P        | 5600                   | 8900   |
| Q        | 7800                   | 12500  |
| R        | 11000                  | 17600  |
| S        | 15000                  | 24000  |
| T        | 21000                  | 34000  |
| U        | 30000                  | 48000  |
| V        | 42000                  | 67000  |
| W        | 59000                  | 94000  |
| X        | 83000                  | 133000 |
| Y        | 116000                 | 186000 |
| Z        | 158800                 | 254000 |

## AUTOMOTIVE BIN SELECTION

### Exterior White / Cool-White Bin Structure



### Amber Bin Structure



### Cool-White Bin Coordinates

| Bin                         | CIE X  | CIE Y  | Bin                         | CIE X  | CIE Y  | Bin                         | CIE X  | CIE Y  |
|-----------------------------|--------|--------|-----------------------------|--------|--------|-----------------------------|--------|--------|
| 64A                         | 0.3109 | 0.3382 | 60C                         | 0.3177 | 0.3277 | 53A                         | 0.3325 | 0.3579 |
|                             | 0.3161 | 0.3432 |                             | 0.3249 | 0.3344 |                             | 0.3412 | 0.3652 |
|                             | 0.3169 | 0.3353 |                             | 0.3253 | 0.3266 |                             | 0.3406 | 0.3562 |
|                             | 0.3120 | 0.3306 |                             | 0.3185 | 0.3203 |                             | 0.3325 | 0.3493 |
| Reference Range: 6240~6530K |        |        | Reference Range: 5850~6240K |        |        | Reference Range: 5180~5500K |        |        |
| 64B                         | 0.3120 | 0.3306 | 60D                         | 0.3185 | 0.3203 | 53B                         | 0.3325 | 0.3493 |
|                             | 0.3169 | 0.3353 |                             | 0.3253 | 0.3266 |                             | 0.3406 | 0.3562 |
|                             | 0.3177 | 0.3277 |                             | 0.3256 | 0.3191 |                             | 0.3401 | 0.3476 |
|                             | 0.3131 | 0.3232 |                             | 0.3192 | 0.3131 |                             | 0.3324 | 0.3410 |
| Reference Range: 6240~6530K |        |        | Reference Range: 5850~6240K |        |        | Reference Range: 5180~5500K |        |        |
| 64C                         | 0.3109 | 0.3211 | 56A                         | 0.3242 | 0.3506 | 53C                         | 0.3324 | 0.3410 |
|                             | 0.3177 | 0.3277 |                             | 0.3325 | 0.3579 |                             | 0.3401 | 0.3476 |
|                             | 0.3185 | 0.3203 |                             | 0.3325 | 0.3493 |                             | 0.3396 | 0.3392 |
|                             | 0.3120 | 0.3139 |                             | 0.3246 | 0.3424 |                             | 0.3323 | 0.3329 |
| Reference Range: 6240~6680K |        |        | Reference Range: 5500~5850K |        |        | Reference Range: 5180~5500K |        |        |
| 64D                         | 0.3120 | 0.3139 | 56B                         | 0.3246 | 0.3424 | 53D                         | 0.3323 | 0.3329 |
|                             | 0.3185 | 0.3203 |                             | 0.3325 | 0.3493 |                             | 0.3396 | 0.3392 |
|                             | 0.3192 | 0.3131 |                             | 0.3324 | 0.3410 |                             | 0.3392 | 0.3310 |
|                             | 0.3131 | 0.3070 |                             | 0.3249 | 0.3344 |                             | 0.3323 | 0.3251 |
| Reference Range: 6240~6680K |        |        | Reference Range: 5500~5850K |        |        | Reference Range: 5180~5500K |        |        |
| 60A                         | 0.3161 | 0.3432 | 56C                         | 0.3249 | 0.3344 |                             |        |        |
|                             | 0.3242 | 0.3506 |                             | 0.3324 | 0.3410 |                             |        |        |
|                             | 0.3246 | 0.3424 |                             | 0.3323 | 0.3329 |                             |        |        |
|                             | 0.3169 | 0.3353 |                             | 0.3253 | 0.3266 |                             |        |        |
| Reference Range: 5850~6240K |        |        | Reference Range: 5500~5850K |        |        |                             |        |        |
| 60B                         | 0.3169 | 0.3353 | 56D                         | 0.3253 | 0.3266 |                             |        |        |
|                             | 0.3246 | 0.3424 |                             | 0.3323 | 0.3329 |                             |        |        |
|                             | 0.3249 | 0.3344 |                             | 0.3323 | 0.3251 |                             |        |        |
|                             | 0.3177 | 0.3277 |                             | 0.3256 | 0.3191 |                             |        |        |
| Reference Range: 5850~6240K |        |        | Reference Range: 5500~5850K |        |        |                             |        |        |

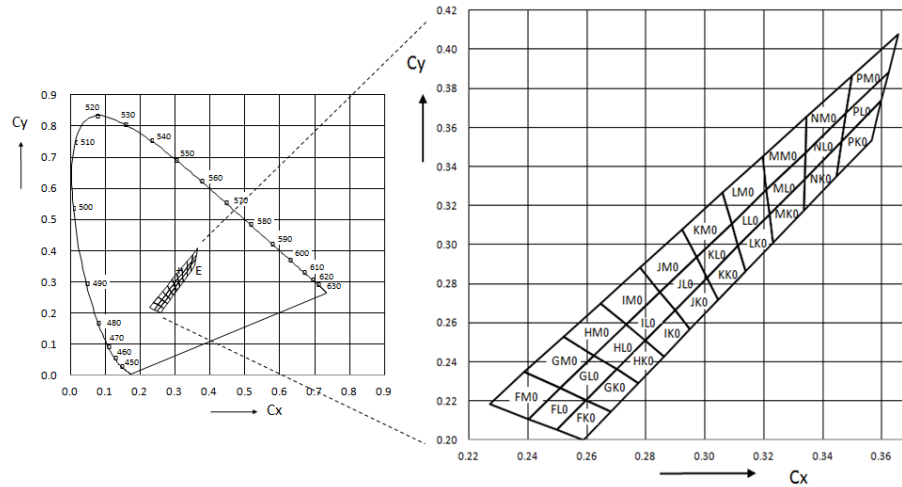
### Amber Bin Coordinates

| Bin | CIE X  | CIE Y  |
|-----|--------|--------|
| YA  | 0.5680 | 0.4315 |
|     | 0.5634 | 0.4269 |
|     | 0.5833 | 0.4075 |
|     | 0.5901 | 0.4094 |
| YB  | 0.5763 | 0.4054 |
|     | 0.5833 | 0.4075 |
|     | 0.5634 | 0.4269 |
|     | 0.5557 | 0.4192 |

# TECHNICAL DATA

## AUTOMOTIVE BIN SELECTION

Interior / White



### Bin Range of Chromaticity Coordinates Specifications

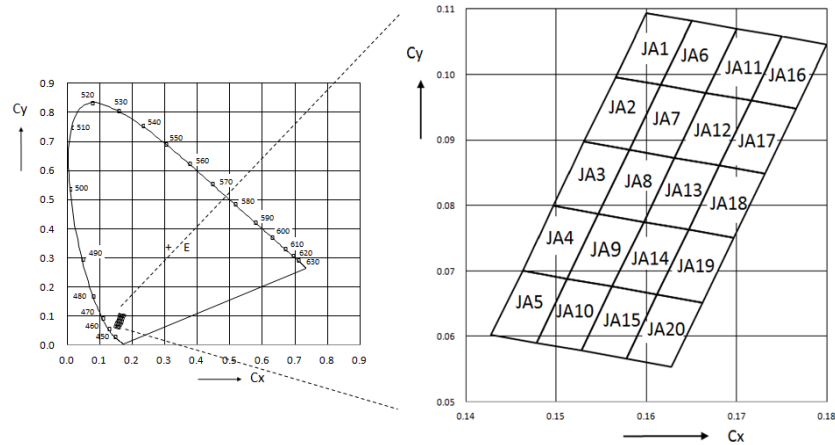
| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| FK0      | 0.2589 | 0.2000 | NK0      | 0.3339 | 0.3336 | LL0      | 0.3113 | 0.2992 | JM0      | 0.2848 | 0.2757 |
|          | 0.2498 | 0.2053 |          | 0.3335 | 0.3172 |          | 0.3090 | 0.3108 |          | 0.2780 | 0.2883 |
|          | 0.2597 | 0.2204 |          | 0.3447 | 0.3347 |          | 0.3209 | 0.3281 |          | 0.2922 | 0.3077 |
|          | 0.2682 | 0.2146 |          | 0.3465 | 0.3530 |          | 0.3219 | 0.3154 |          | 0.2971 | 0.2935 |
| GK0      | 0.2682 | 0.2146 | PK0      | 0.3465 | 0.3530 | ML0      | 0.3341 | 0.3472 | KM0      | 0.2971 | 0.2935 |
|          | 0.2597 | 0.2204 |          | 0.3447 | 0.3347 |          | 0.3209 | 0.3281 |          | 0.2922 | 0.3077 |
|          | 0.2700 | 0.2361 |          | 0.3567 | 0.3535 |          | 0.3219 | 0.3154 |          | 0.3060 | 0.3266 |
|          | 0.2775 | 0.2292 |          | 0.3599 | 0.3735 |          | 0.3339 | 0.3336 |          | 0.3090 | 0.3108 |
| HK0      | 0.2775 | 0.2292 | FL0      | 0.2498 | 0.2053 | NL0      | 0.3341 | 0.3472 | LM0      | 0.3090 | 0.3108 |
|          | 0.2700 | 0.2361 |          | 0.2402 | 0.2108 |          | 0.3339 | 0.3336 |          | 0.3060 | 0.3266 |
|          | 0.2797 | 0.2509 |          | 0.2509 | 0.2264 |          | 0.3465 | 0.3530 |          | 0.3196 | 0.3451 |
|          | 0.2861 | 0.2427 |          | 0.2597 | 0.2204 |          | 0.3479 | 0.3673 |          | 0.3209 | 0.3281 |
| IK0      | 0.2861 | 0.2427 | GL0      | 0.2597 | 0.2204 | PL0      | 0.3479 | 0.3673 | MM0      | 0.3345 | 0.3654 |
|          | 0.2797 | 0.2509 |          | 0.2509 | 0.2264 |          | 0.3465 | 0.3530 |          | 0.3196 | 0.3451 |
|          | 0.2898 | 0.2664 |          | 0.2624 | 0.2431 |          | 0.3599 | 0.3735 |          | 0.3209 | 0.3281 |
|          | 0.2950 | 0.2568 |          | 0.2700 | 0.2361 |          | 0.3623 | 0.3882 |          | 0.3341 | 0.3472 |
| JK0      | 0.2950 | 0.2568 | HL0      | 0.2700 | 0.2361 | FM0      | 0.2388 | 0.2348 | NM0      | 0.3345 | 0.3654 |
|          | 0.2898 | 0.2664 |          | 0.2624 | 0.2431 |          | 0.2269 | 0.2185 |          | 0.3341 | 0.3472 |
|          | 0.3007 | 0.2830 |          | 0.2733 | 0.2590 |          | 0.2402 | 0.2108 |          | 0.3479 | 0.3673 |
|          | 0.3045 | 0.2717 |          | 0.2797 | 0.2509 |          | 0.2509 | 0.2264 |          | 0.3498 | 0.3863 |
| KK0      | 0.3045 | 0.2717 | IL0      | 0.2797 | 0.2509 | GM0      | 0.2509 | 0.2264 | PM0      | 0.3498 | 0.3863 |
|          | 0.3007 | 0.2830 |          | 0.2733 | 0.2590 |          | 0.2388 | 0.2348 |          | 0.3479 | 0.3673 |
|          | 0.3113 | 0.2992 |          | 0.2848 | 0.2757 |          | 0.2520 | 0.2527 |          | 0.3623 | 0.3882 |
|          | 0.3138 | 0.2862 |          | 0.2898 | 0.2664 |          | 0.2624 | 0.2431 |          | 0.3655 | 0.4079 |
| LK0      | 0.3138 | 0.2862 | JL0      | 0.2898 | 0.2664 | HM0      | 0.2624 | 0.2431 |          |        |        |
|          | 0.3113 | 0.2992 |          | 0.2848 | 0.2757 |          | 0.2530 | 0.2527 |          |        |        |
|          | 0.3219 | 0.3154 |          | 0.2971 | 0.2935 |          | 0.2646 | 0.2700 |          |        |        |
|          | 0.3231 | 0.3008 |          | 0.3007 | 0.2830 |          | 0.2733 | 0.2590 |          |        |        |
| MK0      | 0.3339 | 0.3336 | KL0      | 0.3007 | 0.2830 | IM0      | 0.2733 | 0.2590 |          |        |        |
|          | 0.3219 | 0.3154 |          | 0.2971 | 0.2935 |          | 0.2646 | 0.2700 |          |        |        |
|          | 0.3231 | 0.3008 |          | 0.3090 | 0.3108 |          | 0.2780 | 0.2883 |          |        |        |
|          | 0.3335 | 0.3172 |          | 0.3113 | 0.2992 |          | 0.2848 | 0.2757 |          |        |        |

Notes: Tolerance of Chromaticity Coordinates:  $\pm 0.01$



# AUTOMOTIVE BIN SELECTION

Interior / Sky Blue



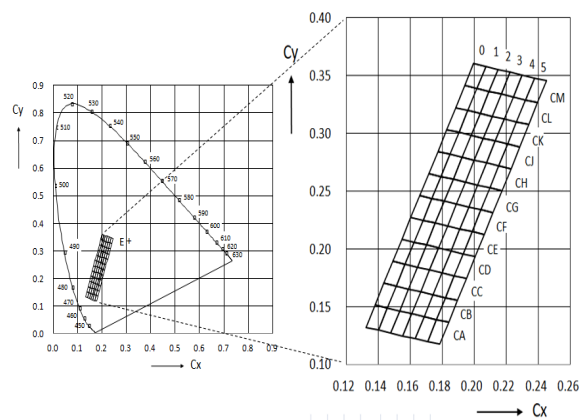
## Bin Range of Chromaticity Coordinates Specifications

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| JA1      | 0.1600 | 0.1094 | JA9      | 0.1547 | 0.0787 | JA17     | 0.1716 | 0.0960 |
|          | 0.1650 | 0.1082 |          | 0.1597 | 0.0775 |          | 0.1766 | 0.0948 |
|          | 0.1616 | 0.0984 |          | 0.1562 | 0.0676 |          | 0.1731 | 0.0849 |
|          | 0.1566 | 0.0996 |          | 0.1512 | 0.0688 |          | 0.1681 | 0.0861 |
| JA2      | 0.1566 | 0.0996 | JA10     | 0.1512 | 0.0688 | JA18     | 0.1681 | 0.0861 |
|          | 0.1616 | 0.0984 |          | 0.1562 | 0.0676 |          | 0.1731 | 0.0849 |
|          | 0.1581 | 0.0885 |          | 0.1528 | 0.0578 |          | 0.1697 | 0.0751 |
|          | 0.1531 | 0.0897 |          | 0.1478 | 0.0590 |          | 0.1647 | 0.0763 |
| JA3      | 0.1531 | 0.0897 | JA11     | 0.1700 | 0.1070 | JA19     | 0.1647 | 0.0763 |
|          | 0.1581 | 0.0885 |          | 0.1750 | 0.1058 |          | 0.1697 | 0.0751 |
|          | 0.1547 | 0.0787 |          | 0.1716 | 0.0960 |          | 0.1662 | 0.0652 |
|          | 0.1497 | 0.0799 |          | 0.1666 | 0.0972 |          | 0.1612 | 0.0664 |
| JA4      | 0.1497 | 0.0799 | JA12     | 0.1666 | 0.0972 | JA20     | 0.1612 | 0.0664 |
|          | 0.1547 | 0.0787 |          | 0.1716 | 0.0960 |          | 0.1662 | 0.0652 |
|          | 0.1512 | 0.0688 |          | 0.1681 | 0.0861 |          | 0.1628 | 0.0554 |
|          | 0.1463 | 0.0700 |          | 0.1631 | 0.0873 |          | 0.1578 | 0.0566 |
| JA5      | 0.1463 | 0.0700 | JA13     | 0.1631 | 0.0873 |          |        |        |
|          | 0.1512 | 0.0688 |          | 0.1681 | 0.0861 |          |        |        |
|          | 0.1478 | 0.0590 |          | 0.1647 | 0.0763 |          |        |        |
|          | 0.1428 | 0.0602 |          | 0.1597 | 0.0775 |          |        |        |
| JA6      | 0.1650 | 0.1082 | JA14     | 0.1597 | 0.0775 |          |        |        |
|          | 0.1700 | 0.1070 |          | 0.1647 | 0.0763 |          |        |        |
|          | 0.1666 | 0.0972 |          | 0.1612 | 0.0664 |          |        |        |
|          | 0.1616 | 0.0984 |          | 0.1562 | 0.0676 |          |        |        |
| JA7      | 0.1616 | 0.0984 | JA15     | 0.1562 | 0.0676 |          |        |        |
|          | 0.1666 | 0.0972 |          | 0.1612 | 0.0664 |          |        |        |
|          | 0.1631 | 0.0873 |          | 0.1578 | 0.0566 |          |        |        |
|          | 0.1581 | 0.0885 |          | 0.1528 | 0.0578 |          |        |        |
| JA8      | 0.1581 | 0.0885 | JA16     | 0.1750 | 0.1058 |          |        |        |
|          | 0.1631 | 0.0873 |          | 0.1800 | 0.1046 |          |        |        |
|          | 0.1597 | 0.0775 |          | 0.1766 | 0.0948 |          |        |        |
|          | 0.1547 | 0.0787 |          | 0.1716 | 0.0960 |          |        |        |



AUTOMOTIVE  
BIN SELECTION

Interior / Ice Blue



Bin Range of Chromaticity Coordinates Specifications

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| CM0      | 0.1940 | 0.3415 | CL1      | 0.1960 | 0.3200 |
|          | 0.1996 | 0.3605 |          | 0.2016 | 0.3390 |
|          | 0.2072 | 0.3580 |          | 0.2092 | 0.3366 |
|          | 0.2016 | 0.3390 |          | 0.2036 | 0.3176 |
| CM1      | 0.2016 | 0.3390 | CL2      | 0.2036 | 0.3176 |
|          | 0.2072 | 0.3580 |          | 0.2092 | 0.3366 |
|          | 0.2148 | 0.3556 |          | 0.2168 | 0.3341 |
|          | 0.2092 | 0.3366 |          | 0.2112 | 0.3151 |
| CM2      | 0.2092 | 0.3366 | CL3      | 0.2112 | 0.3151 |
|          | 0.2148 | 0.3556 |          | 0.2168 | 0.3341 |
|          | 0.2224 | 0.3531 |          | 0.2244 | 0.3316 |
|          | 0.2168 | 0.3341 |          | 0.2188 | 0.3126 |
| CM3      | 0.2168 | 0.3341 | CL4      | 0.2188 | 0.3126 |
|          | 0.2224 | 0.3531 |          | 0.2244 | 0.3316 |
|          | 0.2299 | 0.3506 |          | 0.2319 | 0.3291 |
|          | 0.2244 | 0.3316 |          | 0.2264 | 0.3101 |
| CM4      | 0.2244 | 0.3316 | CL5      | 0.2264 | 0.3101 |
|          | 0.2299 | 0.3506 |          | 0.2319 | 0.3291 |
|          | 0.2375 | 0.3481 |          | 0.2395 | 0.3267 |
|          | 0.2319 | 0.3291 |          | 0.2340 | 0.3077 |
| CM5      | 0.2319 | 0.3291 | CK0      | 0.1828 | 0.3035 |
|          | 0.2375 | 0.3481 |          | 0.1884 | 0.3225 |
|          | 0.2451 | 0.3457 |          | 0.1960 | 0.3200 |
|          | 0.2395 | 0.3267 |          | 0.1904 | 0.3010 |
| CL0      | 0.1884 | 0.3225 | CK1      | 0.1904 | 0.3010 |
|          | 0.1940 | 0.3415 |          | 0.1960 | 0.3200 |
|          | 0.2016 | 0.3390 |          | 0.2036 | 0.3176 |
|          | 0.1960 | 0.3200 |          | 0.1980 | 0.2986 |

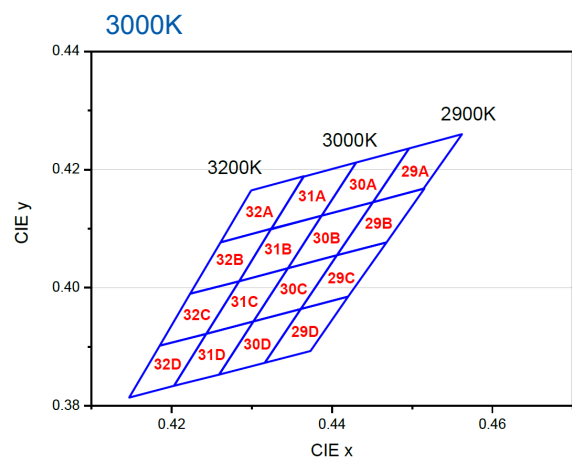
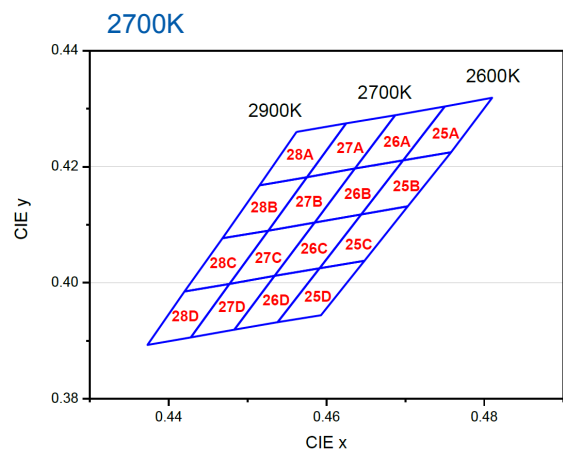
| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| CK2      | 0.1980 | 0.2986 | CH1      | 0.1792 | 0.2630 |
|          | 0.2036 | 0.3176 |          | 0.1848 | 0.2820 |
|          | 0.2112 | 0.3151 |          | 0.1924 | 0.2796 |
|          | 0.2056 | 0.2961 |          | 0.1869 | 0.2606 |
| CK3      | 0.2056 | 0.2961 | CH2      | 0.1869 | 0.2606 |
|          | 0.2112 | 0.3151 |          | 0.1924 | 0.2796 |
|          | 0.2188 | 0.3126 |          | 0.2000 | 0.2771 |
|          | 0.2132 | 0.2936 |          | 0.1945 | 0.2581 |
| CK4      | 0.2132 | 0.2936 | CH3      | 0.1945 | 0.2581 |
|          | 0.2188 | 0.3126 |          | 0.2000 | 0.2771 |
|          | 0.2264 | 0.3101 |          | 0.2077 | 0.2746 |
|          | 0.2208 | 0.2911 |          | 0.2021 | 0.2556 |
| CK5      | 0.2208 | 0.2911 | CH4      | 0.2021 | 0.2556 |
|          | 0.2264 | 0.3101 |          | 0.2077 | 0.2746 |
|          | 0.2340 | 0.3077 |          | 0.2153 | 0.2721 |
|          | 0.2284 | 0.2887 |          | 0.2097 | 0.2531 |
| CJ0      | 0.1772 | 0.2845 | CH5      | 0.2097 | 0.2531 |
|          | 0.1828 | 0.3035 |          | 0.2153 | 0.2721 |
|          | 0.1904 | 0.3010 |          | 0.2229 | 0.2697 |
|          | 0.1848 | 0.2820 |          | 0.2173 | 0.2507 |
| CJ1      | 0.1848 | 0.2820 | CG0      | 0.1660 | 0.2465 |
|          | 0.1904 | 0.3010 |          | 0.1716 | 0.2655 |
|          | 0.1980 | 0.2986 |          | 0.1792 | 0.2630 |
|          | 0.1924 | 0.2796 |          | 0.1736 | 0.2440 |
| CJ2      | 0.1924 | 0.2796 | CG1      | 0.1736 | 0.2440 |
|          | 0.1980 | 0.2986 |          | 0.1792 | 0.2630 |
|          | 0.2056 | 0.2961 |          | 0.1869 | 0.2606 |
|          | 0.2000 | 0.2771 |          | 0.1813 | 0.2416 |
| CJ3      | 0.2000 | 0.2771 | CG2      | 0.1813 | 0.2416 |
|          | 0.2056 | 0.2961 |          | 0.1869 | 0.2606 |
|          | 0.2132 | 0.2936 |          | 0.1945 | 0.2581 |
|          | 0.2077 | 0.2746 |          | 0.1889 | 0.2391 |
| CJ4      | 0.2077 | 0.2746 | CG3      | 0.1889 | 0.2391 |
|          | 0.2132 | 0.2936 |          | 0.1945 | 0.2581 |
|          | 0.2208 | 0.2911 |          | 0.2021 | 0.2556 |
|          | 0.2153 | 0.2721 |          | 0.1965 | 0.2366 |
| CJ5      | 0.2153 | 0.2721 | CG4      | 0.1965 | 0.2366 |
|          | 0.2208 | 0.2911 |          | 0.2021 | 0.2556 |
|          | 0.2284 | 0.2887 |          | 0.2097 | 0.2531 |
|          | 0.2229 | 0.2697 |          | 0.2043 | 0.2341 |
| CH0      | 0.1716 | 0.2655 | CG5      | 0.2043 | 0.2341 |
|          | 0.1772 | 0.2845 |          | 0.2097 | 0.2531 |
|          | 0.1848 | 0.2820 |          | 0.2173 | 0.2507 |
|          | 0.1792 | 0.2630 |          | 0.2118 | 0.2317 |

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| CF0      | 0.1604 | 0.2275 | CE5      | 0.1930 | 0.1961 |
|          | 0.1660 | 0.2465 |          | 0.1986 | 0.2151 |
|          | 0.1736 | 0.2440 |          | 0.2062 | 0.2127 |
|          | 0.1680 | 0.2250 |          | 0.2007 | 0.1937 |
| CF1      | 0.1680 | 0.2250 | CD0      | 0.1492 | 0.1895 |
|          | 0.1736 | 0.2440 |          | 0.1548 | 0.2085 |
|          | 0.1813 | 0.2416 |          | 0.1624 | 0.2060 |
|          | 0.1757 | 0.2226 |          | 0.1568 | 0.1870 |
| CF2      | 0.1757 | 0.2226 | CD1      | 0.1568 | 0.1870 |
|          | 0.1813 | 0.2416 |          | 0.1624 | 0.2060 |
|          | 0.1889 | 0.2391 |          | 0.1701 | 0.2036 |
|          | 0.1833 | 0.2201 |          | 0.1645 | 0.1846 |
| CF3      | 0.1833 | 0.2201 | CD2      | 0.1645 | 0.1846 |
|          | 0.1889 | 0.2391 |          | 0.1701 | 0.2036 |
|          | 0.1965 | 0.2366 |          | 0.1777 | 0.2011 |
|          | 0.1909 | 0.2176 |          | 0.1721 | 0.1821 |
| CF4      | 0.1909 | 0.2176 | CD3      | 0.1721 | 0.1821 |
|          | 0.1965 | 0.2366 |          | 0.1777 | 0.2011 |
|          | 0.2043 | 0.2341 |          | 0.1854 | 0.1986 |
|          | 0.1986 | 0.2151 |          | 0.1798 | 0.1796 |
| CF5      | 0.1986 | 0.2151 | CD4      | 0.1798 | 0.1796 |
|          | 0.2043 | 0.2341 |          | 0.1854 | 0.1986 |
|          | 0.2118 | 0.2317 |          | 0.1930 | 0.1961 |
|          | 0.2062 | 0.2127 |          | 0.1875 | 0.1771 |
| CE0      | 0.1548 | 0.2085 | CD5      | 0.1875 | 0.1771 |
|          | 0.1604 | 0.2275 |          | 0.1930 | 0.1961 |
|          | 0.1680 | 0.2250 |          | 0.2007 | 0.1937 |
|          | 0.1624 | 0.2060 |          | 0.1951 | 0.1747 |
| CE1      | 0.1624 | 0.2060 | CC0      | 0.1436 | 0.1705 |
|          | 0.1680 | 0.2250 |          | 0.1492 | 0.1895 |
|          | 0.1757 | 0.2226 |          | 0.1568 | 0.1870 |
|          | 0.1701 | 0.2036 |          | 0.1513 | 0.1680 |
| CE2      | 0.1701 | 0.2036 | CC1      | 0.1513 | 0.1680 |
|          | 0.1757 | 0.2226 |          | 0.1568 | 0.1870 |
|          | 0.1833 | 0.2201 |          | 0.1645 | 0.1846 |
|          | 0.1777 | 0.2011 |          | 0.1589 | 0.1656 |
| CE3      | 0.1777 | 0.2011 | CC2      | 0.1589 | 0.1656 |
|          | 0.1833 | 0.2201 |          | 0.1645 | 0.1846 |
|          | 0.1909 | 0.2176 |          | 0.1721 | 0.1821 |
|          | 0.1854 | 0.1986 |          | 0.1666 | 0.1631 |
| CE4      | 0.1854 | 0.1986 | CC3      | 0.1666 | 0.1631 |
|          | 0.1909 | 0.2176 |          | 0.1721 | 0.1821 |
|          | 0.1986 | 0.2151 |          | 0.1798 | 0.1796 |
|          | 0.1930 | 0.1961 |          | 0.1742 | 0.1606 |

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| CC4      | 0.1742 | 0.1606 | CB5      | 0.1764 | 0.1391 |
|          | 0.1798 | 0.1796 |          | 0.1819 | 0.1581 |
|          | 0.1875 | 0.1771 |          | 0.1896 | 0.1557 |
|          | 0.1819 | 0.1581 |          | 0.1840 | 0.1367 |
| CC5      | 0.1819 | 0.1581 | CA0      | 0.1324 | 0.1325 |
|          | 0.1875 | 0.1771 |          | 0.1380 | 0.1515 |
|          | 0.1951 | 0.1747 |          | 0.1457 | 0.1490 |
|          | 0.1896 | 0.1557 |          | 0.1401 | 0.1300 |
| CB0      | 0.1380 | 0.1515 | CA1      | 0.1401 | 0.1300 |
|          | 0.1436 | 0.1705 |          | 0.1457 | 0.1490 |
|          | 0.1513 | 0.1680 |          | 0.1533 | 0.1466 |
|          | 0.1457 | 0.1490 |          | 0.1477 | 0.1276 |
| CB1      | 0.1457 | 0.1490 | CA2      | 0.1477 | 0.1276 |
|          | 0.1513 | 0.1680 |          | 0.1533 | 0.1466 |
|          | 0.1589 | 0.1656 |          | 0.1610 | 0.1441 |
|          | 0.1533 | 0.1466 |          | 0.1554 | 0.1251 |
| CB2      | 0.1533 | 0.1466 | CA3      | 0.1554 | 0.1251 |
|          | 0.1589 | 0.1656 |          | 0.1610 | 0.1441 |
|          | 0.1666 | 0.1631 |          | 0.1687 | 0.1416 |
|          | 0.1610 | 0.1441 |          | 0.1631 | 0.1226 |
| CB3      | 0.1610 | 0.1441 | CA4      | 0.1631 | 0.1226 |
|          | 0.1666 | 0.1631 |          | 0.1687 | 0.1416 |
|          | 0.1742 | 0.1606 |          | 0.1764 | 0.1391 |
|          | 0.1687 | 0.1416 |          | 0.1708 | 0.1201 |
| CB4      | 0.1687 | 0.1416 | CA5      | 0.1708 | 0.1201 |
|          | 0.1742 | 0.1606 |          | 0.1764 | 0.1391 |
|          | 0.1819 | 0.1581 |          | 0.1840 | 0.1367 |
|          | 0.1764 | 0.1391 |          | 0.1785 | 0.1177 |

AUTOMOTIVE  
BIN SELECTION

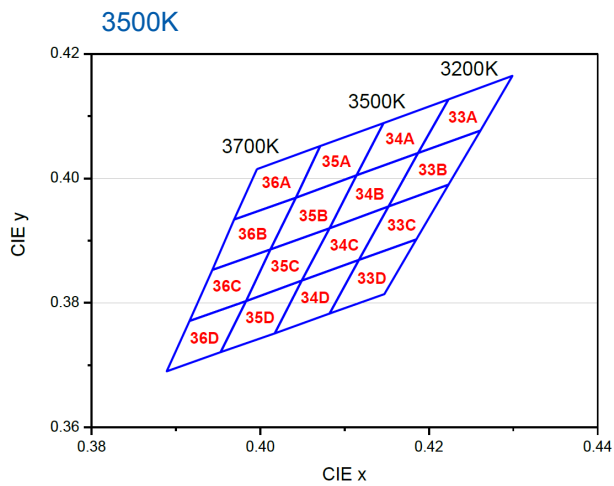
Interior / 5630/2835



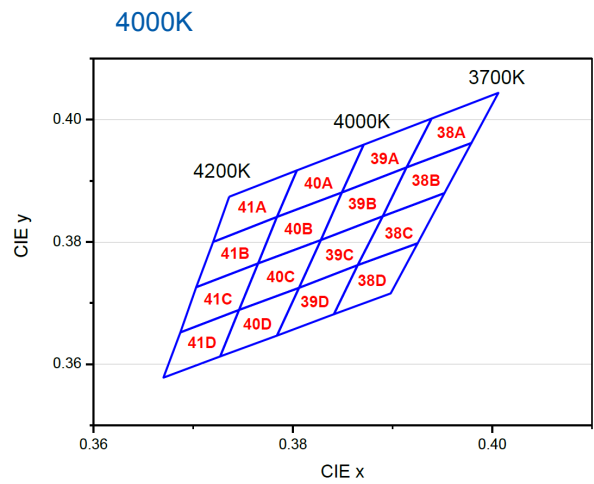
Bin Range of Chromaticity Coordinates Specifications

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 2700K | 25A      | 0.4750 | 0.4304 | 25B      | 0.4697 | 0.4211 |
|       |          | 0.4697 | 0.4211 |          | 0.4644 | 0.4118 |
|       |          | 0.4758 | 0.4225 |          | 0.4703 | 0.4132 |
|       |          | 0.4810 | 0.4319 |          | 0.4758 | 0.4225 |
|       | 25C      | 0.4644 | 0.4118 | 25D      | 0.4591 | 0.4025 |
|       |          | 0.4591 | 0.4025 |          | 0.4538 | 0.3932 |
|       |          | 0.4648 | 0.4038 |          | 0.4593 | 0.3944 |
|       |          | 0.4703 | 0.4132 |          | 0.4648 | 0.4038 |
|       | 26A      | 0.4687 | 0.4289 | 26B      | 0.4636 | 0.4197 |
|       |          | 0.4636 | 0.4197 |          | 0.4585 | 0.4104 |
|       |          | 0.4697 | 0.4211 |          | 0.4644 | 0.4118 |
|       |          | 0.4750 | 0.4304 |          | 0.4697 | 0.4211 |
|       | 26C      | 0.4585 | 0.4104 | 26D      | 0.4534 | 0.4012 |
|       |          | 0.4534 | 0.4012 |          | 0.4483 | 0.3919 |
|       |          | 0.4591 | 0.4025 |          | 0.4538 | 0.3932 |
|       |          | 0.4644 | 0.4118 |          | 0.4591 | 0.4025 |
|       | 27A      | 0.4625 | 0.4275 | 27B      | 0.4575 | 0.4182 |
|       |          | 0.4575 | 0.4182 |          | 0.4526 | 0.4090 |
|       |          | 0.4636 | 0.4197 |          | 0.4585 | 0.4104 |
|       |          | 0.4687 | 0.4289 |          | 0.4636 | 0.4197 |
|       | 27C      | 0.4526 | 0.4090 | 27D      | 0.4477 | 0.3998 |
|       |          | 0.4477 | 0.3998 |          | 0.4428 | 0.3906 |
|       |          | 0.4534 | 0.4012 |          | 0.4483 | 0.3919 |
|       |          | 0.4585 | 0.4104 |          | 0.4534 | 0.4012 |
|       | 28A      | 0.4562 | 0.4260 | 28B      | 0.4515 | 0.4168 |
|       |          | 0.4515 | 0.4168 |          | 0.4468 | 0.4077 |
|       |          | 0.4575 | 0.4182 |          | 0.4526 | 0.4090 |
|       |          | 0.4625 | 0.4275 |          | 0.4575 | 0.4182 |
|       | 28C      | 0.4468 | 0.4077 | 28D      | 0.4420 | 0.3985 |
|       |          | 0.4420 | 0.3985 |          | 0.4373 | 0.3893 |
|       |          | 0.4477 | 0.3998 |          | 0.4428 | 0.3906 |
|       |          | 0.4526 | 0.4090 |          | 0.4477 | 0.3998 |

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 3000K | 29A      | 0.4496 | 0.4236 | 29B      | 0.4451 | 0.4145 |
|       |          | 0.4451 | 0.4145 |          | 0.4406 | 0.4055 |
|       |          | 0.4514 | 0.4168 |          | 0.4468 | 0.4077 |
|       |          | 0.4562 | 0.4260 |          | 0.4515 | 0.4168 |
|       | 29C      | 0.4406 | 0.4055 | 29D      | 0.4361 | 0.3964 |
|       |          | 0.4361 | 0.3964 |          | 0.4316 | 0.3873 |
|       |          | 0.4420 | 0.3985 |          | 0.4373 | 0.3893 |
|       |          | 0.4468 | 0.4077 |          | 0.4420 | 0.3985 |
|       | 30A      | 0.4430 | 0.4212 | 30B      | 0.4387 | 0.4122 |
|       |          | 0.4387 | 0.4122 |          | 0.4345 | 0.4033 |
|       |          | 0.4451 | 0.4145 |          | 0.4406 | 0.4055 |
|       |          | 0.4496 | 0.4236 |          | 0.4451 | 0.4145 |
|       | 30C      | 0.4345 | 0.4033 | 30D      | 0.4302 | 0.3943 |
|       |          | 0.4302 | 0.3943 |          | 0.4259 | 0.3853 |
|       |          | 0.4361 | 0.3964 |          | 0.4316 | 0.3873 |
|       |          | 0.4406 | 0.4055 |          | 0.4361 | 0.3964 |
|       | 31A      | 0.4364 | 0.4188 | 31B      | 0.4324 | 0.4100 |
|       |          | 0.4324 | 0.4099 |          | 0.4284 | 0.4011 |
|       |          | 0.4387 | 0.4122 |          | 0.4345 | 0.4033 |
|       |          | 0.4430 | 0.4212 |          | 0.4387 | 0.4122 |
|       | 31C      | 0.4284 | 0.4011 | 31D      | 0.4302 | 0.3943 |
|       |          | 0.4243 | 0.3922 |          | 0.4259 | 0.3853 |
|       |          | 0.4302 | 0.3943 |          | 0.4203 | 0.3834 |
|       |          | 0.4345 | 0.4033 |          | 0.4243 | 0.3922 |
|       | 32A      | 0.4299 | 0.4165 | 32B      | 0.4261 | 0.4077 |
|       |          | 0.4261 | 0.4077 |          | 0.4223 | 0.3990 |
|       |          | 0.4324 | 0.4100 |          | 0.4284 | 0.4011 |
|       |          | 0.4365 | 0.4189 |          | 0.4324 | 0.4100 |
|       | 32C      | 0.4223 | 0.3990 | 32D      | 0.4243 | 0.3922 |
|       |          | 0.4185 | 0.3902 |          | 0.4203 | 0.3834 |
|       |          | 0.4243 | 0.3922 |          | 0.4147 | 0.3814 |
|       |          | 0.4284 | 0.4011 |          | 0.4185 | 0.3902 |



Bin Range of Chromaticity Coordinates Specifications



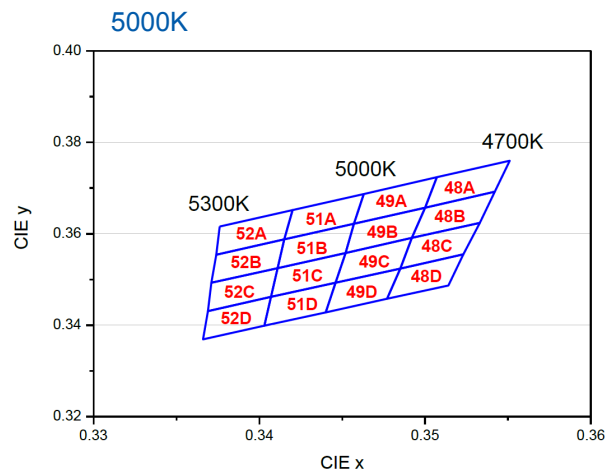
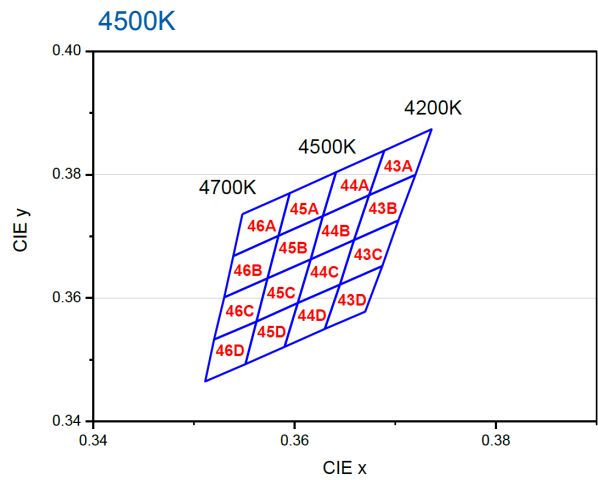
Bin Range of Chromaticity Coordinates Specifications

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 3500K | 33A      | 0.4223 | 0.4127 | 33B      | 0.4187 | 0.4041 |
|       |          | 0.4187 | 0.4041 |          | 0.4152 | 0.3955 |
|       |          | 0.4261 | 0.4077 |          | 0.4223 | 0.3990 |
|       |          | 0.4299 | 0.4165 |          | 0.4261 | 0.4077 |
|       | 33C      | 0.4152 | 0.3955 | 33D      | 0.4117 | 0.3869 |
|       |          | 0.4117 | 0.3869 |          | 0.4082 | 0.3783 |
|       |          | 0.4185 | 0.3902 |          | 0.4147 | 0.3814 |
|       |          | 0.4223 | 0.3990 |          | 0.4185 | 0.3902 |
|       | 34A      | 0.4146 | 0.4089 | 34B      | 0.4114 | 0.4005 |
|       |          | 0.4114 | 0.4005 |          | 0.4082 | 0.3920 |
|       |          | 0.4187 | 0.4041 |          | 0.4152 | 0.3955 |
|       |          | 0.4223 | 0.4127 |          | 0.4187 | 0.4041 |
|       | 34C      | 0.4082 | 0.3920 | 34D      | 0.4049 | 0.3836 |
|       |          | 0.4049 | 0.3836 |          | 0.4017 | 0.3751 |
|       |          | 0.4117 | 0.3869 |          | 0.4082 | 0.3783 |
|       |          | 0.4152 | 0.3955 |          | 0.4117 | 0.3869 |
|       | 35A      | 0.4071 | 0.4052 | 35B      | 0.4042 | 0.3969 |
|       |          | 0.4042 | 0.3969 |          | 0.4012 | 0.3886 |
|       |          | 0.4114 | 0.4005 |          | 0.4082 | 0.3920 |
|       |          | 0.4146 | 0.4089 |          | 0.4114 | 0.4005 |
|       | 35C      | 0.4012 | 0.3886 | 35D      | 0.3983 | 0.3803 |
|       |          | 0.3983 | 0.3803 |          | 0.3953 | 0.3721 |
|       |          | 0.4049 | 0.3836 |          | 0.4017 | 0.3751 |
|       |          | 0.4082 | 0.3920 |          | 0.4049 | 0.3836 |
|       | 36A      | 0.3996 | 0.4015 | 36B      | 0.3969 | 0.3934 |
|       |          | 0.3969 | 0.3934 |          | 0.3943 | 0.3853 |
|       |          | 0.4042 | 0.3969 |          | 0.4012 | 0.3886 |
|       |          | 0.4071 | 0.4052 |          | 0.4042 | 0.3969 |
|       | 36C      | 0.3943 | 0.3853 | 36D      | 0.3916 | 0.3771 |
|       |          | 0.3916 | 0.3771 |          | 0.3889 | 0.3690 |
|       |          | 0.3983 | 0.3803 |          | 0.3953 | 0.3721 |
|       |          | 0.4012 | 0.3886 |          | 0.3983 | 0.3803 |

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 4000K | 38A      | 0.3939 | 0.4002 | 38B      | 0.3914 | 0.3922 |
|       |          | 0.3914 | 0.3922 |          | 0.3890 | 0.3842 |
|       |          | 0.3979 | 0.3962 |          | 0.3952 | 0.3880 |
|       |          | 0.4006 | 0.4044 |          | 0.3979 | 0.3962 |
|       | 38C      | 0.3890 | 0.3842 | 38D      | 0.3865 | 0.3762 |
|       |          | 0.3865 | 0.3762 |          | 0.3841 | 0.3682 |
|       |          | 0.3925 | 0.3798 |          | 0.3898 | 0.3716 |
|       |          | 0.3952 | 0.3880 |          | 0.3925 | 0.3798 |
|       | 39A      | 0.3871 | 0.3959 | 39B      | 0.3849 | 0.3881 |
|       |          | 0.3849 | 0.3881 |          | 0.3828 | 0.3803 |
|       |          | 0.3914 | 0.3922 |          | 0.3890 | 0.3842 |
|       |          | 0.3939 | 0.4002 |          | 0.3914 | 0.3922 |
|       | 39C      | 0.3828 | 0.3803 | 39D      | 0.3806 | 0.3725 |
|       |          | 0.3806 | 0.3725 |          | 0.3784 | 0.3647 |
|       |          | 0.3865 | 0.3762 |          | 0.3841 | 0.3682 |
|       |          | 0.3890 | 0.3842 |          | 0.3865 | 0.3762 |
|       | 40A      | 0.3804 | 0.3917 | 40B      | 0.3784 | 0.3841 |
|       |          | 0.3784 | 0.3841 |          | 0.3765 | 0.3765 |
|       |          | 0.3849 | 0.3881 |          | 0.3828 | 0.3803 |
|       |          | 0.3871 | 0.3959 |          | 0.3849 | 0.3881 |
|       | 40C      | 0.3765 | 0.3765 | 40D      | 0.3746 | 0.3689 |
|       |          | 0.3746 | 0.3689 |          | 0.3727 | 0.3613 |
|       |          | 0.3806 | 0.3725 |          | 0.3784 | 0.3647 |
|       |          | 0.3828 | 0.3803 |          | 0.3806 | 0.3725 |
|       | 41A      | 0.3736 | 0.3874 | 41B      | 0.3720 | 0.3800 |
|       |          | 0.3720 | 0.3800 |          | 0.3703 | 0.3726 |
|       |          | 0.3784 | 0.3841 |          | 0.3765 | 0.3765 |
|       |          | 0.3804 | 0.3917 |          | 0.3784 | 0.3841 |
|       | 41C      | 0.3703 | 0.3726 | 41D      | 0.3687 | 0.3652 |
|       |          | 0.3687 | 0.3652 |          | 0.3670 | 0.3578 |
|       |          | 0.3746 | 0.3689 |          | 0.3727 | 0.3613 |
|       |          | 0.3765 | 0.3765 |          | 0.3746 | 0.3689 |

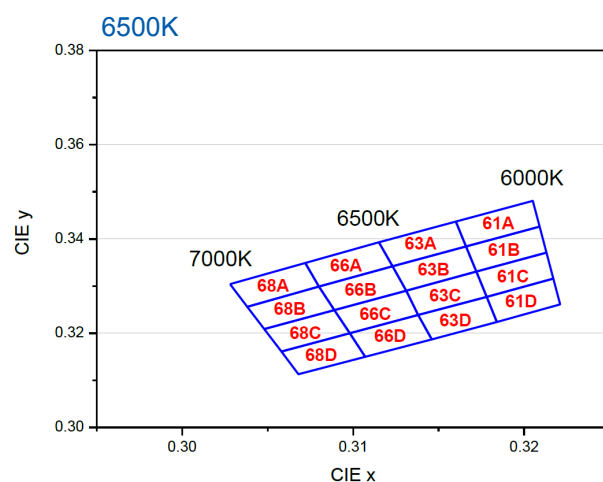
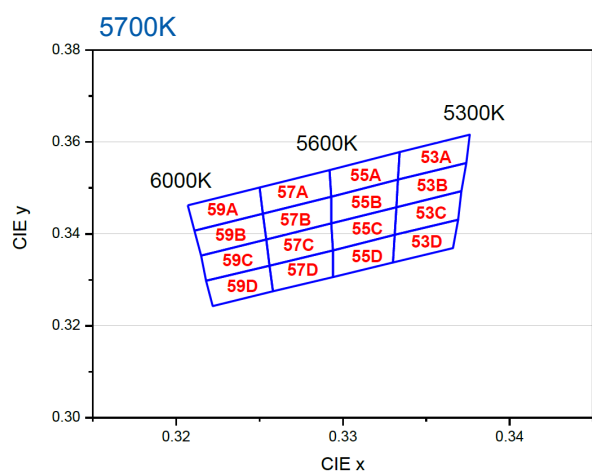
AUTOMOTIVE  
BIN SELECTION

Interior / 5630/2835



| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 4500K | 43A      | 0.3689 | 0.3839 | 43B      | 0.3674 | 0.3767 |
|       |          | 0.3674 | 0.3767 |          | 0.3659 | 0.3694 |
|       |          | 0.3720 | 0.3800 |          | 0.3703 | 0.3726 |
|       |          | 0.3736 | 0.3874 |          | 0.3720 | 0.3800 |
|       | 43C      | 0.3659 | 0.3694 | 43D      | 0.3645 | 0.3622 |
|       |          | 0.3645 | 0.3622 |          | 0.3630 | 0.3550 |
|       |          | 0.3687 | 0.3652 |          | 0.3670 | 0.3578 |
|       |          | 0.3703 | 0.3726 |          | 0.3687 | 0.3652 |
|       | 44A      | 0.3641 | 0.3804 | 44B      | 0.3628 | 0.3733 |
|       |          | 0.3628 | 0.3733 |          | 0.3616 | 0.3663 |
|       |          | 0.3674 | 0.3767 |          | 0.3659 | 0.3694 |
|       |          | 0.3689 | 0.3839 |          | 0.3674 | 0.3767 |
|       | 44C      | 0.3616 | 0.3663 | 44D      | 0.3603 | 0.3592 |
|       |          | 0.3603 | 0.3592 |          | 0.3590 | 0.3521 |
|       |          | 0.3645 | 0.3622 |          | 0.3630 | 0.3550 |
|       |          | 0.3659 | 0.3694 |          | 0.3645 | 0.3622 |
|       | 45A      | 0.3595 | 0.3770 | 45B      | 0.3584 | 0.3701 |
|       |          | 0.3584 | 0.3701 |          | 0.3573 | 0.3632 |
|       |          | 0.3628 | 0.3733 |          | 0.3616 | 0.3663 |
|       |          | 0.3641 | 0.3804 |          | 0.3628 | 0.3733 |
|       | 45C      | 0.3573 | 0.3632 | 45D      | 0.3562 | 0.3562 |
|       |          | 0.3562 | 0.3562 |          | 0.3551 | 0.3493 |
|       |          | 0.3603 | 0.3592 |          | 0.3590 | 0.3521 |
|       |          | 0.3616 | 0.3663 |          | 0.3603 | 0.3592 |
|       | 46A      | 0.3548 | 0.3736 | 46B      | 0.3539 | 0.3668 |
|       |          | 0.3539 | 0.3668 |          | 0.3530 | 0.3601 |
|       |          | 0.3584 | 0.3701 |          | 0.3573 | 0.3632 |
|       |          | 0.3595 | 0.3770 |          | 0.3584 | 0.3701 |
|       | 46C      | 0.3530 | 0.3601 | 46D      | 0.3520 | 0.3533 |
|       |          | 0.3520 | 0.3533 |          | 0.3511 | 0.3465 |
|       |          | 0.3562 | 0.3562 |          | 0.3551 | 0.3493 |
|       |          | 0.3573 | 0.3632 |          | 0.3562 | 0.3562 |

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 5000K | 48A      | 0.3507 | 0.3724 | 48B      | 0.3500 | 0.3657 |
|       |          | 0.3500 | 0.3657 |          | 0.3492 | 0.3591 |
|       |          | 0.3542 | 0.3692 |          | 0.3533 | 0.3624 |
|       |          | 0.3551 | 0.3760 |          | 0.3542 | 0.3692 |
|       | 48C      | 0.3492 | 0.3591 | 48D      | 0.3485 | 0.3524 |
|       |          | 0.3485 | 0.3524 |          | 0.3477 | 0.3458 |
|       |          | 0.3523 | 0.3555 |          | 0.3514 | 0.3487 |
|       |          | 0.3533 | 0.3624 |          | 0.3523 | 0.3555 |
|       | 49A      | 0.3463 | 0.3687 | 49B      | 0.3457 | 0.3622 |
|       |          | 0.3457 | 0.3622 |          | 0.3452 | 0.3558 |
|       |          | 0.3500 | 0.3657 |          | 0.3492 | 0.3591 |
|       |          | 0.3507 | 0.3724 |          | 0.3500 | 0.3657 |
|       | 49C      | 0.3452 | 0.3558 | 49D      | 0.3446 | 0.3493 |
|       |          | 0.3446 | 0.3493 |          | 0.3440 | 0.3428 |
|       |          | 0.3485 | 0.3524 |          | 0.3477 | 0.3458 |
|       |          | 0.3492 | 0.3591 |          | 0.3485 | 0.3524 |
|       | 51A      | 0.3420 | 0.3652 | 51B      | 0.3415 | 0.3588 |
|       |          | 0.3415 | 0.3588 |          | 0.3411 | 0.3525 |
|       |          | 0.3457 | 0.3622 |          | 0.3452 | 0.3558 |
|       |          | 0.3463 | 0.3687 |          | 0.3457 | 0.3622 |
|       | 51C      | 0.3411 | 0.3525 | 51D      | 0.3407 | 0.3462 |
|       |          | 0.3407 | 0.3462 |          | 0.3403 | 0.3399 |
|       |          | 0.3446 | 0.3493 |          | 0.3440 | 0.3428 |
|       |          | 0.3452 | 0.3558 |          | 0.3446 | 0.3493 |
|       | 52A      | 0.3376 | 0.3616 | 52B      | 0.3374 | 0.3554 |
|       |          | 0.3374 | 0.3554 |          | 0.3371 | 0.3493 |
|       |          | 0.3415 | 0.3588 |          | 0.3411 | 0.3525 |
|       |          | 0.3420 | 0.3652 |          | 0.3415 | 0.3588 |
|       | 52C      | 0.3371 | 0.3493 | 52D      | 0.3369 | 0.3431 |
|       |          | 0.3369 | 0.3431 |          | 0.3366 | 0.3369 |
|       |          | 0.3407 | 0.3462 |          | 0.3403 | 0.3399 |
|       |          | 0.3411 | 0.3525 |          | 0.3407 | 0.3462 |



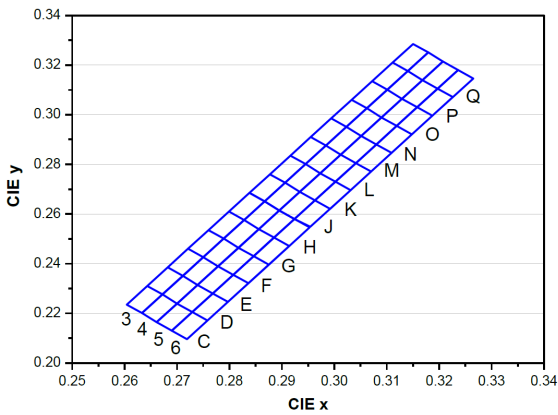
Bin Range of Chromaticity Coordinates Specifications

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 5700K | 53A      | 0.3334 | 0.3578 | 53B      | 0.3333 | 0.3518 |
|       |          | 0.3333 | 0.3518 |          | 0.3332 | 0.3458 |
|       |          | 0.3374 | 0.3554 |          | 0.3371 | 0.3493 |
|       |          | 0.3376 | 0.3616 |          | 0.3374 | 0.3554 |
|       | 53C      | 0.3332 | 0.3458 | 53D      | 0.3331 | 0.3398 |
|       |          | 0.3331 | 0.3398 |          | 0.3330 | 0.3338 |
|       |          | 0.3369 | 0.3431 |          | 0.3366 | 0.3369 |
|       |          | 0.3371 | 0.3493 |          | 0.3369 | 0.3431 |
|       | 55A      | 0.3292 | 0.3539 | 55B      | 0.3293 | 0.3481 |
|       |          | 0.3293 | 0.3481 |          | 0.3293 | 0.3423 |
|       |          | 0.3333 | 0.3518 |          | 0.3332 | 0.3458 |
|       |          | 0.3334 | 0.3578 |          | 0.3333 | 0.3518 |
|       | 55C      | 0.3293 | 0.3423 | 55D      | 0.3294 | 0.3364 |
|       |          | 0.3294 | 0.3364 |          | 0.3294 | 0.3306 |
|       |          | 0.3331 | 0.3398 |          | 0.3330 | 0.3338 |
|       |          | 0.3332 | 0.3458 |          | 0.3331 | 0.3398 |
|       | 57A      | 0.3250 | 0.3501 | 57B      | 0.3252 | 0.3444 |
|       |          | 0.3252 | 0.3444 |          | 0.3254 | 0.3388 |
|       |          | 0.3293 | 0.3481 |          | 0.3293 | 0.3423 |
|       |          | 0.3292 | 0.3539 |          | 0.3293 | 0.3481 |
|       | 57C      | 0.3254 | 0.3388 | 57D      | 0.3256 | 0.3331 |
|       |          | 0.3256 | 0.3331 |          | 0.3258 | 0.3275 |
|       |          | 0.3294 | 0.3364 |          | 0.3294 | 0.3306 |
|       |          | 0.3293 | 0.3423 |          | 0.3294 | 0.3364 |
|       | 59A      | 0.3207 | 0.3462 | 59B      | 0.3211 | 0.3407 |
|       |          | 0.3211 | 0.3407 |          | 0.3215 | 0.3353 |
|       |          | 0.3252 | 0.3444 |          | 0.3254 | 0.3388 |
|       |          | 0.3250 | 0.3501 |          | 0.3252 | 0.3444 |
|       | 59C      | 0.3215 | 0.3353 | 59D      | 0.3218 | 0.3298 |
|       |          | 0.3218 | 0.3298 |          | 0.3222 | 0.3243 |
|       |          | 0.3256 | 0.3331 |          | 0.3258 | 0.3275 |
|       |          | 0.3254 | 0.3388 |          | 0.3256 | 0.3331 |

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 6500K | 61A      | 0.3160 | 0.3437 | 61B      | 0.3166 | 0.3384 |
|       |          | 0.3166 | 0.3384 |          | 0.3172 | 0.3331 |
|       |          | 0.3209 | 0.3426 |          | 0.3213 | 0.3371 |
|       |          | 0.3205 | 0.3481 |          | 0.3209 | 0.3426 |
|       | 61C      | 0.3172 | 0.3331 | 61D      | 0.3178 | 0.3277 |
|       |          | 0.3178 | 0.3277 |          | 0.3184 | 0.3224 |
|       |          | 0.3217 | 0.3316 |          | 0.3221 | 0.3261 |
|       |          | 0.3213 | 0.3371 |          | 0.3217 | 0.3316 |
|       | 63A      | 0.3115 | 0.3393 | 63B      | 0.3123 | 0.3342 |
|       |          | 0.3123 | 0.3342 |          | 0.3131 | 0.3290 |
|       |          | 0.3166 | 0.3384 |          | 0.3172 | 0.3331 |
|       |          | 0.3160 | 0.3437 |          | 0.3166 | 0.3384 |
|       | 63C      | 0.3131 | 0.3290 | 63D      | 0.3138 | 0.3239 |
|       |          | 0.3138 | 0.3239 |          | 0.3146 | 0.3187 |
|       |          | 0.3178 | 0.3277 |          | 0.3184 | 0.3224 |
|       |          | 0.3172 | 0.3331 |          | 0.3178 | 0.3277 |
|       | 66A      | 0.3072 | 0.3349 | 66B      | 0.3080 | 0.3299 |
|       |          | 0.3080 | 0.3299 |          | 0.3089 | 0.3249 |
|       |          | 0.3123 | 0.3342 |          | 0.3131 | 0.3290 |
|       |          | 0.3115 | 0.3393 |          | 0.3123 | 0.3342 |
|       | 66C      | 0.3089 | 0.3249 | 66D      | 0.3098 | 0.3200 |
|       |          | 0.3098 | 0.3200 |          | 0.3107 | 0.3150 |
|       |          | 0.3138 | 0.3239 |          | 0.3146 | 0.3187 |
|       |          | 0.3131 | 0.3290 |          | 0.3138 | 0.3239 |
|       | 68A      | 0.3028 | 0.3304 | 68B      | 0.3038 | 0.3256 |
|       |          | 0.3038 | 0.3256 |          | 0.3048 | 0.3209 |
|       |          | 0.3080 | 0.3299 |          | 0.3089 | 0.3249 |
|       |          | 0.3072 | 0.3349 |          | 0.3080 | 0.3299 |
|       | 68C      | 0.3048 | 0.3209 | 68D      | 0.3058 | 0.3161 |
|       |          | 0.3058 | 0.3161 |          | 0.3068 | 0.3113 |
|       |          | 0.3098 | 0.3200 |          | 0.3107 | 0.3150 |
|       |          | 0.3089 | 0.3249 |          | 0.3098 | 0.3200 |

AUTOMOTIVE  
BIN SELECTION

Interior / Backlight



Bin Range of Chromaticity Coordinates Specifications

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| Q3       | 0.3140 | 0.3176 | J3       | 0.2867 | 0.2651 |
|          | 0.3111 | 0.3210 |          | 0.2838 | 0.2685 |
|          | 0.3150 | 0.3285 |          | 0.2877 | 0.2760 |
|          | 0.3179 | 0.3251 |          | 0.2906 | 0.2726 |
| P3       | 0.3101 | 0.3101 | Q4       | 0.3168 | 0.3139 |
|          | 0.3072 | 0.3135 |          | 0.3140 | 0.3176 |
|          | 0.3111 | 0.3210 |          | 0.3179 | 0.3251 |
|          | 0.3140 | 0.3176 |          | 0.3207 | 0.3214 |
| O3       | 0.3062 | 0.3026 | P4       | 0.3129 | 0.3064 |
|          | 0.3033 | 0.3060 |          | 0.3101 | 0.3101 |
|          | 0.3072 | 0.3135 |          | 0.3140 | 0.3176 |
|          | 0.3101 | 0.3101 |          | 0.3168 | 0.3139 |
| N3       | 0.3023 | 0.2951 | O4       | 0.3090 | 0.2989 |
|          | 0.2994 | 0.2985 |          | 0.3062 | 0.3026 |
|          | 0.3033 | 0.3060 |          | 0.3101 | 0.3101 |
|          | 0.3062 | 0.3026 |          | 0.3129 | 0.3064 |
| M3       | 0.2984 | 0.2876 | N4       | 0.3051 | 0.2914 |
|          | 0.2955 | 0.2910 |          | 0.3023 | 0.2951 |
|          | 0.2994 | 0.2985 |          | 0.3062 | 0.3026 |
|          | 0.3023 | 0.2951 |          | 0.3090 | 0.2989 |
| L3       | 0.2945 | 0.2801 | M4       | 0.3012 | 0.2839 |
|          | 0.2916 | 0.2835 |          | 0.2984 | 0.2876 |
|          | 0.2955 | 0.2910 |          | 0.3023 | 0.2951 |
|          | 0.2984 | 0.2876 |          | 0.3051 | 0.2914 |
| K3       | 0.2906 | 0.2726 | L4       | 0.2973 | 0.2764 |
|          | 0.2877 | 0.2760 |          | 0.2945 | 0.2801 |
|          | 0.2916 | 0.2835 |          | 0.2984 | 0.2876 |
|          | 0.2945 | 0.2801 |          | 0.3012 | 0.2839 |

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| K4       | 0.2934 | 0.2689 | P6       | 0.3187 | 0.2996 |
|          | 0.2906 | 0.2726 |          | 0.3158 | 0.3030 |
|          | 0.2945 | 0.2801 |          | 0.3197 | 0.3105 |
|          | 0.2973 | 0.2764 |          | 0.3226 | 0.3071 |
| J4       | 0.2895 | 0.2614 | O6       | 0.3148 | 0.2921 |
|          | 0.2867 | 0.2651 |          | 0.3119 | 0.2955 |
|          | 0.2906 | 0.2726 |          | 0.3158 | 0.3030 |
|          | 0.2934 | 0.2689 |          | 0.3187 | 0.2996 |
| Q5       | 0.3197 | 0.3105 | N6       | 0.3109 | 0.2846 |
|          | 0.3168 | 0.3139 |          | 0.3080 | 0.2880 |
|          | 0.3207 | 0.3214 |          | 0.3119 | 0.2955 |
|          | 0.3236 | 0.3180 |          | 0.3148 | 0.2921 |
| P5       | 0.3158 | 0.3030 | M6       | 0.3070 | 0.2771 |
|          | 0.3129 | 0.3064 |          | 0.3041 | 0.2805 |
|          | 0.3168 | 0.3139 |          | 0.3080 | 0.2880 |
|          | 0.3197 | 0.3105 |          | 0.3109 | 0.2846 |
| O5       | 0.3119 | 0.2955 | L6       | 0.3031 | 0.2696 |
|          | 0.3090 | 0.2989 |          | 0.3002 | 0.2730 |
|          | 0.3129 | 0.3064 |          | 0.3041 | 0.2805 |
|          | 0.3158 | 0.3030 |          | 0.3070 | 0.2771 |
| N5       | 0.3080 | 0.2880 | K6       | 0.2992 | 0.2621 |
|          | 0.3051 | 0.2914 |          | 0.2963 | 0.2655 |
|          | 0.3090 | 0.2989 |          | 0.3002 | 0.2730 |
|          | 0.3119 | 0.2955 |          | 0.3031 | 0.2696 |
| M5       | 0.3041 | 0.2805 | J6       | 0.2953 | 0.2546 |
|          | 0.3012 | 0.2839 |          | 0.2924 | 0.2580 |
|          | 0.3051 | 0.2914 |          | 0.2963 | 0.2655 |
|          | 0.3080 | 0.2880 |          | 0.2992 | 0.2621 |
| L5       | 0.3002 | 0.2730 | H3       | 0.2828 | 0.2576 |
|          | 0.2973 | 0.2764 |          | 0.2799 | 0.2610 |
|          | 0.3012 | 0.2839 |          | 0.2838 | 0.2685 |
|          | 0.3041 | 0.2805 |          | 0.2867 | 0.2651 |
| K5       | 0.2963 | 0.2655 | G3       | 0.2789 | 0.2501 |
|          | 0.2934 | 0.2689 |          | 0.2760 | 0.2535 |
|          | 0.2973 | 0.2764 |          | 0.2799 | 0.2610 |
|          | 0.3002 | 0.2730 |          | 0.2828 | 0.2576 |
| J5       | 0.2924 | 0.2580 | F3       | 0.2750 | 0.2426 |
|          | 0.2895 | 0.2614 |          | 0.2721 | 0.2460 |
|          | 0.2934 | 0.2689 |          | 0.2760 | 0.2535 |
|          | 0.2963 | 0.2655 |          | 0.2789 | 0.2501 |
| Q6       | 0.3226 | 0.3071 | E3       | 0.2711 | 0.2351 |
|          | 0.3197 | 0.3105 |          | 0.2682 | 0.2385 |
|          | 0.3236 | 0.3180 |          | 0.2721 | 0.2460 |
|          | 0.3265 | 0.3146 |          | 0.2750 | 0.2426 |

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| D3       | 0.2672 | 0.2276 | E5       | 0.2768 | 0.2280 |
|          | 0.2643 | 0.2310 |          | 0.2739 | 0.2314 |
|          | 0.2682 | 0.2385 |          | 0.2778 | 0.2389 |
|          | 0.2711 | 0.2351 |          | 0.2807 | 0.2355 |
| C3       | 0.2633 | 0.2201 | D5       | 0.2729 | 0.2205 |
|          | 0.2604 | 0.2235 |          | 0.2700 | 0.2239 |
|          | 0.2643 | 0.2310 |          | 0.2739 | 0.2314 |
|          | 0.2672 | 0.2276 |          | 0.2768 | 0.2280 |
| H4       | 0.2856 | 0.2539 | C5       | 0.2690 | 0.2130 |
|          | 0.2828 | 0.2576 |          | 0.2661 | 0.2164 |
|          | 0.2867 | 0.2651 |          | 0.2700 | 0.2239 |
|          | 0.2895 | 0.2614 |          | 0.2729 | 0.2205 |
| G4       | 0.2817 | 0.2464 | H6       | 0.2914 | 0.2471 |
|          | 0.2789 | 0.2501 |          | 0.2885 | 0.2505 |
|          | 0.2828 | 0.2576 |          | 0.2924 | 0.2580 |
|          | 0.2856 | 0.2539 |          | 0.2953 | 0.2546 |
| F4       | 0.2778 | 0.2389 | G6       | 0.2875 | 0.2396 |
|          | 0.2750 | 0.2426 |          | 0.2846 | 0.2430 |
|          | 0.2789 | 0.2501 |          | 0.2885 | 0.2505 |
|          | 0.2817 | 0.2464 |          | 0.2914 | 0.2471 |
| E4       | 0.2739 | 0.2314 | F6       | 0.2836 | 0.2321 |
|          | 0.2711 | 0.2351 |          | 0.2807 | 0.2355 |
|          | 0.2750 | 0.2426 |          | 0.2846 | 0.2430 |
|          | 0.2778 | 0.2389 |          | 0.2875 | 0.2396 |
| D4       | 0.2700 | 0.2239 | E6       | 0.2797 | 0.2246 |
|          | 0.2672 | 0.2276 |          | 0.2768 | 0.2280 |
|          | 0.2711 | 0.2351 |          | 0.2807 | 0.2355 |
|          | 0.2739 | 0.2314 |          | 0.2836 | 0.2321 |
| C4       | 0.2661 | 0.2164 | D6       | 0.2758 | 0.2171 |
|          | 0.2633 | 0.2201 |          | 0.2729 | 0.2205 |
|          | 0.2672 | 0.2276 |          | 0.2768 | 0.2280 |
|          | 0.2700 | 0.2239 |          | 0.2797 | 0.2246 |
| H5       | 0.2885 | 0.2505 | C6       | 0.2719 | 0.2096 |
|          | 0.2856 | 0.2539 |          | 0.2690 | 0.2130 |
|          | 0.2895 | 0.2614 |          | 0.2729 | 0.2205 |
|          | 0.2924 | 0.2580 |          | 0.2758 | 0.2171 |
| G5       | 0.2846 | 0.2430 |          |        |        |
|          | 0.2817 | 0.2464 |          |        |        |
|          | 0.2856 | 0.2539 |          |        |        |
|          | 0.2885 | 0.2505 |          |        |        |
| F5       | 0.2807 | 0.2355 |          |        |        |
|          | 0.2778 | 0.2389 |          |        |        |
|          | 0.2817 | 0.2464 |          |        |        |
|          | 0.2846 | 0.2430 |          |        |        |





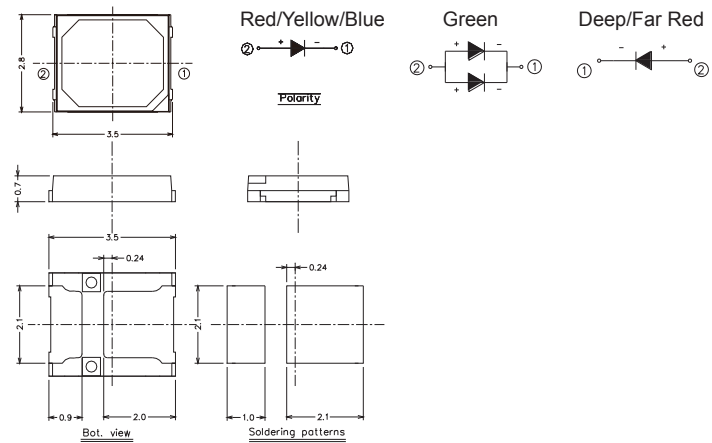
# VISIBLE LED

- 54** Lighting LED
- 73** Horticulture Lighting
- 75** UV
- 82** Flash LED
- 87** SMD LED
- 133** LED Lamps
- 150** LED Digital Displays
- 168** Signage LED
- 175** Automotive LED
- 194** Backlighting LED

Lighting | 2835(67-xxS)



UNIT : mm

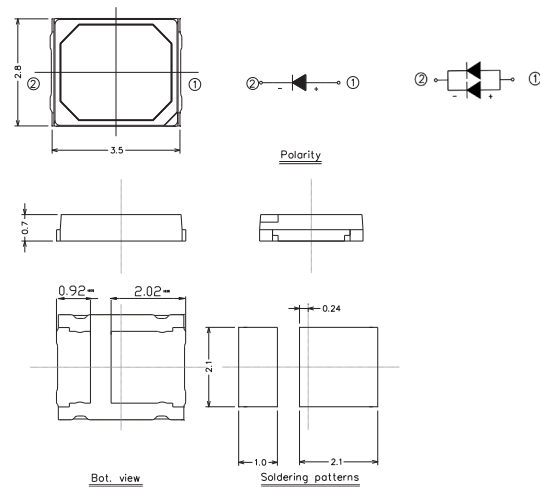


0.2W / 3V

| Product                         | Dimension (mm) | Forward Voltage (V) | Forward Current (mA) | Color    | CCT (K)   | Luminous Flux(Min.) | Luminous Flux(Typ.) |
|---------------------------------|----------------|---------------------|----------------------|----------|-----------|---------------------|---------------------|
| 67-21S/B3C-D4555D5D72936Z6/2T   | 2.8x3.5x0.7    | 2.9~3.6             | 60                   | Blue     | 445~455nm | 2.5lm               | 3.25lm              |
| G67-12S/G2C-D1525L4L82934Z6/2T  | 2.8x3.5x0.7    | 2.9~3.4             | 60                   | Green    | 515~525nm | 13lm                | 15.5lm              |
| 67-21S/R2C-D2030B8L31926Z6/2T   | 2.8x3.5x0.7    | 1.9~2.6             | 60                   | Red      | 620~630nm | 9lm                 | 11lm                |
| 67-21S/Y2C-D8595B7L32128Z6/2T   | 2.8x3.5x0.7    | 2.1~2.8             | 60                   | Yellow   | 585~595nm | 8.5lm               | 10.75lm             |
| 67-21S/NDR2C-P5080B2C12029Z6/2T | 2.8x3.5x0.7    | 2.0~2.9             | 60                   | Deep Red | 650~680nm | 40mW                | 70mW                |
| 67-21S/NFR2C-P2050A3B21522Z6/2T | 2.8x3.5x0.7    | 1.5~2.2             | 60                   | FarRed   | 720~750nm | 15mW                | 32.5mW              |



UNIT : mm



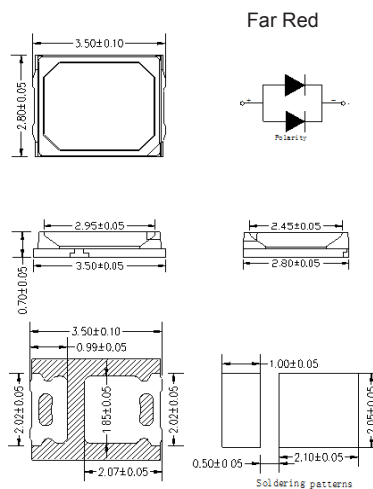
0.5W / 3V

| Product                           | Dimension (mm) | Forward Voltage (V) | Forward Current (mA) | Color    | CCT (K)   | Luminous Flux(Min.) | Luminous Flux(Typ.) |
|-----------------------------------|----------------|---------------------|----------------------|----------|-----------|---------------------|---------------------|
| 67-21S/NB3C-D6575B8L52936Z15/2T   | 2.8x3.5x0.7    | 2.9~3.6             | 150                  | Blue     | 465~475nm | 9lm                 | 12lm                |
| 67-21S/NG3C-D2035N3PB2936Z15/2T   | 2.8x3.5x0.7    | 2.9~3.6             | 150                  | Green    | 520~535nm | 24lm                | 34.5lm              |
| G67-21S/R3C-D1530L6M41829Z15/2T   | 2.8x3.5x0.7    | 1.8~2.9             | 150                  | Red      | 615~630nm | 15lm                | 19.5lm              |
| 67-21S/NY3C-D9000L2L81828Z15/2T   | 2.8x3.5x0.7    | 1.8~2.8             | 150                  | Yellow   | 590~600nm | 11lm                | 19lm                |
| 67-21S/NDR3C-P5080C1C51827Z15/2T  | 2.8x3.5x0.7    | 1.8~2.7             | 150                  | Deep Red | 650~680nm | 80mW                | 130mW               |
| 67-22ST/NFR3C-P2050C1C41827Z15/2T | 2.8x3.5x0.7    | 1.8~2.7             | 150                  | FarRed   | 720~750nm | 80mW                | 130mW               |

## Lighting | 2835(67-xxS)



UNIT : mm

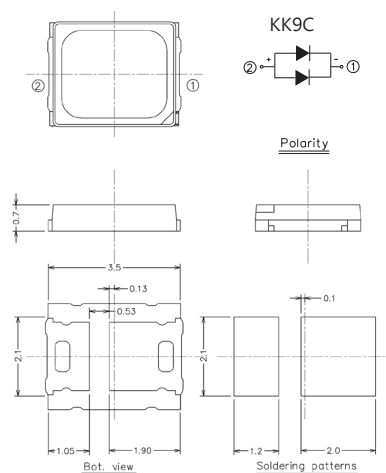


0.2W / 3V

| Product                   | Dimension (mm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux(Min.) | Luminous Flux(Typ.) | CRI (Min) | Luminous Efficacy (lm/W) |
|---------------------------|----------------|---------------------|----------------------|-----------------|---------|---------------------|---------------------|-----------|--------------------------|
| 67-22ST/KKE-5M273229Z6/2T | 2.8x3.5x0.7    | 2.6~2.9             | 60                   | ● Warm White    | 2700    | 32                  | 33                  | 80        | 165                      |
| 67-22ST/KKE-5M303329Z6/2T | 2.8x3.5x0.7    | 2.6~2.9             | 60                   | ● Warm White    | 3000    | 33                  | 34                  | 80        | 170                      |
| 67-22ST/KKE-5M353529Z6/2T | 2.8x3.5x0.7    | 2.6~2.9             | 60                   | ● Warm White    | 3500    | 35                  | 36                  | 80        | 180                      |
| 67-22ST/KKE-5M403629Z6/2T | 2.8x3.5x0.7    | 2.6~2.9             | 60                   | ○ Neutral White | 4000    | 36                  | 37                  | 80        | 185                      |
| 67-22ST/KKE-5M503629Z6/2T | 2.8x3.5x0.7    | 2.6~2.9             | 60                   | ○ Cool White    | 5000    | 36                  | 37                  | 80        | 185                      |
| 67-22ST/KKE-5M573629Z6/2T | 2.8x3.5x0.7    | 2.6~2.9             | 60                   | ○ Cool White    | 5700    | 36                  | 37                  | 80        | 185                      |
| 67-22ST/KKE-5M653529Z6/2T | 2.8x3.5x0.7    | 2.6~2.9             | 60                   | ○ Cool White    | 6500    | 35                  | 36                  | 80        | 180                      |



UNIT : mm



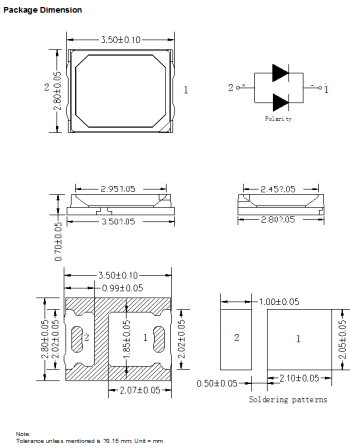
0.5W / 3V

| Product                   | Dimension (mm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (Min.) | Luminous Efficacy (lm/W) |
|---------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-22ST/KKX-N277530Z15/2T | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ● Warm White    | 2700    | 75                   | 79                   | 80         | 192                      |
| 67-22ST/KKX-N308030Z15/2T | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ● Warm White    | 3000    | 80                   | 84                   | 80         | 204                      |
| 67-22ST/KKX-N358030Z15/2T | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ● Warm White    | 3500    | 80                   | 84                   | 80         | 204                      |
| 67-22ST/KKX-N408530Z15/2T | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ○ Neutral White | 4000    | 85                   | 89                   | 80         | 216                      |
| 67-22ST/KKX-N508530Z15/2T | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ○ Cool White    | 5000    | 85                   | 89                   | 80         | 216                      |
| 67-22ST/KKX-N578530Z15/2T | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ○ Cool White    | 5700    | 85                   | 89                   | 80         | 216                      |

Lighting | 2835(67-xxS)



UNIT : mm

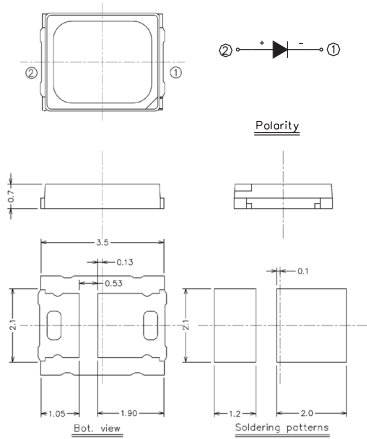


0.5W / 3V

| Product                         | Dimension (mm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux(Min.) | Luminous Flux(Typ.) | CRI (Min) | Luminous Efficacy (lm/W) |
|---------------------------------|----------------|---------------------|----------------------|-----------------|---------|---------------------|---------------------|-----------|--------------------------|
| 67-22ST/KK9C-H278030Z15/2T(EMM) | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ● Warm White    | 2700    | 80                  | 84                  | 80        | 168                      |
| 67-22ST/KK9C-H308530Z15/2T(EMM) | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ● Warm White    | 3000    | 85                  | 89                  | 80        | 178                      |
| 67-22ST/KK9C-H358530Z15/2T(EMM) | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ● Warm White    | 3500    | 85                  | 89                  | 80        | 178                      |
| 67-22ST/KK9C-H409030Z15/2T(EMM) | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ○ Neutral White | 4000    | 90                  | 94                  | 80        | 188                      |
| 67-22ST/KK9C-H509030Z15/2T(EMM) | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ○ Cool White    | 5000    | 90                  | 94                  | 80        | 188                      |
| 67-22ST/KK9C-H579030Z15/2T(EMM) | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ○ Cool White    | 5700    | 90                  | 94                  | 80        | 188                      |
| 67-22ST/KK9C-H658830Z15/2T(EMM) | 2.8x3.5x0.7    | 2.7~3.0             | 150                  | ○ Cool White    | 6500    | 88                  | 92                  | 80        | 184                      |



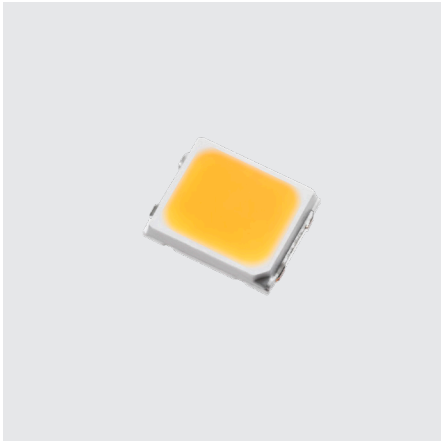
UNIT : mm



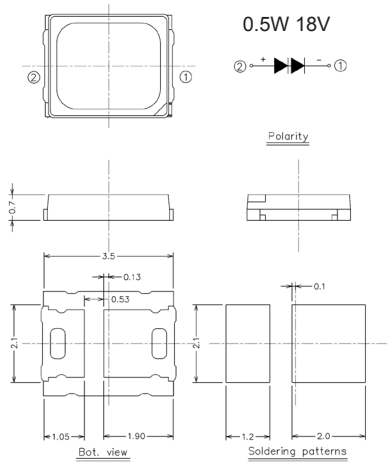
0.5W / 9V

| Product                   | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|---------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-21ST/KK6C-H277096Z6/2T | 2.8x3.5x0.7    | 8.7~9.6             | 60                   | ● Warm White    | 2700    | 70                   | 74                   | 80         | 133                      |
| 67-21ST/KK6C-H307396Z6/2T | 2.8x3.5x0.7    | 8.7~9.6             | 60                   | ● Warm White    | 3000    | 73                   | 77                   | 80         | 138                      |
| 67-21ST/KK6C-H407696Z6/2T | 2.8x3.5x0.7    | 8.7~9.6             | 60                   | ○ Neutral White | 4000    | 76                   | 80                   | 80         | 143                      |
| 67-21ST/KK6C-H507696Z6/2T | 2.8x3.5x0.7    | 8.7~9.6             | 60                   | ○ Cool White    | 5000    | 76                   | 80                   | 80         | 143                      |
| 67-21ST/KK6C-H577696Z6/2T | 2.8x3.5x0.7    | 8.7~9.6             | 60                   | ○ Cool White    | 5700    | 76                   | 80                   | 80         | 143                      |
| 67-21ST/KK6C-H657696Z6/2T | 2.8x3.5x0.7    | 8.7~9.6             | 60                   | ○ Cool White    | 6500    | 76                   | 80                   | 80         | 143                      |

Lighting | 2835(67-xxS)



UNIT : mm



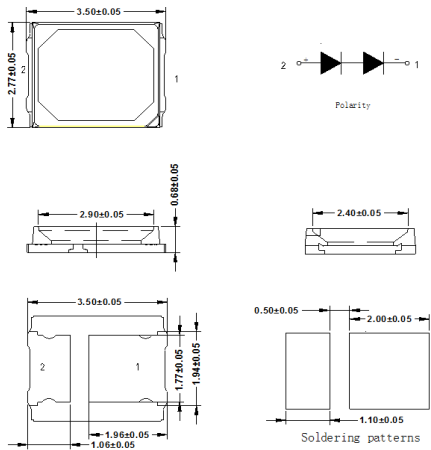
0.5W / 18V

| Product                       | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color           | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|-------------------------------|-------------------|---------------------------|----------------------------|-----------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 67-22ST/KKE-N2765200Z3/SZM/2T | 2.8x3.5x0.7       | 17~19                     | 30                         | ● Warm White    | 2700       | 65                         | 71                         | 80            | 128                            |
| 67-22ST/KKE-N3065200Z3/SZM/2T | 2.8x3.5x0.7       | 17~19                     | 30                         | ● Warm White    | 3000       | 65                         | 71                         | 80            | 128                            |
| 67-22ST/KKE-N4070200Z3/SZM/2T | 2.8x3.5x0.7       | 17~19                     | 30                         | ○ Neutral White | 4000       | 70                         | 76                         | 80            | 137                            |
| 67-22ST/KKE-N5070200Z3/SZM/2T | 2.8x3.5x0.7       | 17~19                     | 30                         | ○ Cool White    | 5000       | 70                         | 76                         | 80            | 137                            |
| 67-22ST/KKE-N6570200Z3/SZM/2T | 2.8x3.5x0.7       | 17~19                     | 30                         | ○ Cool White    | 6500       | 70                         | 76                         | 80            | 137                            |

Lighting | 2835(67-xxS)



UNIT : mm



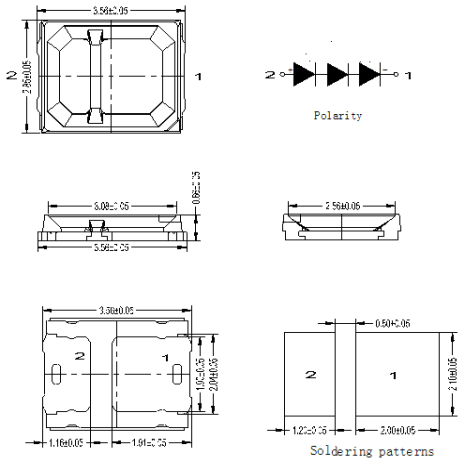
1W / 6V

| Product                      | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color           | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|------------------------------|-------------------|---------------------------|----------------------------|-----------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 67-22ST/KK8C-5M2712068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 2700       | 120                        | 124                        | 80            | 124                            |
| 67-22ST/KK8C-5M3012568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 3000       | 125                        | 129                        | 80            | 129                            |
| 67-22ST/KK8C-5M3513068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 3500       | 130                        | 134                        | 80            | 134                            |
| 67-22ST/KK8C-5M4013568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Neutral White | 4000       | 135                        | 139                        | 80            | 139                            |
| 67-22ST/KK8C-5M5013568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 5000       | 135                        | 139                        | 80            | 139                            |
| 67-22ST/KK8C-5M5713568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 5700       | 135                        | 139                        | 80            | 139                            |
| 67-22ST/KK8C-5M6013568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 6000       | 135                        | 139                        | 80            | 139                            |
| 67-22ST/KK8C-5M6513068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 6500       | 130                        | 134                        | 80            | 134                            |
| 67-22ST/KK8C-5M2712568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 2700       | 125                        | 129                        | 80            | 129                            |
| 67-22ST/KK8C-5M3013068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 3000       | 130                        | 134                        | 80            | 134                            |
| 67-22ST/KK8C-5M3513568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 3500       | 135                        | 139                        | 80            | 139                            |
| 67-22ST/KK8C-5M4014068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Neutral White | 4000       | 140                        | 144                        | 80            | 144                            |
| 67-22ST/KK8C-5M5014068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 5000       | 140                        | 144                        | 80            | 144                            |
| 67-22ST/KK8C-5M5714068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 5700       | 140                        | 144                        | 80            | 144                            |
| 67-22ST/KK8C-5M6014068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 6000       | 140                        | 144                        | 80            | 144                            |
| 67-22ST/KK8C-5M6513568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 6500       | 135                        | 139                        | 80            | 139                            |
| 67-22ST/KK8C-5M2713068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 2700       | 130                        | 134                        | 80            | 134                            |
| 67-22ST/KK8C-5M3013568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 3000       | 135                        | 139                        | 80            | 139                            |
| 67-22ST/KK8C-5M3514068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 3500       | 140                        | 144                        | 80            | 144                            |
| 67-22ST/KK8C-5M4014568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Neutral White | 4000       | 145                        | 149                        | 80            | 149                            |
| 67-22ST/KK8C-5M5014568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 5000       | 145                        | 149                        | 80            | 149                            |
| 67-22ST/KK8C-5M5714568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 5700       | 145                        | 149                        | 80            | 149                            |
| 67-22ST/KK8C-5M6014568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 6000       | 145                        | 149                        | 80            | 149                            |
| 67-22ST/KK8C-5M6514068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 6500       | 140                        | 144                        | 80            | 144                            |
| 67-22ST/KK8C-5M2714068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 2700       | 140                        | 144                        | 80            | 144                            |
| 67-22ST/KK8C-5M3014568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 3000       | 145                        | 149                        | 80            | 149                            |
| 67-22ST/KK8C-5M3515068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ● Warm White    | 3500       | 150                        | 155                        | 80            | 155                            |
| 67-22ST/KK8C-5M4015568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Neutral White | 4000       | 155                        | 160                        | 80            | 160                            |
| 67-22ST/KK8C-5M5015568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 5000       | 155                        | 160                        | 80            | 160                            |
| 67-22ST/KK8C-5M5715568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 5700       | 155                        | 160                        | 80            | 160                            |
| 67-22ST/KK8C-5M6015568Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 6000       | 155                        | 160                        | 80            | 160                            |
| 67-22ST/KK8C-5M6515068Z15/2T | 2.8x3.5x0.7       | 5.8~6.8                   | 150                        | ○ Cool White    | 6500       | 150                        | 155                        | 80            | 155                            |

Lighting | 2835(67-xxS)



UNIT : mm



1W / 9V

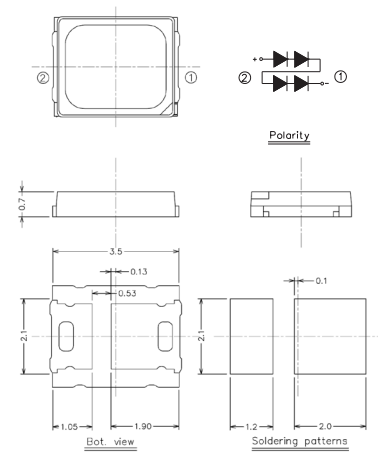
| Product                     | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color         | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|-----------------------------|-------------------|---------------------------|----------------------------|---------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 67-23ST/KKX-5M2714096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Warm White    | 2700       | 140                        | 144                        | 80            | 144                            |
| 67-23ST/KKX-5M3014596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Warm White    | 3000       | 145                        | 149                        | 80            | 149                            |
| 67-23ST/KKX-5M3515096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Warm White    | 3500       | 150                        | 155                        | 80            | 155                            |
| 67-23ST/KKX-5M4015596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Neutral White | 4000       | 155                        | 160                        | 80            | 160                            |
| 67-23ST/KKX-5M5015596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 5000       | 155                        | 160                        | 80            | 160                            |
| 67-23ST/KKX-5M5715596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 5700       | 155                        | 160                        | 80            | 160                            |
| 67-23ST/KKX-5M6015596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 6000       | 155                        | 160                        | 80            | 160                            |
| 67-23ST/KKX-5M6515096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 6500       | 150                        | 155                        | 80            | 155                            |
| 67-23ST/KKX-5M2714596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Warm White    | 2700       | 145                        | 149                        | 80            | 149                            |
| 67-23ST/KKX-5M3015096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Warm White    | 3000       | 150                        | 155                        | 80            | 155                            |
| 67-23ST/KKX-5M3515596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Warm White    | 3500       | 155                        | 160                        | 80            | 160                            |
| 67-23ST/KKX-5M4016096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Neutral White | 4000       | 160                        | 165                        | 80            | 165                            |
| 67-23ST/KKX-5M5016096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 5000       | 160                        | 165                        | 80            | 165                            |
| 67-23ST/KKX-5M5716096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 5700       | 160                        | 165                        | 80            | 165                            |
| 67-23ST/KKX-5M6016096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 6000       | 160                        | 165                        | 80            | 165                            |
| 67-23ST/KKX-5M6515596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 6500       | 155                        | 160                        | 80            | 160                            |
| 67-23ST/KKX-5M2715096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Warm White    | 2700       | 150                        | 155                        | 80            | 155                            |
| 67-23ST/KKX-5M3015596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Warm White    | 3000       | 155                        | 160                        | 80            | 160                            |
| 67-23ST/KKX-5M3516096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Warm White    | 3500       | 160                        | 165                        | 80            | 165                            |
| 67-23ST/KKX-5M4016596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Neutral White | 4000       | 165                        | 170                        | 80            | 170                            |
| 67-23ST/KKX-5M5016596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 5000       | 165                        | 170                        | 80            | 170                            |
| 67-23ST/KKX-5M5716596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 5700       | 165                        | 170                        | 80            | 170                            |
| 67-23ST/KKX-5M6016596Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 6000       | 165                        | 170                        | 80            | 170                            |
| 67-23ST/KKX-5M6516096Z10/2T | 2.8x3.5x0.7       | 8.4~9.6                   | 100                        | Cool White    | 6500       | 160                        | 165                        | 80            | 165                            |



Lighting | 2835(67-xxS)

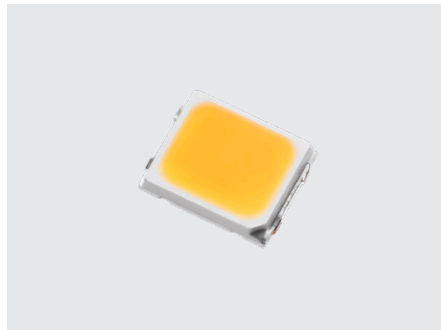


UNIT : mm

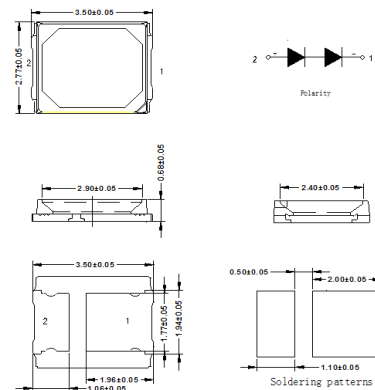


1W / 12V

| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-24ST/KKE-N27130130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | Warm White    | 2700    | 130                  | 136                  | 80         | 142                      |
| 67-24ST/KKE-N30135130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | Warm White    | 3000    | 135                  | 141                  | 80         | 147                      |
| 67-24ST/KKE-N35135130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | Warm White    | 3500    | 135                  | 141                  | 80         | 147                      |
| 67-24ST/KKE-N40140130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | Neutral White | 4000    | 140                  | 146                  | 80         | 152                      |
| 67-24ST/KKE-N50140130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | Cool White    | 5000    | 140                  | 146                  | 80         | 152                      |
| 67-24ST/KKE-N65140130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | Cool White    | 6500    | 140                  | 146                  | 80         | 152                      |



UNIT : mm



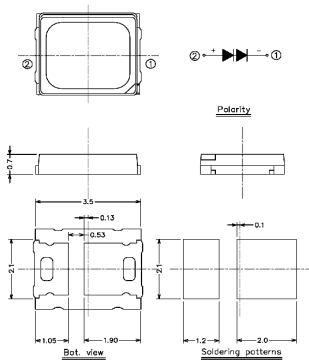
1W / 18V

| Product                      | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|------------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-22ST/KKES-5M27118190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Warm White    | 2700    | 118                  | 122                  | 80         | 122                      |
| 67-22ST/KKES-5M30123190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Warm White    | 3000    | 123                  | 127                  | 80         | 127                      |
| 67-22ST/KKES-5M35128190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Warm White    | 3500    | 128                  | 132                  | 80         | 132                      |
| 67-22ST/KKES-5M40133190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Neutral White | 4000    | 133                  | 137                  | 80         | 137                      |
| 67-22ST/KKES-5M50133190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Cool White    | 5000    | 133                  | 137                  | 80         | 137                      |
| 67-22ST/KKES-5M57133190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Cool White    | 5700    | 133                  | 137                  | 80         | 137                      |
| 67-22ST/KKES-5M60133190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Cool White    | 6000    | 133                  | 137                  | 80         | 137                      |
| 67-22ST/KKES-5M65128190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Cool White    | 6500    | 128                  | 132                  | 80         | 132                      |
| 67-22ST/KKES-5M27130190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Warm White    | 2700    | 130                  | 134                  | 80         | 134                      |
| 67-22ST/KKES-5M30135190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Warm White    | 3000    | 135                  | 139                  | 80         | 139                      |
| 67-22ST/KKES-5M35140190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Warm White    | 3500    | 140                  | 144                  | 80         | 144                      |
| 67-22ST/KKES-5M40145190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Neutral White | 4000    | 145                  | 149                  | 80         | 149                      |
| 67-22ST/KKES-5M50145190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Cool White    | 5000    | 145                  | 149                  | 80         | 149                      |
| 67-22ST/KKES-5M57145190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Cool White    | 5700    | 145                  | 149                  | 80         | 149                      |
| 67-22ST/KKES-5M60145190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Cool White    | 6000    | 145                  | 149                  | 80         | 149                      |
| 67-22ST/KKES-5M65140190Z5/2T | 2.8x3.5x0.7    | 17~19               | 50                   | Cool White    | 6500    | 140                  | 144                  | 80         | 144                      |

Lighting | 2835(67-xxS)



UNIT : mm

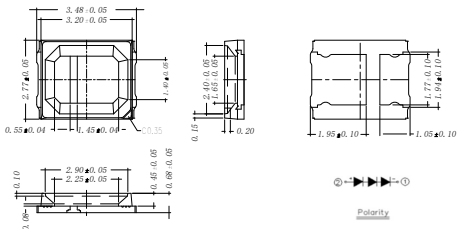


1W / 36V

| Product                        | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color         | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|--------------------------------|-------------------|---------------------------|----------------------------|---------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 67-22ST/KKE-N27120380U2/SZM/2T | 2.8x3.5x0.7       | 34~38                     | 25                         | Warm White    | 2700       | 120                        | 124                        | 80            | 124                            |
| 67-22ST/KKE-N30125380U2/SZM/2T | 2.8x3.5x0.7       | 34~38                     | 25                         | Warm White    | 3000       | 125                        | 129                        | 80            | 129                            |
| 67-22ST/KKE-N40130380U2/SZM/2T | 2.8x3.5x0.7       | 34~38                     | 25                         | Neutral White | 4000       | 130                        | 134                        | 80            | 134                            |
| 67-22ST/KKE-N50130380U2/SZM/2T | 2.8x3.5x0.7       | 34~38                     | 25                         | Cool White    | 5000       | 130                        | 134                        | 80            | 134                            |
| 67-22ST/KKE-N65130380U2/SZM/2T | 2.8x3.5x0.7       | 34~38                     | 25                         | Cool White    | 6500       | 130                        | 134                        | 80            | 134                            |



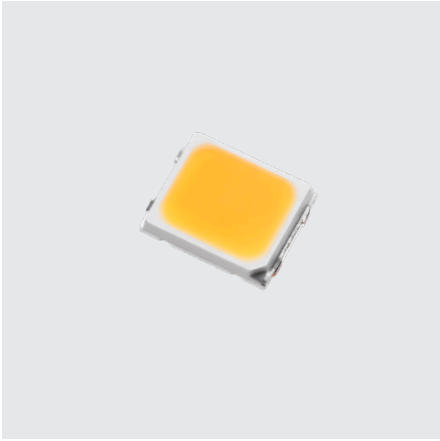
UNIT : mm



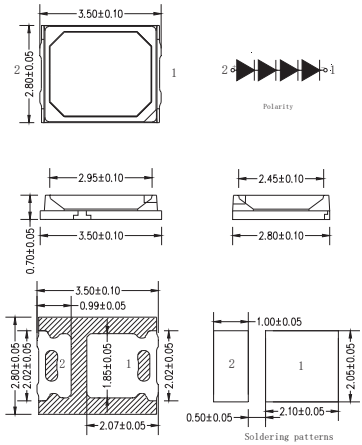
1W / 54V

| Product                    | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color         | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|----------------------------|-------------------|---------------------------|----------------------------|---------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 67-23ST/KKE-H27140550Z2/2T | 2.8x3.5x0.7       | 50~55                     | 17                         | Warm White    | 2700       | 140                        | 144                        | 80            | 144                            |
| 67-23ST/KKE-H30145550Z2/2T | 2.8x3.5x0.7       | 50~55                     | 17                         | Warm White    | 3000       | 145                        | 149                        | 80            | 149                            |
| 67-23ST/KKE-H35150550Z2/2T | 2.8x3.5x0.7       | 50~55                     | 17                         | Warm White    | 3500       | 150                        | 155                        | 80            | 155                            |
| 67-23ST/KKE-H40155550Z2/2T | 2.8x3.5x0.7       | 50~55                     | 17                         | Neutral White | 4000       | 155                        | 160                        | 80            | 160                            |
| 67-23ST/KKE-H50155550Z2/2T | 2.8x3.5x0.7       | 50~55                     | 17                         | Cool White    | 5000       | 155                        | 160                        | 80            | 160                            |
| 67-23ST/KKE-H57155550Z2/2T | 2.8x3.5x0.7       | 50~55                     | 17                         | Cool White    | 5700       | 155                        | 160                        | 80            | 160                            |
| 67-23ST/KKE-H65155550Z2/2T | 2.8x3.5x0.7       | 50~55                     | 17                         | Cool White    | 6500       | 155                        | 160                        | 80            | 160                            |

Lighting | 2835(67-xxS)



UNIT : mm

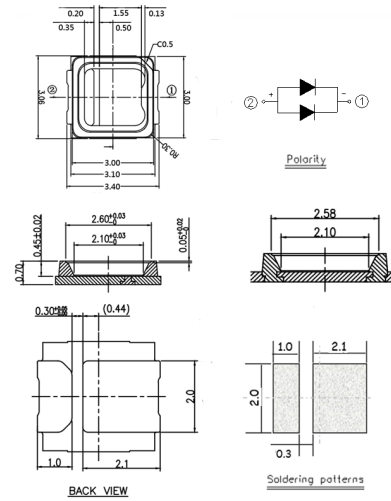


1W / 72V

| Product                     | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-----------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-24ST/KKE-5M27160720U1/2T | 2.8x3.5x0.7    | 66~72               | 15                   | ● Warm White    | 2700    | 160                  | 165                  | 80         | 159                      |
| 67-24ST/KKE-5M30165720U1/2T | 2.8x3.5x0.7    | 66~72               | 15                   | ● Warm White    | 3000    | 165                  | 170                  | 80         | 164                      |
| 67-24ST/KKE-5M35170720U1/2T | 2.8x3.5x0.7    | 66~72               | 15                   | ● Warm White    | 3500    | 170                  | 175                  | 80         | 169                      |
| 67-24ST/KKE-5M40175720U1/2T | 2.8x3.5x0.7    | 66~72               | 15                   | ○ Neutral White | 4000    | 175                  | 180                  | 80         | 174                      |
| 67-24ST/KKE-5M50175720U1/2T | 2.8x3.5x0.7    | 66~72               | 15                   | ○ Cool White    | 5000    | 175                  | 185                  | 80         | 179                      |
| 67-24ST/KKE-5M57175720U1/2T | 2.8x3.5x0.7    | 66~72               | 15                   | ○ Cool White    | 5700    | 175                  | 190                  | 80         | 184                      |
| 67-24ST/KKE-5M65175720U1/2T | 2.8x3.5x0.7    | 66~72               | 15                   | ○ Cool White    | 6500    | 175                  | 190                  | 80         | 184                      |

## Lighting ■ 3030(XI3030)

UNIT : mm

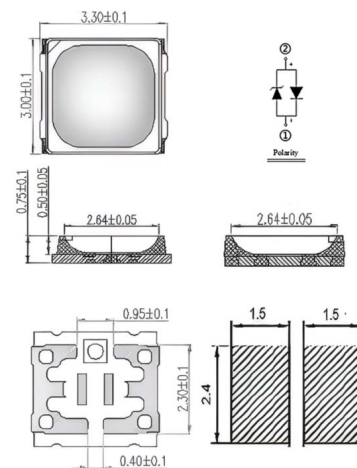


# Lighting

0.2W / 3V

| Product                   | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color           | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|---------------------------|-------------------|---------------------------|----------------------------|-----------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| XI3030P/KKX-5M303729U6/2T | 3.0x3.4x0.7       | 2.6~2.9                   | 65                         | 🟡 Warm White    | 3000       | 37                         | 41                         | 80            | 215                            |
| XI3030P/KKX-5M403929U6/2T | 3.0x3.4x0.7       | 2.6~2.9                   | 65                         | ⚪ Neutral White | 4000       | 39                         | 42                         | 80            | 225                            |
| XI3030P/KKX-5M503929U6/2T | 3.0x3.4x0.7       | 2.6~2.9                   | 65                         | ⚪ Cool White    | 5000       | 39                         | 42                         | 80            | 225                            |
| XI3030P/KKX-5M573929U6/2T | 3.0x3.4x0.7       | 2.6~2.9                   | 65                         | ⚪ Cool White    | 5700       | 39                         | 42                         | 80            | 225                            |
| XI3030P/KKX-5M653829U6/2T | 3.0x3.4x0.7       | 2.6~2.9                   | 65                         | ⚪ Cool White    | 6500       | 38                         | 41                         | 80            | 220                            |

UNIT : mm



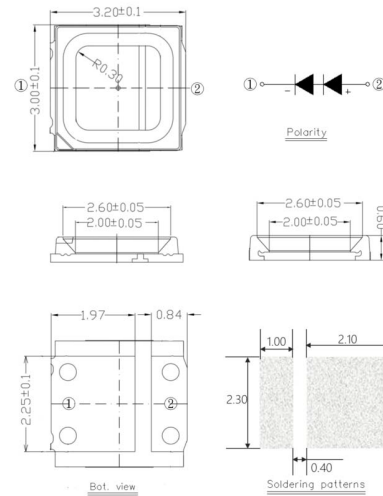
0.2W / 3V / Flip Chip

| Product                     | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color           | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|-----------------------------|-------------------|---------------------------|----------------------------|-----------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| XI3030PF/KK8C-5M303828U6/2N | 3.0x3.0x0.8       | 2.6~2.8                   | 65                         | 🟡 Warm White    | 3000       | 38                         | 40                         | 80            | 220                            |
| XI3030PF/KK8C-5M404028U6/2N | 3.0x3.0x0.8       | 2.6~2.8                   | 65                         | 🟡 Neutral White | 4000       | 40                         | 42                         | 80            | 230                            |
| XI3030PF/KK8C-5M504028U6/2N | 3.0x3.0x0.8       | 2.6~2.8                   | 65                         | 🟡 Cool White    | 5000       | 40                         | 42                         | 80            | 230                            |
| XI3030PF/KK8C-5M653928U6/2N | 3.0x3.0x0.8       | 2.6~2.8                   | 65                         | 🟡 Cool White    | 6500       | 39                         | 41                         | 80            | 227                            |

Lighting ■ 3030(XI3030)



UNIT : mm

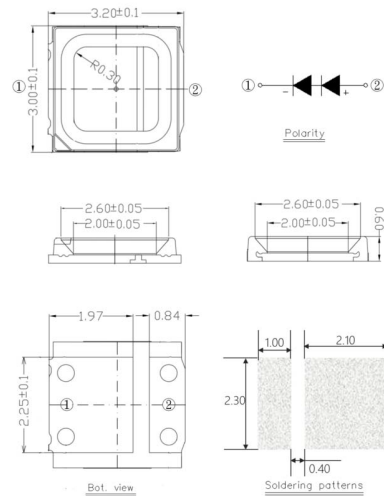


1W / 6V / CRI70

| Product                    | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|----------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| XI3030E/LKE-H2715068Z15/2T | 3.0x3.2x0.9    | 5.4~6.8             | 150                  | ● Warm White    | 2700    | 150                  | 155                  | 70         | 172                      |
| XI3030E/LKE-H3015568Z15/2T | 3.0x3.2x0.9    | 5.4~6.8             | 150                  | ● Warm White    | 3000    | 155                  | 160                  | 70         | 178                      |
| XI3030E/LKE-H3516068Z15/2T | 3.0x3.2x0.9    | 5.4~6.8             | 150                  | ● Warm White    | 3500    | 160                  | 165                  | 70         | 183                      |
| XI3030E/LKE-H4016568Z15/2T | 3.0x3.2x0.9    | 5.4~6.8             | 150                  | ○ Neutral White | 4000    | 165                  | 170                  | 70         | 189                      |
| XI3030E/LKE-H5016568Z15/2T | 3.0x3.2x0.9    | 5.4~6.8             | 150                  | ○ Cool White    | 5000    | 165                  | 170                  | 70         | 189                      |
| XI3030E/LKE-H5716568Z15/2T | 3.0x3.2x0.9    | 5.4~6.8             | 150                  | ○ Cool White    | 5700    | 165                  | 170                  | 70         | 189                      |
| XI3030E/LKE-H6516068Z15/2T | 3.0x3.2x0.9    | 5.4~6.8             | 150                  | ○ Cool White    | 6500    | 160                  | 165                  | 70         | 183                      |



UNIT : mm



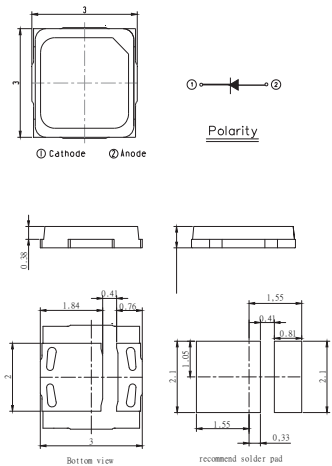
1W / 6V / CRI80

| Product                     | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-----------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| XI3030P/KK7C-H2713566Z15/2N | 3.0x3.2x0.9    | 5.6~6.6             | 150                  | ● Warm White    | 2700    | 133                  | 139                  | 80         | 148                      |
| XI3030P/KK7C-H3014066Z15/2N | 3.0x3.2x0.9    | 5.6~6.6             | 150                  | ● Warm White    | 3000    | 138                  | 145                  | 80         | 153                      |
| XI3030P/KK7C-H4014566Z15/2N | 3.0x3.2x0.9    | 5.6~6.6             | 150                  | ○ Neutral White | 4000    | 143                  | 150                  | 80         | 158                      |
| XI3030P/KK7C-H5014566Z15/2N | 3.0x3.2x0.9    | 5.6~6.6             | 150                  | ○ Cool White    | 5000    | 143                  | 150                  | 80         | 158                      |
| XI3030P/KK7C-H5714566Z15/2N | 3.0x3.2x0.9    | 5.6~6.6             | 150                  | ○ Cool White    | 5700    | 143                  | 150                  | 80         | 158                      |
| XI3030P/KK7C-H6514566Z15/2N | 3.0x3.2x0.9    | 5.6~6.6             | 150                  | ○ Cool White    | 6500    | 143                  | 150                  | 80         | 158                      |

Lighting | 3030(XI3030)



UNIT : mm



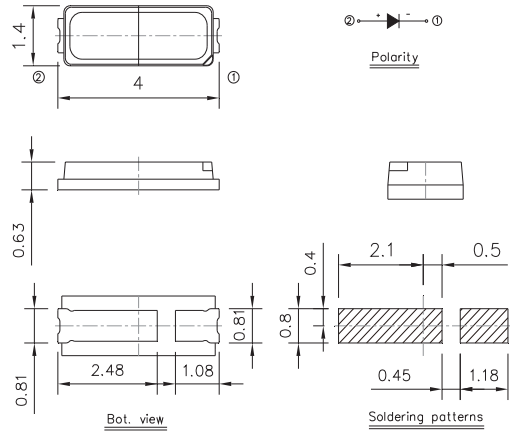
0.5W

| Product                          | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color        | Peak Wavelength<br>(nm) | Min. Luminous Flux(lm)<br>Radiometric Power(mW) |
|----------------------------------|-------------------|---------------------------|----------------------------|--------------|-------------------------|-------------------------------------------------|
| XI3030P/G3C-D1530P3R128371Z15/2N | 3.0x3.0x0.63      | 2.8-3.7                   | 150                        | ● Green      | 515-530                 | 33 lm                                           |
| XI3030P/O3C-D0520N3PB15281Z15/2N | 3.0x3.0x0.63      | 1.5-2.8                   | 150                        | ● Orange     | 605-620                 | 24 lm                                           |
| XI3030P/R3C-D1530L7N315281Z15/2N | 3.0x3.0x0.63      | 1.5-2.8                   | 150                        | ● Red        | 615-630                 | 16 lm                                           |
| XI3030P/B3C-D5060T2T625312Z15/2N | 3.0x3.0x0.63      | 2.5-3.1                   | 150                        | ● Royal Blue | 450-460                 | 190 mW                                          |
| XI3030P/D3C-P4575S1S621271Z15/2N | 3.0x3.0x0.63      | 2.1-2.7                   | 150                        | ● Deep Red   | 645-675                 | 100 mW                                          |
| XI3030P/F3C-P1545R5S115251Z15/2N | 3.0x3.0x0.63      | 1.4-2.5                   | 150                        | ● Far Red    | 715-745                 | 70 mW                                           |

Lighting | 4014(50-217S)



UNIT : mm

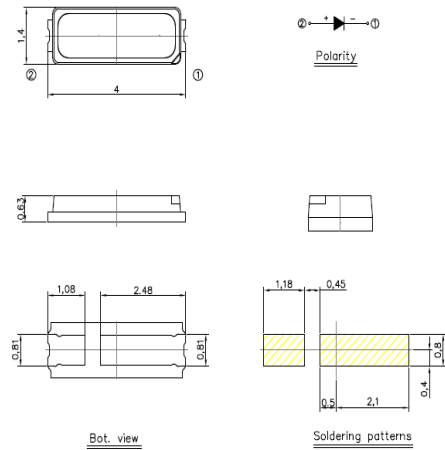


0.2W / 3V

| Product                      | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color         | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|------------------------------|-------------------|---------------------------|----------------------------|---------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 50-217S/KKE-B303032Z6/SZM/2T | 4.0x1.4x0.63      | 2.7~3.2                   | 60                         | Warm White    | 3000       | 30                         | 32                         | 80            | 172                            |
| 50-217S/KKE-B353032Z6/SZM/2T | 4.0x1.4x0.63      | 2.7~3.2                   | 60                         | Warm White    | 3500       | 30                         | 32                         | 80            | 172                            |
| 50-217S/KKE-B403232Z6/SZM/2T | 4.0x1.4x0.63      | 2.7~3.2                   | 60                         | Neutral White | 4000       | 32                         | 34                         | 80            | 183                            |
| 50-217S/KKE-B433232Z6/SZM/2T | 4.0x1.4x0.63      | 2.7~3.2                   | 60                         | Neutral White | 4300       | 32                         | 34                         | 80            | 183                            |
| 50-217S/KKE-B503232Z6/SZM/2T | 4.0x1.4x0.63      | 2.7~3.2                   | 60                         | Cool White    | 5000       | 32                         | 34                         | 80            | 183                            |
| 50-217S/KKE-B633232Z6/SZM/2T | 4.0x1.4x0.63      | 2.7~3.2                   | 60                         | Cool White    | 6300       | 32                         | 34                         | 80            | 183                            |
| 50-217S/KKE-B653232Z6/SZM/2T | 4.0x1.4x0.63      | 2.7~3.2                   | 60                         | Cool White    | 6500       | 32                         | 34                         | 80            | 183                            |



UNIT : mm



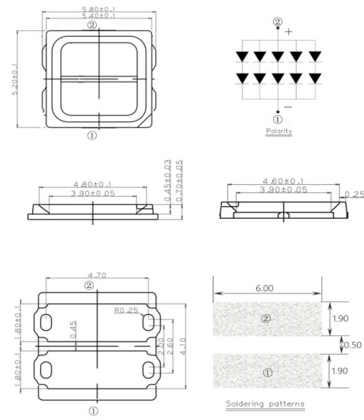
0.5W / 3V

| Product                     | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color         | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|-----------------------------|-------------------|---------------------------|----------------------------|---------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 50-217ST/KK5C-H275534Z15/2T | 4.0x1.4x0.63      | 2.8~3.4                   | 150                        | Warm White    | 2700K      | 55                         | 57                         | 80            | 127                            |
| 50-217ST/KK5C-H306034Z15/2T | 4.0x1.4x0.63      | 2.8~3.4                   | 150                        | Warm White    | 3000K      | 60                         | 62                         | 80            | 138                            |
| 50-217ST/KK5C-H406534Z15/2T | 4.0x1.4x0.63      | 2.8~3.4                   | 150                        | Neutral White | 4000K      | 65                         | 67                         | 80            | 149                            |
| 50-217ST/KK5C-H506534Z15/2T | 4.0x1.4x0.63      | 2.8~3.4                   | 150                        | Cool White    | 5000K      | 65                         | 67                         | 80            | 149                            |
| 50-217ST/KK5C-H576534Z15/2T | 4.0x1.4x0.63      | 2.8~3.4                   | 150                        | Cool White    | 5700K      | 65                         | 67                         | 80            | 149                            |
| 50-217ST/KK5C-H656534Z15/2T | 4.0x1.4x0.63      | 2.8~3.4                   | 150                        | Cool White    | 6500K      | 65                         | 67                         | 80            | 149                            |

Lighting | 5050(XI5050)



UNIT : mm



1W / 6V

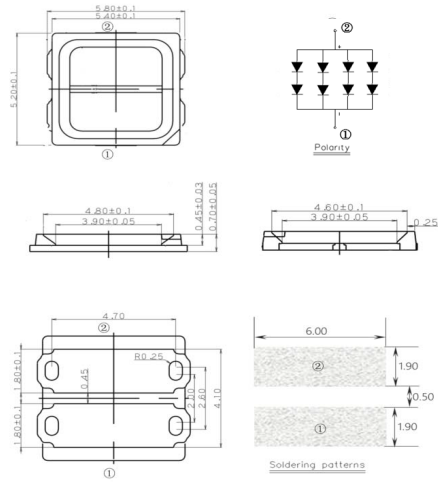
| Product                     | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color         | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|-----------------------------|-------------------|---------------------------|----------------------------|---------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| XI5050EE/LKE-H2720560Z18/2N | 5.2x5.8x0.7       | 5.2~6.0                   | 180                        | Warm White    | 2700       | 205                        | -                          | 70            | -                              |
| XI5050EE/LKE-H3021560Z18/2N | 5.2x5.8x0.7       | 5.2~6.0                   | 180                        | Warm White    | 3000       | 215                        | -                          | 70            | -                              |
| XI5050EE/LKE-H3522060Z18/2N | 5.2x5.8x0.7       | 5.2~6.0                   | 180                        | Warm White    | 3500       | 220                        | -                          | 70            | -                              |
| XI5050EE/LKE-H4023060Z18/2N | 5.2x5.8x0.7       | 5.2~6.0                   | 180                        | Neutral White | 4000       | 230                        | -                          | 70            | -                              |
| XI5050EE/LKE-H5023060Z18/2N | 5.2x5.8x0.7       | 5.2~6.0                   | 180                        | Cool White    | 5000       | 230                        | -                          | 70            | -                              |
| XI5050EE/LKE-H5722560Z18/2N | 5.2x5.8x0.7       | 5.2~6.0                   | 180                        | Cool White    | 5700       | 225                        | -                          | 70            | -                              |
| XI5050EE/LKE-H6522560Z18/2N | 5.2x5.8x0.7       | 5.2~6.0                   | 180                        | Cool White    | 6500       | 225                        | -                          | 70            | -                              |



Lighting ■ 5050(XI5050)



UNIT : mm

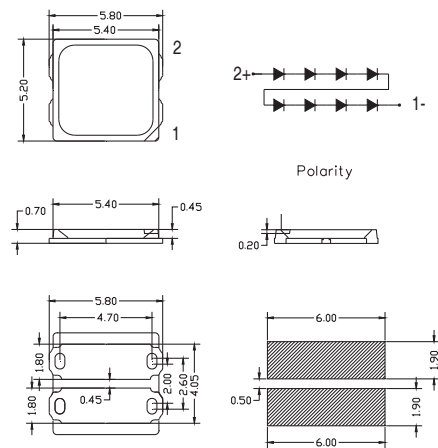


5W / 6V

| Product                    | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|----------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| XI5050/LK5C-H4069072Z75/2N | 5.3x5.8x0.7    | 6.0~7.2             | 750                  | ○ Neutral White | 4000    | 690                  | 740                  | 70         | 145                      |
| XI5050/LK5C-H5069072Z75/2N | 5.3x5.8x0.7    | 6.0~7.2             | 750                  | ○ Cool White    | 5000    | 690                  | 740                  | 70         | 145                      |
| XI5050/LK5C-H6569072Z75/2N | 5.3x5.8x0.7    | 6.0~7.2             | 750                  | ○ Cool White    | 6500    | 690                  | 740                  | 70         | 145                      |



UNIT : mm



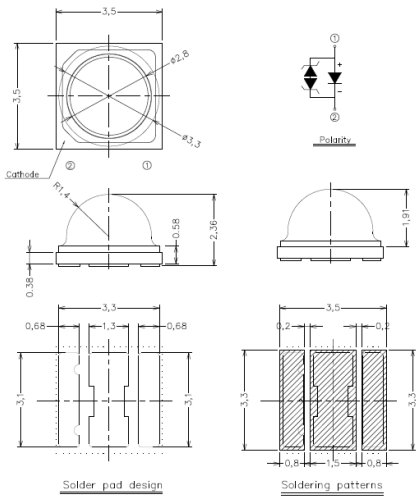
5W / 24V

| Product                     | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-----------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| XI5050E/LKE-H27770260Z18/2N | 5.2x5.8x0.7    | 22~26               | 200                  | ● Warm White    | 2700    | 770                  | -                    | 70         | -                        |
| XI5050E/LKE-H30800260Z18/2N | 5.2x5.8x0.7    | 22~26               | 200                  | ● Warm White    | 3000    | 770                  | -                    | 70         | -                        |
| XI5050E/LKE-H35830260Z18/2N | 5.2x5.8x0.7    | 22~26               | 200                  | ● Warm White    | 3500    | 770                  | -                    | 70         | -                        |
| XI5050E/LKE-H40860260Z18/2N | 5.2x5.8x0.7    | 22~26               | 200                  | ○ Neutral White | 4000    | 770                  | -                    | 70         | -                        |
| XI5050E/LKE-H50860260Z18/2N | 5.2x5.8x0.7    | 22~26               | 200                  | ○ Cool White    | 5000    | 770                  | -                    | 70         | -                        |
| XI5050E/LKE-H57860260Z18/2N | 5.2x5.8x0.7    | 22~26               | 200                  | ○ Cool White    | 5700    | 770                  | -                    | 70         | -                        |
| XI5050E/LKE-H65830260Z18/2N | 5.2x5.8x0.7    | 22~26               | 200                  | ○ Cool White    | 6500    | 770                  | -                    | 70         | -                        |

Lighting | 3535



UNIT : mm



1W / 3V

| Product                 | Size<br>(LxWxHmm) | Forward<br>Voltage(V) | Forward<br>Current(mA) | Color           | CCT<br>(K) | Luminous<br>Flux (Min.) | Luminous<br>Flux (Typ.) | CRI<br>(min.) |
|-------------------------|-------------------|-----------------------|------------------------|-----------------|------------|-------------------------|-------------------------|---------------|
| ELSWF-JJ1C1-6FPGS-C6500 | 3.5x3.5x2.36      | 2.65~3.55             | 350                    | ○ Cool White    | 6500       | 158                     | 169                     | 70            |
| ELSWF-JJ1C1-6FPGS-C5700 | 3.5x3.5x2.36      | 2.65~3.55             | 350                    | ○ Cool White    | 5700       | 158                     | 169                     | 70            |
| ELSWF-JJ1C1-6FPGS-C5000 | 3.5x3.5x2.36      | 2.65~3.55             | 350                    | ○ Cool White    | 5000       | 158                     | 169                     | 70            |
| ELSWF-J71N1-6FPGS-C4000 | 3.5x3.5x2.36      | 2.65~3.55             | 350                    | ○ Neutral White | 4000       | 145                     | 155                     | 70            |
| ELSWF-J61M1-6FPGS-C3500 | 3.5x3.5x2.36      | 2.65~3.55             | 350                    | ○ Warm White    | 3500       | 135                     | 146                     | 70            |
| ELSWF-J61M1-6FPGS-C3000 | 3.5x3.5x2.36      | 2.65~3.55             | 350                    | ○ Warm White    | 3000       | 135                     | 146                     | 70            |
| ELSWF-J61M1-6FPGS-C2700 | 3.5x3.5x2.36      | 2.65~3.55             | 350                    | ○ Warm White    | 2700       | 135                     | 146                     | 70            |

2W / 3V

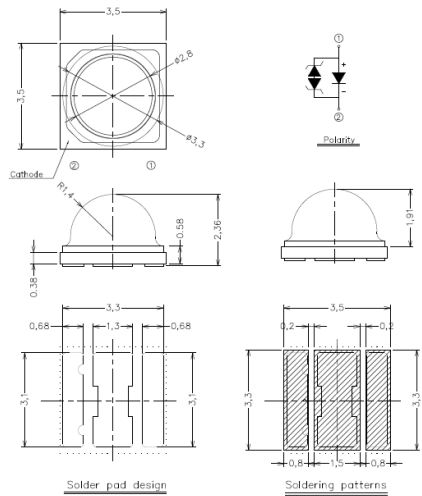
| Product                 | Size<br>(LxWxHmm) | Forward<br>Voltage(V) | Forward<br>Current(mA) | Color           | CCT<br>(K) | Luminous<br>Flux (Min.) | Luminous<br>Flux (Typ.) | CRI<br>(min.) |
|-------------------------|-------------------|-----------------------|------------------------|-----------------|------------|-------------------------|-------------------------|---------------|
| ELSWF-JJ1C1-6FPGS-C6500 | 3.5x3.5x2.36      | 2.65~3.85             | 700                    | ○ Cool White    | 6500       | 283                     | 304                     | 70            |
| ELSWF-JJ1C1-6FPGS-C5700 | 3.5x3.5x2.36      | 2.65~3.85             | 700                    | ○ Cool White    | 5700       | 283                     | 304                     | 70            |
| ELSWF-JJ1C1-6FPGS-C5000 | 3.5x3.5x2.36      | 2.65~3.85             | 700                    | ○ Cool White    | 5000       | 283                     | 304                     | 70            |
| ELSWF-J71N1-6FPGS-C4000 | 3.5x3.5x2.36      | 2.65~3.85             | 700                    | ○ Neutral White | 4000       | 260                     | 278                     | 70            |
| ELSWF-J61M1-6FPGS-C3500 | 3.5x3.5x2.36      | 2.65~3.85             | 700                    | ○ Warm White    | 3500       | 243                     | 262                     | 70            |
| ELSWF-J61M1-6FPGS-C3000 | 3.5x3.5x2.36      | 2.65~3.85             | 700                    | ○ Warm White    | 3000       | 243                     | 262                     | 70            |
| ELSWF-J61M1-6FPGS-C2700 | 3.5x3.5x2.36      | 2.65~3.85             | 700                    | ○ Warm White    | 2700       | 243                     | 262                     | 70            |

• Above spec is based on 85°C

Lighting | 3535



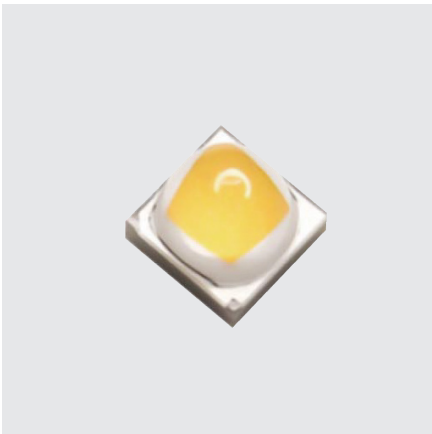
UNIT : mm



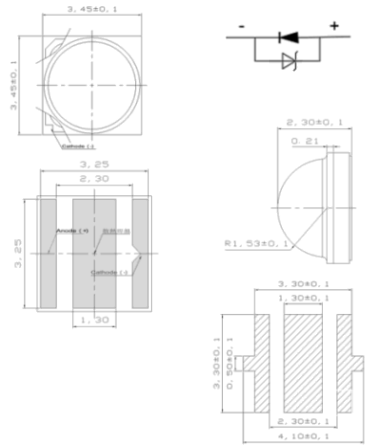
3W / 3V

| Product                 | Size (LxWxHmm) | Forward Voltage(V) | Forward Current(mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) |
|-------------------------|----------------|--------------------|---------------------|-----------------|---------|----------------------|----------------------|------------|
| ELSWF-JJ1C1-6FPGS-C6500 | 3.5x3.5x2.36   | 2.65~3.55          | 1000                | ○ Cool White    | 6500    | 378                  | 406                  | 70         |
| ELSWF-JJ1C1-6FPGS-C5700 | 3.5x3.5x2.36   | 2.65~3.55          | 1000                | ○ Cool White    | 5700    | 378                  | 406                  | 70         |
| ELSWF-JJ1C1-6FPGS-C5000 | 3.5x3.5x2.36   | 2.65~3.55          | 1000                | ○ Cool White    | 5000    | 378                  | 406                  | 70         |
| ELSWF-J71N1-6FPGS-C4000 | 3.5x3.5x2.36   | 2.65~3.55          | 1000                | ○ Neutral White | 4000    | 345                  | 371                  | 70         |
| ELSWF-J61M1-6FPGS-C3500 | 3.5x3.5x2.36   | 2.65~3.55          | 1000                | ● Warm White    | 3500    | 323                  | 348                  | 70         |
| ELSWF-J61M1-6FPGS-C3000 | 3.5x3.5x2.36   | 2.65~3.55          | 1000                | ● Warm White    | 3000    | 323                  | 348                  | 70         |
| ELSWF-J61M1-6FPGS-C2700 | 3.5x3.5x2.36   | 2.65~3.55          | 1000                | ● Warm White    | 2700    | 323                  | 348                  | 70         |

• Above spec is based on 85°C



UNIT : mm



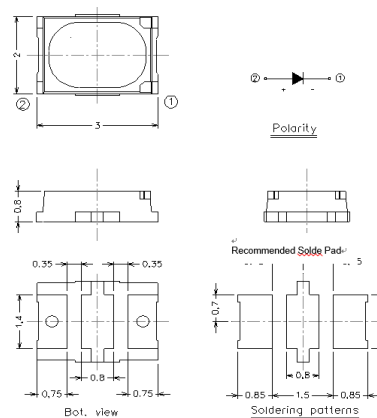
6W / 3V

| Product                      | Size (LxWxHmm) | Forward Voltage(V) | Forward Current(mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) |
|------------------------------|----------------|--------------------|---------------------|-----------------|---------|----------------------|----------------------|------------|
| HPL3535CZ12-LW65180X33350-1T | 3.45x3.45x2.3  | 2.65~3.55          | 2000                | ○ Cool White    | 6500    | 180                  | 201                  | 70         |
| HPL3535CZ12-LW57180X33350-1T | 3.45x3.45x2.3  | 2.65~3.55          | 2000                | ○ Cool White    | 5700    | 180                  | 201                  | 70         |
| HPL3535CZ12-LW50180X33350-1T | 3.45x3.45x2.3  | 2.65~3.55          | 2000                | ○ Cool White    | 5000    | 180                  | 201                  | 70         |
| HPL3535CZ12-LW40175X33350-1T | 3.45x3.45x2.3  | 2.65~3.55          | 2000                | ○ Neutral White | 4000    | 175                  | 195                  | 70         |
| HPL3535CZ12-LW30170X33350-1T | 3.45x3.45x2.3  | 2.65~3.55          | 2000                | ● Warm White    | 3500    | 170                  | 170                  | 70         |

## Lighting I 3020



UNIT : mm

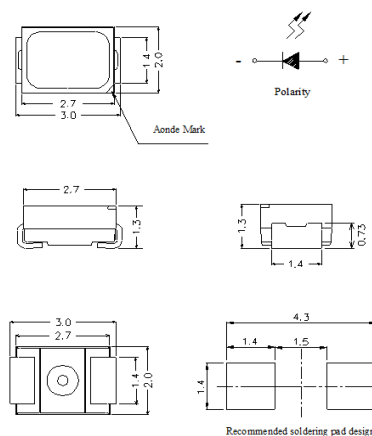


0.2W / 3V

| Product                      | Size (LxWxHmm) | Forward Voltage(V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | CRI (min.) | Luminous Efficacy (lm/W) |
|------------------------------|----------------|--------------------|----------------------|-----------------|---------|----------------------|------------|--------------------------|
| 45-21S/KK2C-H2727L7M4B2Z6/2T | 3.0x2.0x0.8    | 2.9~3.6            | 60                   | ● Warm White    | 2700    | 16                   | 80         | 80                       |
| 45-21S/KK2C-H3030L8M4B2Z6/2T | 3.0x2.0x0.8    | 2.9~3.6            | 60                   | ● Warm White    | 3000    | 17                   | 80         | 80                       |
| 45-21S/KK2C-H3535L8M4B2Z6/2T | 3.0x2.0x0.8    | 2.9~3.6            | 60                   | ● Warm White    | 3500    | 17                   | 80         | 80                       |
| 45-21S/KK2C-H4040L9N3B2Z6/2T | 3.0x2.0x0.8    | 2.9~3.6            | 60                   | ○ Neutral White | 4000    | 18                   | 80         | 80                       |
| 45-21S/KK2C-H5050L9N3B2Z6/2T | 3.0x2.0x0.8    | 2.9~3.6            | 60                   | ○ Cool White    | 5000    | 18                   | 80         | 80                       |
| 45-21S/KK2C-H5757L9N3B2Z6/2T | 3.0x2.0x0.8    | 2.9~3.6            | 60                   | ○ Cool White    | 5700    | 18                   | 80         | 80                       |
| 45-21S/KK2C-H6565L9N3B2Z6/2T | 3.0x2.0x0.8    | 2.9~3.6            | 60                   | ○ Cool White    | 6500    | 18                   | 80         | 80                       |



UNIT : mm



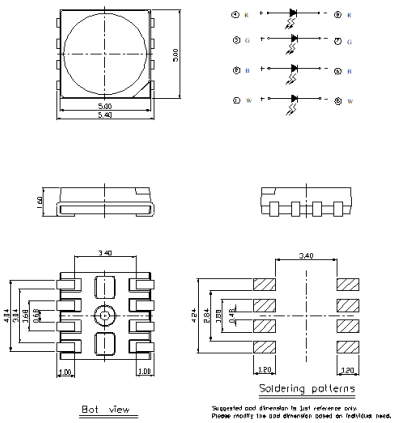
0.1W / 3V

| Product                   | Size (LxWxHmm) | Forward Voltage(V) | Forward Current (mA) | Color    | CCT (K)        | Luminous Flux (Min.) |
|---------------------------|----------------|--------------------|----------------------|----------|----------------|----------------------|
| 45-21/YSC-AU1V1C/2T-AFM   | 3.0x2.0x1.3    | 1.95~2.55          | 20                   | ● Yellow | 585.5~594.5 nm | 450mcd               |
| 45-21/RSC-AU1V1B/2T-AFM   | 3.0x2.0x1.3    | 1.75~2.35          | 20                   | ● Red    | 617.5~633.5nm  | 451mcd               |
| 45-11/B7C-FS2U1B14/2T-AFM | 3.0x2.0x1.3    | 2.70~3.50          | 20                   | ● Blue   | 464~472 nm     | 225mcd               |

Lighting | RGBW



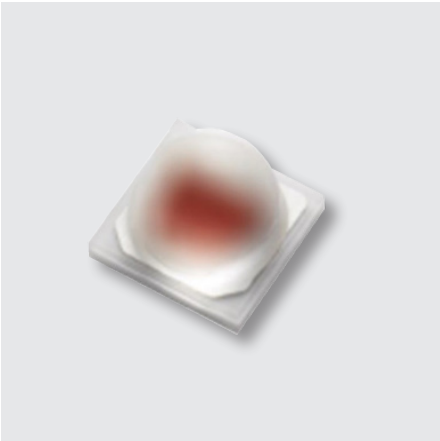
UNIT : mm



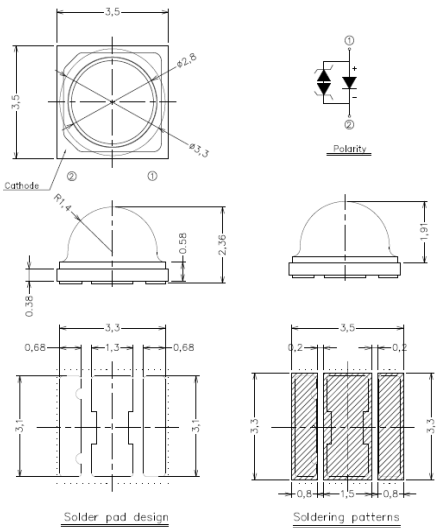
0.3W / 3V

| Product            | Size<br>(LxWxHmm) | Forward<br>Voltage(V) | Forward<br>Current<br>(mA) | Color        | CCT<br>(K) | Luminous<br>Flux (Min.) | Luminous<br>Flux(Typ.) |
|--------------------|-------------------|-----------------------|----------------------------|--------------|------------|-------------------------|------------------------|
| 5050/RGBWD-A100/ET | 5.4x5.0x1.6       | 2.1~2.6               | 100                        | ● Red        | 619~629nm  | 3550mcd                 | 5000mcd                |
|                    | 5.4x5.0x1.6       | 3.0~3.8               | 100                        | ● Green      | 520~535nm  | 7100mcd                 | 11000mcd               |
|                    | 5.4x5.0x1.6       | 3.1~3.8               | 100                        | ● Blue       | 460~475nm  | 1800mcd                 | 3000mcd                |
|                    | 5.4x5.0x1.6       | 2.9~3.6               | 100                        | ○ Cool White | 5700       | 5600mcd                 | 10000mcd               |

Horticulture Lighting | Ceramics



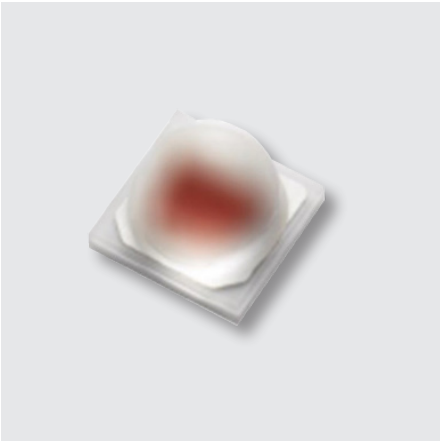
UNIT : mm



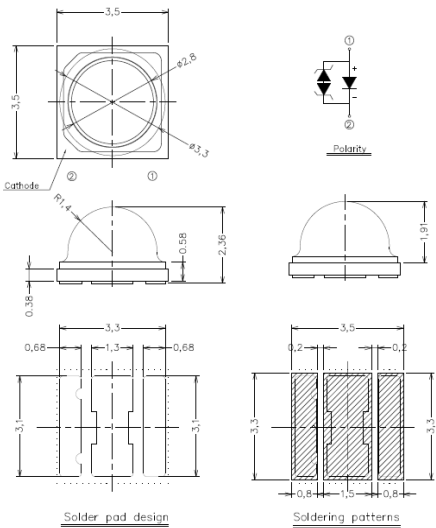
3535

| Product                    | Dimension (mm) | Power (W) | Forward Voltage (V) | Forward Current (mA) | View Angle | Color        | Peak Wavelength (nm) | Radiometric Power (mW) Typ. | PPF (umol/s) | PPE (umol/J) |
|----------------------------|----------------|-----------|---------------------|----------------------|------------|--------------|----------------------|-----------------------------|--------------|--------------|
| ELSW-Q91E1-0LPNM-AD3D8     | 3.5x3.5x2.03   | 1         | 1.75~2.95           | 350                  | 120°       | ● Deep Red   | 645~675              | 275                         | 1.51         | 2.1          |
| ELSW-R21E1-0EPNM-AD3D8(OR) | 3.5x3.5x2.03   | 1         | 1.75~2.35           | 350                  | 120°       | ● Deep Red   | 645~675              | 460                         | 2.53         | 3.21         |
| ELSWF-R61L1-6FPNM-CB4B6    | 3.5x3.5x2.03   | 1         | 2.65~3.85           | 350                  | 120°       | ● Royal Blue | 445~460              | 600                         | 2.47         | 2.20         |

• Above spec is based on 85°C



UNIT : mm



3535

| Product                                | Dimension (mm) | Power (W) | Forward Voltage (V) | Forward Current (mA) | View Angle | Color      | Peak Wavelength (nm) | Radiometric Power (mW) Typ. | PPF (umol/s) | PPE (umol/J) |
|----------------------------------------|----------------|-----------|---------------------|----------------------|------------|------------|----------------------|-----------------------------|--------------|--------------|
| HPND3535CZ0112-NDR55651K0X24700-4H(EU) | 3.5x3.5x2.36   | 2         | 1.75~2.35           | 700                  | 120°       | ● Deep Red | 655~665              | 1070                        | 5.83         | 3.87         |

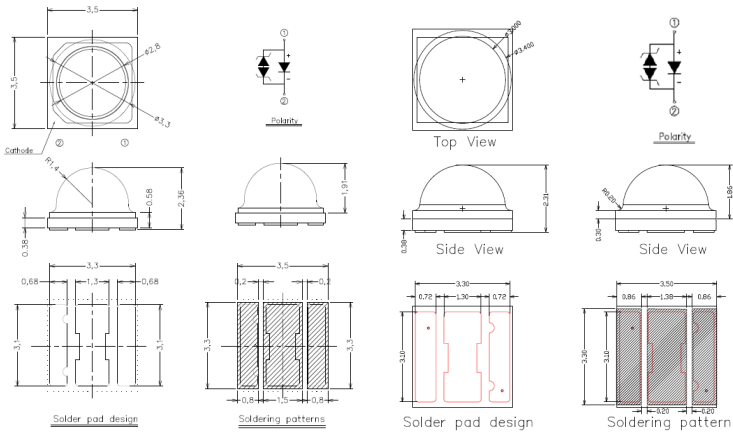
Horticulture Lighting | Ceramics



UNIT : mm

ELSWF

ELSWNS



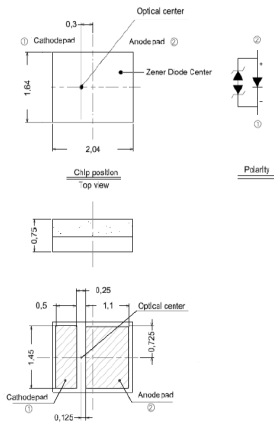
3535

| Product                  | Dimension (mm) | Power (W) | Forward Voltage (V) | Forward Current (mA) | View Angle | Color        | Peak Wavelength (nm) | Radiometric Power (mW) Typ. | PPF (umol/s) | PPE (umol/J) |
|--------------------------|----------------|-----------|---------------------|----------------------|------------|--------------|----------------------|-----------------------------|--------------|--------------|
| ELSWF-S41L2-6FPNM-DB4B6  | 35x35x23.6     | 2         | 3.25                | 700                  | 120°       | ● Royal Blue | 445~460              | 1500                        | 5.28         | 2.51         |
| ELSWNS-S11E2-6VPNM-AD308 | 35x35x23.1     | 2         | 2.22                | 700                  | 120°       | ● Deep Red   | 645~675              | 1070                        | 5.98         | 3.85         |

UV | UVA

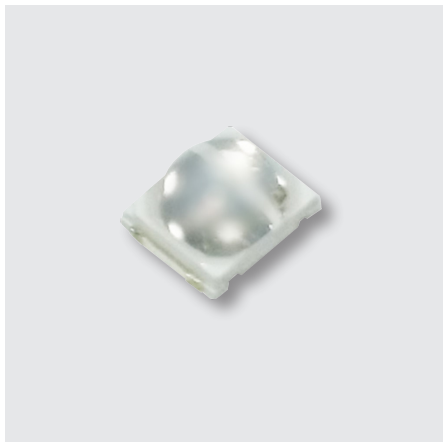


UNIT : mm

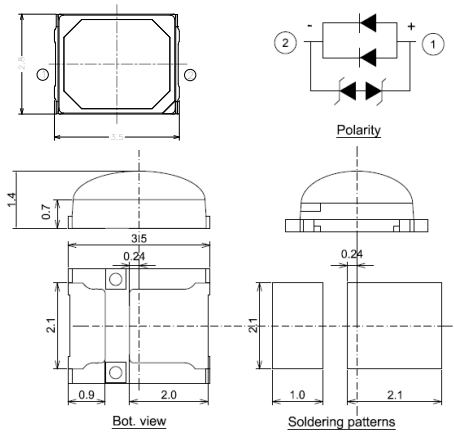


2016

| Product                         | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Typ. |
|---------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| ELUA2016OGB-P6070Q43040020-VA1M | 2.04x1.64x0.75 | 0.08      | 3.0~4.0             | 120°       | 20                   | 360~370              | 20                    |
| ELUA2016OGB-P8090Q53040020-VA1M | 2.04x1.64x0.75 | 0.08      | 3.0~4.0             | 120°       | 20                   | 380~390              | 25                    |
| ELUA2016OGB-P9000Q53040020-VA1M | 2.04x1.64x0.75 | 0.08      | 3.0~4.0             | 120°       | 20                   | 390~400              | 25                    |
| ELUA2016OGB-P0010Q53040020-VA1M | 2.04x1.64x0.75 | 0.08      | 3.0~4.0             | 120°       | 20                   | 400~410              | 25                    |
| ELUA2016OGB-P6070R13040060-V21M | 2.04x1.64x0.75 | 0.2       | 3.0~4.0             | 120°       | 60                   | 360~370              | 70                    |
| ELUA2016OGB-P8090R43040060-V21M | 2.04x1.64x0.75 | 0.2       | 3.0~4.0             | 120°       | 60                   | 380~390              | 70                    |
| ELUA2016OGB-P9000R53040060-V21M | 2.04x1.64x0.75 | 0.2       | 3.0~4.0             | 120°       | 60                   | 390~400              | 70                    |
| ELUA2016OGB-P0010R53040060-V21M | 2.04x1.64x0.75 | 0.2       | 3.0~4.0             | 120°       | 60                   | 400~410              | 65                    |
| ELUA2016OGB-P6070T53240500-VD1M | 2.04x1.64x0.75 | 1.8       | 3.2~4.0             | 120°       | 500                  | 360~370              | 500                   |
| ELUA2016OGB-P8090T73240500-VD1M | 2.04x1.64x0.75 | 1.8       | 3.2~4.0             | 120°       | 500                  | 380~390              | 600                   |
| ELUA2016OGB-P9000T73240500-VD1M | 2.04x1.64x0.75 | 1.8       | 3.2~4.0             | 120°       | 500                  | 390~400              | 600                   |
| ELUA2016OGB-P0010T73240500-VD1M | 2.04x1.64x0.75 | 1.8       | 3.2~4.0             | 120°       | 500                  | 400~410              | 600                   |



UNIT : mm

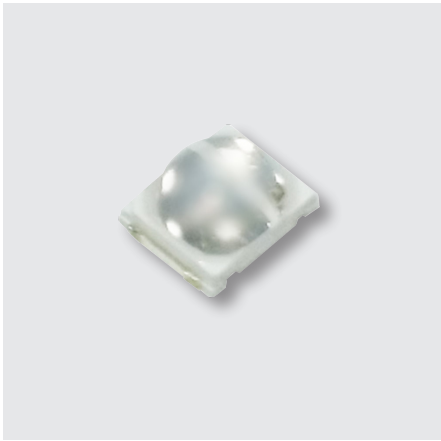


2835

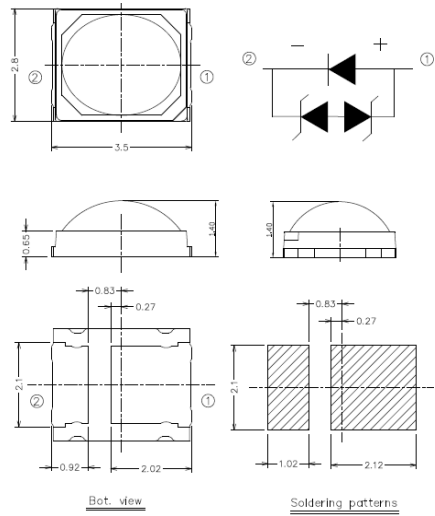
| Product                         | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Typ. |
|---------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| ELUA2835TG0-P0010S83040200-V22D | 2.8x3.5x1.4    | -         | 3.0~4.0             | 100°       | 200                  | 403~408              | 350                   |
| ELUA2835TG0-P1020S83040200-V22D | 2.8x3.5x1.4    | -         | 3.0~4.0             | 100°       | 200                  | 413~418              | 350                   |



UV I UVA

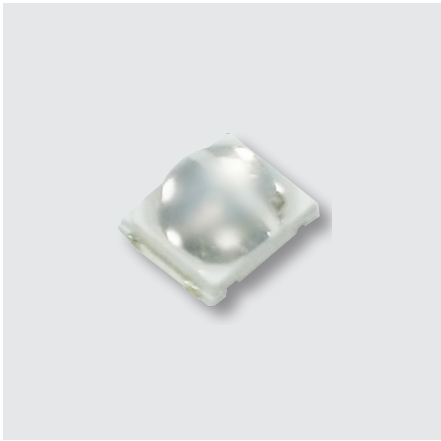


UNIT : mm

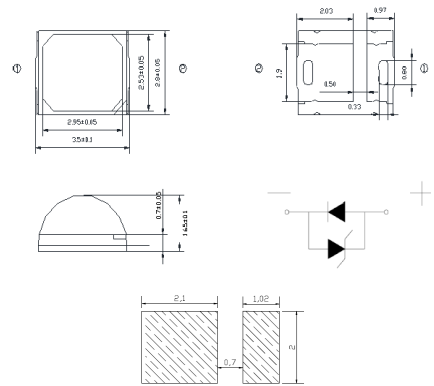


2835

| Product                          | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Typ. |
|----------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| ELUA2835TG0-P6070R53040060-VA1D  | 2.8x3.4x1.4    | 0.2       | 3.0~4.0             | 100°       | 60                   | 360~370              | 90                    |
| ELUA2835TG0-P8090R53040060-VA1D  | 2.8x3.4x1.4    | 0.2       | 3.0~4.0             | 100°       | 60                   | 380~390              | 90                    |
| ELUA2835TG0-P9000R53040060-VA1D  | 2.8x3.4x1.4    | 0.2       | 3.0~4.0             | 100°       | 60                   | 390~400              | 90                    |
| ELUA2835TG0-P0010R53040060-VA1D  | 2.8x3.4x1.4    | 0.2       | 3.0~4.0             | 100°       | 60                   | 400~410              | 90                    |
| ELUA2835TG0-P6070SC13040150-VA1D | 2.8x3.4x1.4    | 0.5       | 3.0~4.0             | 100°       | 150                  | 360~370              | 230                   |



UNIT : mm



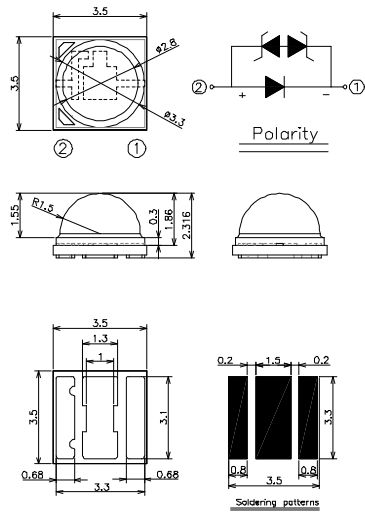
2835

| Product                           | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Typ. |
|-----------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| UVA2835TZ0112-PUA6570120X38060-2T | 2.8x3.5x1.65   | 0.2       | 3.2~3.8             | 120°       | 60                   | 365~370              | 90                    |

UV I UVA



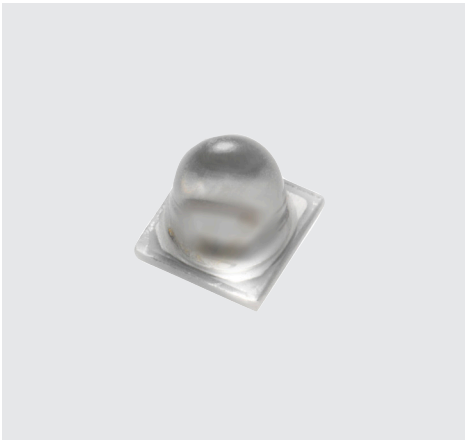
UNIT : mm



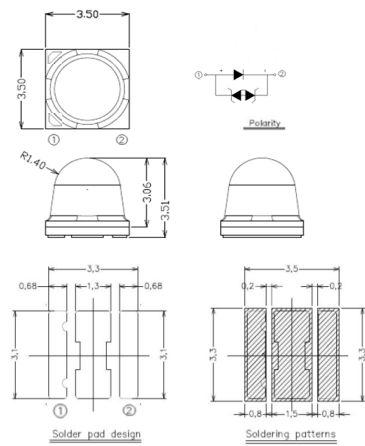
3535

| Product                         | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Min. |
|---------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| ELUA3535OGB-P6070U23240500-VD1M | 3.5x3.5x2.35   | 1.8       | 3.5                 | 120°       | 500                  | 360~370              | 1000                  |
| ELUA3535OGB-P8090U23240500-VD1M | 3.5x3.5x2.35   | 1.8       | 3.5                 | 120°       | 500                  | 380~390              | 1000                  |
| ELUA3535OGB-P9000U23240500-VD1M | 3.5x3.5x2.35   | 1.8       | 3.5                 | 120°       | 500                  | 390~400              | 1000                  |
| ELUA3535OGB-P0010U23240500-VD1M | 3.5x3.5x2.35   | 1.8       | 3.5                 | 120°       | 500                  | 400~410              | 1000                  |

UV



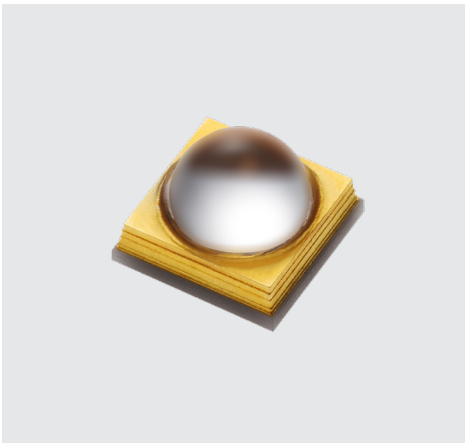
UNIT : mm



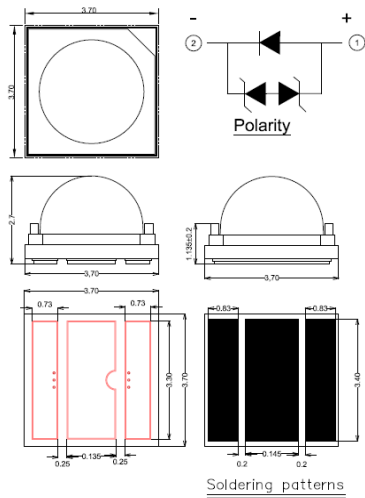
3535

| Product                         | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Min. |
|---------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| ELUA3535OG5-P6070U13240500-VD1M | 3.5x3.5x3.51   | 4         | 3.2~4.0             | 50°        | 500                  | 360~370              | 900                   |
| ELUA3535OG5-P8090U23240500-VD1M | 3.5x3.5x3.51   | 4         | 3.2~4.0             | 50°        | 500                  | 380~390              | 1000                  |
| ELUA3535OG5-P9000U23240500-VD1M | 3.5x3.5x3.51   | 4         | 3.2~4.0             | 50°        | 500                  | 390~400              | 1000                  |
| ELUA3535OG5-P0010U23240500-VD1M | 3.5x3.5x3.51   | 4         | 3.2~4.0             | 50°        | 500                  | 400~410              | 1000                  |

UV I UVA

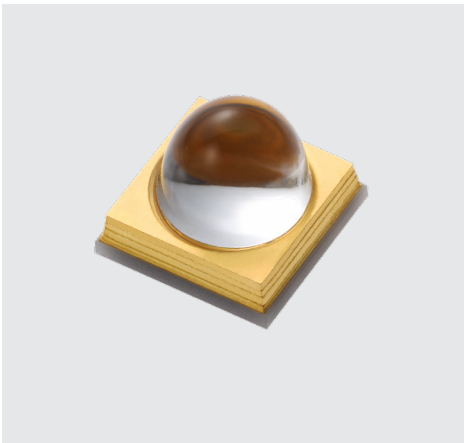


UNIT : mm

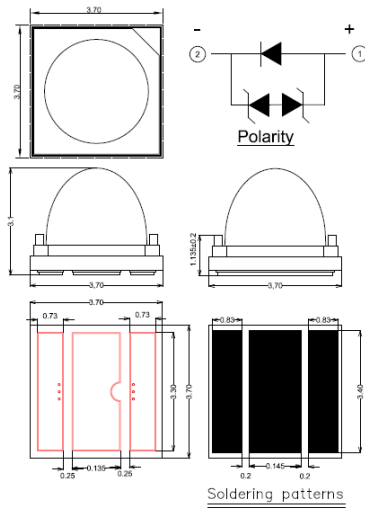


3535

| Product                          | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Min. |
|----------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| ELUA3535NU6-P6070U23648700-V41G  | 3.75x3.75x2.6  | 4         | 4                   | 60°        | 700                  | 360~370              | 900                   |
| ELUA3535NU6-P8090U5136481K0-V41G | 3.75x3.75x2.6  | 4         | 4                   | 60°        | 1000                 | 380~390              | 1350                  |
| ELUA3535NU6-P9000U5136481K0-V41G | 3.75x3.75x2.6  | 4         | 4                   | 60°        | 1000                 | 390~400              | 1350                  |
| ELUA3535NU6-P0010U5136481K0-V41G | 3.75x3.75x2.6  | 4         | 4                   | 60°        | 1000                 | 400~410              | 1350                  |



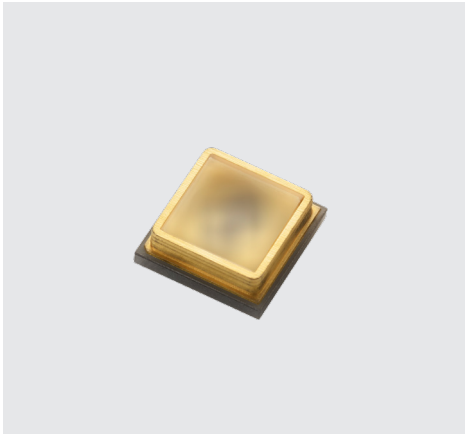
UNIT : mm



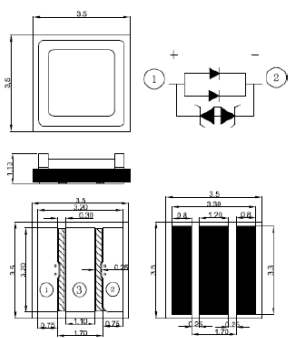
3535

| Product                         | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Min. |
|---------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| ELUA3535NU3-P6070U23648700-V41G | 3.75x3.75x3.2  | 4         | 4                   | 30°        | 700                  | 360~370              | 900                   |
| ELUA3535NU3-P8090U736481K0-V41G | 3.75x3.75x3.2  | 4         | 4                   | 30°        | 1000                 | 380~390              | 1350                  |
| ELUA3535NU3-P9000U736481K0-V41G | 3.75x3.75x3.2  | 4         | 4                   | 30°        | 1000                 | 390~400              | 1350                  |
| ELUA3535NU3-P0010U736481K0-V41G | 3.75x3.75x3.2  | 4         | 4                   | 30°        | 1000                 | 400~410              | 1350                  |

UV I UVB

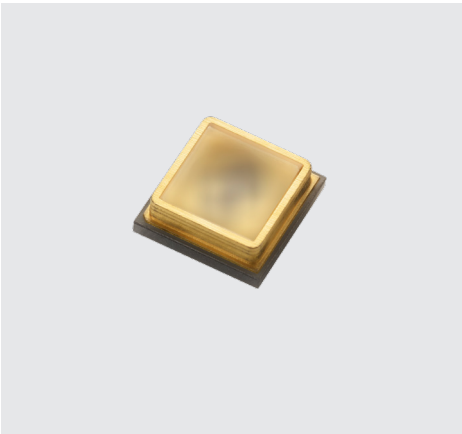


UNIT : mm

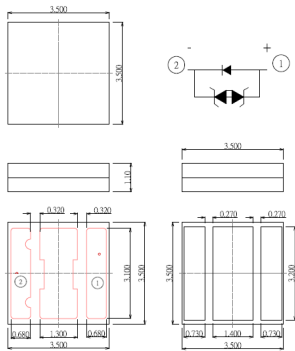


UVB 3535

| Product                           | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Typ. |
|-----------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| UVB3535CZ0112-FUB0015001X75020-1T | 3.5x3.5x1.3    | 0.1       | 5~7.5               | 120°       | 20                   | 300-315              | 2                     |



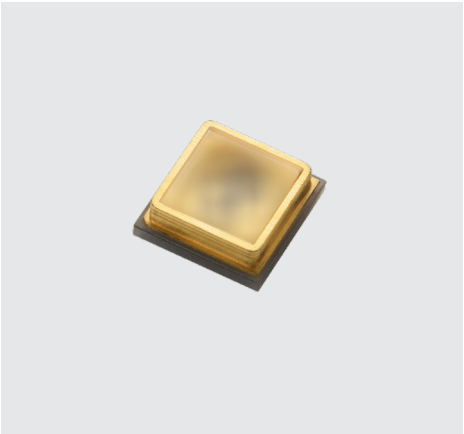
UNIT : mm



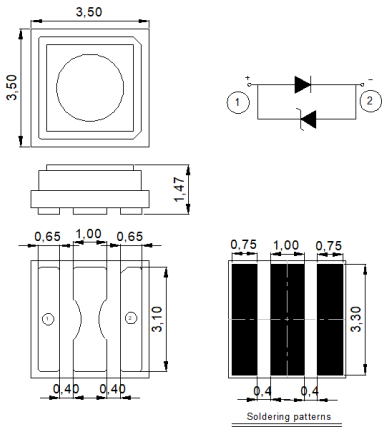
UVB 3535

| Product                            | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Typ. |
|------------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| UVB3535CZ0115- HUB0015006X75100-2T | 3.5x3.5x1.3    | 0.7       | 5.5~7.5             | 150°       | 100                  | 300-310              | 18                    |

UV I UVC



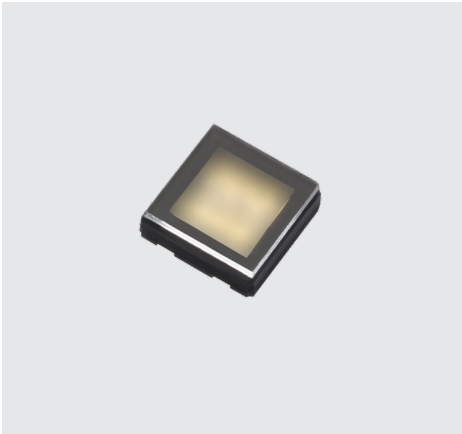
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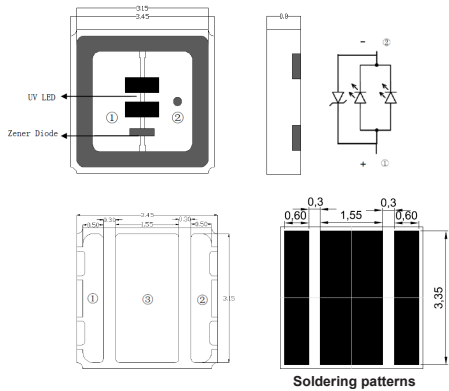
3535

| Product                         | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Typ. |
|---------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| ELUC3535NUB-P7085Q05075020-S21Q | 3.5x3.5x1.3    | 0.13      | 5~7.5               | 120°       | 20                   | 270-285              | 2                     |

UV I UVC



UNIT : mm

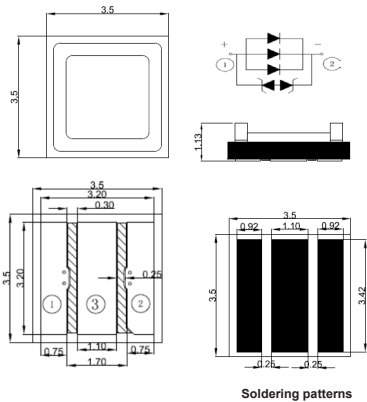


3535

| Product                         | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Typ. |
|---------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| ELUC3535NUB-P7085Q15070100-S22Q | 3.45x3.45x1.1  | 0.7       | 5~7                 | 120°       | 100                  | 270-285              | 10                    |



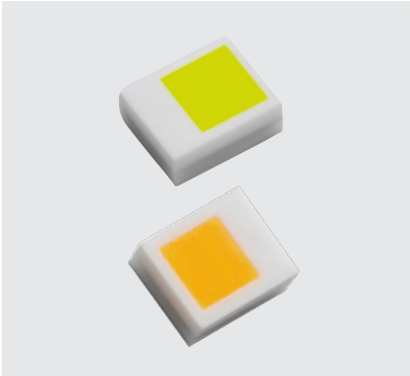
UNIT : mm



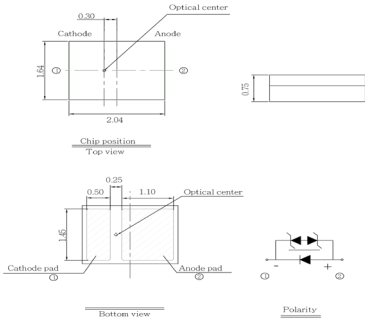
3535

| Product                         | Dimension (mm) | Power (W) | Forward Voltage (V) | View Angle | Forward Current (mA) | Peak Wavelength (nm) | Radiant Flux(mW) Typ. |
|---------------------------------|----------------|-----------|---------------------|------------|----------------------|----------------------|-----------------------|
| ELUC3535NUB-P7085Q47090300-F23D | 3.5x3.5x1.13   | 2.4       | 7~9                 | 120°       | 300                  | 270-285              | 25                    |

Flash LED | 2016 series | Ceramic



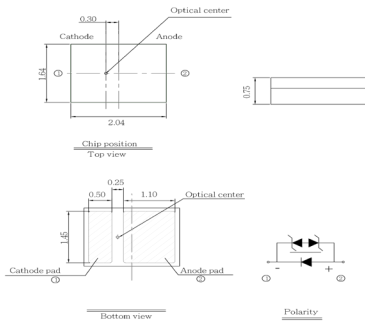
UNIT : mm



| Product      | Dimension (mm) | Color   | CCT       | Luminous Flux(Typ.) | Forward Voltage (V) | IF (mA) | CRI |
|--------------|----------------|---------|-----------|---------------------|---------------------|---------|-----|
| FC2016GF13MP | 2.04x1.64x0.75 | ○ White | 5000~6000 | 330                 | 2.85~3.80           | 1000    | -   |
| FC2016GF13MP | 2.04x1.64x0.75 | ○ White | 4000~5000 | 400                 | 2.85~3.80           | 1000    | -   |
|              | 2.04x1.64x0.75 | ○ White | 5000~6000 | 380                 | 2.85~3.80           | 1000    | >80 |



UNIT : mm

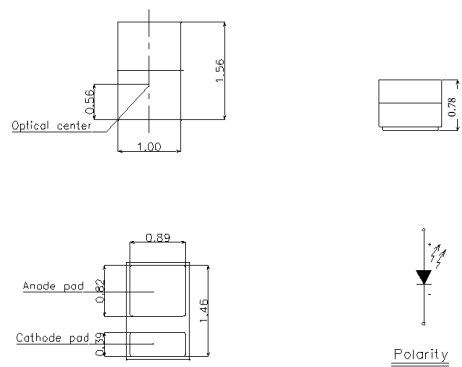


| Product      | Dimension (mm) | Color   | CCT       | Luminous Flux(Typ.) | Forward Voltage (V) | IF (mA) | CRI |
|--------------|----------------|---------|-----------|---------------------|---------------------|---------|-----|
| FC2016GF13HP | 2.04x1.64x0.75 | ○ White | 5000~6000 | 300                 | 2.85~3.80           | 1000    | -   |
| FC2016GF13HP | 2.04x1.64x0.75 | ○ White | 4500~6000 | 400                 | 2.85~3.80           | 1000    | -   |
|              | 2.04x1.64x0.75 | ○ White | 5000~6000 | 320                 | 2.85~3.80           | 1000    | >80 |

Flash LED | 1610 series | Ceramic



UNIT : mm

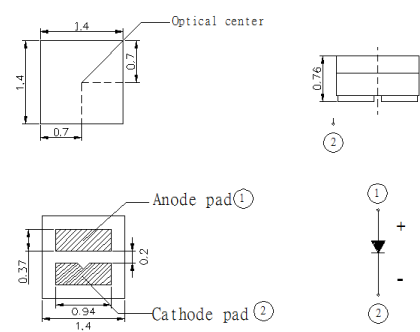


| Product      | Dimension (mm) | Color   | CCT       | Luminous Flux(Typ.) | Forward Voltage (V) | IF (mA) | CRI |
|--------------|----------------|---------|-----------|---------------------|---------------------|---------|-----|
| FC1610HF13HP | 1.56x1.0x0.81  | ○ White | 5000~6000 | 270                 | 2.85~3.80           | 1000    | -   |

Flash LED | 1414 series | Ceramic



UNIT : mm



| Product | Dimension (mm) | Color   | CCT       | Luminous Flux(Typ.) | Forward Voltage (V) | IF (mA) | CRI |
|---------|----------------|---------|-----------|---------------------|---------------------|---------|-----|
| FC1414G | 1.40x1.40x0.76 | ○ White | 2000~3000 | 270                 | 2.85~3.80           | 1000    | -   |
|         | 1.40x1.40x0.76 | ○ White | 5000~6000 | 250                 | 2.85~3.80           | 1000    | -   |

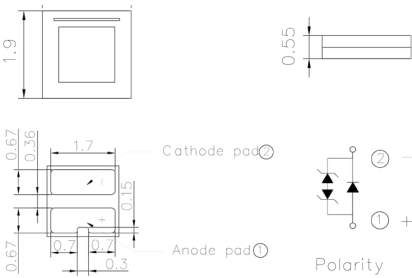
Flash LED



Flash LED | 1919series | EMC

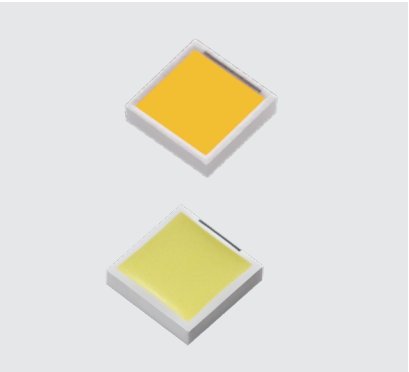


UNIT : mm

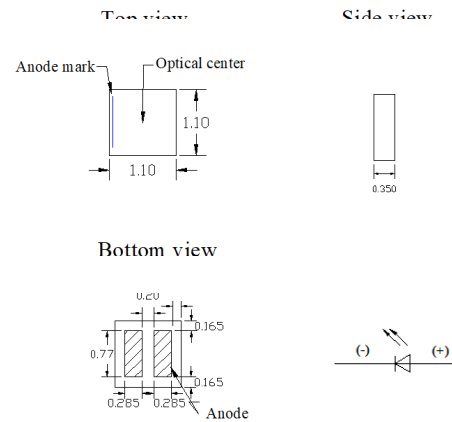


| Product      | Dimension (mm) | Color  | CCT       | Luminous Flux(Typ.) | Forward Voltage (V) | IF (mA) | CRI |
|--------------|----------------|--------|-----------|---------------------|---------------------|---------|-----|
| FE1919EF14ZP | 1.9x1.9x0.55   | ○White | 4000~6000 | 550                 | 3.00~4.00           | 1500    | -   |
|              | 1.9x1.9x0.55   | ○White | 4000~5000 | 450                 | 3.00~4.00           | 1500    | 80  |
| FE1919EF162P | 1.9x1.9x0.55   | ○White | 4000~5000 | 670                 | 3.00~4.00           | 1500    | -   |

Flash LED | 1111series | CSP



UNIT : mm

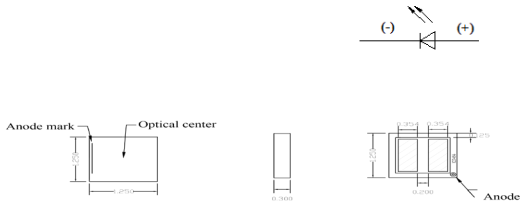


| Product | Dimension (mm) | Color  | CCT        | Luminous Flux(Typ.) | Forward Voltage (V) | IF (mA) | CRI |
|---------|----------------|--------|------------|---------------------|---------------------|---------|-----|
| FN1111  | 1.15x1.15x0.30 | ○White | 2500~3000  | 230                 | 2.85~3.60           | 1000    | -   |
|         | 1.15x1.15x0.30 | ○White | 7000~10000 | 205                 | 2.85~3.60           | 1000    | 90  |

Flash LED | 1212series | CSP

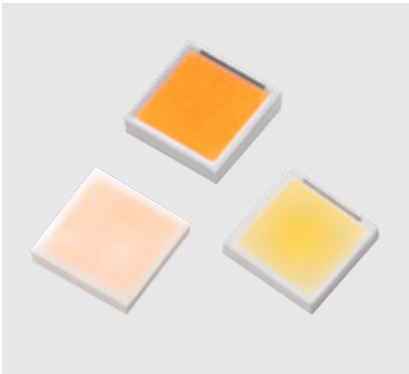


UNIT : mm

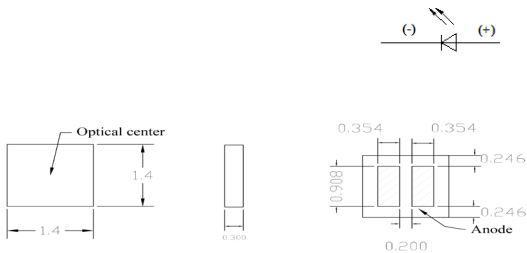


| Product | Dimension (mm) | Color  | CCT       | Luminous Flux(Typ.) | Forward Voltage (V) | IF (mA) | CRI |
|---------|----------------|--------|-----------|---------------------|---------------------|---------|-----|
| FN1212  | 1.25x1.25x0.30 | ○White | 4700~5200 | 330                 | 2.85~3.60           | 1000    | >80 |

Flash LED | 1414 series | CSP

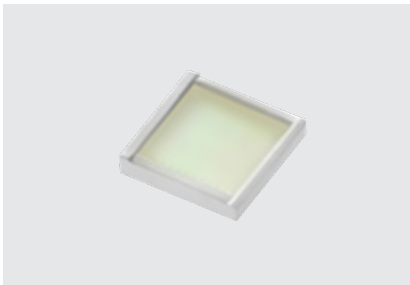


UNIT : mm

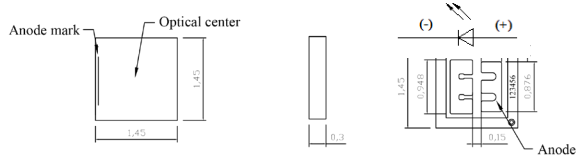


| Product | Dimension (mm) | Color  | CCT       | Luminous Flux(Typ.) | Forward Voltage (V) | IF (mA) | CRI |
|---------|----------------|--------|-----------|---------------------|---------------------|---------|-----|
| FN1414  | 1.4x1.4x0.30   | ○White | 1700~2100 | 260                 | 2.85~3.60           | 1000    | -   |
|         | 1.4x1.4x0.30   | ○White | 2000~2500 | 260                 | 2.85~3.60           | 1000    | -   |
|         | 1.4x1.4x0.30   | ○White | 3700~4200 | 250                 | 2.85~3.60           | 1200    | >90 |
|         | 1.4x1.4x0.30   | ○White | 4000~5000 | 300                 | 2.85~3.60           | 1000    | >80 |
|         | 1.4x1.4x0.30   | ○White | 5000~6000 | 300                 | 2.85~3.60           | 1000    | -   |

Flash LED | 1414 series | CSP

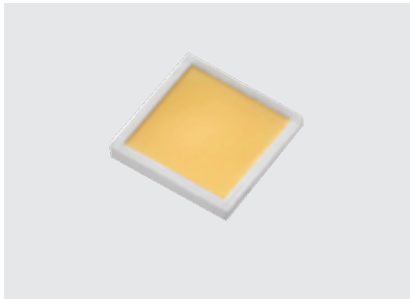


UNIT : mm

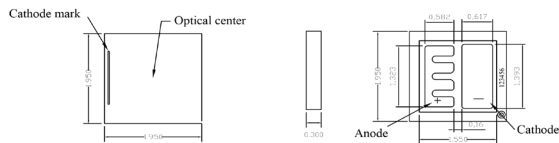


| Product | Dimension (mm) | Color   | CCT       | Luminous Flux(Typ.) | Forward Voltage (V) | IF (mA) | CRI |
|---------|----------------|---------|-----------|---------------------|---------------------|---------|-----|
| FN1414G | 1.45x1.45x0.30 | ● Green | 520-530nm | 250                 | 2.85~3.40           | 700     | -   |

Flash LED | 1919series | CSP



UNIT : mm

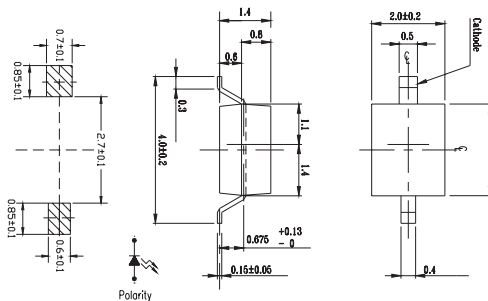


| Product | Dimension (mm) | Color   | CCT       | Luminous Flux(Typ.) | Forward Voltage (V) | IF (mA) | CRI |
|---------|----------------|---------|-----------|---------------------|---------------------|---------|-----|
| FN1919  | 1.95x1.95x0.3  | ○ White | 4300~4800 | 580                 | 3.0~4.0             | 1500    | >80 |

## SMD LED ■ Subminiature LED Lamps (Leadframe)



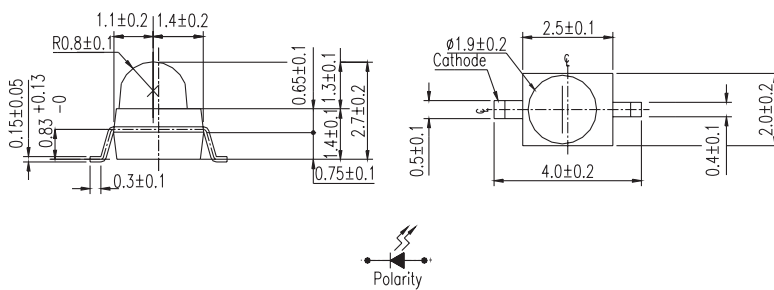
UNIT : mm



| Product               | Size<br>(LxWxHmm) | Color                    |                        | I <sub>v</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color                    | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 28-21SDRC/S530-A3/TR8 | 2.5x2.0x1.4       | ● Deep Red               | 639                    | 20                           | 27                           | -                            | 1.7                        | 2                          | 2.4                        | 25         |
| 28-21UYC/S530-A3/TR8  | 2.5x2.0x1.4       | ● Yellow                 | 589                    | 21                           | 33                           | -                            | -                          | 2                          | 2.4                        | 20         |
| 28-21SYGC/S530-E3/TR8 | 2.5x2.0x1.4       | ● Brilliant Yellow Green | 573                    | 16                           | 27                           | -                            | 1.7                        | 2                          | 2.4                        | 20         |



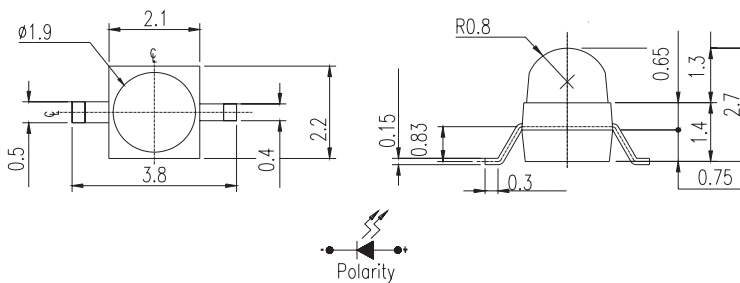
UNIT : mm



| Product               | Size<br>(LxWxHmm) | Color                    |                        | I <sub>v</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color                    | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 91-21SYGC/S530-E4/TR7 | 2.0x2.5x2.7       | ● Brilliant Yellow Green | 573                    | 528                          | 594                          | -                            | -                          | 2                          | 2.4                        | 20         |
| 91-21SURC/S530-A6/TR7 | 2.0x2.5x2.7       | ● Brilliant Red          | 624                    | 802                          | 1232                         | -                            | -                          | 2                          | 2.4                        | 20         |
| 91-21UYC/S530-A6/TR7  | 2.0x2.5x2.7       | ● Super Yellow           | 589                    | 991                          | 1454                         | -                            | -                          | 2                          | 2.4                        | 20         |
| 91-21SUGC/S400-A4/TR7 | 2.0x2.5x2.7       | ● Super Green            | 525                    | 2000                         | 2300                         | -                            | -                          | 3.5                        | 4.3                        | 20         |



UNIT : mm

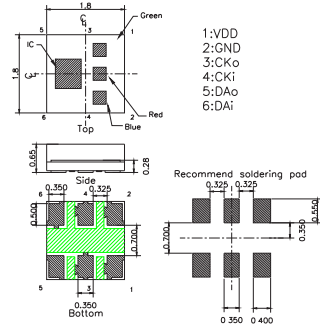


| Product               | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 95-21SYGC/S530-E3/TR9 | 2.1x 2.0x2.7      | ● Brilliant Yellow Green | 573                    | 400                          | 630                          | -                            | 1.7                        | 2                          | 2.4                        | 20         |
| 95-21UYC/S530-A5/TR7  | 2.1x 2.2x2.7      | ● Super Yellow           | 589                    | 793                          | 1156                         | -                            | -                          | 2                          | 2.4                        | 20         |
| 95-21SURC/S530-A6/TR7 | 2.1x 2.2x2.7      | ● Brilliant Red          | 624                    | 802                          | 1232                         | -                            | -                          | 2                          | 2.4                        | 20         |

SMD LED | Surface Mount (RGB+IC) | Top view B1818



UNIT : mm

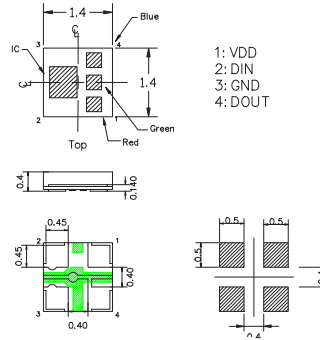


| Product                 | Size<br>(LxWxHmm) | Color                                          | I <sub>V</sub>                       | V <sub>F</sub>             |                            |                            | IF(mA)                | Viewing<br>Angle(°) |
|-------------------------|-------------------|------------------------------------------------|--------------------------------------|----------------------------|----------------------------|----------------------------|-----------------------|---------------------|
|                         |                   |                                                | I <sub>V</sub> (mcd)<br>min.         | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |                       |                     |
| B1818IC/RSGHBHC-5V01/2T | 1.8x1.8x0.65      | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R:285~565<br>G:900~1800<br>B:180~360 | VDD(4.5V)                  | VDD(5V)                    | VDD(5.5V)                  | 20(I <sub>OUT</sub> ) | 120                 |

SMD LED | Surface Mount (RGB+IC) | Top view B1414



UNIT : mm

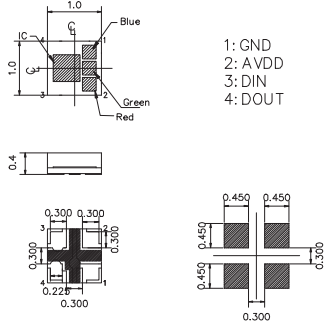


| Product                 | Size<br>(LxWxHmm) | Color                                                    | I <sub>V</sub>                       | V <sub>F</sub>             | IF(mA) | Viewing<br>Angle(°) |
|-------------------------|-------------------|----------------------------------------------------------|--------------------------------------|----------------------------|--------|---------------------|
|                         |                   |                                                          | I <sub>V</sub> (mcd)<br>min.         | V <sub>F</sub> (V)<br>typ. |        |                     |
| B1414DWN3S2-RGBC0112-2T | 1.4x1.4x0.4       | ● Brilliant Red<br>● Brilliant Green<br>● Brilliant Blue | R:180~720<br>G:720~1800<br>B:112~450 | VDD(5V)                    | 12     | 120                 |

SMD LED | Surface Mount (RGB+IC) | Top view B1010



UNIT : mm

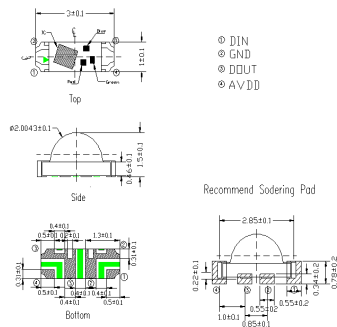


| Product                 | Size<br>(LxWxHmm) | Color                                                    | I <sub>V</sub>                  | V <sub>F</sub>             | IF(mA) | Viewing<br>Angle(°) |
|-------------------------|-------------------|----------------------------------------------------------|---------------------------------|----------------------------|--------|---------------------|
|                         |                   |                                                          | I <sub>V</sub> (mcd)<br>min.    | V <sub>F</sub> (V)<br>typ. |        |                     |
| B1010DWN3S2-RGBC0105-5T | 1.0x1.0x0.4       | ● Brilliant Red<br>● Brilliant Green<br>● Brilliant Blue | R:45~122<br>G:90~225<br>B:18~45 | VDD(5V)                    | 5      | 120                 |

SMD LED | Surface Mount (RGB+IC) | Side view



UNIT : mm

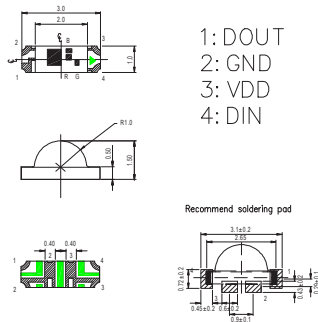


| Product                | Size<br>(LxWxHmm) | Color                                          |                                             | I <sub>V</sub>               |                              | IF(mA) | Viewing<br>Angle(°) |
|------------------------|-------------------|------------------------------------------------|---------------------------------------------|------------------------------|------------------------------|--------|---------------------|
|                        |                   | Color                                          | Wavelength<br>nm / CIE                      | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. |        |                     |
| 12-23C/RSGHBHW-5V01/2C | 3.0 x 1.0 x 2.0   | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R:617.5~629.5<br>G:525~540<br>B:465.5~476.5 | R:22.5<br>G:45<br>B:18       | R:72<br>G:140<br>B:57        | 5      | 130                 |

SMD LED | Surface Mount (RGB+IC) | Side view B3010



UNIT : mm

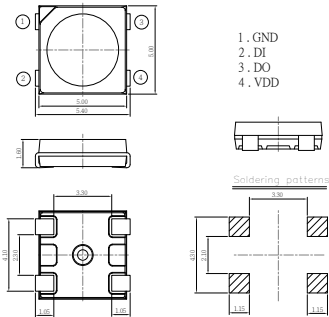


| Product                 | Size<br>(LxWxHmm) | Color                                          | I <sub>V</sub>                     | V <sub>F</sub>             | IF(mA)                  | Viewing<br>Angle(°) |
|-------------------------|-------------------|------------------------------------------------|------------------------------------|----------------------------|-------------------------|---------------------|
|                         |                   |                                                | I <sub>V</sub> (mcd)<br>min.       | V <sub>F</sub> (V)<br>typ. |                         |                     |
| B3010PWN3S1-GRBS0112-2D | 3.0x1.0x1.5       | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R:140~285<br>G:360~715<br>B:72~140 | VDD(5V)                    | 12(I <sub>L_OUT</sub> ) | 120                 |

SMD LED ■ Surface Mount (RGB+IC) ■ Top view C5050



UNIT : mm

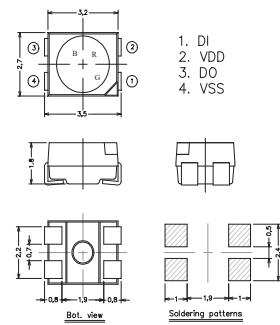


| Product                 | Size<br>(LxWxHmm) | Color                                                    |                                        | I <sub>V</sub>               |                              |                              | IF(mA) | Viewing<br>Angle(°) |
|-------------------------|-------------------|----------------------------------------------------------|----------------------------------------|------------------------------|------------------------------|------------------------------|--------|---------------------|
|                         |                   | Color                                                    | Wavelength<br>nm / CIE                 | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. |        |                     |
| C5050RDWN3S2-RGBC0120-T | 5.0 x 5.0 x 1.6   | ● Brilliant Red<br>● Brilliant Green<br>● Brilliant Blue | R: 618-628<br>G: 521-531<br>B: 465-475 | R: 355<br>G: 1000<br>B: 224  | R: 564<br>G: 1500<br>B: 325  | R: 800<br>G: 2200<br>B: 450  | 12     | 120                 |

SMD LED ■ Surface Mount (RGB+IC) ■ Top view C3227



UNIT : mm

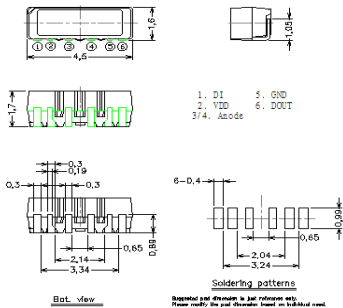


| Product                  | Size<br>(LxWxHmm) | Color                                                    | I <sub>V</sub>                       | V <sub>F</sub>             |                            |                            | IF(mA)                | Viewing<br>Angle(°) |
|--------------------------|-------------------|----------------------------------------------------------|--------------------------------------|----------------------------|----------------------------|----------------------------|-----------------------|---------------------|
|                          |                   |                                                          | I <sub>V</sub> (mcd)<br>min.         | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |                       |                     |
| C3227TDWN3S1-GRBC0112-2T | 3.2x2.7x1.8       | ● Brilliant Red<br>● Brilliant Green<br>● Brilliant Blue | R:224~560<br>G:710~1800<br>B:180~450 | VDD(4.5V)                  | VDD(5V)                    | VDD(5V)                    | 12(I <sub>OUT</sub> ) | 120                 |

SMD LED | Surface Mount (RGB+IC) | Side View C4516



UNIT : mm

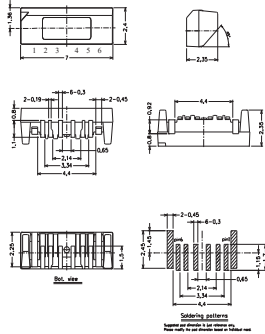


| Product                  | Size<br>(LxWxHmm) | Color                                                    |                                     | I <sub>V</sub>               |                              | IF(mA) | Viewing<br>Angle(°) |
|--------------------------|-------------------|----------------------------------------------------------|-------------------------------------|------------------------------|------------------------------|--------|---------------------|
|                          |                   | Color                                                    | Wavelength<br>nm / CIE              | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. |        |                     |
| C4516SDWN3S1-RGBC0120-2H | 4.5 x 1.6 x 1.7   | ● Brilliant Red<br>● Brilliant Green<br>● Brilliant Blue | R:618~630<br>G:520~535<br>B:463~475 | R:450<br>G:1120<br>B:280     | R:1120<br>G:2800<br>B:710    | 20     | 120                 |

SMD LED | Surface Mount (RGB+IC) | Side view C7024



UNIT : mm

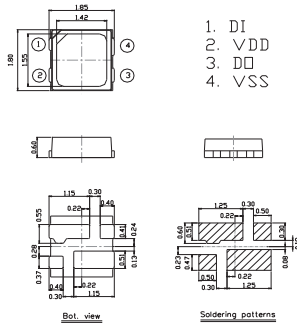


| Product                   | Size<br>(LxWxHmm) | Color                                                                                        | I <sub>V</sub>                         | V <sub>F</sub>             |                            |                            | IF(mA)    | Viewing<br>Angle(°) |
|---------------------------|-------------------|----------------------------------------------------------------------------------------------|----------------------------------------|----------------------------|----------------------------|----------------------------|-----------|---------------------|
|                           |                   |                                                                                              | I <sub>V</sub> (mcd)<br>min.           | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |           |                     |
| C7024SDWN3S1-RGBC0118-05H | 7.0x2.4x2.35      | <div><div>● Brilliant Red</div><div>● Brilliant Green</div><div>● Brilliant Blue</div></div> | R:450~1120<br>G:1120~2800<br>B:280~710 | VDD(4.5V)                  | VDD(5V)                    | VDD(5V)                    | 20(I_OUT) | 120                 |

SMD LED | Surface Mount (RGB+IC) | Side view C1818



UNIT : mm



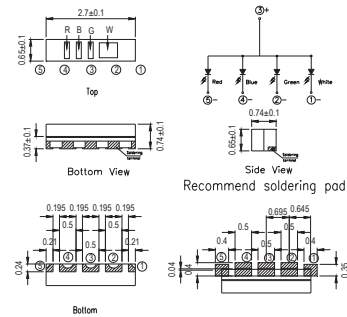
| Product                 | Size<br>(LxWxHmm) | Color                                                    |                                     | I <sub>V</sub>                         |                                          | IF(mA) | Viewing<br>Angle(°) |
|-------------------------|-------------------|----------------------------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|--------|---------------------|
|                         |                   | Color                                                    | Wavelength<br>nm / CIE              | I <sub>V</sub> (mcd)<br>min            | I <sub>V</sub> (mcd)<br>max.             |        |                     |
| C1818FDWN3S1-RGBC0120-T | 1.85x1.85x0.6     | ● Brilliant Red<br>● Brilliant Green<br>● Brilliant Blue | R:618~633<br>G:515~530<br>B:460~475 | R:340<br>G:600<br>B:150<br>Mix W: 1400 | R: 800<br>G: 1800<br>B: 450<br>Mix: 1900 | 20     | 120                 |



SMD LED ■ Surface Mount (RGB+IC) ■ Side View B2706

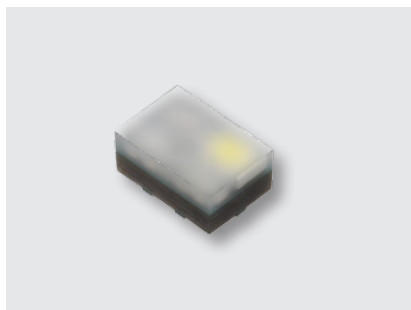


UNIT : mm

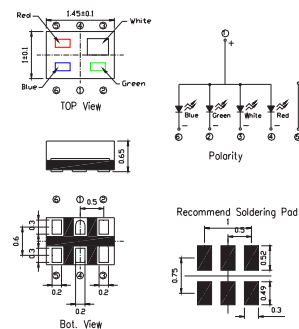


| Product                  | Size<br>(LxWxHmm) | Color                                                                    |                                           | I <sub>v</sub>                      |                                     | IF(mA) | Viewing<br>Angle(°) |
|--------------------------|-------------------|--------------------------------------------------------------------------|-------------------------------------------|-------------------------------------|-------------------------------------|--------|---------------------|
|                          |                   | Color                                                                    | Wavelength<br>nm / CIE                    | I <sub>v</sub> (mcd)<br>min.        | I <sub>v</sub> (mcd)<br>max.        |        |                     |
| B2706MWN4A2-RBGWS0105-3C | 2.7x0.65x0.74     | ● Brilliant Red<br>● Brilliant Green<br>● Brilliant Blue<br>○ Pure White | B: 470~480<br>G:525~535<br>R: 617.5~625.5 | B: 90<br>G: 360<br>R: 140<br>W: 225 | B:180<br>G: 715<br>R: 285<br>W: 450 | 5      | 120                 |

SMD LED ■ Surface Mount RGBW ■ Top View B1410



UNIT : mm

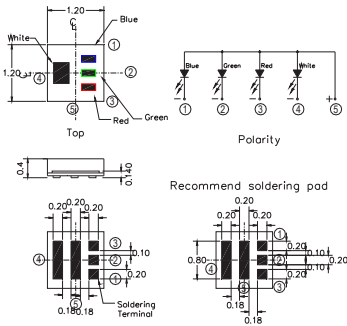


| Product                  | Size<br>(LxWxHmm) | Color                                                                                                               | I <sub>V</sub>                                  | V <sub>F</sub>                   |                                  | IF(mA) | Viewing<br>Angle(°) |
|--------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------|----------------------------------|--------|---------------------|
|                          |                   |                                                                                                                     | I <sub>V</sub> (mcd)<br>min.                    | V <sub>F</sub> (V)<br>min.       | V <sub>F</sub> (V)<br>max.       |        |                     |
| B1410FBN4A1-RGBWD0205-4T | 1.45x1.0x0.65     | <div><div>● Brilliant Red</div><div>● Brilliant Green</div><div>● Brilliant Blue</div><div>○ Pure White</div></div> | R: 90 ~180<br>G:225_450<br>B:45~90<br>W:180~450 | R:1.7<br>G:2.4<br>B:2.6<br>W:2.6 | R:2.7<br>G:3.2<br>B:3.2<br>W:3.2 | 10     | 120                 |

SMD LED | Surface Mount RGBW | Top View B1212



UNIT : mm

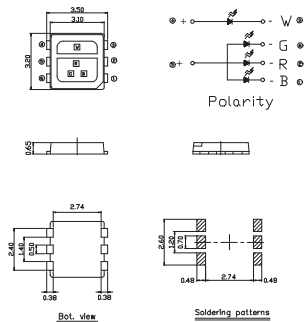


| Product                  | Size<br>(LxWxHmm) | Color                                                                    | I <sub>V</sub>                                  | V <sub>F</sub>                   |                                  |  | IF(mA) | Viewing<br>Angle(°) |
|--------------------------|-------------------|--------------------------------------------------------------------------|-------------------------------------------------|----------------------------------|----------------------------------|--|--------|---------------------|
|                          |                   |                                                                          | I <sub>V</sub> (mcd)<br>min.                    | V <sub>F</sub> (V)<br>min.       | V <sub>F</sub> (V)<br>max.       |  |        |                     |
| B1212CWN4A1-BGRWD0105-3T | 1.2x1.2x0.4       | ● Brilliant Red<br>● Brilliant Green<br>● Brilliant Blue<br>○ Pure White | R:72~112<br>G:285~565<br>B:112~180<br>W:180~450 | R:2.6<br>G:2.4<br>B:1.7<br>W:2.6 | R:3.2<br>G:3.2<br>B:2.4<br>W:3.2 |  | 5      | 130                 |

SMD LED | Surface Mount RGBW PLCC6 | Top view C3231



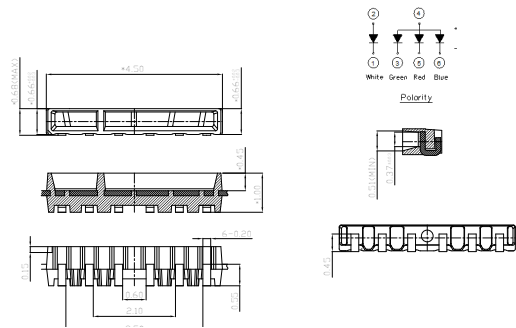
UNIT : mm



| Product                   | Size<br>(LxWxHmm) | Color                                                               | I <sub>V</sub>                                        | V <sub>F</sub>                   |                                  |                                  | IF(mA)               | Viewing<br>Angle(°)           |
|---------------------------|-------------------|---------------------------------------------------------------------|-------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------|-------------------------------|
|                           |                   |                                                                     | I <sub>V</sub> (mcd)<br>min.                          | V <sub>F</sub> (V)<br>min.       | V <sub>F</sub> (V)<br>typ.       | V <sub>F</sub> (V)<br>max.       |                      |                               |
| C3231FFWN4A5-RGBWC0120-1T | 3.2x3.5x0.65      | ● Brilliant Red<br>● Brilliant Green<br>● Brilliant Blue<br>○ White | R:560~1120<br>G:1440~2800<br>B:355~710<br>W:1800~3500 | R:1.7<br>G:2.4<br>B:2.4<br>W:2.6 | R:2.3<br>G:2.8<br>B:3.0<br>W:2.8 | R:2.7<br>G:3.6<br>B:3.6<br>W:3.7 | 20<br>20<br>20<br>20 | min:100<br>typ:120<br>max:140 |

SMD LED ■ Surface Mount PLCC6 LED (Reflector) ■ Side View RGBW

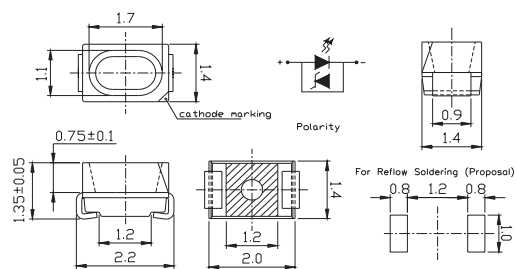
UNIT : mm



| Product                | Size<br>(LxWxHmm) | Color                                 |                                                                             | I <sub>V</sub>                        |                                        | V <sub>F</sub>                                      | IF<br>(mA) | Viewing<br>Angle(°) |
|------------------------|-------------------|---------------------------------------|-----------------------------------------------------------------------------|---------------------------------------|----------------------------------------|-----------------------------------------------------|------------|---------------------|
|                        |                   | Color                                 | Wavelength<br>nm / CIE                                                      | I <sub>V</sub> (mcd)<br>min.          | I <sub>V</sub> (mcd)<br>max.           | V <sub>F</sub> (V)                                  |            |                     |
| C4506RGBW-DP02-2G(AES) | 4.5 x 1.25 x 0.6  | ● Red<br>● Green<br>● Blue<br>○ White | R: 520-530<br>G: 517-630<br>B: 465-475<br>X:0.310-0.3210<br>Y:0.2840-0.3600 | R: 1580<br>G: 1350<br>B: 700<br>W:280 | R: 2800<br>G: 2700<br>B: 700<br>W: 280 | R: 1.5-2.2<br>G: 1.9-2.8<br>B: 2.0-2.9<br>W:2.2-2.9 | 2mA        | 120                 |

SMD LED ■ Surface Mount PLCC2 LED (Reflector) ■ Top View Mono

UNIT : mm

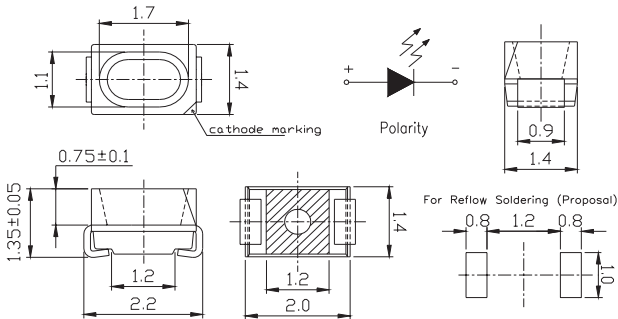


| Product              | Size<br>(LxWxHmm) | Color        |                              | I <sub>v</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|----------------------|-------------------|--------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color        | Wavelength<br>nm / CIE       | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 65-11/BHC-AR1S2B2/2T | 2.2x1.4x1.35      | ● Blue       | 464.5~476.5                  | 112                          | 285                          | 2.9                        | 3.6                        | 20         |
| 65-11/T2C-FV1W2E/2T  | 2.2x1.4x1.35      | ○ Pure White | x=0.283~0.33<br>y=0.276~0.36 | 715                          | 1800                         | 2.75                       | 3.65                       | 20         |

SMD LED ■ Surface Mount PLCC2 LED (Reflector) ■ Top View Mono



UNIT : mm

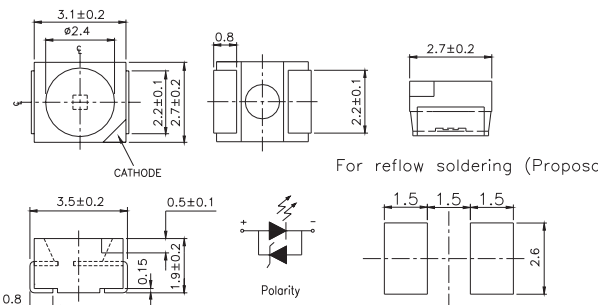


| Product               | Size<br>(LxWxHmm) | Color                  |                        | I <sub>v</sub>               |                              | V <sub>F</sub> (V)         |                            | IF<br>(mA) |
|-----------------------|-------------------|------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color                  | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 65-21/G6C-AN2Q1/3T    | 2.2x1.4x1.35      | Brilliant Yellow Green | 569.5~577.5            | 36                           | 90                           | 1.75                       | 2.35                       | 20         |
| 65-21/BHC-FS/T1B14/2T | 2.2x1.4x1.35      | Blue                   | 464~472                | 180                          | 360                          | 2.7                        | 3.5                        | 20         |
| 65-21/Y2SC-AR1S2B/2T  | 2.2x1.4x1.35      | Brilliant Yellow       | 585.5~594.5            | 112                          | 285                          | 1.75                       | 2.35                       | 20         |
| 65-21/R6C-AQ1R2B/2T   | 2.2x1.4x1.35      | Brilliant Red          | 616.5-634.5            | 72                           | 180                          | 1.75                       | 2.35                       | 20         |

SMD LED ■ Surface Mount PLCC2 LED (Reflector) ■ Top View Mono

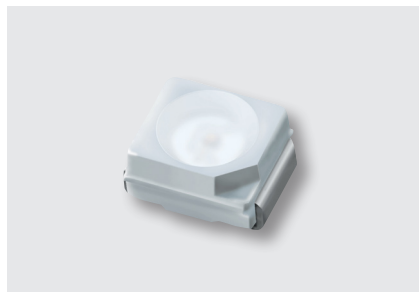


UNIT : mm

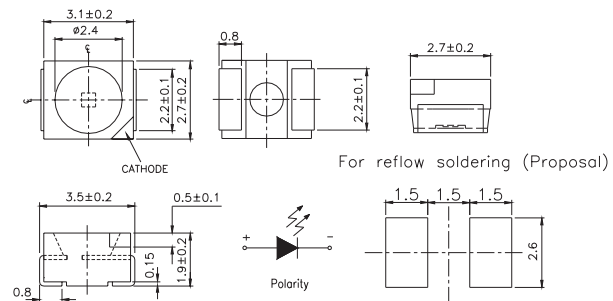


| Product             | Size<br>(LxWxHmm) | Color      |                                    | I <sub>v</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|---------------------|-------------------|------------|------------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                     |                   | Color      | Wavelength<br>nm / CIE             | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 67-11/BHC-FQ2S1F/2T | 3.5 x 2.7 x 1.9   | Blue       | 464 - 472                          | 90                           | 285                          | 2.7                        | 3.5                        | 25         |
| 67-11/W1C-ES1T2N/2T | 3.5 x 2.7 x 1.9   | Warm White | x: 0.264 - 0.33<br>y: 0.248 - 0.36 | 180                          | 450                          | 2.7                        | 3.7                        | 25         |
| 67-11/W1C-FV1W2F/2T | 3.5 x 2.7 x 1.9   | White      | x: 0.283 - 0.33<br>y: 0.276 - 0.36 | 715                          | 1800                         | 2.7                        | 3.5                        | 25         |

SMD LED ■ Surface Mount PLCC2 LED (Reflector) ■ Top View Mono



UNIT : mm

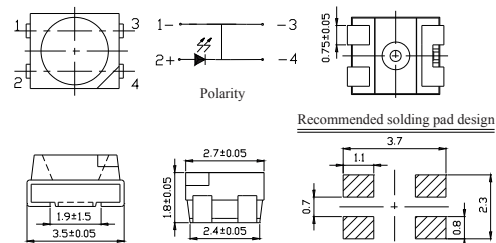


| Product              | Size<br>(LxWxHmm) | Color              |                                   | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|----------------------|-------------------|--------------------|-----------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color              | Wavelength<br>nm / CIE            | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 67-21/B7C-AS2U1N/2T  | 3.5x2.7x1.9       | ● Blue             | 464.5~476.5                       | 225                          | 565                          | 2.7                        | 3.7                        | 20         |
| 67-21/GBC-YV2W2N/2T  | 3.5x2.7x1.9       | ● Brilliant Green  | 520~535                           | 900                          | 1800                         | 2.7                        | 3.7                        | 20         |
| 67-21/R6C-FN2Q1BZ/2T | 3.5x2.7x1.9       | ● Brilliant Red    | 621~631                           | 36                           | 90                           | 1.75                       | 2.35                       | 10         |
| 67-21/RSC-FT2V1B/2T  | 3.5x2.7x1.9       | ● Brilliant Red    | 621~631                           | 360                          | 900                          | 1.75                       | 2.35                       | 20         |
| 67-21/S2C-AQ2S1B/2T  | 3.5x2.7x1.9       | ● Brilliant Orange | 600.5~612.5                       | 90                           | 225                          | 1.75                       | 2.35                       | 20         |
| 67-21/T2C-ZV1W2E/2T  | 3.5x2.7x1.9       | ○ White            | x=0.2498~0.296<br>y=0.2185~0.2950 | 715                          | 1800                         | 2.75                       | 3.65                       | 20         |
| 67-21/YSC-FU1V2B/2T  | 3.5x2.7x1.9       | ● Brilliant Yellow | 586~594                           | 450                          | 1120                         | 1.75                       | 2.35                       | 20         |

SMD LED ■ Surface Mount PLCC4 LED (Reflector) ■ Top View Mono



UNIT : mm

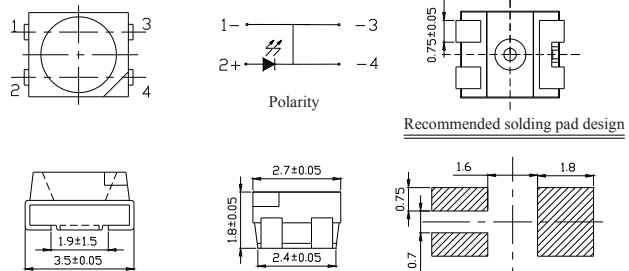


| Product                 | Size<br>(LxWxHmm) | Color            |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-------------------------|-------------------|------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                         |                   | Color            | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 67-31A/SAC-AW1X2B9Z5/2T | 3.5x2.7x1.8       | ● Reddish Orange | 605.5~625.5            | 1120                         | —                            | 2850                         | 1.95                       | —                          | 2.75                       | 50         |
| 67-31A/GHC-YV1W2EZ3/2T  | 3.5x2.7x1.8       | ● Green          | 520~535                | 715                          | —                            | 1800                         | 2.75                       | —                          | 3.65                       | 30         |
| 67-31A/B7C-AT1U2MZ3/2T  | 3.5x2.7x1.8       | ● Blue           | 464.5~476.5            | 285                          | —                            | 715                          | 2.75                       | —                          | 3.95                       | 50         |

SMD LED ■ Surface Mount PLCC4 LED (Reflector) ■ Top View Mono



UNIT : mm

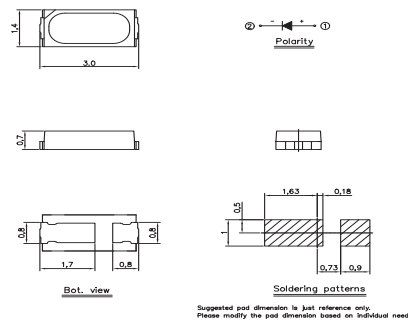


| Product                 | Size<br>(LxWxHmm) | Color           |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-------------------------|-------------------|-----------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                         |                   | Color           | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 67-31E/RSC-AV1W2B9Z5/2T | 3.5x2.7x1.8       | ● Brilliant Red | 617.5-633.5            | 715                          | —                            | 1800                         | 2.15                       | —                          | 2.75                       | 50         |

SMD LED ■ Surface Mount PLCC2 LED (Reflector) ■ Top View 3014



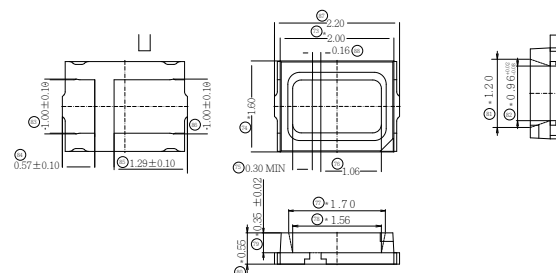
UNIT : mm



| Product                   | Size<br>(LxWxHmm) | Color  |                                    | I <sub>v</sub>               |                              | V <sub>F</sub>             |                            | IF(mA) | Viewing Angle(°) |
|---------------------------|-------------------|--------|------------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|--------|------------------|
|                           |                   | Color  | Wavelength<br>nm / CIE             | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |        |                  |
| 3014-BUT-SBBBCAK1E-2T8-CS | 3.0x1.4x0.7       | ○White | x: 0.28 - 0.30<br>y: 0.2466-0.3034 | 2240                         | 3550                         | 2.4                        | 3.6                        | 20     | 120              |

SMD LED ■ Surface Mount PLCC4 LED (Reflector) ■ Top View C2016

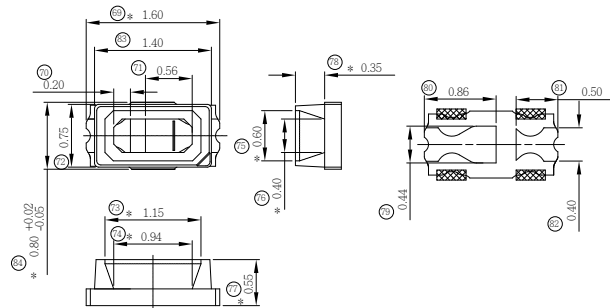
UNIT : mm



| Product                     | Size<br>(LxWxHmm) | Color           |                        |                              |                              | VF        | IF<br>(mA) | Viewing<br>Angle(°) |
|-----------------------------|-------------------|-----------------|------------------------|------------------------------|------------------------------|-----------|------------|---------------------|
|                             |                   | Color           | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. |           |            |                     |
| C2016EDWN1-RC61620182306-3T | 2.0 x 1.6 x 0.6   | ● Brilliant Red | 617-629                | 180                          | 355                          | 1.55-2.35 | 6          | 120                 |

SMD LED ■ Surface Mount PLCC2 LED (Reflector) ■ Top View Mono

UNIT : mm

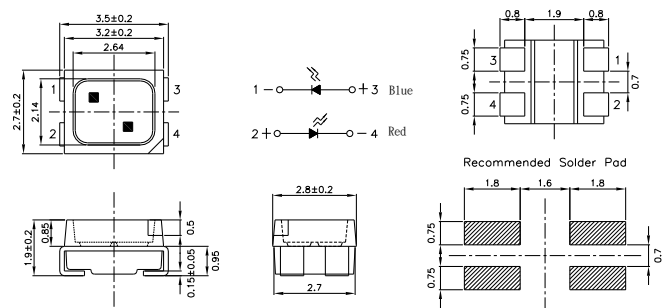


| Product                     | Size<br>(LxWxHmm) | Color             |                                      | I <sub>V</sub>               |                              | V <sub>F</sub> (V) | IF<br>(mA) | Viewing<br>Angle(°) |
|-----------------------------|-------------------|-------------------|--------------------------------------|------------------------------|------------------------------|--------------------|------------|---------------------|
|                             |                   | Color             | Wavelength<br>nm / CIE               | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V) |            |                     |
| C1608EDWN1-BC46472243620-T  | 1.6 x 0.8 x 0.55  | ● Blue            | 465-475                              | 224                          | 450                          | 2.6-3.6            | 20         | 120                 |
| C1608EDWN1-WP30301803420-2T | 1.6 x 0.8 x 0.55  | ○ White           | X: 0.2730~0.3056<br>Y: 0.2430~0.3290 | 1800                         | 3050                         | 2.6-3.4            | 20         | 120                 |
| C1608-GCZ0ABK4E-2T          | 1.6 x 0.8 x 0.55  | ● Brilliant Green | 520-540                              | 1400                         | 2800                         | 2.4-3.1            | 20         | 120                 |

SMD LED ■ Surface Mount PLCC4 LED (Reflector) ■ Top View LED Bi-Color



UNIT : mm

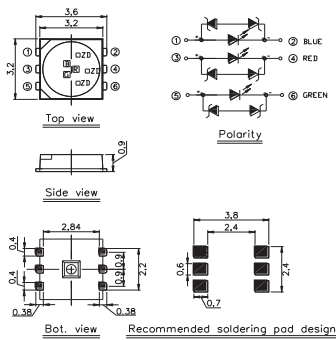


| Product                 | Size<br>(LxWxHmm) | Color                                          |                              | I <sub>v</sub>               |                              |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|-------------------------|-------------------|------------------------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                         |                   | Color                                          | Wavelength<br>nm / CIE       | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 67-22/R6BHC-B07/2T      | 3.5x2.8x1.9       | ● Brilliant Red<br>● Blue                      | R6:621-631<br>BH:466.5-471.5 | R6:90<br>BH:90               | —                            | R6:225<br>BH:225             | R6:1.75<br>BH:2.9          | R6:2.35<br>BH:3.7          | 20         |
| 67-22/R6Y2C-B31/2T      | 3.5x2.8x1.9       | ● Brilliant Red<br>● Brilliant Yellow          | R6:621-631<br>SYG:586-594    | R6:72<br>SYG:72              | —                            | R6:285<br>SYG:285            | R6:1.75<br>SYG:1.75        | R6:2.35<br>SYG:2.35        | 20         |
| 67-22UYSYGC/S530-A5/TR8 | 3.5x2.8x1.9       | ● Brilliant Yellow<br>● Brilliant Yellow Green | UY:589<br>SYG:573            | UY:80<br>SYG:50              | UY:120<br>SYG:80             | —                            | UY:1.7/2.0<br>SYG:1.7/2.0  | UY:2.4<br>SYG:2.4          | 20         |

SMD LED | Surface Mount PLCC6 LED (Reflector) | Top View Full-color PLCC



UNIT : mm

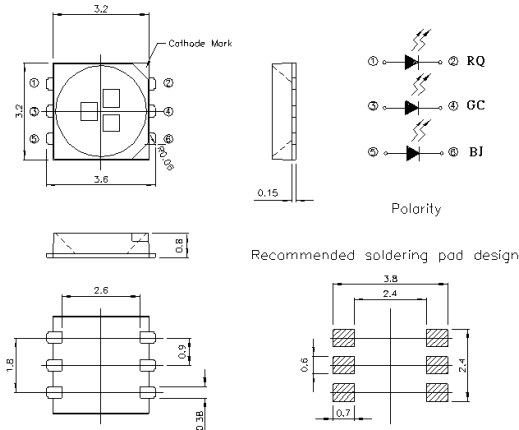


| Product                        | Size<br>(LxWxHmm) | Color                                 |                                                                                    | I <sub>V</sub>                    |                                     | V <sub>F</sub>             |                            | IF(mA)               | Viewing Angle(°) |
|--------------------------------|-------------------|---------------------------------------|------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------|----------------------------|----------------------------|----------------------|------------------|
|                                |                   | Color                                 | Wavelength<br>nm / CIE                                                             | I <sub>V</sub> (mcd)<br>min.      | I <sub>V</sub> (mcd)<br>max.        | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |                      |                  |
| 67-135-BYGRRTNW-M101520-2T8-CS | 3.6x3.2x0.9       | ● Red<br>● Green<br>● Blue<br>○ White | R:617.5~629.5<br>G: 520~535<br>B:460~475<br>CIE_X:0.264-0.324<br>CIE_Y:0.256-0.316 | R:450<br>G:900<br>B:140<br>W:1400 | R:1120<br>G:2240<br>B:355<br>W:3550 | R:1.75<br>G:2.4<br>B:2.4   | R:2.75<br>G:3.4<br>B:3.4   | R:20<br>G:15<br>B:10 | 120              |

SMD LED | Surface Mount PLCC6 LED (Reflector) | Top View Full-color PLCC



UNIT : mm



| Product                    | Size<br>(LxWxHmm) | Color                                               |                                            | I <sub>V</sub>               |                              | V <sub>F</sub>                  |                               | IF<br>(mA) |
|----------------------------|-------------------|-----------------------------------------------------|--------------------------------------------|------------------------------|------------------------------|---------------------------------|-------------------------------|------------|
|                            |                   | Color                                               | Wavelength<br>nm / CIE                     | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min./typ. | V <sub>F</sub> (V)<br>max.    |            |
| 67-235-BJRQGCC-A01E-2T8-CS | 3.2x3.2x0.8       | ● BQ:Super-Red<br>● GC:Brilliant Green<br>● BJ:Blue | BQ:617.5-629.5<br>GC:525-535<br>BJ:465-475 | BQ:450<br>GC:1120<br>BJ:225  | BQ:900<br>GC:1800<br>BJ:450  | BQ:1.75<br>GC:2.75<br>BJ:2.75   | BQ:2.75<br>GC:3.65<br>BJ:3.65 | 20         |

SMD LED

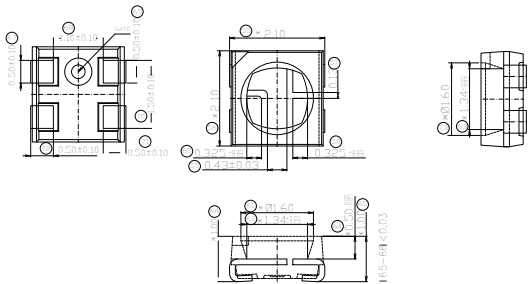




SMD LED | Surface Mount PLCC2 LED (Reflector) | Top View LED Full Color



UNIT : mm

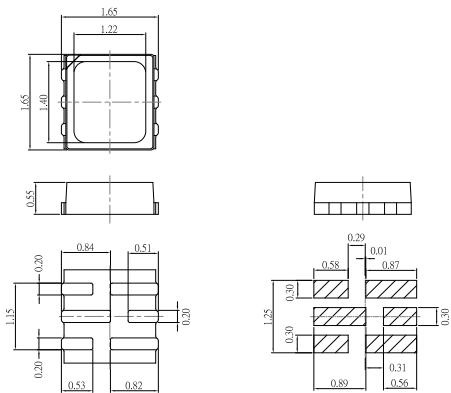


| Product                    | Size<br>(LxWxHmm) | Color                                          |                                        | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub>                      | I <sub>F</sub><br>(mA) | Viewing<br>Angle(°) |
|----------------------------|-------------------|------------------------------------------------|----------------------------------------|------------------------------|------------------------------|-------------------------------------|------------------------|---------------------|
|                            |                   | Color                                          | Wavelength<br>nm / CIE                 |                              |                              |                                     |                        |                     |
| C2121JDWN3A1-RGBD020202-3T | 2.1 x 2.1 x 1.0   | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R: 617-626<br>G: 526-535<br>B: 469-478 | R:75<br>G:285<br>B:55        | R:130<br>G:495<br>B:97       | R:1.3-2.2<br>G:2.1-2.9<br>B:2.1-2.9 | 2.5mA                  | 120                 |

SMD LED | Surface Mount PLCC6 LED (Reflector) | Top View LED Full Color



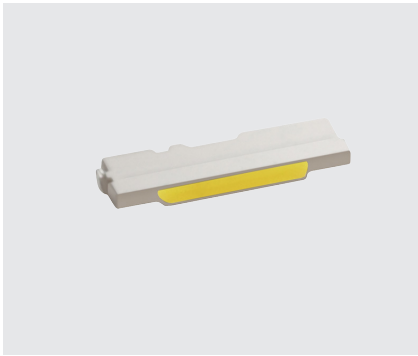
UNIT : mm



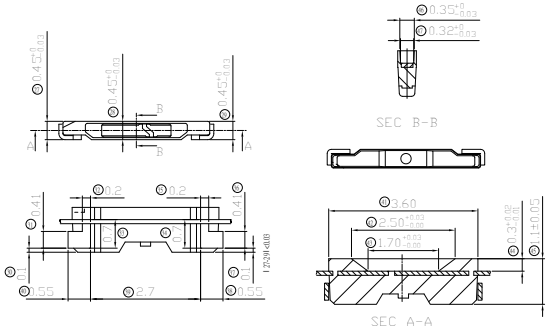
| Product                | Size<br>(LxWxHmm) | Color                                          |                                        | I <sub>V</sub>               |                              | V <sub>F</sub> (V)                     | I <sub>F</sub><br>(mA) | Viewing<br>Angle(°) |
|------------------------|-------------------|------------------------------------------------|----------------------------------------|------------------------------|------------------------------|----------------------------------------|------------------------|---------------------|
|                        |                   | Color                                          | Wavelength<br>nm / CIE                 | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)                     |                        |                     |
| C1616EFWN3-RGBD0610-2T | 1.6 x 1.6 x 0.55  | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R: 615~630<br>G: 525~535<br>B: 465~475 | R: 210<br>G: 710<br>B: 170   | R: 480<br>G: 1400<br>B: 325  | R: 1.7-2.5<br>G: 2.4-3.4<br>B: 2.4-3.4 | 10                     | 120                 |



SMD LED | Surface Mount PLCC2 LED (Reflector) | Side View Mono

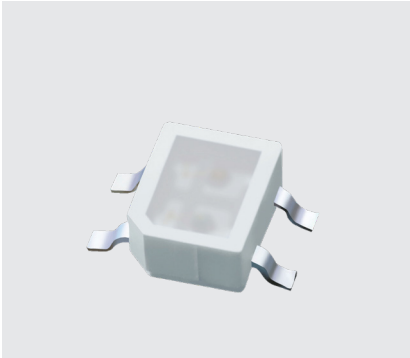


UNIT : mm

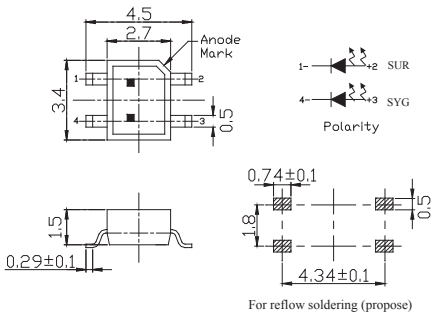


| Product                    | Size<br>(LxWxHmm) | Color            |                              | I <sub>v</sub>               |                              | V <sub>F</sub> (V) | IF(mA) | Viewing<br>Angle(°) |
|----------------------------|-------------------|------------------|------------------------------|------------------------------|------------------------------|--------------------|--------|---------------------|
|                            |                   | Color            | Wavelength<br>nm / CIE       | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V) |        |                     |
| 99-218/B2C-AQ1Q2DY/2C      | 3.8x1.1x0.4       | Blue             | 464.5~476.5                  | 72                           | 112                          | 2.75-3.35          | 25     | 110                 |
| 99-218/RSC-DQ2R2BY/2C      | 3.8x1.1x0.4       | Brilliant Red    | 617.5~629.5                  | 90                           | 180                          | 1.75-2.35          | 5      | 110                 |
| 99-218/Y2SC-AR2T1B23/2C    | 3.8x1.1x0.4       | Brilliant Yellow | 585.5-594.5                  | 140                          | 360                          | 1.75-2.55          | 20     | 120                 |
| 99-218-BUT-MVAWBWA7E-2G-CS | 3.8x1.1x0.4       | White            | CIE_X:0.2570<br>CIE_Y:0.2420 | 1120                         | 2800                         | 2.6-3.8            | 30     | 120                 |

SMD LED | Surface Mount PLCC4 LED (Reflector) | Reverse Mount LED Bi-Color



UNIT : mm

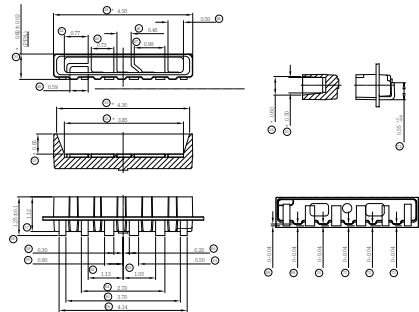


| Product                   | Size<br>(LxWxHmm) | Color                                   |                        | I <sub>v</sub>               |                              | V <sub>F</sub> (V)         |                            | IF<br>(mA) |
|---------------------------|-------------------|-----------------------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                           |                   | Color                                   | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 93-22SURS YGC/S530-A3/TR8 | 3.4x2.7x1.5       | Brilliant Red<br>Brilliant Yellow Green | R:624<br>YG:573        | R:17<br>YG:11                | R:41<br>YG:17                | R:2.0<br>YG:2.0            | R:2.4<br>YG:2.4            | 20         |

SMD LED ■ Surface Mount PLCC6 LED (Reflector) ■ Side View Full-color



UNIT : mm

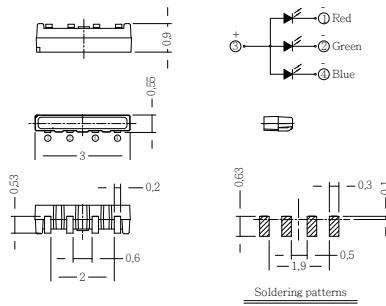


| Product                   | Size<br>(LxWxHmm) | Color                                          |                                                       | I <sub>V</sub>                  |                                  | VF                                         | IF<br>(mA) | Viewing<br>Angle(°) |
|---------------------------|-------------------|------------------------------------------------|-------------------------------------------------------|---------------------------------|----------------------------------|--------------------------------------------|------------|---------------------|
|                           |                   | Color                                          | Wavelength<br>nm / CIE                                | I <sub>V</sub> (mcd)<br>min.    | I <sub>V</sub> (mcd)<br>max.     |                                            |            |                     |
| 99-235-RSHBOGSC-A20-2H-CS | 4.5 x 1.25 x 0.8  | ● Brilliant Red<br>● Brilliant Green<br>● Blue | RSH: 617.5~629.5,<br>GS: 515~530 ,<br>BO: 464.5~473.5 | RSH: 560<br>GS: 1120<br>BO: 224 | RSH: 1400<br>GS: 2800<br>BO: 560 | RSH: 1.7-2.7<br>GS: 2.7-3.7<br>BO: 2.7-3.7 | 30         | 120                 |

SMD LED ■ Surface Mount PLCC4 LED (Reflector) ■ Side View Full-color



UNIT : mm

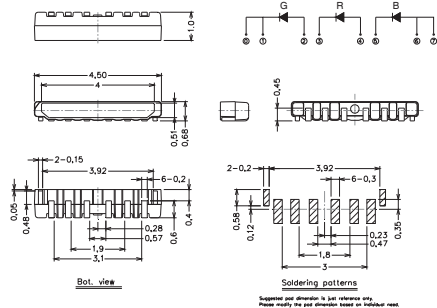


| Product                  | Size<br>(LxWxHmm) | Color                                          |                                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>                         | IF<br>(mA) | Viewing<br>Angle(°) |
|--------------------------|-------------------|------------------------------------------------|----------------------------------------|------------------------------|------------------------------|------------------------------|----------------------------------------|------------|---------------------|
|                          |                   | Color                                          | Wavelength<br>nm / CIE                 | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)                     |            |                     |
| C3005DDWN3A3-RGBD0120-2G | 3.0 x 0.9 x 0.5   | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R: 617~629<br>G: 517~527<br>B: 465~475 | R: 560<br>G: 1120<br>B: 224  | -                            | R: 1120<br>G: 2240<br>B: 450 | R: 1.8-2.7<br>G: 2.6-3.5<br>B: 2.6-3.5 | 20         | 120                 |

SMD LED ■ Surface Mount PLCC6 LED (Reflector) ■ Side View Full Color



UNIT : mm

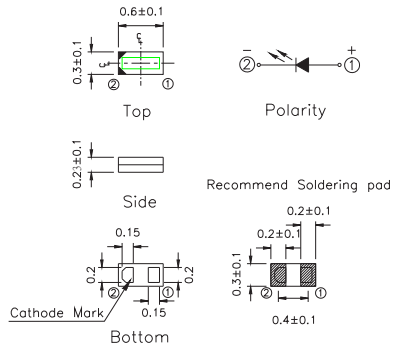


| Product                      | Size<br>(LxWxHmm) | Color                      |                                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>                        | IF<br>(mA)                 | Viewing<br>Angle(°) |
|------------------------------|-------------------|----------------------------|----------------------------------------|------------------------------|------------------------------|------------------------------|---------------------------------------|----------------------------|---------------------|
|                              |                   | Color                      | Wavelength<br>nm / CIE                 | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)                    |                            |                     |
| C4506FDWN301-GRBD01302017-2G | 4.5 x 1.25 x 0.6  | ● Red<br>● Green<br>● Blue | R: 618-628<br>G: 520-535<br>B: 462-472 | R:635<br>G:1600<br>B:225     | R:1075<br>G:2725<br>B:375    | R:1680<br>G:4045<br>B:615    | R:1.8-2.5<br>G:2.7-3.4<br>B:2.45-3.15 | R:20mA<br>G:30mA<br>B:17mA | 120                 |

SMD LED | Surface Mount LED (PCB) | Top View 0201



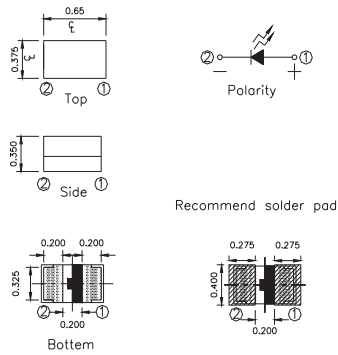
UNIT : mm



| Product                  | Size<br>(LxWxHmm) | Color             |                        | I <sub>v</sub>               |                              | IF<br>(mA) | Viewing<br>Angle(°) |
|--------------------------|-------------------|-------------------|------------------------|------------------------------|------------------------------|------------|---------------------|
|                          |                   | Color             | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. |            |                     |
| B0603BWN1-GC5253452705-T | 0.6x0.3x0.2       | ● Brilliant Green | 520~535                | 450                          | 715                          | 5          | 120                 |

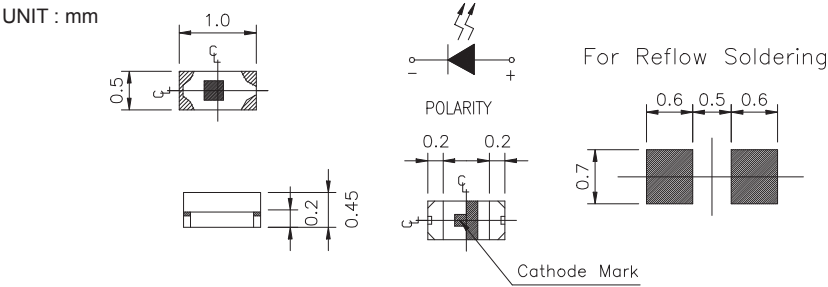


UNIT : mm

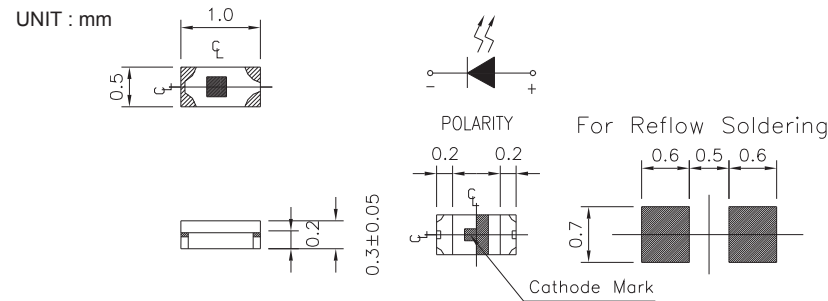


| Product               | Size<br>(LxWxHmm) | Color              |                        | I <sub>v</sub>               |                              | IF<br>(mA) | Viewing<br>Angle(°) |
|-----------------------|-------------------|--------------------|------------------------|------------------------------|------------------------------|------------|---------------------|
|                       |                   | Color              | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. |            |                     |
| 18-218/BHC-AL2N1RX/3T | 0.65x0.375x0.35   | ● Blue             | 464.5~476.5            | 14.5                         | 36                           | 2          | 120                 |
| 18-218/GHC-YP2R1RX/3T | 0.65x0.375x0.35   | ● Brilliant Green  | 520~535                | 57                           | 140                          | 2          | 120                 |
| 18-218/R6C-AK1L2BX/3T | 0.65x0.375x0.35   | ● Brilliant Red    | 617.5~633.5            | 7.2                          | 18                           | 2          | 120                 |
| 18-218/Y5C-AJ1K2BX/3T | 0.65x0.375x0.35   | ● Brilliant Yellow | 585.5~594.5            | 4.5                          | 11.5                         | 2          | 120                 |
| 18-218/S2C-BK1L2X/3T  | 0.65x0.375x0.35   | ● Brilliant Orange | 597.5~609.5            | 7.2                          | 18                           | 2          | 120                 |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0402 (0.2T~0.5T)



| Product               | Size<br>(LxWxHmm) | Color             |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|-----------------------|-------------------|-------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color             | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 16-213/BHC-ZL1M2QY/3T | 1.0x0.5x0.45      | ● Blue            | 470                    | 11.5                         | 28.5                         | 2.7                        | 3.2                        | 5          |
| 16-213/GHC-YR1S1/3T   | 1.0x0.5x0.45      | ● Brilliant Green | 525                    | 112                          | 225                          | 2.7 / 3.3                  | 3.7                        | 20         |
| 16-213/R6C-AQ2R2B/3T  | 1.0x0.5x0.45      | ● Brilliant Red   | 617.5~633.5            | 90                           | 180                          | 1.75                       | 2.35                       | 20         |
| 16-213/T7D-AQ1R1QY/3T | 1.0x0.5x0.45      | ○ Pure White      | x=0.29, y=0.30         | 72                           | 140                          | 2.7                        | 3.2                        | 5          |

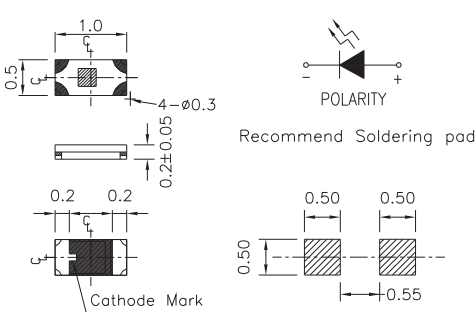


| Product               | Size<br>(LxWxHmm) | Color        |                                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------|----------------------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color        | Wavelength<br>nm / CIE                 | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 16-216/T3D-AQ1R2TY/3T | 1.0x0.5x0.3       | ○ Pure White | CIE_X:0.274-0.334<br>CIE_Y:0.226-0.376 | 72                           | —                            | 180                          | 2.6                        | —                          | 3                          | 5          |

SMD LED | Surface Mount Chip LED (PCB) | Top View 0402 (0.2T~0.5T)

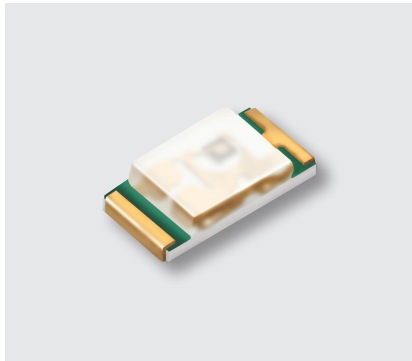


UNIT : mm

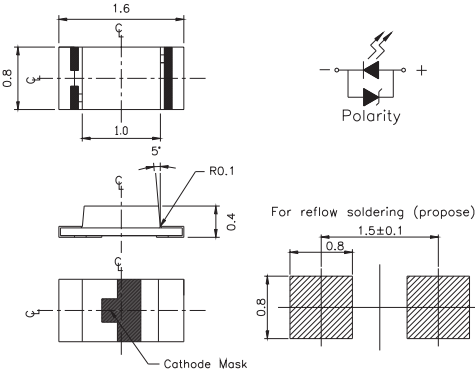


| Product                | Size<br>(LxWxHmm) | Color        |                                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|------------------------|-------------------|--------------|----------------------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                        |                   | Color        | Wavelength<br>nm / CIE                 | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 16-219A/T2D-AR2T1QY/3T | 1.0x0.5x0.2       | ○ Pure White | CIE_X:0.274-0.334<br>CIE_Y:0.226-0.376 | 140                          | —                            | 360                          | 2.7                        | —                          | 3.2                        | 5          |

SMD LED | Surface Mount Chip LED (PCB) | Top View 0603 (0.2T~0.8T)



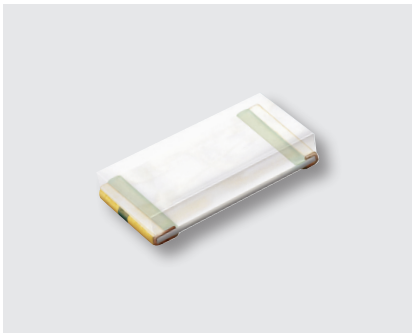
UNIT : mm



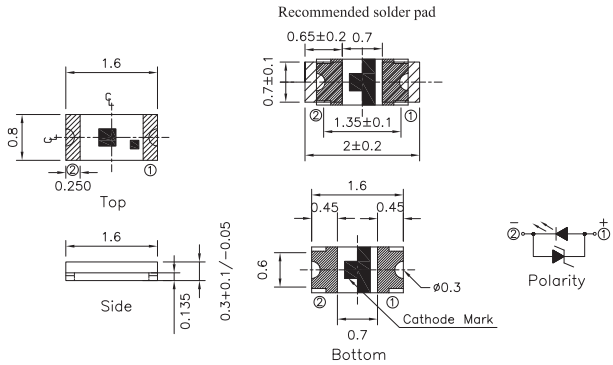
| Product               | Size<br>(LxWxHmm) | Color        |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color        | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 19-117/BHC-YJ2K2TX/3T | 1.6x0.8x0.4       | ● Blue       | 470-475                | 5.8                          | 11.5                         | 206                        | 3                          | 2          |
| 19-117/BHC-ZL1M2RY/3T | 1.6x0.8x0.4       | ● Blue       | 465-475                | 11.5                         | 28.5                         | 2.5                        | 3.1                        | 5          |
| 19-117/T1D-AP2Q2QY/3T | 1.6x0.8x0.4       | ○ Pure White | x=0.274, y=0.226       | 57                           | 112                          | 2.7                        | 3.2                        | 5          |



SMD LED   ■ Surface Mount Chip LED (PCB)   ■ Top View 0603 (0.2T~0.8T)



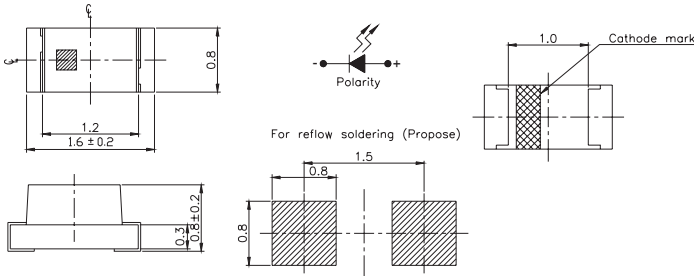
UNIT : mm



| Product               | Size<br>(LxWxHmm) | Color  |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|--------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color  | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 19-118/BHC-ZL1M2QY/3T | 1.6x0.8x0.3       | ● Blue | 465-475                | 11.5                         | —                            | 28.5                         | 2.7                        | —                          | 3.2                        | 5          |

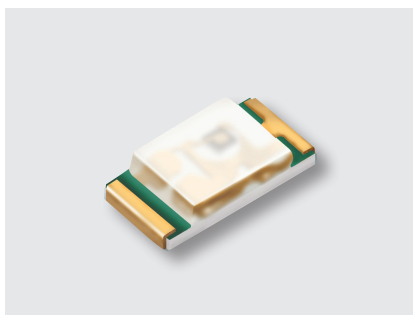


UNIT : mm

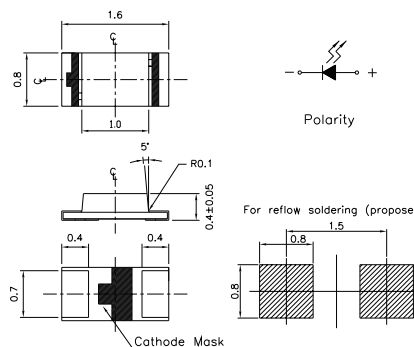


| Product              | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 19-21/B6C-AP2Q2M/3T  | 1.6x0.8x0.8       | ● Blue                   | 470                    | 57                           | 112                          | 2.75                       | 3.95                       | 20         |
| 19-21/BHC-ZQ1R2N/3T  | 1.6x0.8x0.8       | ● Blue                   | 470                    | 72                           | 180                          | 2.7                        | 3.7                        | 20         |
| 19-21/G6C-AL1M2LY/3T | 1.6x0.8x0.8       | ● Brilliant Yellow Green | 573                    | 11.5                         | 28.5                         | 1.7                        | 2.3                        | 5          |
| 19-21/G6C-FP1Q1L/3T  | 1.6x0.8x0.8       | ● Brilliant Yellow Green | 573                    | 45                           | 90                           | 1.7                        | 2.3                        | 20         |
| 19-21/GHC-YP1Q2TY/3T | 1.6x0.8x0.8       | ● Brilliant Green        | 525                    | 45                           | 112                          | 2.6                        | 3.0                        | 5          |
| 19-21/GPC-FL1M2B/3T  | 1.6x0.8x0.8       | ● Green                  | 562                    | 11.5                         | 28.5                         | 1.75                       | 2.35                       | 20         |
| 19-21/R6C-AL2N1VY/3T | 1.6x0.8x0.8       | ● Brilliant Red          | 624                    | 14.5                         | 36                           | 1.7                        | 2.2                        | 5          |
| 19-21/R6C-FP1Q2L/3T  | 1.6x0.8x0.8       | ● Brilliant Red          | 624                    | 45                           | 112                          | 1.7                        | 2.3                        | 20         |
| 19-21/R7C-AK1L2BY/3T | 1.6x0.8x0.8       | ● Deep Red               | 631                    | 7.2                          | 18                           | 1.75                       | 2.35                       | 5          |
| 19-21/R8C-FN2Q1L/3T  | 1.6x0.8x0.8       | ● Deep Red               | 639                    | 36                           | 90                           | 1.7                        | 2.3                        | 20         |
| 19-21/S2C-AL2M2VY/3T | 1.6x0.8x0.8       | ● BrilliantOrange        | 605                    | 14.5                         | 28.5                         | 1.7                        | 2.2                        | 5          |
| 19-21/S2C-AQ1R2B/3T  | 1.6x0.8x0.8       | ● BrilliantOrange        | 605                    | 72                           | 180                          | 1.75                       | 2.35                       | 20         |
| 19-21/T1D-CPQTY/3T   | 1.6x0.8x0.8       | ○ Pure White             | x=0.274, y=0.226       | 45                           | 112                          | 2.6                        | 3                          | 5          |
| 19-21/Y2C-AL1M2VY/3T | 1.6x0.8x0.8       | ● Brilliant Yellow       | 589                    | 11.5                         | 28.5                         | 1.7                        | 2.2                        | 5          |
| 19-21/Y2C-CP1Q2B/3T  | 1.6x0.8x0.8       | ● Brilliant Yellow       | 589                    | 45                           | 112                          | 1.75                       | 2.35                       | 20         |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0603 (0.2T~0.8T)



UNIT : mm

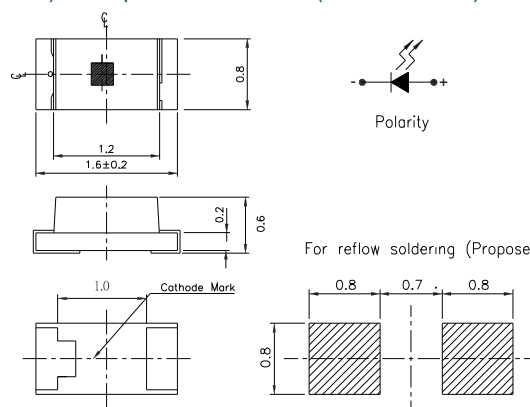


| Product                 | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|-------------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                         |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 19-217/BHC-AN1P2/6T     | 1.6x0.8x0.4       | ● Blue                   | 470                    | 28.5                         | 72                           | 2.7 / 3.3                  | 3.7                        | 20         |
| 19-217/BHC-XK1L2B11X/6T | 1.6x0.8x0.4       | ● Blue                   | 470                    | 7.2                          | 18                           | 2.6                        | 2.9                        | 2          |
| 19-217/G7C-AN1P2/6T     | 1.6x0.8x0.4       | ● Brilliant Yellow Green | 573                    | 28.5                         | 72                           | 1.7/2.0                    | 2.4                        | 20         |
| 19-217/GHC-YR1S2/6T     | 1.6x0.8x0.4       | ● Brilliant Green        | 525                    | 112                          | 285                          | 2.7 / 3.3                  | 3.7                        | 20         |
| 19-217/R6C-P1Q2/6T      | 1.6x0.8x0.4       | ● Brilliant Red          | 624                    | 45                           | 112                          | 1.7 / 2                    | 2.4                        | 20         |
| 19-217/S2C-AL1M2VY/6T   | 1.6x0.8x0.4       | ● Brilliant Orange       | 605                    | 11.5                         | 28.5                         | 1.7                        | 2.2                        | 5          |
| 19-217/S3C-AL2N1VY/6T   | 1.6x0.8x0.4       | ● Reddish Orange         | 615                    | 14.5                         | 36                           | 1.7                        | 2.2                        | 5          |
| 19-217/T1D-CQ2R2TY/6T   | 1.6x0.8x0.4       | ○ Pure White             | x=0.274,y=0.226        | 90                           | 180                          | 2.6                        | 3.0                        | 5          |
| 19-217/T7D-CT2V1N/6T    | 1.6x0.8x0.4       | ○ Pure White             | x=0.274,y=0.226        | 360                          | 900                          | 2.7                        | 3.7                        | 20         |
| 19-217/Y5C-AP1Q2/6T     | 1.6x0.8x0.4       | ● Brilliant Yellow       | 589                    | 45                           | 112                          | 1.7/2.0                    | 2.4                        | 20         |
| 19-217/Y5C-AQ2R2/6T     | 1.6x0.8x0.4       | ● Brilliant Yellow       | 589                    | 90                           | 180                          | 1.7 / 2                    | 2.4                        | 20         |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0603 (0.2T~0.8T)

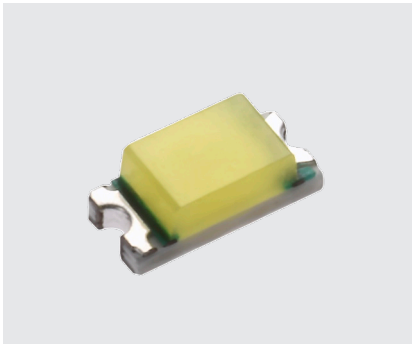


UNIT : mm

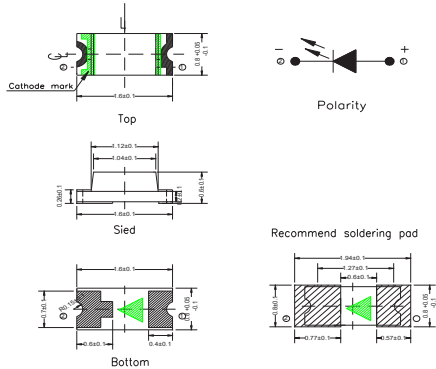


| Product              | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 19-213/BHC-AP1Q2/5T  | 1.6x0.8x0.6       | ● Blue                   | 470                    | 45                           | 112                          | 2.7                        | 3.7                        | 20         |
| 19-213/G6C-AP1Q2/5T  | 1.6x0.8x0.6       | ● Brilliant Yellow Green | 573                    | 45                           | 112                          | 2                          | 2.4                        | 20         |
| 19-213/GHC-XS1T1N/5T | 1.6x0.8x0.6       | ● Brilliant Green        | 525                    | 180                          | 360                          | 2.7                        | 3.7                        | 20         |
| 19-213/R6C-AQ1R2B/5T | 1.6x0.8x0.6       | ● Brilliant Red          | 624                    | 72                           | 180                          | 1.75                       | 2.35                       | 20         |
| 19-213/R8C-FN1P2/5T  | 1.6x0.8x0.6       | ● Deep Red               | 639                    | 28.5                         | 72                           | 1.7 / 2                    | 2.4                        | 20         |
| 19-213/S2C-AP1Q2B/5T | 1.6x0.8x0.6       | ● Brilliant Orange       | 605                    | 45                           | 112                          | 1.75                       | 2.35                       | 20         |
| 19-213/S3C-AN2P2B/5T | 1.6x0.8x0.6       | ● Reddish Orange         | 615                    | 36                           | 72                           | 1.75                       | 2.35                       | 20         |
| 19-213/T1D-KS1T1N/5T | 1.6x0.8x0.6       | ○ Pure White             | x=0.294, y=0.254       | 180                          | 360                          | 2.7                        | 3.7                        | 20         |
| 19-213/Y2C-CQ2R2L/5T | 1.6x0.8x0.6       | ● Brilliant Yellow       | 589                    | 90                           | 180                          | 1.7                        | 2.3                        | 20         |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0603 (0.2T~0.8T)

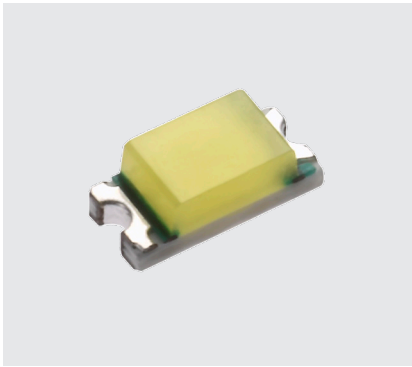


UNIT : mm

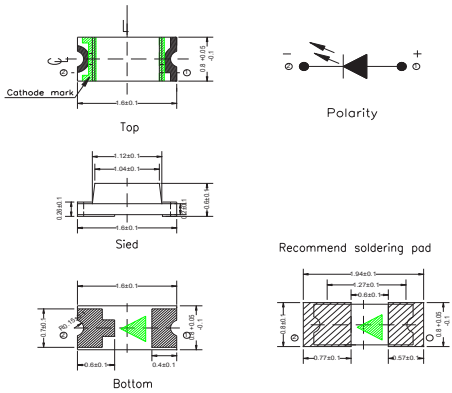


| Product                | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|------------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                        |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 19E-213/T1D-KS1T1N/5T  | 1.6x0.8x0.6       | ○ Pure White             | x=0.294,y=0.254        | 180                          | 360                          | 2.7                        | -                          | 3.7                        | 20         |
| 19E-213/R6C-AR1S1B/5T  | 1.6x0.8x0.6       | ● Brilliant Red          | 617.5~633.5            | 112                          | 225                          | 1.75                       | -                          | 2.35                       | 20         |
| 19E-213/GHC-YR1S2/5T   | 1.6x0.8x0.6       | ● Brilliant Green        | 520~535                | 112                          | 285                          | -                          | 3.5                        | 4                          | 20         |
| 19E-213/B7C-AR2S2B2/5T | 1.6x0.8x0.6       | ● Blue                   | 464.5~476.5            | 140                          | 285                          | 2.9                        | -                          | 3.6                        | 20         |
| 19E-213/Y2C-CQ2R2L     | 1.6x0.8x0.6       | ● Brilliant Yellow       | 585.5~591.5            | 90                           | 180                          | 1.7                        | -                          | 2.3                        | 20         |
| 19E-213/S2C-AQ2R2B/5T  | 1.6x0.8x0.6       | ● Brilliant Orange       | 600.5~612.5            | 90                           | 180                          | 1.75                       | -                          | 2.35                       | 20         |
| 19E-213/G6C-AN2P2B/5T  | 1.6x0.8x0.6       | ● Brilliant Yellow Green | 569.5~577.5            | 36                           | 72                           | 1.75                       | -                          | 2.35                       | 20         |

SMD LED



UNIT : mm

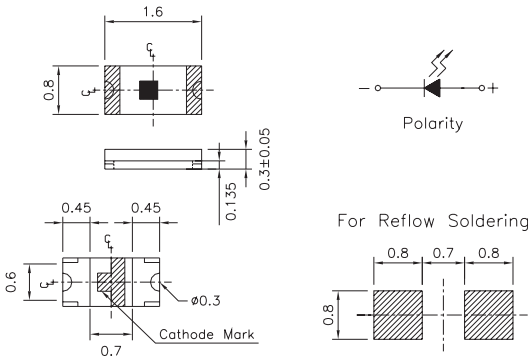


| Product                 | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-------------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                         |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 19E-217/T1D-CQ2R2TY/6T  | 1.6x0.8x0.4       | ○ Pure White             | x=0.274,y=0.226        | 360                          | 900                          | 2.7                        | -                          | 3.7                        | 20         |
| 19E-217/R6C-ALIM2VY/6T  | 1.6x0.8x0.4       | ● Brilliant Red          | 617.5~633.5            | 11.5                         | 28.5                         | 1.7                        | -                          | 2.2                        | 5          |
| 19E-217/GHC-YR1S2/6T    | 1.6x0.8x0.4       | ● Brilliant Green        | 520~535                | 112                          | 285                          | 2.7                        | 3.3                        | 3.7                        | 20         |
| 19E-217/B7C-ZL2N1B3X/6T | 1.6x0.8x0.4       | ● Blue                   | 464.5~476.5            | 28.5                         | 72                           | 2.7                        | 3.3                        | 3.7                        | 20         |
| 19E-217/Y5C-AR2S2B/6T   | 1.6x0.8x0.4       | ● Brilliant Yellow       | 585.5~591.5            | 140                          | 285                          | 1.75                       | -                          | 2.35                       | 20         |
| 19E-217/S2C-AM2N2VY/6T  | 1.6x0.8x0.4       | ● Brilliant Orange       | 600.5~612.5            | 22.5                         | 45                           | 1.7                        | -                          | 2.2                        | 5          |
| 19E-217/G6C-JL1M2VY/6T  | 1.6x0.8x0.4       | ● Brilliant Yellow Green | 569.5~577.5            | 11.5                         | 28.5                         | 1.7                        | -                          | 2.2                        | 5          |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0603 (0.2T~0.8T)



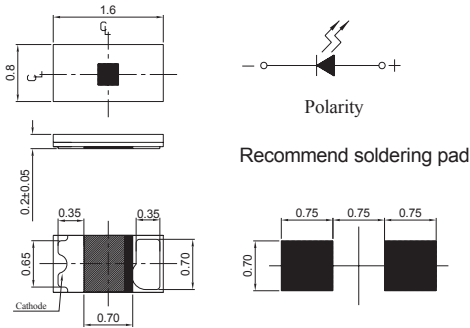
UNIT : mm



| Product                | Size<br>(LxWxHmm) | Color             |                        | I <sub>v</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|------------------------|-------------------|-------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                        |                   | Color             | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 19-218/BHC-ZL1M2QY/3T  | 1.6x0.8x0.3       | ● Blue            | 470                    | 11.5                         | 28.5                         | 2.7                        | 3.2                        | 5          |
| 19-218/GHC-YR1S2M/3T   | 1.6x0.8x0.3       | ● Brilliant Green | 525                    | 112                          | 285                          | 2.75                       | 3.95                       | 20         |
| 19-218/R6C-FM2P1B7Y/3T | 1.6x0.8x0.3       | ● Brilliant Red   | 624                    | 22.5                         | 57                           | 1.7                        | 2                          | 5          |
| 19-218/T1D-CQ2R2TY/3T  | 1.6x0.8x0.3       | ○ Pure White      | x=0.274, y=0.226       | 90                           | 180                          | 2.6                        | 3                          | 5          |



UNIT : mm

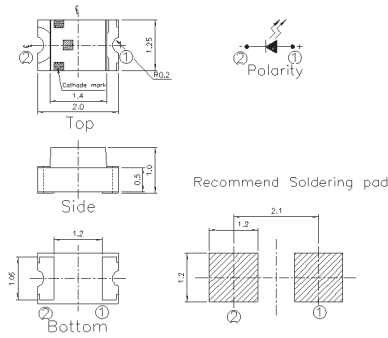


| Product               | Size<br>(LxWxHmm) | Color              |                        | I <sub>v</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color              | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 19-219/T3D-AQ2R2TY/3T | 1.6x0.8x0.2       | ○ Pure White       | x=0.274, y=0.226       | 90                           | 180                          | 2.6                        | 3                          | 5          |
| 19-219/T7D-AV1W1E/3T  | 1.6x0.8x0.2       | ○ Pure White       | x=0.274, y=0.226       | 715                          | 1420                         | 2.75                       | 3.65                       | 20         |
| 19-219/Y5C-AM1N2VY/3T | 1.6x0.8x0.2       | ● Brilliant Yellow | 589                    | 18                           | 45                           | 1.7                        | 2.2                        | 5          |
| 19-219/R6C-AM1N2VY/3T | 1.6x0.8x0.2       | ● Brilliant Red    | 617.5~633.5            | 18                           | 45                           | 1.7                        | 2.2                        | 5          |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0805



UNIT : mm

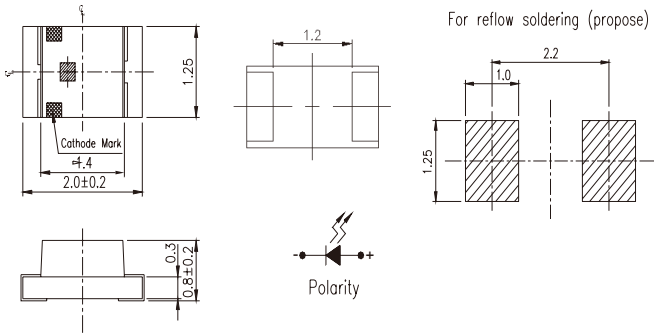


| Product               | Size<br>(LxWxHmm) | Color                    |                        | I <sub>v</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color                    | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 17-21/BHC-AP1Q2/3T    | 2.0x1.25x1        | ● Blue                   | 470                    | 45                           | 112                          | 2.7 / 3.3                  | 3.7                        | 20         |
| 17-21/BHC-XLMJY/3T    | 2.0x1.25x1        | ● Blue                   | 470                    | 11.5                         | 28.5                         | 2.7                        | 3.1                        | 5          |
| 17-21/G6C-AP1Q1B/3T   | 2.0x1.25x1        | ● Brilliant Yellow Green | 573                    | 45                           | 90                           | 1.75                       | 2.35                       | 20         |
| 17-21/G6C-FM1N2B/3T   | 2.0x1.25x1        | ● Brilliant Yellow Green | 573                    | 18                           | 45                           | 1.75                       | 2.35                       | 20         |
| 17-21/GHC-XS1T2M/3T   | 2.0x1.25x1        | ● Brilliant Green        | 525                    | 180                          | 450                          | 2.75                       | 3.95                       | 20         |
| 17-21/GHC-YR1S2/3T    | 2.0x1.25x1        | ● Brilliant Green        | 525                    | 112                          | 285                          | 3.5                        | 4                          | 20         |
| 17-21/GPC-AK0M1B/3T   | 2.0x1.25x1        | ● Green                  | 562                    | 7.2                          | 22.5                         | 1.75                       | 2.35                       | 20         |
| 17-21/GVC-AMPB/3T     | 2.0x1.25x1        | ● Green                  | 565                    | 18                           | 72                           | 1.75                       | 2.35                       | 20         |
| 17-21/R6C-AN2Q1B/3T   | 2.0x1.25x1        | ● Brilliant Red          | 624                    | 36                           | 90                           | 1.75                       | 2.35                       | 20         |
| 17-21/R6C-AP1Q2L/3T   | 2.0x1.25x1        | ● Brilliant Red          | 624                    | 45                           | 112                          | 1.7                        | 2.3                        | 20         |
| 17-21/R7C-AN2Q1B/3T   | 2.0x1.25x1        | ● Deep Red               | 631                    | 36                           | 90                           | 1.75                       | 2.35                       | 20         |
| 17-21/S2C-AP1Q2B/3T   | 2.0x1.25x1        | ● Brilliant Orange       | 605                    | 45                           | 112                          | 1.75                       | 2.35                       | 20         |
| 17-21/T1D-CP2R1TY/3T  | 2.0x1.25x1        | ○ Pure White             | x=0.274, y=0.226       | 57                           | 140                          | 2.6                        | 3                          | 5          |
| 17-21/T1D-KQ1R2B5Y/3T | 2.0x1.25x1        | ○ Pure White             | x=0.294, y=0.254       | 72                           | 180                          | 2.7                        | 3.1                        | 5          |
| 17-21/Y2C-AN1P2/3T    | 2.0x1.25x1        | ● Brilliant Yellow       | 589                    | 28.5                         | 72                           | 1.7 / 2                    | 2.4                        | 20         |
| 17-21/Y2C-CP2Q2B/3T   | 2.0x1.25x1        | ● Brilliant Yellow       | 589                    | 57                           | 112                          | 1.75                       | 2.35                       | 20         |

SMD LED | Surface Mount Chip LED (PCB) | Top View 0805

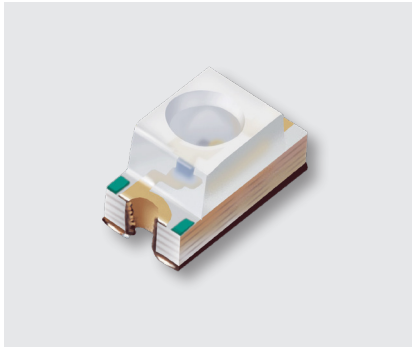


UNIT : mm

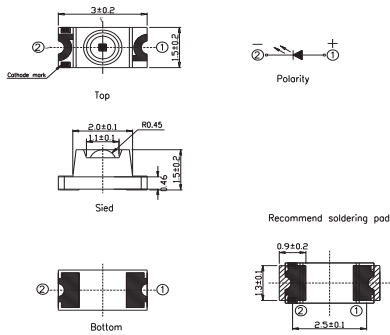


| Product              | Size<br>(LxWxHmm) | Color                  |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|----------------------|-------------------|------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color                  | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 17-215/B6C-YP2RN/3T  | 2.0x1.25x0.8      | Blue                   | 470                    | 57                           | 180                          | 2.7                        | 3.7                        | 20         |
| 17-215/BHC-AP1Q2/3T  | 2.0x1.25x0.8      | Blue                   | 470                    | 45                           | 112                          | 2.7 / 3.3                  | 3.7                        | 20         |
| 17-215/G6C-BM1N2L/3T | 2.0x1.25x0.8      | Brilliant Yellow Green | 573                    | 18                           | 45                           | 1.7                        | 2.3                        | 20         |
| 17-215/G6C-FN2P2B/3T | 2.0x1.25x0.8      | Brilliant Yellow Green | 573                    | 36                           | 72                           | 1.75                       | 2.35                       | 20         |
| 17-215/R6C-AQ1R2B/3T | 2.0x1.25x0.8      | Brilliant Red          | 624                    | 72                           | 180                          | 1.75                       | 2.35                       | 20         |
| 17-215/S2C-AQ1R2B/3T | 2.0x1.25x0.8      | Brilliant Orange       | 605                    | 72                           | 180                          | 1.75                       | 2.35                       | 20         |

SMD LED | Surface Mount Chip LED (PCB) | Top View 1206



UNIT : mm

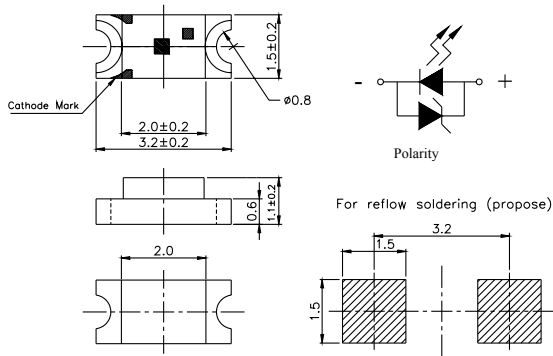


| Product             | Size<br>(LxWxHmm) | Color                  |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|---------------------|-------------------|------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                     |                   | Color                  | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 11-21/R6C-AR2S2B/2T | 3.0x1.5x1.5       | Brilliant Red          | 617.5-633.5            | 140                          | —                            | 285                          | 1.75                       | —                          | 2.35                       | 20         |
| 11-21/G6C-AR2S2B/2T | 3.0x1.5x1.5       | Brilliant Yellow Green | 569.5-577.5            | 140                          | —                            | 285                          | 1.75                       | —                          | 2.35                       | 20         |
| 11-21/BHC-AQ2S2/2T  | 3.0x1.5x1.5       | Blue                   | 464.5-476.5            | 90                           | —                            | 285                          | 2.7                        | 3.3                        | 3.7                        | 20         |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 1206



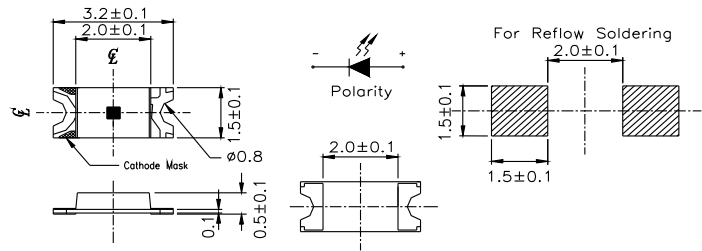
UNIT : mm



| Product              | Size<br>(LxWxHmm) | Color        |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|----------------------|-------------------|--------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color        | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 15-11/BHC-ZL2N1QY/2T | 3.2x1.5x1.0       | ● Blue       | 470                    | 14.5                         | —                            | 36                           | 2.7                        | —                          | 3.2                        | 5          |
| 15-11/T1D-AQRHY/2T   | 3.2x1.5x1.0       | ○ Pure White | x=0.274, y=0.226       | 72                           | —                            | 180                          | 2.7                        | —                          | 3.15                       | 5          |



UNIT : mm

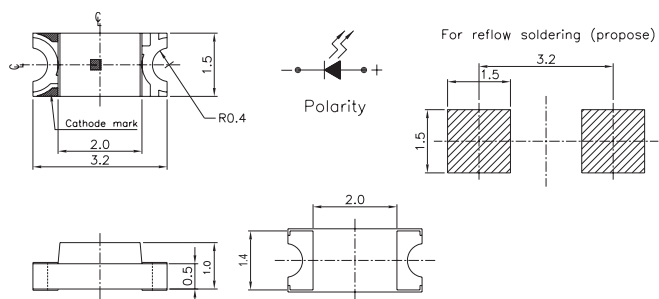


| Product               | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 15-215/G7C-BN1P2B/2T  | 3.2x1.5x0.5       | ● Brilliant Yellow Green | 573                    | 28.5                         | 72                           | 1.75                       | 2.35                       | 20         |
| 15-215/R6C-AM2P1VY/2T | 3.2x1.5x0.5       | ● Brilliant Red          | 624                    | 22.5                         | 57                           | 1.7                        | 2.2                        | 5          |
| 15-215/R6C-AQ1R2L/2T  | 3.2x1.5x0.5       | ● Brilliant Red          | 624                    | 72                           | 180                          | 1.7                        | 2.3                        | 20         |

## SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 1206



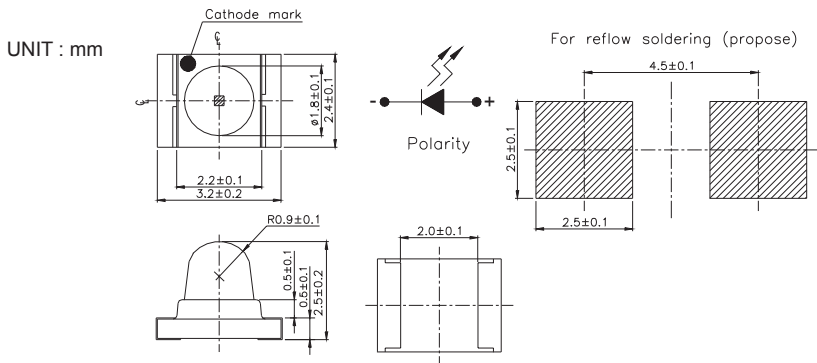
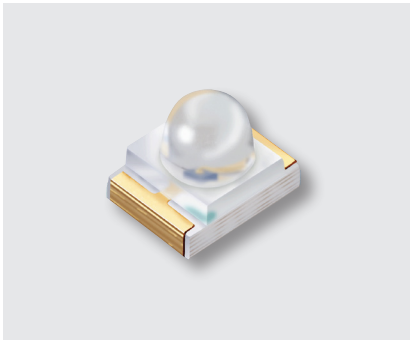
UNIT : mm



| Product              | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 15-21/B6C-YR1S2B2/2T | 3.2x1.5x1.0       | ● Blue                   | 470                    | 112                          | 285                          | 2.9                        | 3.6                        | 20         |
| 15-21/BHC-AN1P2/2T   | 3.2x1.5x1.0       | ● Blue                   | 470                    | 28.5                         | 72                           | 2.7 / 3.3                  | 3.7                        | 20         |
| 15-21/G6C-FM1N2B/2T  | 3.2x1.5x1.0       | ● Brilliant Yellow Green | 573                    | 18                           | 45                           | 1.75                       | 2.35                       | 20         |
| 15-21/G6C-FP1Q1L/2T  | 3.2x1.5x1.0       | ● Brilliant Yellow Green | 573                    | 45                           | 90                           | 1.7                        | 2.3                        | 20         |
| 15-21/GHC-XS1T1/2T   | 3.2x1.5x1.0       | ● Brilliant Green        | 525                    | 180                          | 360                          | 2.7 / 3.3                  | 3.7                        | 20         |
| 15-21/GHC-YR2U1/3T   | 3.2x1.5x1.0       | ● Brilliant Green        | 525                    | 140                          | 565                          | 2.7 / 3.3                  | 3.7                        | 20         |
| 15-21/R6C-AN1P2/2T   | 3.2x1.5x1.0       | ● Brilliant Red          | 624                    | 28.5                         | 72                           | 1.7 / 2                    | 2.4                        | 20         |
| 15-21/R6C-FQ1R1B/2T  | 3.2x1.5x1.0       | ● Brilliant Red          | 624                    | 72                           | 140                          | 1.75                       | 2.35                       | 20         |
| 15-21/S2C-AQ2R2B/2T  | 3.2x1.5x1.0       | ● Brilliant Orange       | 605                    | 90                           | 180                          | 1.75                       | 2.35                       | 20         |
| 15-21/S3C-AP1Q2/2T   | 3.2x1.5x1.0       | ● Reddish Orange         | 615                    | 45                           | 112                          | 1.7 / 2.0                  | 2.4                        | 20         |
| 15-21/T1D-CP1Q2TY/2T | 3.2x1.5x1.0       | ○ Pure White             | x=0.274, y=0.226       | 45                           | 112                          | 2.6                        | 3                          | 5          |
| 15-21/T7D-JQ2S1PY/2T | 3.2x1.5x1.0       | ○ Pure White             | x=0.274, y=0.226       | 90                           | 225                          | 2.7                        | 3.3                        | 5          |
| 15-21/Y2C-AP1QB/2T   | 3.2x1.5x1.0       | ● Brilliant Yellow       | 589                    | 45                           | 90                           | 1.75                       | 2.35                       | 20         |
| 15-21/Y2C-CP1Q2B/2T  | 3.2x1.5x1.0       | ● Brilliant Yellow       | 589                    | 45                           | 112                          | 1.75                       | 2.35                       | 20         |

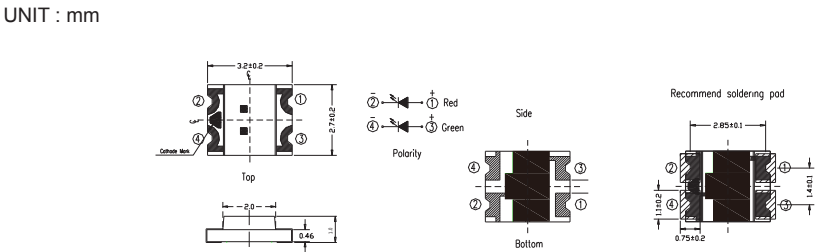
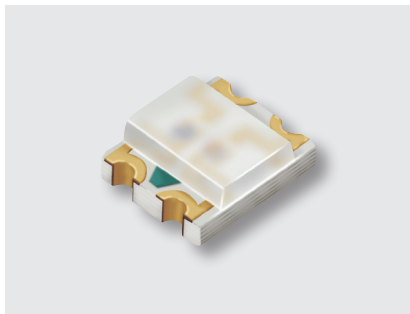


SMD LED | Surface Mount Chip LED (PCB) | Top View LED



| Product               | Size<br>(LxWxHmm) | Color                  |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color                  | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 42-21/BHC-AUW/1T      | 3.2x2.4x2.5       | Blue                   | 470                    | 450                          | —                            | 1800                         | 2.7                        | 3.3                        | 3.7                        | 20         |
| 42-21SURC/S530-A4/TR8 | 3.2x2.4x2.5       | Brilliant Red          | 624                    | 316                          | 470                          | —                            | 1.7                        | 2.0                        | 2.4                        | 20         |
| 42-21UYC/S530-A2/TR8  | 3.2x2.4x2.5       | Brilliant Yellow       | 589                    | 99                           | 247                          | —                            | 1.7                        | 2.0                        | 2.4                        | 20         |
| 42-21SYGC/S530-E2/TR8 | 3.2x2.4x2.5       | Brilliant Yellow Green | 573                    | 230                          | 460                          | —                            | 1.7                        | 2.0                        | 2.4                        | 20         |
| 42-21A/BHC-ZV1W2N/1T  | 3.2x2.4x2.5       | Blue                   | 470                    | 715                          | —                            | 1800                         | 2.65                       | —                          | 3.75                       | 20         |
| 42-21A/Y2C-ATW/1T     | 3.2x2.4x2.5       | Brilliant Yellow       | 585.5-594.5            | 285                          | —                            | 1800                         | 1.7                        | 2.0                        | 2.4                        | 20         |

SMD LED | Surface Mount Chip LED (PCB) | Top View Bi-Color

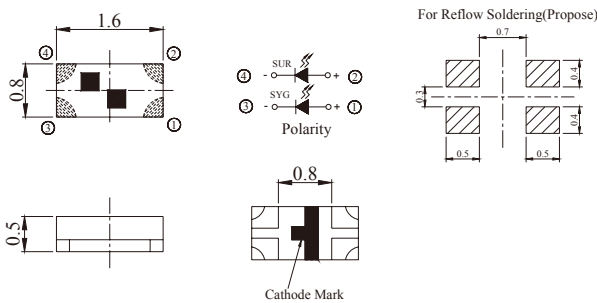


| Product            | Size<br>(LxWxHmm) | Color                                   |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA)     |
|--------------------|-------------------|-----------------------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|----------------|
|                    |                   | Color                                   | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |                |
| 15-22/R6G6C-A32/2T | 3.2x2.7x1.1       | Brilliant Red<br>Brilliant Yellow Green | R6:624<br>G6:573       | R6:45<br>G6:28.5             | -                            | R6:112<br>G6:72              | R6:1.7<br>G6:1.7           | R6:2<br>G6:2               | R6:2.4<br>G6:2.4           | R6:20<br>G6:20 |
| 15-22/R8T1D-D30/2T | 3.2x2.7x1.1       | Deep Red<br>Pure White                  | R8:629.5<br>T1:-----   | R8:4.5<br>T1:36              | -                            | R8:11.5<br>T1:90             | R8:1.75<br>T1:2.5          | -                          | R8:2.35<br>T1:3.5          | R8:2<br>T1:2   |
| 15-22/BHG6C-A31/2T | 3.2x2.7x1.1       | Blue<br>Brilliant Yellow Green          | BH:467.5<br>GH:569.5   | BH:45<br>GH:28.5             | -                            | BH:112<br>GH:72              | BH:2.7<br>GH:1.7           | BH:3.3<br>GH:2.0           | BH:3.7<br>GH:2.4           | 20             |

SMD LED | Surface Mount Chip LED (PCB) | Top View Bi-Color



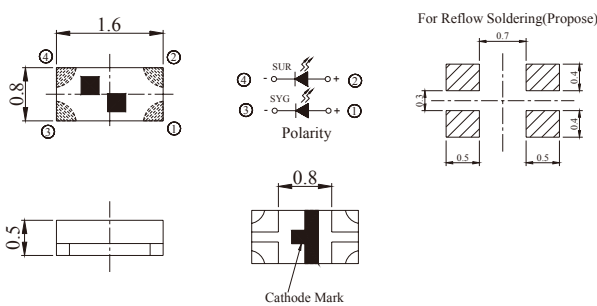
UNIT : mm



| Product             | Size<br>(LxWxHmm) | Color                                          |                        | I <sub>V</sub>                   |                              | V <sub>F</sub>                   |                            | IF<br>(mA) |
|---------------------|-------------------|------------------------------------------------|------------------------|----------------------------------|------------------------------|----------------------------------|----------------------------|------------|
|                     |                   | Color                                          | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min.     | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min.       | V <sub>F</sub> (V)<br>max. |            |
| 18-225/B6R6C-C01/3T | 1.6x0.8x0.5       | ● Blue<br>● Brilliant Red                      | B6 : 470<br>R6 : 624   | B6 : 18 / 28.5<br>R6 : 18 / 28.5 | -                            | B6 : 2.7 / 3.3<br>R6 : 1.7 / 2.0 | B6 : 3.7<br>R6 : 2.4       | 5          |
| 18-225/R6G6C-A01/3T | 1.6x0.8x0.5       | ● Brilliant Red<br>● Brilliant Yellow Green    | R6 : 624<br>G6 : 573   | R6 : 45<br>G6 : 28.5             | R6 : 112<br>G6 : 72          | R6 : 1.7 / 2<br>G6 : 1.7 / 2     | R6 : 2.4<br>G6 : 2.4       | 20         |
| 18-225/S2G6C-A01/3T | 1.6x0.8x0.5       | ● Brilliant Orange<br>● Brilliant Yellow Green | S2 : 605<br>G6 : 573   | S2 : 32 / 48<br>G6 : 16 / 24     | -                            | S2 : 1.7 / 2<br>G6 : 1.7 / 2     | S2 : 2.4<br>G6 : 2.4       | 20         |

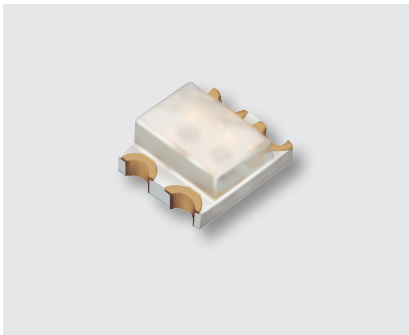


UNIT : mm

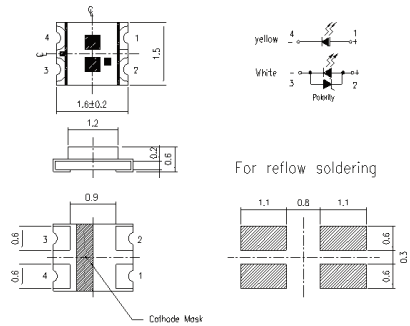


| Product              | Size<br>(LxWxHmm) | Color                                |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|----------------------|-------------------|--------------------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color                                | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 18-225A/R6GHW-B01/3T | 1.6x0.8x0.5       | ● Brilliant Red<br>● Brilliant Green | R6:624<br>GH:525       | R6:28.5<br>GH:72             | R6:72<br>GH:180              | R6:1.7<br>GH:2.7           | R6:2<br>GH:3.3             | R6:2.4<br>GH:3.7           | 10         |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View Bi-Color



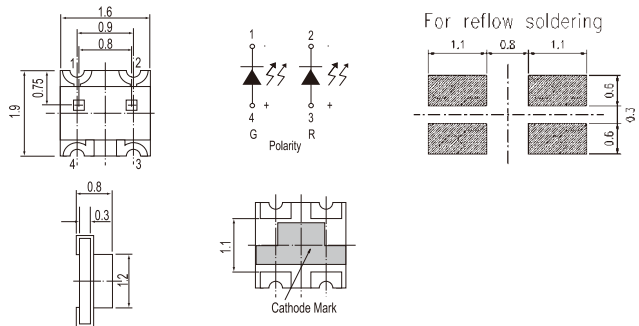
UNIT : mm



| Product             | Size<br>(LxWxHmm) | Color                                |                              | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|---------------------|-------------------|--------------------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                     |                   | Color                                | Wavelength<br>nm / CIE       | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 19-123/R6GHC-D01/2T | 1.6x1.5x0.6       | ● Brilliant Red<br>● Brilliant Green | R6:617.5-633.5<br>GH:520-535 | R6:9<br>GH:18.5              | R6:22.5<br>GH:45             | R6:1.55<br>GH:2.35         | R6:2.15<br>GH:3.05         | 2          |



UNIT : mm

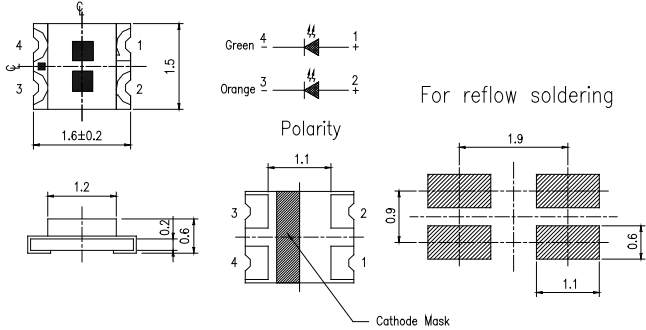


| Product            | Size<br>(LxWxHmm) | Color                                          |                        | I <sub>V</sub>                   |                              | V <sub>F</sub>               |                            | IF<br>(mA) |
|--------------------|-------------------|------------------------------------------------|------------------------|----------------------------------|------------------------------|------------------------------|----------------------------|------------|
|                    |                   | Color                                          | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min.     | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min.   | V <sub>F</sub> (V)<br>max. |            |
| 19-22/G6R6C-A31/2T | 1.9x1.6x0.8       | ● Brilliant Yellow Green<br>● Brilliant Red    | G6 : 573<br>R6 : 624   | G6 : 22.5<br>R6 : 45             | G6 : 57<br>R6 : 90           | G6 : 1.7 / 2<br>R6 : 1.7 / 2 | G6 : 2.4<br>R6 : 2.4       | 20         |
| 19-22/R6BHC-B01/2T | 1.9x1.6x0.8       | ● Brilliant Red<br>● Blue                      | R6 : 624<br>BH : 470   | R6 : 14.5 / 20<br>BH : 14.5 / 20 | --                           | R6 : 1.9<br>BH : 2.9         | R6 : 2.3<br>BH : 3.3       | 10         |
| 19-22/R6GHC-C02/2T | 1.9x1.6x0.8       | ● Brilliant Red<br>● Brilliant Green           | R6 : 624<br>GH : 525   | R6 : 14.5 / 20<br>GH : 45 / 65   | --                           | R6 : 1.9<br>GH : 2.9         | R6 : 2.3<br>GH : 3.4       | 5          |
| 19-22/Y2G6C-A14/2T | 1.9x1.6x0.8       | ● Brilliant Yellow<br>● Brilliant Yellow Green | Y2 : 589<br>G6 : 573   | Y2 : 45<br>G6 : 28.5             | Y2 : 112<br>G6 : 72          | Y2 : 1.7 / 2<br>G6 : 1.7 / 2 | Y2 : 2.4<br>G6 : 2.4       | 20         |

SMD LED | Surface Mount Chip LED (PCB) | Top View Bi-Color

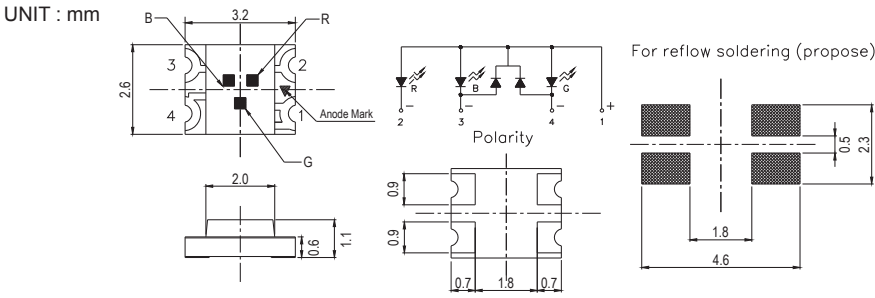


UNIT : mm

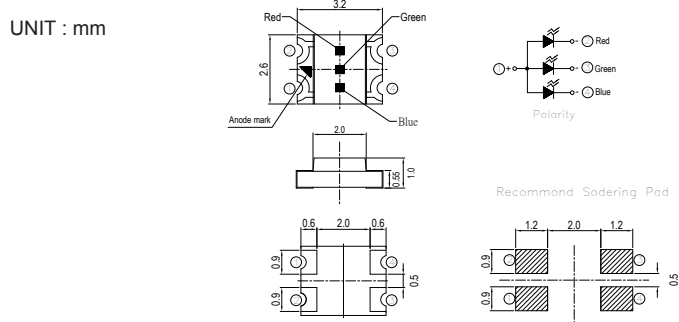
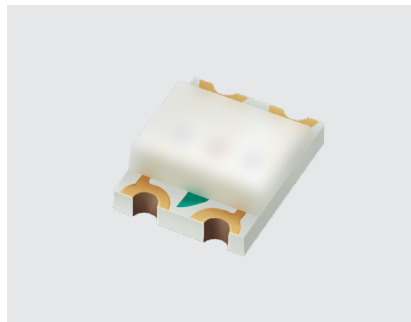


| Product             | Size<br>(LxWxHmm) | Color                                          |                                 | I <sub>V</sub>               |                              | V <sub>F</sub>                 |                            | IF<br>(mA) |
|---------------------|-------------------|------------------------------------------------|---------------------------------|------------------------------|------------------------------|--------------------------------|----------------------------|------------|
|                     |                   | Color                                          | Wavelength<br>nm / CIE          | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min.     | V <sub>F</sub> (V)<br>max. |            |
| 19-223/G6S2C-A01/2T | 1.6x1.5x0.6       | ● Brilliant Yellow Green<br>● Brilliant Orange | G6 : 573<br>S2 : 605            | G6 : 30<br>S2 : 90           | G6 : 60<br>S2 : 180          | G6 : 2<br>S2 : 2               | G6 : 2.4<br>S2 : 2.4       | 20         |
| 19-223/R6BHC-A05/2T | 1.6x1.5x0.6       | ● Brilliant Red<br>● Blue                      | R6 : 624<br>BH : 470            | R6 : 72<br>BH : 36           | R6 : 180<br>BH : 72          | R6 : 1.7 / 2<br>BH : 2.7 / 3.3 | R6 : 2.4<br>BH : 3.7       | 20         |
| 19-223/R6G6C-A01/2T | 1.6x1.5x0.6       | ● Brilliant Red<br>● Brilliant Yellow Green    | R6 : 624<br>G6 : 573            | R6 : 72<br>G6 : 22.5         | R6 : 180<br>G6 : 57          | R6 : 1.7 / 2<br>G6 : 1.7 / 2   | R6 : 2.4<br>G6 : 2.4       | 20         |
| 19-223/R7BHC-A30/2T | 1.6x1.5x0.6       | ● Dark Red<br>● Blue                           | R7 : 631<br>BH : 470            | R7 : 45<br>BH : 36           | R7 : 112<br>BH : 90          | R7 : 1.7 / 2<br>BH : 2.7 / 3.3 | R7 : 2.4<br>BH : 2.7 / 3.7 | 20         |
| 19-223/R7G6C-A01/2T | 1.6x1.5x0.6       | ● Dark Red<br>● Brilliant Yellow Green         | R7 : 631<br>G6 : 573            | R7 : 18<br>G6 : 18           | R7 : 72<br>G6 : 72           | R7 : 2<br>G6 : 2               | R7 : 2.4<br>G6 : 2.4       | 20         |
| 19-223/S2BHC-A01/2T | 1.6x1.5x0.6       | ● Brilliant Orange<br>● Blue                   | S2 : 605<br>BH : 470            | S2 : 72<br>BH : 36           | S2 : 140<br>BH : 72          | S2 : 1.7 / 2<br>BH : 3         | S2 : 2.4<br>BH : 3.5       | 20         |
| 19-223/S2T1D-C30/2T | 1.6x1.5x0.6       | ● Brilliant Orange<br>○ Pure White             | S2 : 605<br>x=0.274,<br>y=0.226 | S2 : 18<br>T1 : 45           | S2 : 45<br>T1 : 112          | S2 : 1.55<br>T1 : 2.7          | S2 : 2.15<br>T1 : 3.3      | 5          |
| 19-223/Y2G6C-A01/2T | 1.6x1.5x0.6       | ● Brilliant Yellow<br>● Brilliant Yellow Green | Y2 : 589<br>G6 : 573            | Y2 : 36<br>G6 : 28.5         | Y2 : 72<br>G6 : 57           | Y2 : 1.7 / 2<br>G6 : 1.7 / 2   | Y2 : 2.4<br>G6 : 2.4       | 20         |

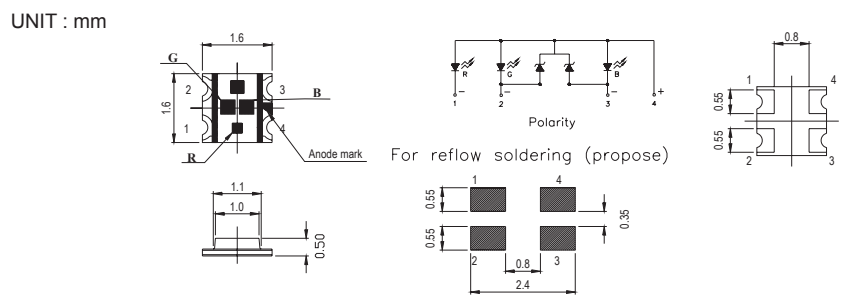
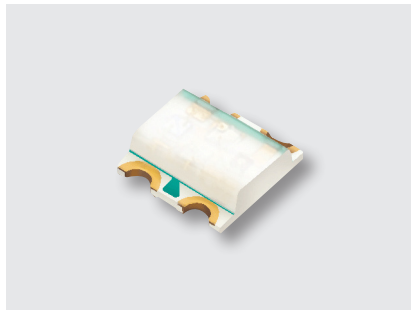
SMD LED | Surface Mount Chip LED (PCB) | Top View Full Color



| Product               | Size<br>(LxWxHmm) | Color                                          |                                  | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|------------------------------------------------|----------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color                                          | Wavelength<br>nm / CIE           | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 15-13D/R6GHBHC-A01/2T | 3.2x2.6x1.1       | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R6 : 624<br>GH : 525<br>BH : 470 | R:90<br>G:112<br>B:45        | R:140<br>G:180<br>B:70       | R:1.7<br>G:2.7<br>B:2.7    | R:2<br>G:3.3<br>B:3.3      | R:2.4<br>G:3.7<br>B:3.7    | 20         |

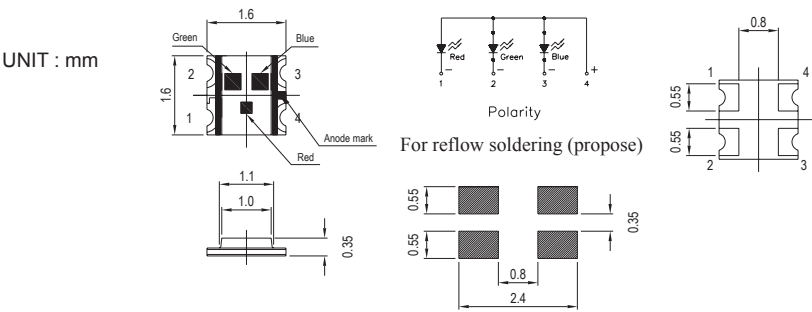
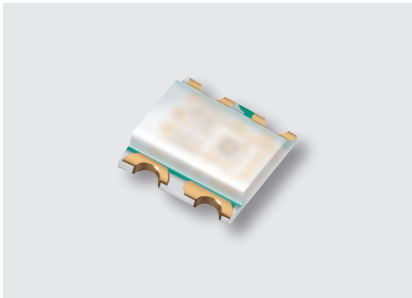


| Product               | Size<br>(LxWxHmm) | Color                                          |                                  | I <sub>V</sub>               |                              | V <sub>F</sub>             | IF<br>(mA) | Viewing<br>Angle(°) |
|-----------------------|-------------------|------------------------------------------------|----------------------------------|------------------------------|------------------------------|----------------------------|------------|---------------------|
|                       |                   | Color                                          | Wavelength<br>nm / CIE           | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | V <sub>F</sub> (V)<br>min. |            |                     |
| 15-23B/R6GHBHC-A01/2T | 3.2 x 2.6 x 1.1   | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R6 : 624<br>GH : 525<br>BH : 470 | R:90<br>G:112<br>B:45        | R:140<br>G:180<br>B:70       | R:1.7<br>G:2.7<br>B:2.7    | 20         | 120                 |

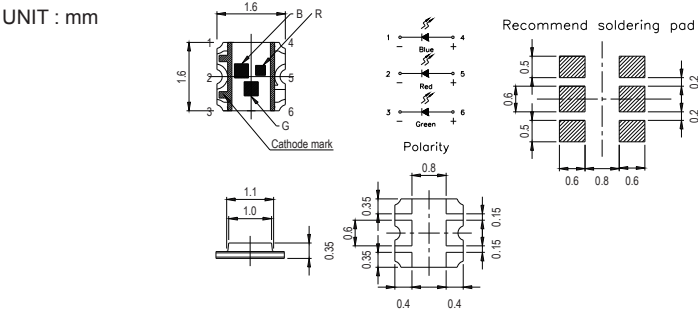
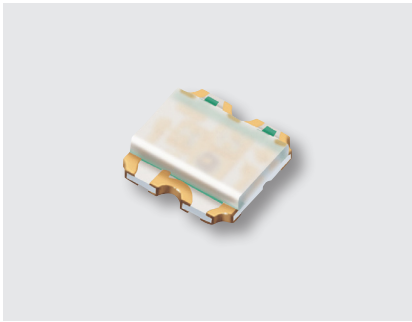


| Product               | Size<br>(LxWxHmm) | Color                                          |                                  | I <sub>V</sub>                                    | V <sub>F</sub>                                   |                                  | IF<br>(mA) |
|-----------------------|-------------------|------------------------------------------------|----------------------------------|---------------------------------------------------|--------------------------------------------------|----------------------------------|------------|
|                       |                   | Color                                          | Wavelength<br>nm / CIE           | I <sub>V</sub> (mcd)<br>min.                      | V <sub>F</sub> (V)<br>min.                       | V <sub>F</sub> (V)<br>max.       |            |
| 19-137/R6GHBHC-A01/2T | 1.6x1.6x0.5       | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R6 : 624<br>GH : 525<br>BH : 470 | R6 : 72 / 100<br>GH : 112 / 180<br>BH : 28.5 / 50 | R6 : 1.7 / 2<br>GH : 2.7 / 3.3<br>BH : 2.7 / 3.3 | R6 : 2.4<br>GH : 3.7<br>BH : 3.7 | 20         |

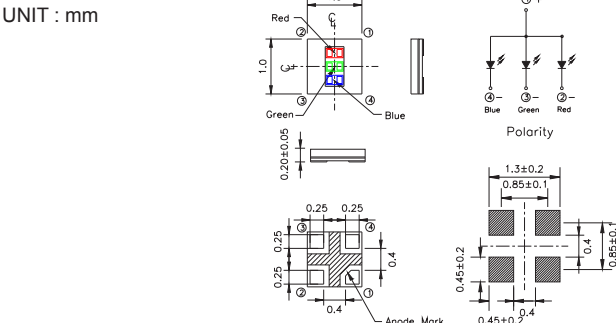
SMD LED | Surface Mount Chip LED (PCB) | Top View Full Color



| Product               | Size<br>(LxWxHmm) | Color                                          |                                              | I <sub>V</sub>                    |                                  | V <sub>F</sub>                   |                              | IF<br>(mA) |
|-----------------------|-------------------|------------------------------------------------|----------------------------------------------|-----------------------------------|----------------------------------|----------------------------------|------------------------------|------------|
|                       |                   | Color                                          | Wavelength<br>nm / CIE                       | I <sub>V</sub> (mcd)<br>min.      | I <sub>V</sub> (max)<br>min.     | V <sub>F</sub> (V)<br>min.       | V <sub>F</sub> (V)<br>max.   |            |
| 19-237/R6GHBHC-A04/2T | 1.6x1.6x0.35      | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R6 : 613-627<br>GH : 520-530<br>BH : 465-475 | R6 : 18<br>GH : 28.5<br>BH : 11.5 | R6 : 57<br>GH : 112<br>BH : 28.5 | R6 : 1.7<br>GH : 2.6<br>BH : 2.6 | R6 : 2.2<br>GH : 3<br>BH : 3 | 5          |



| Product               | Size<br>(LxWxHmm) | Color                                          |                                  | I <sub>V</sub>                 |                                 | V <sub>F</sub>                   |                                  | IF<br>(mA) |
|-----------------------|-------------------|------------------------------------------------|----------------------------------|--------------------------------|---------------------------------|----------------------------------|----------------------------------|------------|
|                       |                   | Color                                          | Wavelength<br>nm / CIE           | I <sub>V</sub> (mcd)<br>min.   | I <sub>V</sub> (mcd)<br>max.    | V <sub>F</sub> (V)<br>min.       | V <sub>F</sub> (V)<br>max.       |            |
| 19-337/R6GHBHC-A01/2T | 1.6x1.6x0.35      | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R6 : 614<br>GH : 520<br>BH : 465 | R6 : 72<br>GH : 180<br>BH : 36 | R6 : 225<br>GH : 360<br>BH : 90 | R6 : 1.7<br>GH : 2.7<br>BH : 2.7 | R6 : 2.4<br>GH : 3.8<br>BH : 3.8 | 20         |

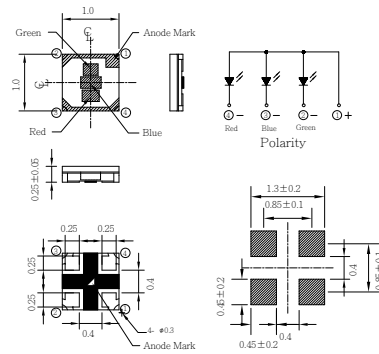


| Product                | Size<br>(LxWxHmm) | Color                                          |                                               | I <sub>V</sub>                |                               | IF<br>(mA) | Viewing<br>Angle(°) |
|------------------------|-------------------|------------------------------------------------|-----------------------------------------------|-------------------------------|-------------------------------|------------|---------------------|
|                        |                   | Color                                          | Wavelength<br>nm / CIE                        | I <sub>V</sub> (mcd)<br>min.  | I <sub>V</sub> (mcd)<br>max.  |            |                     |
| B1010BWN3A1-GRBC0105-T | 1.6x1.6x0.35      | ● Brilliant Red<br>● Brilliant Green<br>● Blue | G : 520~530<br>R : 617.5~625.5<br>B : 460~470 | G : 285<br>R : 112<br>B : 468 | G : 565<br>R : 225<br>B : 140 | 5          | 120                 |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View Full Color



UNIT : mm

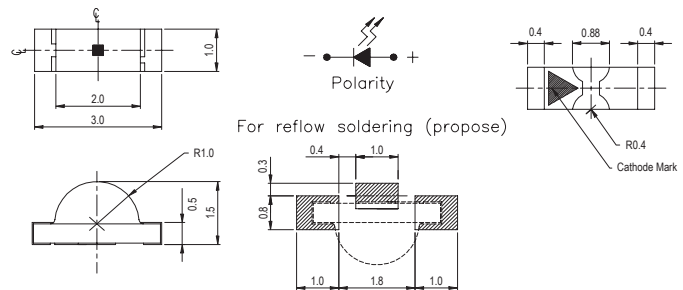


| Product                | Size<br>(LxWxHmm) | Color                                          |                                          | I <sub>V</sub>               |                              | IF<br>(mA)                | Viewing Angle(°) |
|------------------------|-------------------|------------------------------------------------|------------------------------------------|------------------------------|------------------------------|---------------------------|------------------|
|                        |                   | Color                                          | Wavelength<br>nm / CIE                   | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. |                           |                  |
| 18-239D/R6GHBHC-M01/2T | 1.0 x 1.0 x 0.25  | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R6 : 624<br>GH : 525<br>BH : 470         | 45                           | 112                          | R6:0.9<br>GH:2<br>BH:0.65 | 120              |
| 18-239D/R6GHBHC-D01/2T | 1.0 x 1.0 x 0.25  | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R6: 618~628<br>GH: 524~538<br>BH:465~475 | R6:25<br>GH:35<br>BH:17      | R6:45<br>GH:65<br>BH:28      | 2                         |                  |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Side View (0.2T~1.0T)

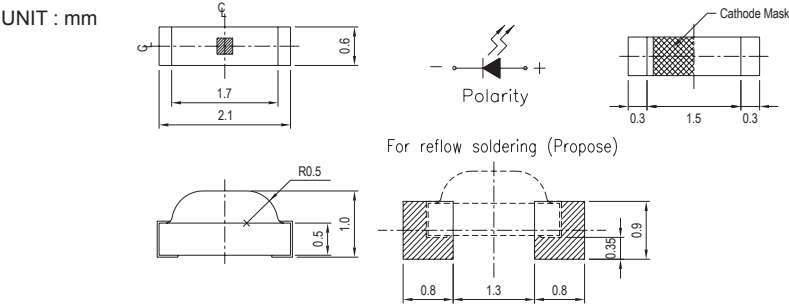


UNIT : mm

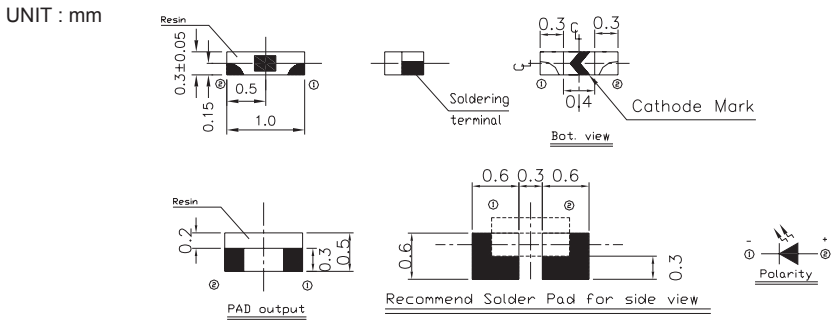


| Product                 | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-------------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                         |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 12-21C/BHC-AN1P2/2C     | 3.0x1.5x1.0       | ● Blue                   | 470                    | 28.5                         | -                            | 72                           | 2.7 / 3.3                  | -                          | 3.7                        | 20         |
| 12-21C/R6C-AS1T1B/2C    | 3.0x1.5x1.0       | ● Brilliant Red          | 624                    | 180                          | -                            | 360                          | 1.75                       | -                          | 2.35                       | 20         |
| 12-21C/G6C-BK1L2VY/2T   | 3.0x1.5x1.0       | ● Brilliant Yellow Green | 575                    | 7.2                          | -                            | 18                           | 1.7                        | -                          | 2.2                        | 5          |
| 12-21C/T3D-CP1Q2B12Y/2C | 3.0x1.5x1.0       | ○ Pure White             | x=0.274, y=0.226       | 45                           | -                            | 112                          | 2.7                        | -                          | 3.4                        | 5          |

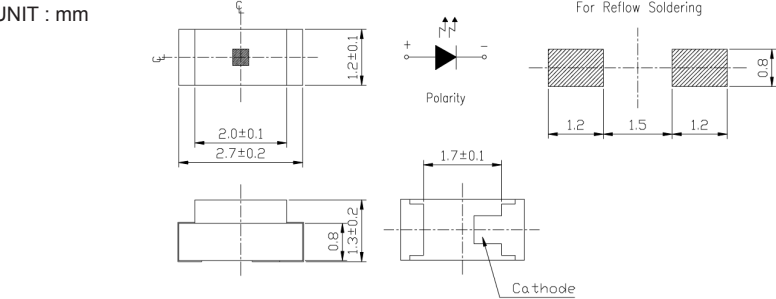
SMD LED ┃ Surface Mount Chip LED (PCB) ┃ Side View (0.2T~1.0T)



| Product               | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 12-215/R6C-AR1S1B/3C  | 2.1x1.0x0.6       | ● Brilliant Red          | 624                    | 112                          | 225                          | 1.75                       | 2.35                       | 20         |
| 12-215/BHC-AP1Q2/3C   | 2.1x1.0x0.6       | ● Blue                   | 470                    | 45                           | 112                          | 2.7/3.3                    | 3.7                        | 20         |
| 12-215/G6C-BN2P2L/3C  | 2.1x1.0x0.6       | ● Brilliant Yellow Green | 573                    | 36                           | 72                           | 1.7                        | 2.3                        | 20         |
| 12-215/T1D-AQ2R1HY/3C | 2.1x1.0x0.6       | ○ White                  | -                      | 90                           | 140                          | 2.7                        | 3.15                       | 5          |



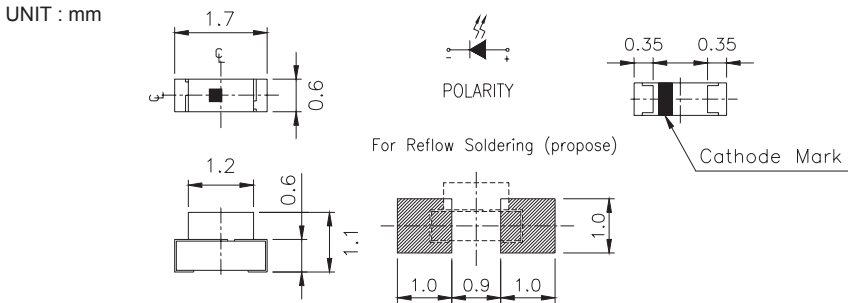
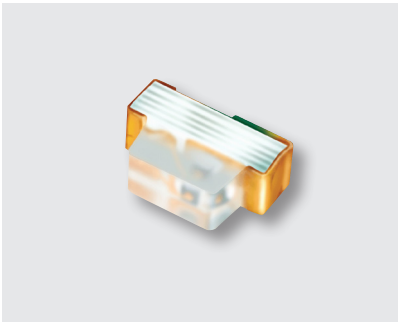
| Product               | Size<br>(LxWxHmm) | Color        |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color        | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 16-916/T1D-AP1Q2QY/3T | 1.0x0.5x0.3       | ○ Pure White | x=0.274<br>y=0.226     | 45                           | -                            | 112                          | 2.7                        | -                          | 3.2                        | 5          |



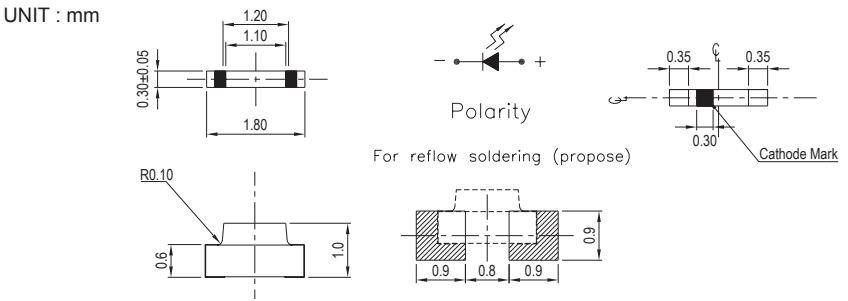
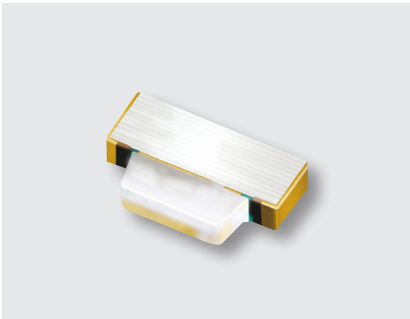
| Product              | Size<br>(LxWxHmm) | Color              |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|----------------------|-------------------|--------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color              | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 22-21/GHC-YR1S2/2C   | 2.7x1.3x1.2       | ● Brilliant Green  | 525                    | 112                          | -                            | 285                          | 2.7                        | 3.3                        | 3.7                        | 20         |
| 22-21/Y2C-CP1Q1B/2C  | 2.7x1.3x1.2       | ● Brilliant Yellow | 589                    | 45                           | -                            | 90                           | 1.75                       | -                          | 2.35                       | 20         |
| 22-21/R6C-AJ2L1AX/2C | 2.7x1.3x1.2       | ● Brilliant Red    | 624                    | 5.8                          | -                            | 14.5                         | 1.55                       | -                          | 2.15                       | 2          |
| 22-21/BHC-AN1P2/2C   | 2.7x1.3x1.2       | ● Blue             | 470                    | 28.5                         | -                            | 72                           | 3.8                        | -                          | 4.5                        | 20         |



SMD LED ■ Surface Mount Chip LED (PCB) ■ Side View (0.2T~1.0T)



| Product              | Size<br>(LxWxHmm) | Color              |                        | I <sub>v</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|----------------------|-------------------|--------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color              | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 27-21/BHC-AN1P2/3C   | 1.7x1.1x0.6       | ● Blue             | 470                    | 28.5                         | 72                           | 2.7 / 3.3                  | 3.7                        | 20         |
| 27-21/BHC-AP1Q2/3C   | 1.7x1.1x0.6       | ● Blue             | 470                    | 45                           | 112                          | 2.7 / 3.3                  | 3.7                        | 20         |
| 27-21/GHC-YR1S2M/3C  | 1.7x1.1x0.6       | ● Brilliant Green  | 525                    | 112                          | 285                          | 2.75                       | 3.95                       | 20         |
| 27-21/R6C-AP1Q2B/3C  | 1.7x1.1x0.6       | ● Brilliant Red    | 624                    | 45                           | 112                          | 1.75                       | 2.35                       | 20         |
| 27-21/T3D-AP2Q2HY/3C | 1.7x1.1x0.6       | ○ Pure White       | x=0.274, y=0.226       | 57                           | 112                          | 2.7                        | 3.15                       | 5          |
| 27-21/Y2C-CPQB/3D    | 1.7x1.1x0.6       | ● Brilliant Yellow | 589                    | 45                           | 112                          | 1.75                       | 2.35                       | 20         |

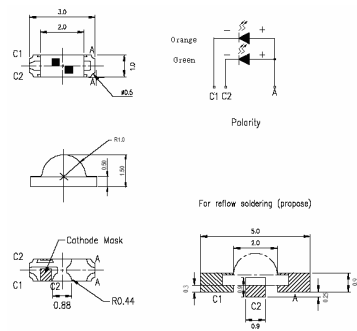


| Product               | Size<br>(LxWxHmm) | Color           |                        | I <sub>v</sub>               |                              | V <sub>F</sub>             |                            | IF<br>(mA) |
|-----------------------|-------------------|-----------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color           | Wavelength<br>nm / CIE | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |            |
| 48-213/BHC-ZM2P1QY/3C | 1.8x1.0x0.3       | ● Blue          | 470                    | 22.5                         | 57                           | 2.7                        | 3.2                        | 5          |
| 48-213/R6C-AM1N2VY/3C | 1.8x1.0x0.3       | ● Brilliant Red | 624                    | 18                           | 45                           | 1.7                        | 2.2                        | 5          |
| 48-213/T7D-BQ1R2QY/3C | 1.8x1.0x0.3       | ○ Pure White    | x=0.274, y=0.226       | 72                           | 180                          | 2.7                        | 3.2                        | 5          |

SMD LED | Surface Mount Chip LED (PCB) | Side View Bi-Color



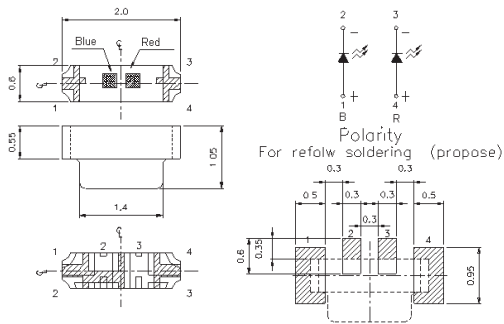
UNIT : mm



| Product             | Size<br>(LxWxHmm) | Color                                          |                                                | I <sub>V</sub>               |                              | IF<br>(mA) | Viewing<br>Angle(°) |
|---------------------|-------------------|------------------------------------------------|------------------------------------------------|------------------------------|------------------------------|------------|---------------------|
|                     |                   | Color                                          | Wavelength<br>nm / CIE                         | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. |            |                     |
| 12-22C/T3S2D-C35/2C | 3.0x1.0x1.5       | ○ Pure White<br>● Brilliant Orange             | S2:600~612<br>X: 0.274~0.314<br>Y: 0.226~0.315 | T3: 45<br>S2: 14.5           | T3: 112<br>S2: 36            | 5          | 130                 |
| 12-22C/G6R6C-A30/2C |                   | ● Brilliant Yellow Green<br>● Brilliant Red    | G6:569.5~577.5<br>R6:617.5~633.5               | G6:28.5<br>R6: 45            | G6: 72<br>R6: 112            | 20         | 120                 |
| 12-22C/G6Y2C-A30/2C |                   | ● Brilliant Yellow Green<br>● Brilliant Orange | G6: 573<br>Y2: 589                             | G6: 36<br>Y2: 36             | G6: 90<br>Y2: 90             | 20         | 100                 |



UNIT : mm

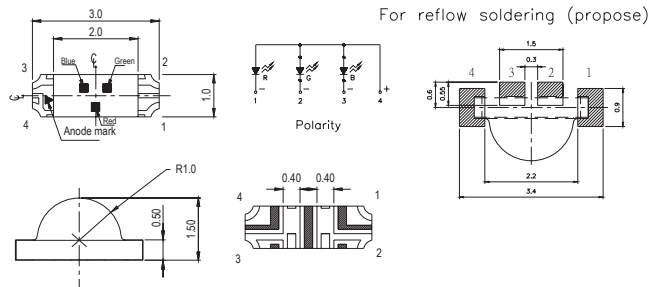


| Product             | Size<br>(LxWxHmm) | Color                                       |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|---------------------|-------------------|---------------------------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                     |                   | Color                                       | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 17-223/BHR7C-C30/3C | 2.0x1.05x0.6      | ● Blue<br>● Dark Red                        | BH : 470<br>R7 : 631   | BH :22.5<br>R7 :14.5         | -                            | BH :57<br>R7 :36             | BH :2.7<br>R7 :1.55        | -                          | BH :3.2<br>R7 :2.15        | 5          |
| 17-223/R6G6C-D30/3C | 2.0x1.05x0.6      | ● Brilliant Red<br>● Brilliant Yellow Green | R6:624<br>G6:573       | R6:5.8<br>G6:2.3             | -                            | R6:14.5<br>G6:5.8            | R6:1.55<br>G6:1.55         | -                          | R6:2.15<br>G6:2.15         | 2          |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Side View Full Color



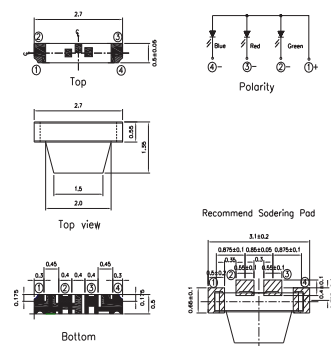
UNIT : mm



| Product               | Size<br>(LxWxHmm) | Color                                             |                                  | I <sub>V</sub>                 |                                 | V <sub>F</sub>                 |                                  | IF<br>(mA) |
|-----------------------|-------------------|---------------------------------------------------|----------------------------------|--------------------------------|---------------------------------|--------------------------------|----------------------------------|------------|
|                       |                   | Color                                             | Wavelength<br>nm / CIE           | I <sub>V</sub> (mcd)<br>min.   | I <sub>V</sub> (mcd)<br>typ.    | V <sub>F</sub> (V)<br>typ.     | V <sub>F</sub> (V)<br>max.       |            |
| 12-23C/R6GHBHC-A01/2C | 3.0x1.5x1.0       | ● Blue<br>● Brilliant Red<br>● Brilliant Green    | BH : 470<br>R6 : 624<br>GH : 525 | BH :32<br>R6 : 63<br>GH : 125  | BH : 50<br>R6 : 90<br>GH : 180  | BH : 3.3<br>R6 : 2<br>GH : 3.3 | BH :3.9<br>R6 : 2.4<br>GH : 3.9  | 20         |
| 12-23C/S2GHBHC-A01/2C | 3.0x1.5x1.0       | ● Brilliant Orange<br>● Brilliant Green<br>● Blue | S2 : 605<br>GH : 525<br>BH : 470 | S2 : 72<br>GH : 140<br>BH : 36 | S2 : 140<br>GH : 210<br>BH : 65 | S2 : 2<br>GH : 3.3<br>BH : 3.3 | S2 : 2.4<br>GH : 3.9<br>BH : 3.9 | 20         |

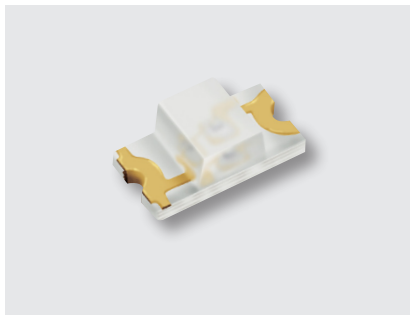


UNIT : mm

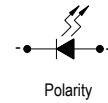
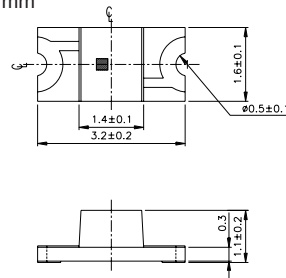


| Product             | Size<br>(LxWxHmm) | Color                                                                              |                                        | I <sub>v</sub>               |                              | IF<br>(mA) | Viewing<br>Angle(°) |
|---------------------|-------------------|------------------------------------------------------------------------------------|----------------------------------------|------------------------------|------------------------------|------------|---------------------|
|                     |                   | Color                                                                              | Wavelength<br>nm / CIE                 | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>max. |            |                     |
| 22-23CRGBW/S757/TR8 | 2.7x1.35x1.0      | <div><div>● Blue</div><div>● Brilliant Red</div><div>● Brilliant Green</div></div> | R: 613~625<br>G: 523~540<br>B: 465~475 | R: 14.5<br>G: 35<br>B: 10    | R: 36<br>G: 110<br>B: 24.5   | 5          | 120                 |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Reverse Mount

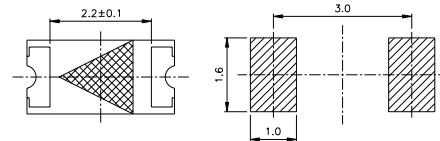


UNIT : mm

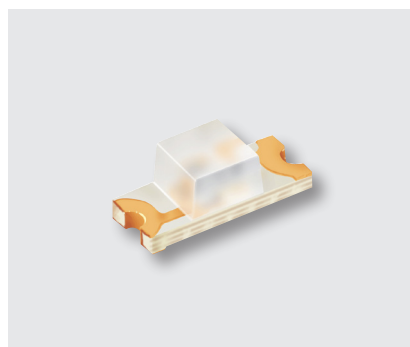


Polarity

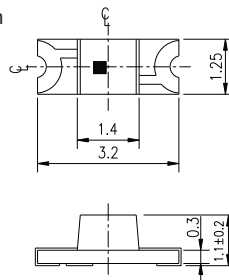
For reflow soldering (Propose)



| Product              | Size<br>(LxWxHmm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                      |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 23-21/R6C-AM1N2AY/2A | 3.2x1.6x1.1       | ● Brilliant Red          | 624                    | 18                           | —                            | 45                           | 1.55                       | —                          | 2.15                       | 5          |
| 23-21/G6C-AL2N1/2A   | 3.2x1.6x1.1       | ● Brilliant Yellow Green | 573                    | 14.5                         | —                            | 36                           | 1.7                        | 2.0                        | 2.14                       | 20         |
| 23-21/BHC-AM1N2TY/2A | 3.2x1.6x1.1       | ● Blue                   | 470                    | 18                           | —                            | 45                           | 2.6                        | —                          | 3                          | 5          |

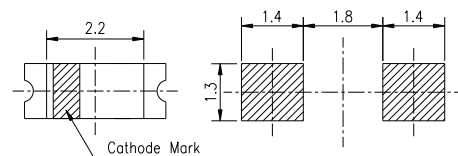


UNIT : mm



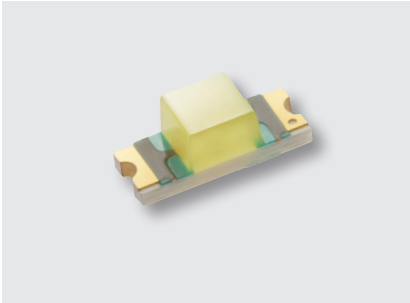
Polarity

For reflow soldering

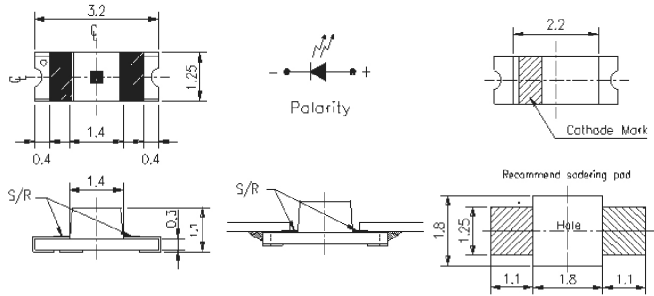


| Product               | Size<br>(LxWxHmm) | Color                    |                                | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------------------|--------------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color                    | Wavelength<br>nm / CIE         | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 23-21B/G6C-AM2P1/2A   | 3.2x1.25x1.1      | ● Brilliant Yellow Green | 573                            | 22.5                         | —                            | 57                           | 1.7                        | 2                          | 2.4                        | 20         |
| 23-21B/BHC-ZM1N2TY/2A | 3.2x1.25x1.1      | ● Blue                   | 470                            | 18                           | —                            | 45                           | 2.6                        | —                          | 3                          | 5          |
| 23-21B/S2C-AP1Q2B/2A  | 3.2x1.25x1.1      | ● Brilliant Orange       | 605                            | 455                          | —                            | 112                          | 1.75                       | —                          | 2.35                       | 20         |
| 23-21B/T1D-CP2Q2TY/2A | 3.2x1.25x1.1      | ○ Pure White             | X:0.274~0.314<br>Y:0.226~0.347 | 57                           | —                            | 112                          | 2.6                        | —                          | 3                          | 5          |

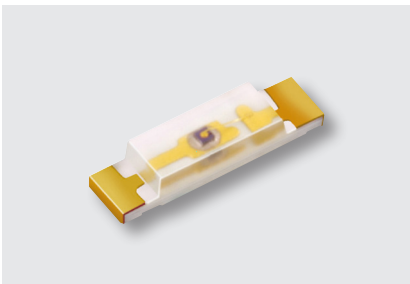
SMD LED | Surface Mount Chip LED (PCB) | Reverse Mount



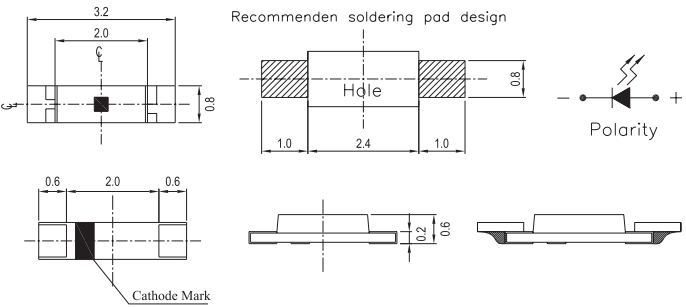
UNIT : mm



| Product               | Size<br>(LxWxHmm) | Color        |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|--------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color        | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 23-21C/T1D-CP2Q2TY/2A | 3.2x1.25x1.1      | ○ Pure White | x=0.274, y=0.226       | 57                           | —                            | 112                          | 2.6                        | —                          | 3                          | 5          |



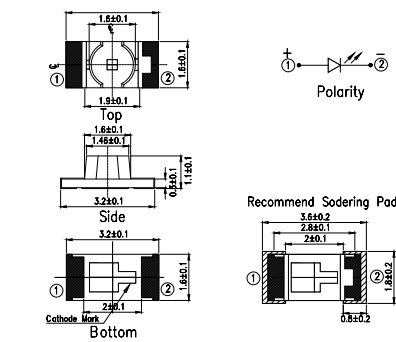
UNIT : mm



| Product               | Size<br>(LxWxHmm) | Color  |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|-----------------------|-------------------|--------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                       |                   | Color  | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 23-215A/BHC-DN2P2E/5A | 3.2x0.8x0.6       | ● Blue | 470                    | 36                           | —                            | 90                           | 2.75                       | —                          | 3.65                       | 20         |



UNIT : mm

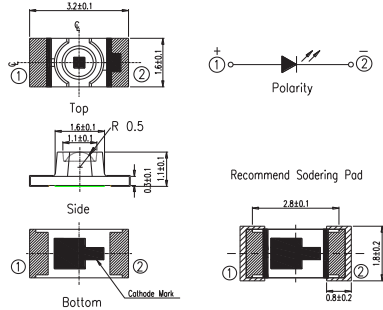


| Product            | Size<br>(LxWxHmm) | Color             |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|--------------------|-------------------|-------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                    |                   | Color             | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 24-21/GHC-YR2U1/2A | 3.2x1.6x1.1       | ● Brilliant Green | 525                    | 140                          | —                            | 565                          | 2.7                        | 3.3                        | 3.7                        | 20         |
| 24-21/BHC-A1Q2/2A  | 3.2x1.6x1.1       | ● Blue            | 470                    | 45                           | —                            | 112                          | 2.7                        | 3.3                        | 3.7                        | 20         |

SMD LED | Surface Mount Chip LED (PCB) | Reverse Mount

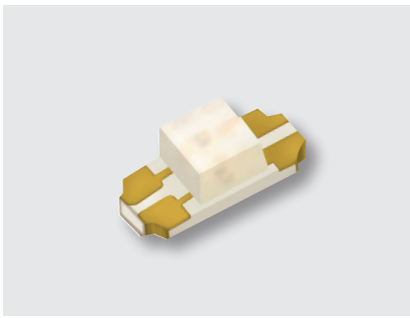


UNIT : mm

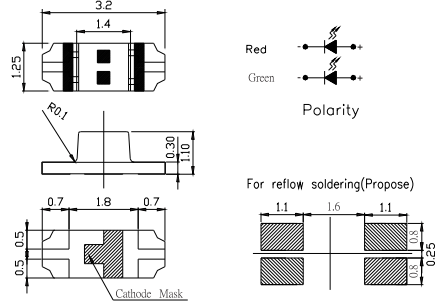


| Product             | Size<br>(LxWxHmm) | Color             |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|---------------------|-------------------|-------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                     |                   | Color             | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 25-21/GHC-YSU/2A    | 3.2x1.6x1.1       | ● Brilliant Green | 520                    | 180                          | —                            | 715                          | 3.5                        | 3.5                        | 4.3                        | 20         |
| 25-21/BHC-AR1S2E/2A | 3.2x1.6x1.1       | ● Blue            | 470                    | 112                          | —                            | 285                          | 2.75                       | —                          | 3.65                       | 20         |

SMD LED | Surface Mount Chip LED (PCB) | Reverse Mount Bi-Color



UNIT : mm

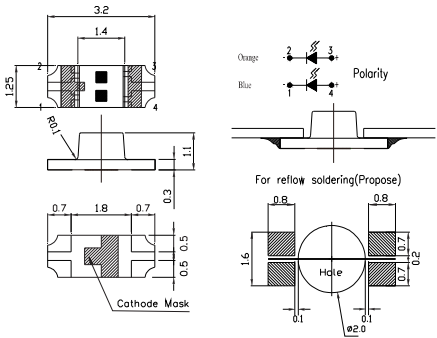


| Product             | Size<br>(LxWxHmm) | Color                                  |                                     | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|---------------------|-------------------|----------------------------------------|-------------------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                     |                   | Color                                  | Wavelength<br>nm / CIE              | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 23-22B/R7G6C-A30/2T | 3.2x1.25x1.1      | ● Dark Red<br>● Brilliant Yellow Green | R7:631<br>G6:573                    | R7:18<br>G6:14.5             | —                            | R7:72<br>G6:45               | R7:1.7<br>G6:1.7           | R7:2<br>G6:2               | R7:2.4<br>G6:2.4           | 20         |
| 23-22B/R7G6C-A30/2A | 3.2x1.25x1.1      | ● Dark Red<br>● Brilliant Yellow Green | R7:631<br>G6:573                    | R7:18<br>G6:14.5             | —                            | R7:72<br>G6:45               | R7:1.7<br>G6:1.7           | R7:2<br>G6:2               | R7:2.4<br>G6:2.4           | 20         |
| 23-22B/T3S2D-C30/2A | 3.2x1.25x1.1      | ○ Pure White<br>● Brilliant Orange     | T3:<br>X:0.274<br>Y:0.226<br>S2:605 | T3:45<br>S2:9                | —                            | T3:112<br>S2:22.5            | T3:2.5<br>S2:1.55          | T3:3.1<br>S2:1.85          | T3:3.5<br>S2:2.25          | 5          |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Reverse Mount Bi-Color

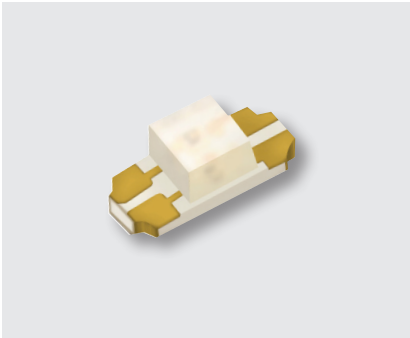


UNIT : mm

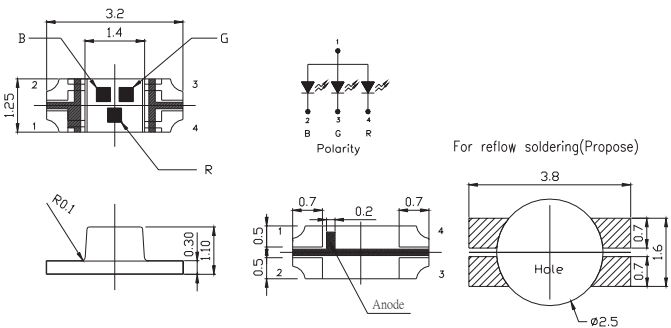


| Product             | Size<br>(LxWxHmm) | Color                        |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) |
|---------------------|-------------------|------------------------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|
|                     |                   | Color                        | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |
| 23-22C/S2BHC-B30/2A | 3.2x1.25x1.1      | ● Brilliant Orange<br>● Blue | S2 : 605<br>BH : 470   | 22.5                         | 57                           | S2 : 1.7<br>BH : 2.7       | S2 : 2<br>BH : 3.3         | S2 : 2.4<br>BH : 3.7       | 10         |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Reverse Mount Full Color



UNIT : mm

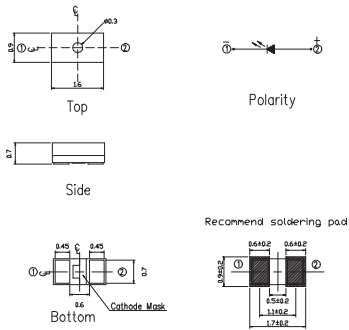


| Product               | Size<br>(LxWxHmm) | Color                                          |                                  | I <sub>V</sub>                 |                                 | V <sub>F</sub>                   |                                |                                  | IF<br>(mA) |
|-----------------------|-------------------|------------------------------------------------|----------------------------------|--------------------------------|---------------------------------|----------------------------------|--------------------------------|----------------------------------|------------|
|                       |                   | Color                                          | Wavelength<br>nm / CIE           | I <sub>V</sub> (mcd)<br>min.   | I <sub>V</sub> (mcd)<br>typ.    | V <sub>F</sub> (V)<br>min.       | V <sub>F</sub> (V)<br>typ.     | V <sub>F</sub> (V)<br>max.       |            |
| 23-23B/R6GHBHC-A01/2A | 3.2x1.25x1.1      | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R6 : 624<br>GH : 525<br>BH : 470 | R6 : 72<br>GH : 140<br>BH : 45 | R6 : 100<br>GH : 200<br>BH : 65 | R6 : 1.7<br>GH : 2.7<br>BH : 2.7 | R6 : 2<br>GH : 3.3<br>BH : 3.3 | R6 : 2.4<br>GH : 3.7<br>BH : 3.7 | 20         |

SMD LED | Surface Mount Chip LED (PCB) | Top View Double Molding 1609



UNIT : mm

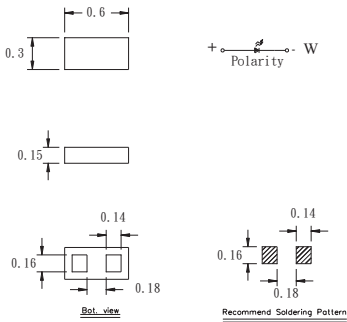


| Product                     | Size<br>(LxWxHmm) | Color              | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF(mA) | Viewing<br>Angle(°) |
|-----------------------------|-------------------|--------------------|------------------------------|------------------------------|----------------------------|----------------------------|--------|---------------------|
|                             |                   |                    | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |        |                     |
| B1609FBCN1-OC60610022405-3T | 1.6x0.9x0.7       | ● Brilliant Orange | 18                           | 45                           | 1.7                        | 2.4                        | 5      | 50                  |
| B1609FBCZ1-WP2329023005-3T  | 1.6x0.9x0.7       | ○ Pure White       | 14.5                         | 36                           | 2.6                        | 3                          | 5      | 50                  |
| B1609FBCN1-PGC5556032205-3T | 1.6x0.9x0.7       | ● Pure Green       | 2.8                          | 9                            | 1.6                        | 2.2                        | 5      | 50                  |

SMD LED | Surface Mount CSP | CSP0603



UNIT : mm



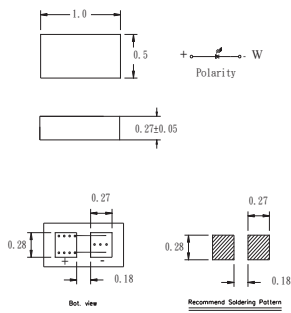
| Product                       | Size<br>(LxWxHmm) | Color           | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|-------------------------------|-------------------|-----------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                               |                   |                 | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| CSP0603AN101-WP30300563001-3T | 0.6x0.3x0.15      | ○ White         | 56                           | 80                           | 140                          | 2.4                        | 2.6                        | 3                          | 1          | 150                 |
| CSP0603AN101-RP61630902505-3T | 0.6x0.3x0.15      | ● Brilliant Red | 90                           | 155                          | 224                          | 1.5                        | 1.86                       | 2.5                        | 5          | 130                 |
| CSP0603AN101-GP52543552705-3T | 0.6x0.3x0.15      | ● Pure Green    | 355                          | 554                          | 900                          | 2.1                        | 2.4                        | 2.7                        | 5          | 150                 |
| CSP0603AN101-BP44460093001-3T | 0.6x0.3x0.15      | ● Blue          | 9                            | 13.3                         | 18                           | 2.4                        | 2.6                        | 3                          | 1          | 150                 |
| CSP0603AN101-YP58600283001-3T | 0.6x0.3x0.18      | ● Amber         | 28                           | 48                           | 71                           | 2.4                        | 2.6                        | 3                          | 1          | 150                 |



SMD LED | Surface Mount CSP | CSP1005



UNIT : mm

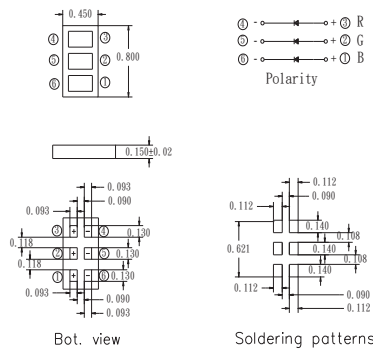


| Product                       | Size<br>(LxWxHmm) | Color   | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|-------------------------------|-------------------|---------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                               |                   |         | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| CSP1005BN101-WP35403553005-3T | 1.0x0.5x0.27      | ○ White | 355                          | 450                          | 900                          | 2.4                        | 2.65                       | 3                          | 5          | 150                 |
| CSP1005BN101-BP44460563140-3T | 1.0x0.5x0.27      | ● Blue  | 560                          | 750                          | 1120                         | 2.5                        | 2.8                        | 3.1                        | 40         | 150                 |

SMD LED | Surface Mount CSP | CSP0806

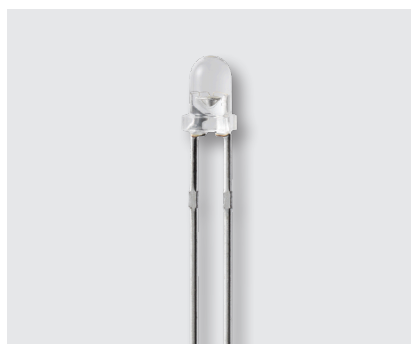


UNIT : mm

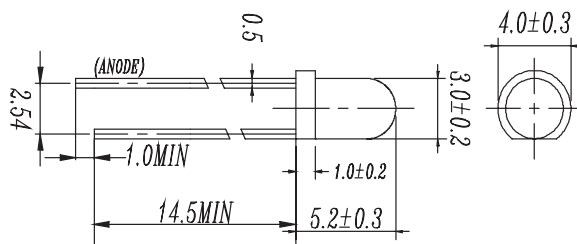


| Product                 | Size<br>(LxWxHmm) | Color                                          |                                     | I <sub>V</sub>               |                              |                              | IF<br>(mA) | Viewing<br>Angle(°) |
|-------------------------|-------------------|------------------------------------------------|-------------------------------------|------------------------------|------------------------------|------------------------------|------------|---------------------|
|                         |                   | Color                                          | Wavelength<br>nm / CIE              | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. |            |                     |
| CSP0806AN301-RGBC0101-T | 0.85x0.65x0.15    | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R:617~627<br>G:525~535<br>B:469~479 | R:40<br>G:160<br>B:25        | R:60<br>G:200<br>B:50        | R:70<br>G:260<br>B:60        | 1.7        | 150                 |

# LED Lamps | 3mm Round Type



UNIT : mm

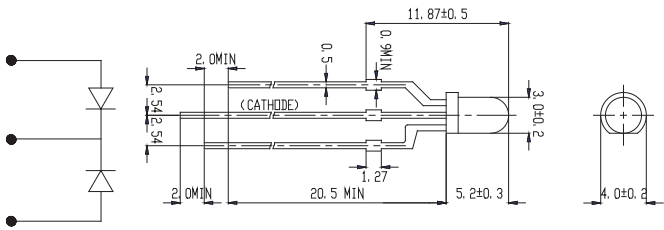


| Product              | Dimension (mm) | Color                    |                     | I <sub>v</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|----------------------|----------------|--------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                      |                | Color                    | Wavelength nm / CIE | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. | I <sub>v</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 204-10SDRD/S530-A3   | 3              | ● Brilliant Red          | 639                 | 40                        | 80                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 50               |
| 204-10SUBC/S400-A4   | 3              | ● Blue                   | 470                 | 400                       | 800                       | -                         | -                       | 3.4                     | 4                       | 20      | 20               |
| 204-10SUBD/S400-A4   | 3              | ● Blue                   | 470                 | 160                       | 320                       | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 30               |
| 204-10SUGC/S400-A5   | 3              | ● Green                  | 525                 | 1600                      | 3200                      | -                         | -                       | 3.2                     | 3.7                     | 20      | 30               |
| 204-10SURD/S530-A3   | 3              | ● Brilliant Red          | 624                 | 40                        | 80                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 45               |
| 204-10SURD/S530-A3-L | 3              | ● Brilliant Red          | 624                 | 40                        | 80                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 45               |
| 204-10SURT/S530-A3   | 3              | ● Brilliant Red          | 624                 | 250                       | 500                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 20               |
| 204-10SYGC/S530-E2   | 3              | ● Brilliant Yellow Green | 573                 | 125                       | 250                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 20               |
| 204-10SYGD/S530-E3   | 3              | ● Brilliant Yellow Green | 573                 | 63                        | 100                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 45               |
| 204-10UYD/S530-A3    | 3              | ● Brilliant Yellow       | 589                 | 100                       | 200                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 40               |
| 204-10UYOC/S530-A3   | 3              | ● Brilliant Orange       | 605                 | 320                       | 500                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 30               |
| 204-15/FNC2-2TVA     | 3              | ○ White                  | x=0.26<br>y=0.27    | 7150                      | -                         | 14250                     | 2.8                     | -                       | 3.6                     | 20      | 25               |
| 204-15UTC/S400-X9    | 3              | ○ White                  | x=0.26<br/>y=0.27"  | 7150                      | -                         | 14250                     | 2.8                     | -                       | 3.6                     | 20      | 25               |

LED Lamps ■ 3mm Round Type



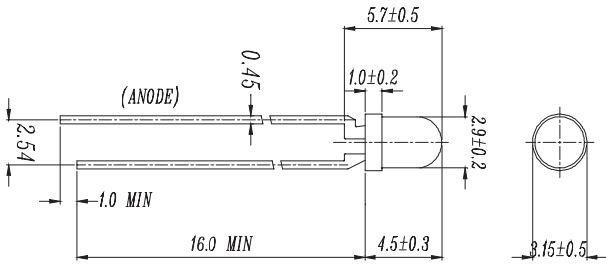
UNIT : mm



| Product              | Dimension (mm) | Color                                       |                     | I <sub>V</sub>            |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|----------------------|----------------|---------------------------------------------|---------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                      |                | Color                                       | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 209-3SURYSGW/S530-A3 | 3              | ● Brilliant Red<br>● Brilliant Yellow Green | R:624<br>G:573      | 25 / 10                   | 50 / 20                   | 1.7                     | 2.0                     | 2.4                     | 20      | 80               |
| 209SDRSYSGW/S530-A3  | 3              | ● Deep Red<br>● Brilliant Yellow Green      | R:639<br>G:573      | 25 / 16                   | 50 / 32                   | 1.7                     | 2.0                     | 2.4                     | 20      | 80               |
| 209SURYSGC/S530-A3   | 3              | ● Brilliant Red<br>● Brilliant Yellow Green | R:624<br>G:573      | 63 / 40                   | 125 / 80                  | 1.7                     | 2.0                     | 2.4                     | 20      | 60               |
| 209UYOSUGC/S530-A3   | 3              | ● Brilliant Yellow<br>● Green               | G:589<br>G:525      | 100 / 160                 | 200 / 320                 | 1.7 / 2.7               | 2.0 / 3.3               | 2.4 / 3.7               | 20      | 50               |



UNIT : mm

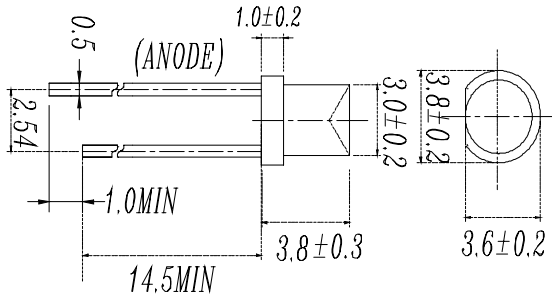


| Product           | Dimension (mm) | Color                    |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|-------------------|----------------|--------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                   |                | Color                    | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 264-7SDRC/S530-A3 | 3              | ● Deep Red               | 639                 | 40                        | 100                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 40               |
| 264-7SUGC/S400-A4 | 3              | ● Brilliant Green        | 530                 | 630                       | 1250                      | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 30               |
| 264-7SUGC/S400-A5 | 3              | ● Brilliant Green        | 530                 | 1000                      | 2000                      | -                         | -                       | 3.4                     | 4                       | 20      | 30               |
| 264-7SURC/S400-A8 | 3              | ● Brilliant Red          | 624                 | 400                       | 800                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 40               |
| 264-7SURD/S530-A3 | 3              | ● Brilliant Red          | 624                 | 63                        | 125                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 60               |
| 264-7SYGC/S530-E3 | 3              | ● Brilliant Yellow Green | 573                 | 100                       | 320                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 35               |
| 264-7SYGD/S530-E2 | 3              | ● Brilliant Yellow Green | 573                 | 25                        | 50                        | -                         | -                       | 2                       | 2.4                     | 20      | 60               |
| 264-7UYC/S400-A9  | 3              | ● Brilliant Yellow       | 589                 | 630                       | 1250                      | -                         | 1.7                     | 2                       | 2.4                     | 20      | 40               |
| 264-7UYD/S530-A3  | 3              | ● Brilliant Yellow       | 589                 | 63                        | 125                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 60               |

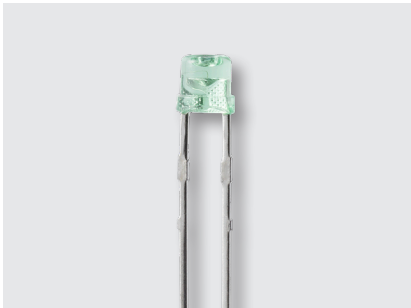
LED Lamps ■ 3mm Round Type



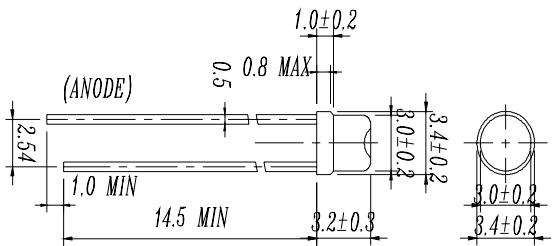
UNIT : mm



| Product            | Dimension<br>(mm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|--------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                    |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 484-10SURT/S530-A3 | 3                 | ● Brilliant Red          | 624                    | 10                           | 20                           | -                            | 1.7                        | 2                          | 2.4                        | 20         | 130                 |
| 484-10SYGT/S530-E2 | 3                 | ● Brilliant Yellow Green | 573                    | 6.3                          | 12.5                         | -                            | 1.7                        | 2                          | 2.4                        | 20         | 80                  |
| 484-10UYOC/S530-A3 | 3                 | ● Brilliant Orange       | 605                    | 40                           | 80                           | -                            | 1.7                        | 2                          | 2.4                        | 20         | 160                 |
| 484-10UYT/S530-A3  | 3                 | ● Brilliant Yellow       | 589                    | 16                           | 32                           | -                            | 1.7                        | 2                          | 2.4                        | 20         | 110                 |



UNIT : mm

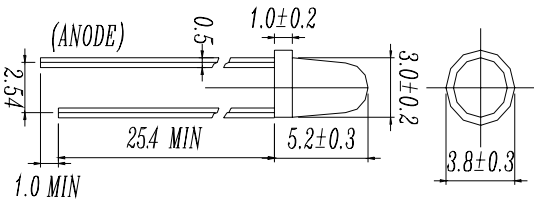


| Product              | Dimension<br>(mm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                      |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 494-10SURT/S530-A3   | 3                 | ● Brilliant Red          | 624                    | 16                           | 32                           | -                            | 1.7                        | 2.0                        | 2.4                        | 20         | 100                 |
| 494-10SYGT/S530-E2   | 3                 | ● Brilliant Yellow Green | 573                    | 10                           | 20                           | -                            | 1.7                        | 2.0                        | 2.4                        | 20         | 100                 |
| 494SUBC/C470/S400-A4 | 3                 | ● Blue                   | 470                    | 20                           | 32                           | -                            | 2.7                        | 3.3                        | 3.7                        | 20         | 100                 |

LED Lamps | 3mm Round Type



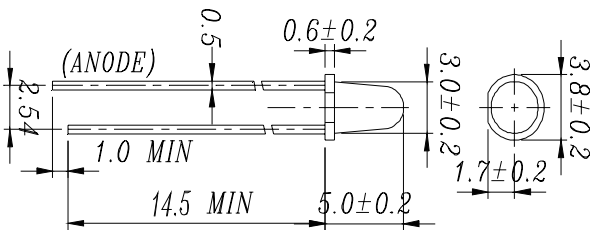
UNIT : mm



| Product               | Dimension<br>(mm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|-----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                       |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 1224-10SURC/S530-A3   | 3                 | ● Brilliant Red          | 624                    | 160                          | 400                          | -                            | 1.7                        | 2                          | 2.4                        | 20         | 20                  |
| 1224SDRC/S530-A4      | 3                 | ● Deep Red               | 639                    | 250                          | 500                          | -                            | -                          | 2                          | 2.4                        | 20         | 25                  |
| 1224SUBC/C470/S400-A4 | 3                 | ● Blue                   | 470                    | 250                          | 500                          | -                            | 2.7                        | 3.3                        | 3.7                        | 20         | 30                  |
| 1224SUGC/S400-A5      | 3                 | ● Green                  | 525                    | 1600                         | 2000                         | -                            | 2.7                        | 3.3                        | 3.7                        | 20         | 30                  |
| 1224SYGC/S530-E2      | 3                 | ● Brilliant Yellow Green | 573                    | 63                           | 100                          | -                            | 1.7                        | 2                          | 2.4                        | 20         | 25                  |
| 1224USOC/S530-A3      | 3                 | ● Brilliant Orange       | 615                    | 188                          | 295                          | -                            | 1.7                        | 2                          | 2.4                        | 20         | 25                  |
| 1224UTC/S400-A6       | 3                 | ○ White                  | x=0.28,y=0.29          | 1800                         | -                            | 4500                         | 2.8                        | -                          | 4                          | 20         | 25                  |

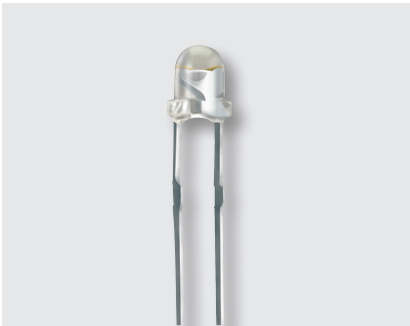


UNIT : mm

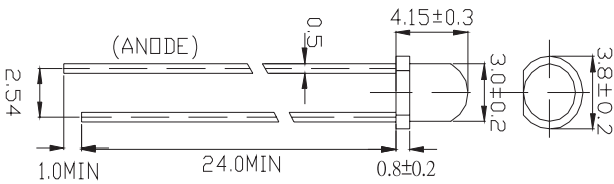


| Product             | Dimension<br>(mm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|---------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                     |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 1254-10SDRD/S530-A3 | 3                 | ● Deep Red               | 639                    | 100                          | 160                          | -                            | 1.7                        | 2                          | 2.4                        | 20         | 30                  |
| 1254-10SDRT/S530-A3 | 3                 | ● Deep Red               | 639                    | 160                          | 320                          | -                            | -                          | 2                          | 2.4                        | 20         | 30                  |
| 1254-10SURD/S530-A3 | 3                 | ● Brilliant Red          | 624                    | 250                          | 400                          | -                            | 1.7                        | 2                          | 2.4                        | 20         | 30                  |
| 1254-10SURT/S530-A3 | 3                 | ● Brilliant Red          | 624                    | 160                          | 320                          | -                            | -                          | 2                          | 2.4                        | 20         | 30                  |
| 1254-10SYGD/S530-E2 | 3                 | ● Brilliant Yellow Green | 573                    | 40                           | 63                           | -                            | 1.7                        | 2                          | 2.4                        | 20         | 40                  |
| 1254-10SYGT/S530-E2 | 3                 | ● Brilliant Yellow Green | 573                    | 160                          | 320                          | -                            | 1.7                        | 2                          | 2.4                        | 20         | 30                  |
| 1254-10UYD/S530-A3  | 3                 | ● Brilliant Yellow       | 589                    | 100                          | 200                          | -                            | 1.7                        | 2                          | 2.4                        | 20         | 30                  |
| 1254-10UYOT/S530-A3 | 3                 | ● Brilliant Orange       | 605                    | 250                          | 500                          | -                            | 1.7                        | 2                          | 2.4                        | 20         | 30                  |

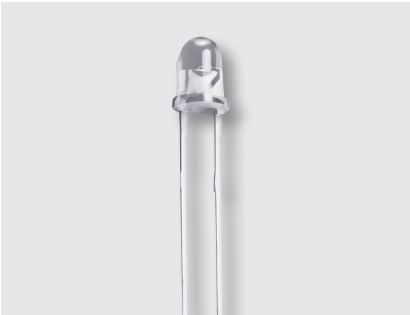
LED Lamps ■ 3mm Round Type



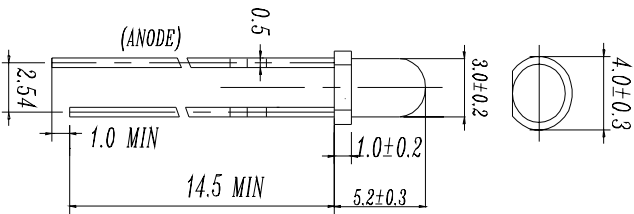
UNIT : mm



| Product             | Dimension (mm) | Color         |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|---------------------|----------------|---------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                     |                | Color         | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 3294-15SUBC/S400-A6 | 3              | Blue          | 470                 | 160                       | 320                       | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 90               |
| 3294-15SUGC/S400-A6 | 3              | Green         | 525                 | 500                       | 1250                      | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 50               |
| 3294-15SURC/S400-A7 | 3              | Brilliant Red | 624                 | 100                       | 200                       | -                         | 1.7                     | 2.0                     | 2.4                     | 20      | 90               |
| 3294-15UBGC/S400-A6 | 3              | Green         | 505                 | 400                       | 800                       | -                         | x                       | 3.5                     | 4.3                     | 20      | 90               |

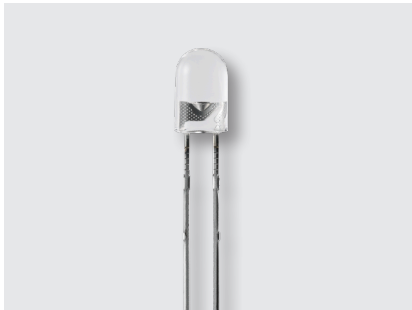


UNIT : mm

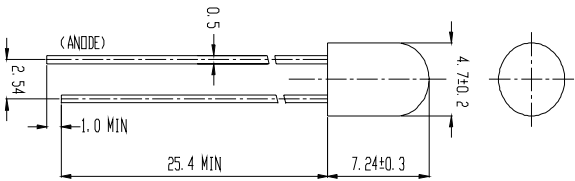


| Product                    | Dimension (mm) | Color                  |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|----------------------------|----------------|------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                            |                | Color                  | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 4204-10SUBC/C470/S400-X9-L | 3              | Blue                   | 470                 | 630                       | 1250                      | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 25               |
| 4204-10SURC/S530-A3        | 3              | Brilliant Red          | 624                 | 320                       | 500                       | -                         | 1.7                     | 2.0                     | 2.4                     | 20      | 25               |
| 4204-10SYGC/S530-E4        | 3              | Brilliant Yellow Green | 573                 | 250                       | 500                       | -                         | 1.7                     | 2.0                     | 2.4                     | 20      | 20               |

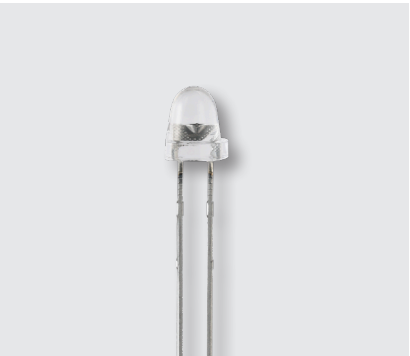
LED Lamps I 5mm Round Type



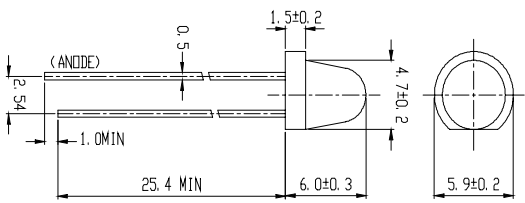
UNIT : mm



| Product                | Dimension (mm) | Color                  |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|------------------------|----------------|------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                        |                | Color                  | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 313-2SUBC/C470/S400-A4 | 4.7            | Blue                   | 470                 | 630                       | 1000                      | -                         | -                       | 3.4                     | 4                       | 20      | 20               |
| 313-2SURD/S530-A3      | 4.7            | Brilliant Red          | 624                 | 63                        | 100                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 40               |
| 313-2SYGC/S530-E2      | 4.7            | Brilliant Yellow Green | 573                 | 250                       | 500                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 20               |
| 313-2SYGD/S530-E2      | 4.7            | Brilliant Yellow Green | 573                 | 40                        | 80                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 45               |
| 313-2UYD/S530-A3       | 4.7            | Brilliant Yellow       | 589                 | 100                       | 200                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 50               |



UNIT : mm



| Product           | Dimension (mm) | Color                  |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|-------------------|----------------|------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                   |                | Color                  | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 323-2SDRD/S530-A3 | 4.7            | Deep Red               | 639                 | 25                        | 50                        | -                         | -                       | 2                       | 2.4                     | 20      | 60               |
| 323-2SURD/S530-A3 | 4.7            | Brilliant Red          | 624                 | 63                        | 100                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 40               |
| 323-2SYGD/S530-E2 | 4.7            | Brilliant Yellow Green | 573                 | 40                        | 80                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 60               |

[illegible]

Technical drawing of a mechanical part with dimensions and labels:

- (ANODE)**: Label for the top horizontal section.
- (F) 1.0 MIN**: Dimension for the length of the top horizontal section.
- (E) 16.0 MIN**: Dimension for the total length of the part.
- (C) 1.0 ± 0.2**: Dimension for the height of the top horizontal section.
- (B) 5.0 ± 0.2**: Dimension for the height of the vertical section.
- (C) 8.6 ± 0.3**: Dimension for the length of the vertical section.
- (A) 5.9 ± 0.3**: Dimension for the diameter of the circular end view.

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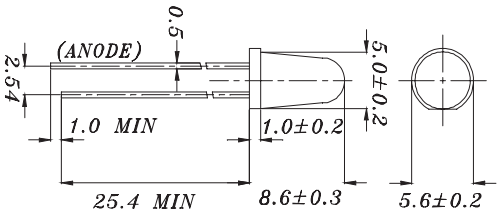




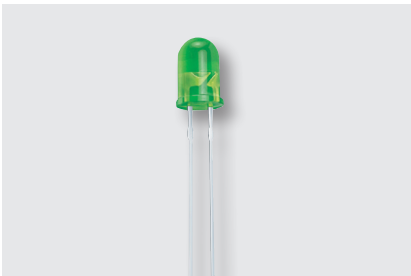
LED Lamps | 5mm Round Type



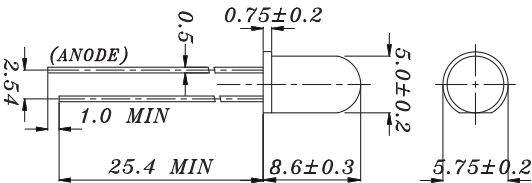
UNIT : mm



| Product                | Dimension (mm) | Color                  |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|------------------------|----------------|------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                        |                | Color                  | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 383-2SDRC/S530-A3      | 5              | Deep Red               | 639                 | 1000                      | 2000                      | -                         | -                       | 2                       | 2.4                     | 20      | 6                |
| 383-2SUBC/C470/S400-A6 | 5              | Blue                   | 470                 | 1600                      | 3200                      | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 20               |
| 383-2SUGC/S400-A4      | 5              | Brilliant Green        | 525                 | 2500                      | 4000                      | -                         | -                       | 3.4                     | 4                       | 20      | 20               |
| 383-2SURC/S400-A6      | 5              | Brilliant Red          | 624                 | 4000                      | 6300                      | -                         | 1.7                     | 2                       | 2.4                     | 20      | 6                |
| 383-2SURC/S530-A3      | 5              | Brilliant Red          | 624                 | 1000                      | 2500                      | -                         | -                       | 2                       | 2.4                     | 20      | 6                |
| 383-2SYGC/S530-E2      | 5              | Brilliant Yellow Green | 573                 | 160                       | 320                       | -                         | -                       | 2                       | 2.4                     | 20      | 10               |
| 383-2SYGD/S530-E2      | 5              | Brilliant Yellow Green | 575                 | 40                        | 80                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 25               |
| 383-2USOC/S530-A6      | 5              | Brilliant Orange       | 615                 | 6300                      | 8000                      | -                         | -                       | 2                       | 2.4                     | 20      | 6                |
| 383-2UYC/S530-A3       | 5              | Brilliant Yellow       | 589                 | 2713                      | 4263                      | -                         | 1.7                     | 2                       | 2.4                     | 20      | 6                |

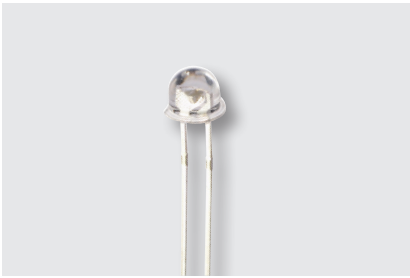


UNIT : mm

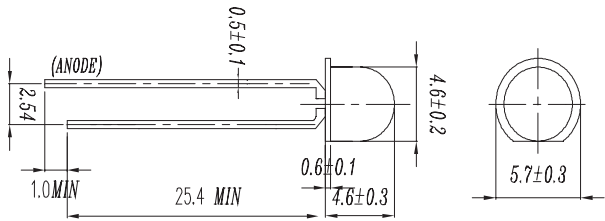


| Product            | Dimension (mm) | Color                  |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|--------------------|----------------|------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                    |                | Color                  | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 1383-2SDRD/S530-A3 | 5              | Deep Red               | 639                 | 160                       | 320                       | -                         | -                       | 2                       | 2.4                     | 20      | 30               |
| 1383-2SURD/S530-A3 | 5              | Brilliant Red          | 624                 | 250                       | 500                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 40               |
| 1383SDRD/S530-A3   | 5              | Deep Red               | 639                 | 160                       | 320                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 30               |
| 1383SYGD/S530-E2   | 5              | Brilliant Yellow Green | 573                 | 100                       | 200                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 25               |
| 1383UYD/S530-A3    | 5              | Brilliant Yellow       | 589                 | 400                       | 800                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 25               |

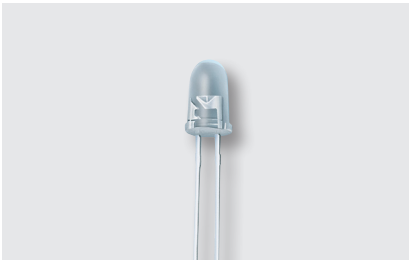
LED Lamps | 5mm Round Type



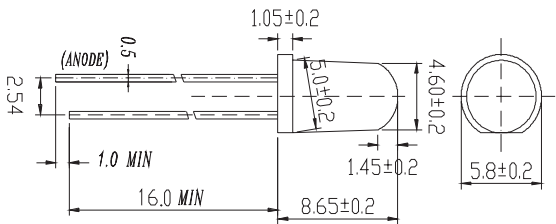
UNIT : mm



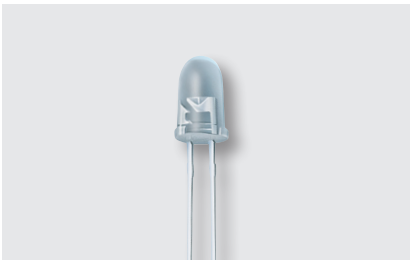
| Product              | Dimension (mm) | Color              |                     | I <sub>v</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|----------------------|----------------|--------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                      |                | Color              | Wavelength nm / CIE | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. | I <sub>v</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 6324/F1C9-1LNA       | 4.6            | ○ White            | x=0.29y=0.28        | 1425                      | -                         | 2850                      | 2.8                     | -                       | 3.6                     | 20      | 100              |
| 6324-15SUBC/S400-X10 | 4.6            | ● Blue             | 470                 | 250                       | 500                       | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 60               |
| 6324-15SUGC/S400-A6  | 4.6            | ● Brilliant Green  | 525                 | 630                       | 1250                      | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 60               |
| 6324-15SURC/S400-A9  | 4.6            | ● Brilliant Red    | 624                 | 160                       | 320                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 100              |
| 6324-15UYC/S530-A6   | 4.6            | ● Brilliant Yellow | 589                 | 100                       | 200                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 70               |



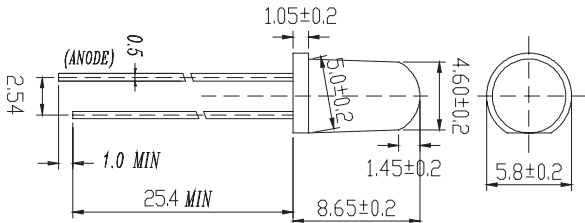
UNIT : mm



| Product            | Dimension (mm) | Color              |                     | I <sub>v</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|--------------------|----------------|--------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                    |                | Color              | Wavelength nm / CIE | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. | I <sub>v</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 7343-2SUGD/S400-X6 | 4.6            | ● Brilliant Green  | 525                 | 1600                      | 3200                      | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 30               |
| 7343-2SURD/S530-A3 | 4.6            | ● Brilliant Red    | 624                 | 160                       | 320                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 40               |
| 7343-2USOC/S530-A3 | 4.6            | ● Brilliant Orange | 615                 | 630                       | 1250                      | -                         | -                       | 2                       | 4                       | 20      | 20               |
| 7343M/BAC3-ATVA/C5 | 5              | ● Blue             | 470                 | 8.4                       | -                         | 21                        | 2.6                     | -                       | 3.4                     | 5       | 30               |



UNIT : mm

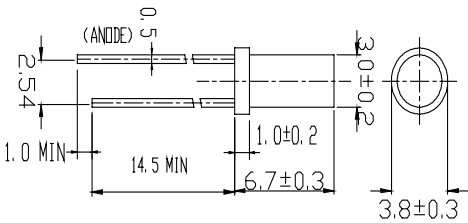


| Product                  | Dimension (mm) | Color             |                     | I <sub>v</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|--------------------------|----------------|-------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                          |                | Color             | Wavelength nm / CIE | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. | I <sub>v</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 7344-15SUBC/C470/S400-A6 | 4.6            | ● Blue            | 470                 | 1000                      | 2000                      | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 20               |
| 7344-15SUGC/S400-A5      | 4.6            | ● Brilliant Green | 525                 | 5000                      | 8000                      | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 30               |
| 7344-15SUGC/S400-X6      | 4.6            | ● Brilliant Green | 525                 | 8000                      | 11000                     | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 20               |

LED Lamps | 3mm Cylindrical



UNIT : mm

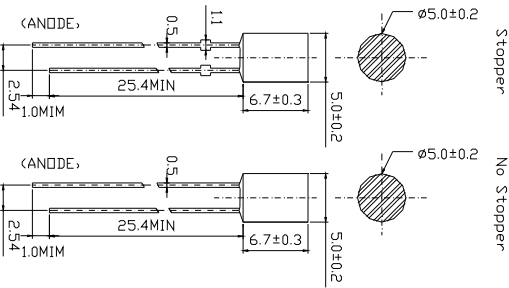


| Product            | Dimension (mm) | Color              |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|--------------------|----------------|--------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                    |                | Color              | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 414-10SURD/S530-A3 | 3              | ● Brilliant Red    | 624                 | 16                        | 32                        | -                         | -                       | 2                       | 2.4                     | 20      | 120              |
| 414-10UYD/S530-A3  | 3              | ● Brilliant Yellow | 589                 | 25                        | 40                        | -                         | -                       | 2                       | 2.4                     | 20      | 120              |

LED Lamps | 5mm Cylindrical

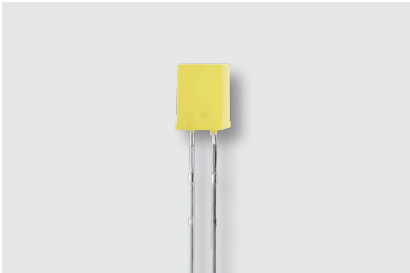


UNIT : mm

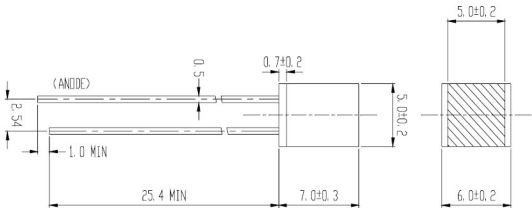


| Product           | Dimension (mm) | Color              |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|-------------------|----------------|--------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                   |                | Color              | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 423-2SUBC/S400-X9 | 5              | ● Blue             | 470                 | 100                       | 200                       | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 80               |
| 423-2SURC/S530-A3 | 5              | ● Brilliant Red    | 624                 | 25                        | 63                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 80               |
| 423-2UYC/S530-A6  | 5              | ● Brilliant Yellow | 589                 | 100                       | 200                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 90               |
| 423-2UYOC/S530-A6 | 5              | ● Brilliant Orange | 605                 | 160                       | 320                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 80               |

LED Lamps | 5mm Square



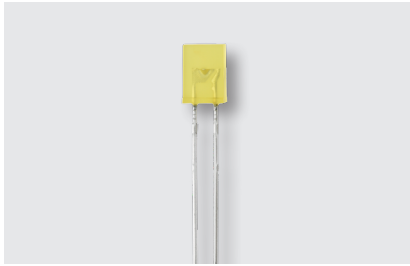
UNIT : mm



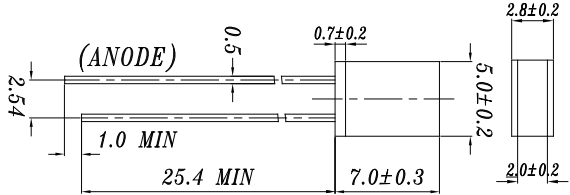
| Product         | Dimension (mm) | Color                    |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|-----------------|----------------|--------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                 |                | Color                    | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 583SURD/S530-A3 | 5              | ● Brilliant Red          | 624                 | 12.5                      | 20                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 130              |
| 583SYGD/S530-E2 | 5              | ● Brilliant Yellow Green | 573                 | 2.5                       | 5                         | -                         | 1.7                     | 2                       | 2.4                     | 20      | 170              |
| 583UYD/S530-A3  | 5              | ● Brilliant Yellow       | 589                 | 10                        | 20                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 170              |

LED Lamps

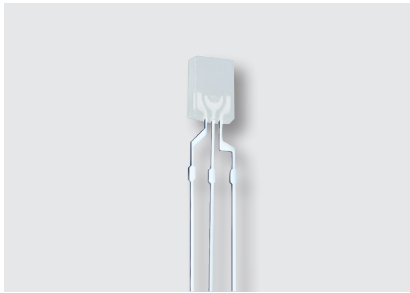
LED Lamps I Rectangular



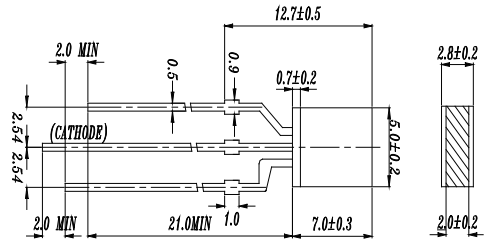
UNIT : mm



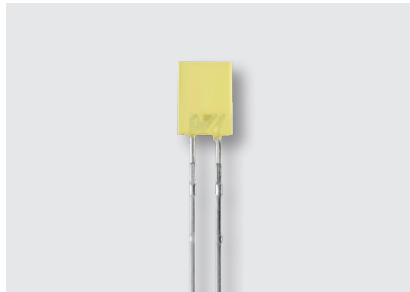
| Product         | Dimension<br>(mm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|-----------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                 |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 513SURD/S530-A3 | 2x5               | ● Brilliant Red          | 624                    | 10                           | 20                           | -                            | -                          | 2                          | 2.4                        | 20         | 180                 |
| 513SYGD/S530-E2 | 2x5               | ● Brilliant Yellow Green | 573                    | 6.3                          | 12.5                         | -                            | -                          | 2                          | 2.4                        | 20         | 140                 |
| 513UYD/S530-A3  | 2x5               | ● Brilliant Yellow       | 589                    | 20                           | 32                           | -                            | -                          | 2                          | 2.4                        | 20         | 150                 |



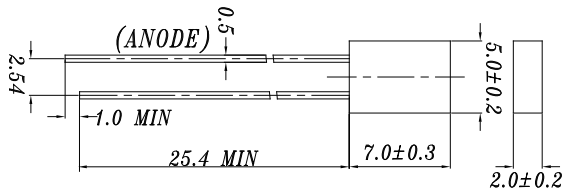
UNIT : mm



| Product              | Dimension<br>(mm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|----------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                      |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 519-1SURSYGW/S530-A3 | 2.0x5.0           | ● Brilliant Red          | 624                    | 1.7                          | 2.0                          | 2.4                          | 6.3                        | 12.5                       | 20                         | 180        | 180                 |
|                      |                   | ● Brilliant Yellow Green | 573                    | 1.7                          | 2.0                          | 2.4                          | 2.5                        | 5.0                        | 20                         | 180        | 180                 |



UNIT : mm

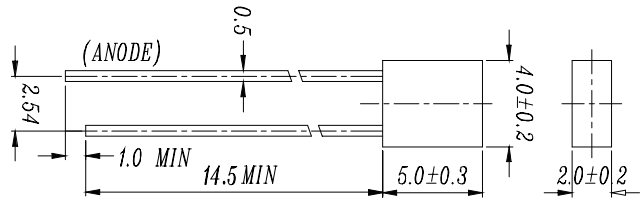


| Product                | Dimension<br>(mm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|------------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                        |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 523-2SDRD/S530-A3      | 2.0 x 5.0         | ● Deep Red               | 639                    | 10                           | 16                           | -                            | -                          | 2                          | 2.4                        | 20         | 120                 |
| 523-2SUBD/C470/S400-A6 | 2.0 x 5.0         | ● Blue                   | 470                    | 10                           | 20                           | -                            | 2.7                        | 3.3                        | 3.7                        | 20         | 130                 |
| 523-2SUGD/S400-A6      | 2.0 x 5.0         | ● Green                  | 525                    | 160                          | 320                          | -                            | 2.7                        | 3.3                        | 3.7                        | 20         | 130                 |
| 523-2SURD/S530-A3      | 2.0 x 5.0         | ● Brilliant Red          | 624                    | 16                           | 32                           | -                            | 1.7                        | 2                          | 2.4                        | 20         | 120                 |
| 523-2UYD/S530-A3       | 2.0 x 5.0         | ● Brilliant Yellow       | 589                    | 6.3                          | 12.5                         | -                            | 1.7                        | 2                          | 2.4                        | 20         | 120                 |
| 523SYGD/S530-E2        | 2.0 x 5.0         | ● Brilliant Yellow Green | 573                    | 4                            | 8                            | -                            | 1.7                        | 2                          | 2.4                        | 20         | 170                 |
| 523UYD/S530-A3         | 2.0 x 5.0         | ● Brilliant Yellow       | 591                    | 16                           | 32                           | -                            | -                          | 2                          | 2.4                        | 20         | 180                 |

LED Lamps | Rectangular



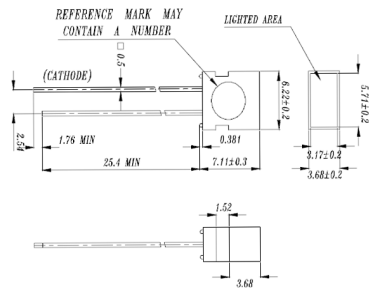
UNIT : mm



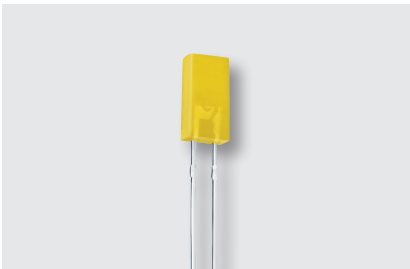
| Product         | Dimension (mm) | Color                    |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|-----------------|----------------|--------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                 |                | Color                    | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 594SURD/S530-A3 | 2.0 x 4.0      | ● Brilliant Red          | 624                 | 10                        | 16                        | -                         | 1.7                     | 2.0                     | 2.4                     | 20      | 170              |
| 594SYGD/S530-E2 | 2.0 x 4.0      | ● Brilliant Yellow Green | 573                 | 4                         | 8                         | -                         | 1.7                     | 2.0                     | 2.4                     | 20      | 180              |
| 594UYD/S530-A3  | 2.0 x 4.0      | ● Brilliant Yellow       | 589                 | 10                        | 20                        | -                         | 1.7                     | 2.0                     | 2.4                     | 20      | 180              |



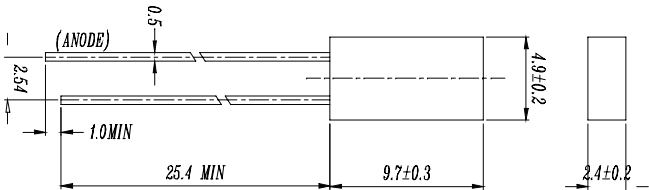
UNIT : mm



| Product          | Dimension (mm) | Color                    |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|------------------|----------------|--------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                  |                | Color                    | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 1003SUBD/S400-A6 | 3.68x6.22      | ● Blue                   | 470                 | 10                        | 20                        | -                         | 2.7                     | 3.3                     | 4                       | 20      | 110              |
| 1003SUGD/S400-A4 | 3.68x6.22      | ● Brilliant Green        | 525                 | 16                        | 50                        | -                         | -                       | 3.3                     | 4                       | 20      | 110              |
| 1003SURD/S530-A3 | 3.68x6.22      | ● Brilliant Red          | 624                 | 25                        | 50                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 110              |
| 1003SYGD/S530-E2 | 3.68x6.22      | ● Brilliant Yellow Green | 573                 | 6.3                       | 12.5                      | -                         | 1.7                     | 2                       | 2.4                     | 20      | 110              |

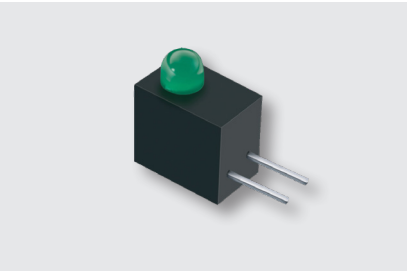


UNIT : mm

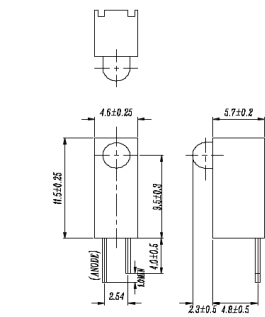


| Product          | Dimension (mm) | Color              |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|------------------|----------------|--------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                  |                | Color              | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| 1533SURD/S530-A3 | 2.4 x 4.9      | ● Brilliant Red    | 624                 | 10                        | 20                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 170              |
| 1533UYD/S530-A3  | 2.4 x 4.9      | ● Brilliant Yellow | 589                 | 10                        | 20                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 180              |

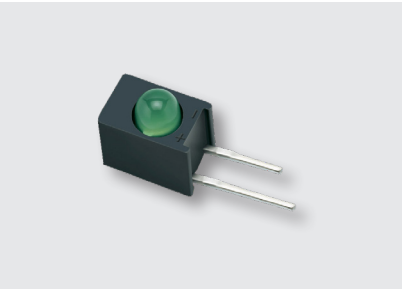
LED Lamps | 3mm Assembly LED



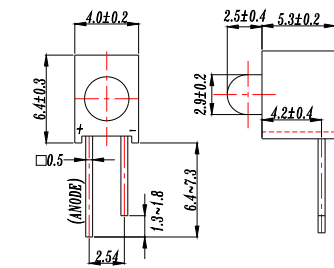
UNIT : mm



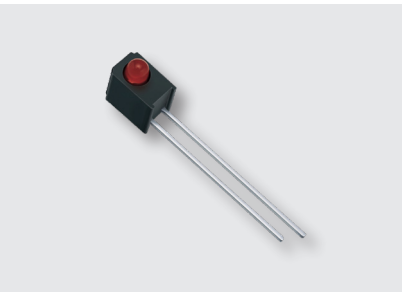
| Product           | Dimension (mm) | Color            |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|-------------------|----------------|------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                   |                | Color            | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| A274B/SYG/S530-E2 | 3              | Brilliant Yellow | 573                 | 25                        | 50                        | -                         | 1.7                     | 2.0                     | 2.4                     | 20      | 60               |



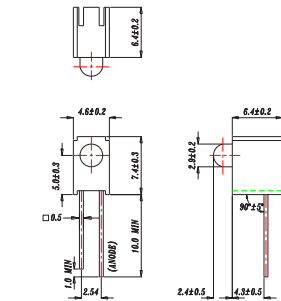
UNIT : mm



| Product           | Dimension (mm) | Color            |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|-------------------|----------------|------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                   |                | Color            | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| A214B/UY/S530-A3  | 3              | Brilliant Yellow | 525                 | 630                       | 1250                      | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 30               |
| A214B/SUG/S400-X6 | 3              | Green            | 589                 | 50                        | 100                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 60               |

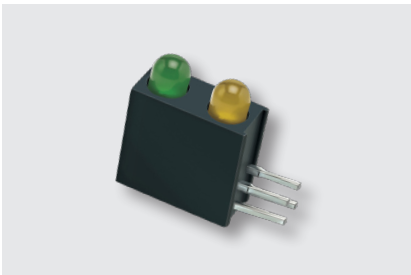


UNIT : mm

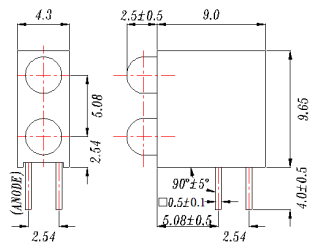


| Product           | Dimension (mm) | Color                  |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|-------------------|----------------|------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                   |                | Color                  | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| A264B/SUB/S400-A4 | 3              | Blue                   | 470                 | 160                       | 250                       | -                         | 2.7                     | 3.3                     | 3.7                     | 20      | 35               |
| A264B/SUR/S530-A3 | 3              | Brilliant Red          | 624                 | 63                        | 125                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 60               |
| A264B/SYG/S530-E2 | 3              | Brilliant Yellow Green | 573                 | 25                        | 50                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 60               |
| A264B/UY/S530-A3  | 3              | Brilliant Yellow       | 589                 | 50                        | 100                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 60               |

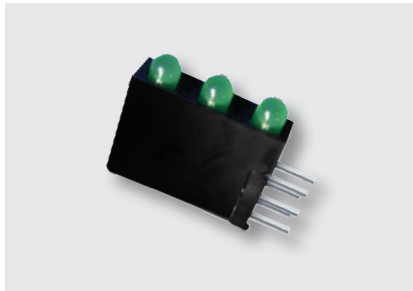
LED Lamps I 3mm Assembly LED



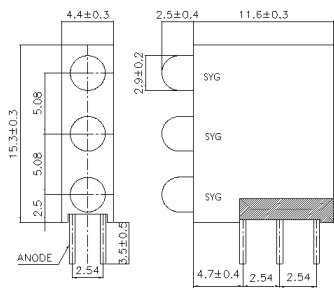
UNIT : mm



| Product              | Dimension (mm) | Color                                          |                     | I <sub>V</sub>            |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|----------------------|----------------|------------------------------------------------|---------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                      |                | Color                                          | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| A694B/2SUR/S530-A3   | 3              | ● Brilliant Red                                | 624                 | 10                        | 25                        | 1.7                     | 2.0                     | 2.4                     | 20      | 60               |
| A694B/2SYG/S530-E2   | 3              | ● Brilliant Yellow Green                       | 573                 | 25                        | 50                        | -                       | 2.0                     | 2.4                     | 20      | 60               |
| A694B/2UY/S530-A3    | 3              | ● Brilliant Yellow                             | 589                 | 16                        | 32                        | 1.7                     | 2.0                     | 2.4                     | 20      | 60               |
| A694B/SURSYG/S530-A3 | 3              | ● Brilliant Red<br>● Brilliant Yellow Green    | R:624<br>G:573      | R:40<br>G:25              | R:80<br>G:50              | 1.7                     | 2.0                     | 2.4                     | 20      | 60               |
| A694B/SYGUY/S530-A3  | 3              | ● Brilliant Yellow Green<br>● Brilliant Yellow | SYG:573<br>UY:589   | SYG:25<br>UY:40           | SYG:50<br>UY:80           | 1.7                     | 2.0                     | 2.4                     | 20      | 60               |



UNIT : mm



| Product             | Dimension (mm) | Color                    |                     | I <sub>V</sub>            |                           |                           | V <sub>F</sub>          |                         |                         | IF (mA) | Viewing Angle(°) |
|---------------------|----------------|--------------------------|---------------------|---------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|---------|------------------|
|                     |                | Color                    | Wavelength nm / CIE | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. | I <sub>V</sub> (mcd) max. | V <sub>F</sub> (V) min. | V <sub>F</sub> (V) typ. | V <sub>F</sub> (V) max. |         |                  |
| A1394B/3SUR/S530-A3 | 3              | ● Brilliant Red          | 624                 | 63                        | 125                       | -                         | 1.7                     | 2                       | 2.4                     | 20      | 60               |
| A1394B/3SYG/S530-E2 | 3              | ● Brilliant Yellow Green | 573                 | 25                        | 50                        | -                         | 1.7                     | 2                       | 2.4                     | 20      | 60               |

LED Lamps

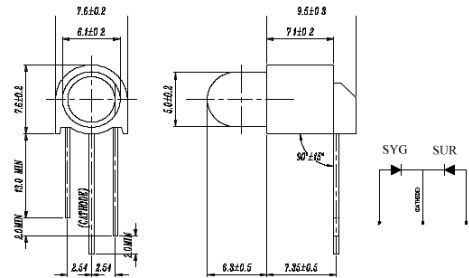




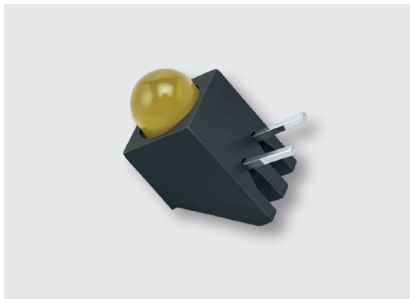
LED Lamps | 5mm Assembly LED



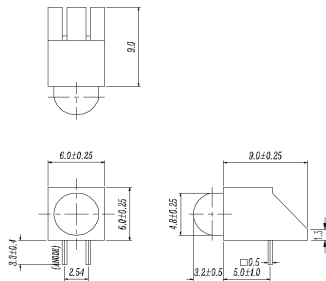
UNIT : mm



| Product                  | Dimension<br>(mm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|--------------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                          |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| A1479-1B/SURSYGW/S530-A3 | 5                 | ● Brilliant Red          | R:624                  | 25                           | 50                           | -                            | 1.7                        | 2.0                        | 2.4                        | 20         | 100                 |
|                          | 5                 | ● Brilliant Yellow Green | G:573                  | 16                           | 32                           | -                            | 1.7                        | 2.0                        | 2.4                        | 20         | 100                 |



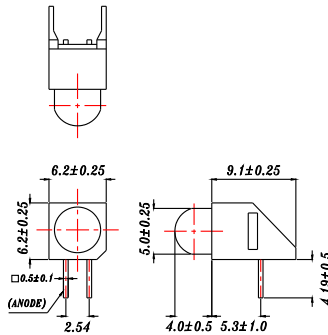
UNIT : mm



| Product          | Dimension<br>(mm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                  |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| A93B/SUB/S400-A6 | 4.7               | ● Blue                   | 470                    | 400                          | 800                          | -                            | 2.7                        | 3.3                        | 3.7                        | 20         | 20                  |
| A93B/SUR/S530-A3 | 4.7               | ● Brilliant Red          | 624                    | 100                          | 250                          | -                            | -                          | 2                          | 2.4                        | 20         | 40                  |
| A93B/SYG/S530-E2 | 4.7               | ● Brilliant Yellow Green | 573                    | 40                           | 80                           | -                            | 1.7                        | 2                          | 2.4                        | 20         | 80                  |
| A93B/UY/S530-A3  | 4.7               | ● Brilliant Yellow       | 589                    | 160                          | 320                          | -                            | 1.7                        | 2                          | 2.4                        | 20         | 35                  |



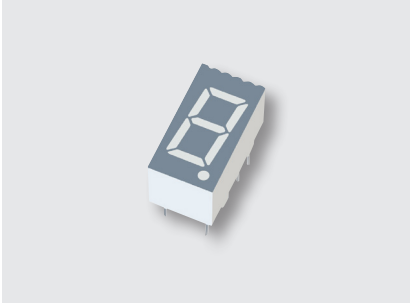
UNIT : mm



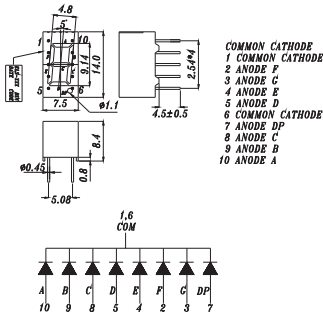
| Product            | Dimension<br>(mm) | Color                    |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|--------------------|-------------------|--------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                    |                   | Color                    | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| A253B/SUBC/S400-A6 | 5                 | ● Blue                   | 470                    | 1000                         | 1600                         | -                            | 2.7                        | 3.3                        | 3.7                        | 20         | 10                  |
| A253B/SYG/S530-E2  | 5                 | ● Brilliant Yellow Green | 573                    | 40                           | 80                           | -                            | 1.7                        | 2.0                        | 2.4                        | 20         | 45                  |

LED Lamps

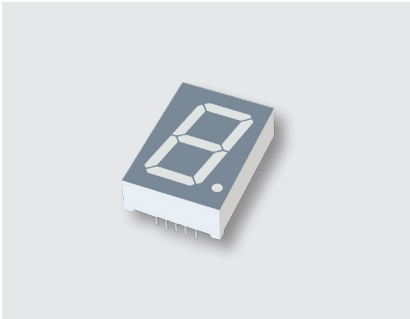
LED Digital Displays | Chip On Board Display | Single Digit Display



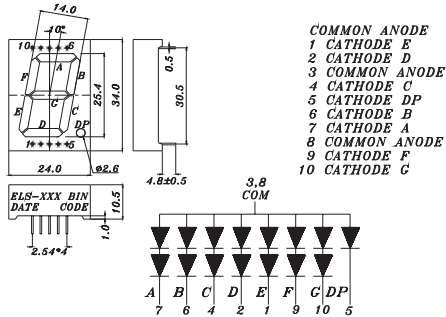
UNIT : mm



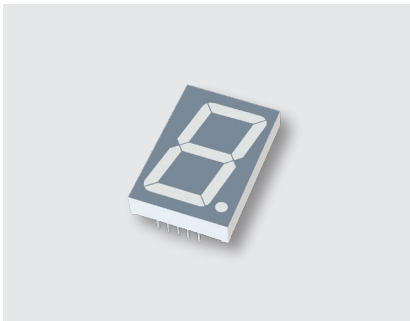
| Product           | Dimension (mm)            |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|---------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segement Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| S315SURWA/S530-A3 | 9.14 (0.3")               | 4.8                    | ● Brilliant Red          | 624                   | White       | Gray       | CC    | 4.0                       | 8.0                       |
| S315YGWA/S530-E2  | 9.14 (0.3")               | 4.8                    | ● Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 2.0                       | 3.2                       |



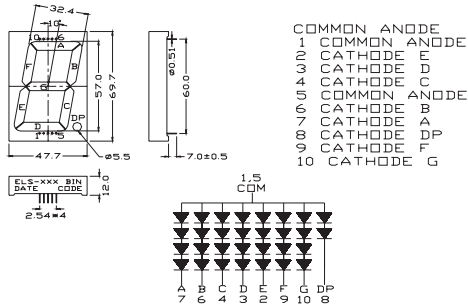
UNIT : mm



| Product            | Dimension (mm)            |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|--------------------|---------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                    | Segement Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| S1006SURWA/S530-A3 | 25.4 (1")                 | 14                     | ● Brilliant Red          | 624                   | White       | Gray       | CA    | 15.0                      | 24.0                      |
| S1006SYGWA/S530-E2 | 25.4 (1")                 | 14                     | ● Brilliant Yellow Green | 573                   | Green       | Gray       | CA    | 5.6                       | 12.5                      |
| S1006SDRDB/A3/S660 | 25.4 (1")                 | 14                     | ● Deep Red               | 639                   | Red         | Black      | CA    | 11.0                      | 24.0                      |



UNIT : mm

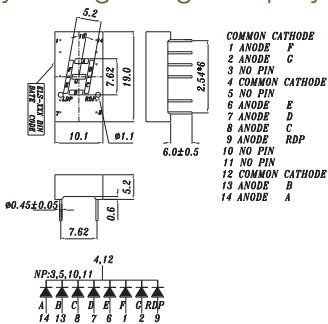


| Product            | Dimension (mm)            |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|--------------------|---------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                    | Segement Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| S2326SURWA/S530-A3 | 57 (2")                   | 32.4                   | ● Brilliant Red          | 624                   | White       | Gray       | CA    | 15.0                      | 34.0                      |
| S2326USOWA/S530-A4 | 57 (2")                   | 32.4                   | ● Reddish Orange         | 615                   | White       | Gray       | CA    | 30.0                      | 67.0                      |
| S2326SYGWA/S530-E2 | 57 (2")                   | 32.4                   | ● Brilliant Yellow Green | 573                   | White       | Gray       | CA    | 5.6                       | 12.5                      |
| S2326UBWA/C470     | 57 (2")                   | 32.4                   | ● Blue                   | 468                   | White       | Gray       | CA    | 15.0                      | 34.0                      |

LED Digital Displays | Chip On Board Display | Single Digit Display



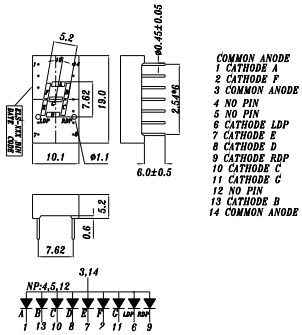
UNIT : mm



| Product           | Dimension (mm)              |                           | Color            |                          |             |            | CC/CA | I <sub>v</sub>               |                              |
|-------------------|-----------------------------|---------------------------|------------------|--------------------------|-------------|------------|-------|------------------------------|------------------------------|
|                   | Segment Height<br>mm (inch) | Segment Width<br>mm(inch) | Color            | Wavelength<br>(nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. |
| S321SURWA/S530-A3 | 7.62 (0.3")                 | 5.2                       | ● Brilliant Red  | 624                      | White       | Gray       | CC    | 5.6                          | 11                           |
| S321USOWA/S530-A4 | 7.62 (0.3")                 | 5.2                       | ● Reddish Orange | 615                      | White       | Gray       | CC    | 7.8                          | 17.6                         |

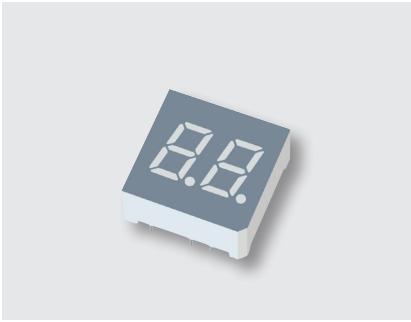


UNIT : mm

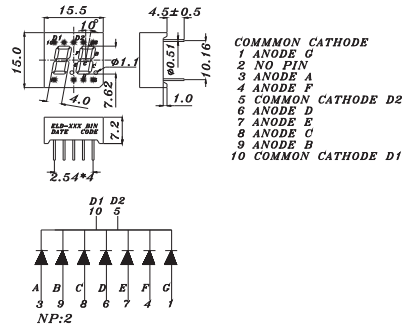


| Product           | Dimension (mm)              |                           | Color                    |                          |             |            | CC/CA | I <sub>v</sub>               |                              |
|-------------------|-----------------------------|---------------------------|--------------------------|--------------------------|-------------|------------|-------|------------------------------|------------------------------|
|                   | Segment Height<br>mm (inch) | Segment Width<br>mm(inch) | Color                    | Wavelength<br>(nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. |
| S322SURWA/S530-A3 | 7.62 (0.3")                 | 5.2                       | ● Brilliant Red          | 624                      | White       | Gray       | CA    | 5.6                          | 11.0                         |
| S322SYGWA/S530-E2 | 7.62 (0.3")                 | 5.2                       | ● Brilliant Yellow Green | 573                      | White       | Gray       | CA    | 2.0                          | 4.5                          |

LED Digital Displays | Chip On Board Display | Dual Digit Display



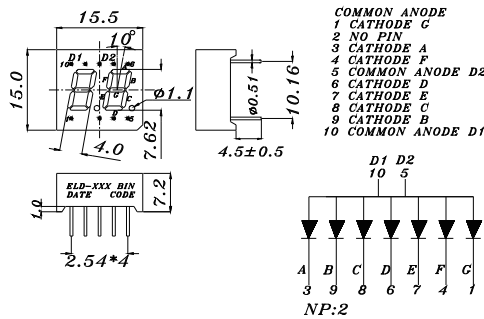
UNIT : mm



| Product           | Dimension (mm)            |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|---------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segement Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| D305SURWA/S530-A3 | 7.62(0.3)                 | 4                      | ● Brilliant Red          | 624                   | White       | Gray       | CC    | 4.0                       | 6.4                       |
| D305SYGWA/E2/S660 | 7.62(0.3)                 | 4                      | ● Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 1.05                      | 1.68                      |
| D305SDRWB/S530-A3 | 7.62(0.3)                 | 4                      | ● Deep Red               | 639                   | White       | Black      | CC    | 2.0                       | 4.5                       |



UNIT : mm

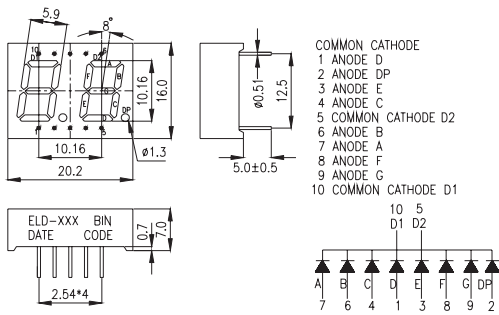


| Product           | Dimension (mm)            |                        | Color              |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|---------------------------|------------------------|--------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segement Height mm (inch) | Segment Width mm(inch) | Color              | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| D306SURWA/S530-A3 | 7.62(0.3)                 | 4                      | ● Brilliant Red    | 624                   | White       | Gray       | CA    | 4.0                       | 6.4                       |
| D306USOWA/S530-A3 | 7.62(0.3)                 | 4                      | ● Reddish Orange   | 615                   | White       | Gray       | CA    | 4.0                       | 8.9                       |
| D306UYWA/S530-A3  | 7.62(0.3)                 | 4                      | ● Brilliant Yellow | 589                   | White       | Gray       | CA    | 1.4                       | 3.2                       |

LED Digital Displays | Chip On Board Display | Dual Digit Display



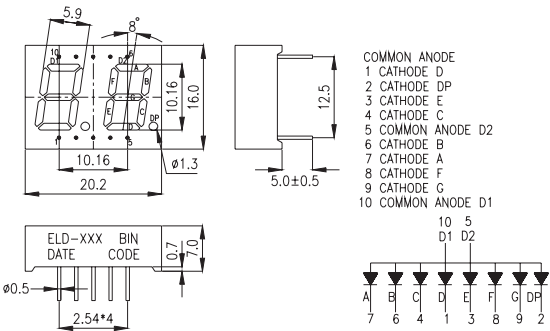
UNIT : mm



| Product           | Dimension (mm)            |                        | Color                  |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|---------------------------|------------------------|------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segement Height mm (inch) | Segment Width mm(inch) | Color                  | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| D425SURWA/S530-A3 | 10.16 (0.4")              | 5.9                    | Brilliant Red          | 624                   | White       | Gray       | CC    | 7.8                       | 15.0                      |
| D425USOWA/S530-A4 | 10.16 (0.4")              | 5.9                    | Reddish Orange         | 615                   | White       | Gray       | CC    | 11.0                      | 24.0                      |
| D425SYGWA/S530-E2 | 10.16 (0.4")              | 5.9                    | Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 2.0                       | 3.2                       |
| D425SDRWB/A3/S660 | 10.16 (0.4")              | 5.9                    | Deep Red               | 639                   | White       | Black      | CC    | 4.0                       | 6.4                       |
| D425SDRWA/S530-A4 | 10.16 (0.4")              | 5.9                    | Deep Red               | 639                   | White       | Gray       | CC    | 4.0                       | 8.9                       |



UNIT : mm



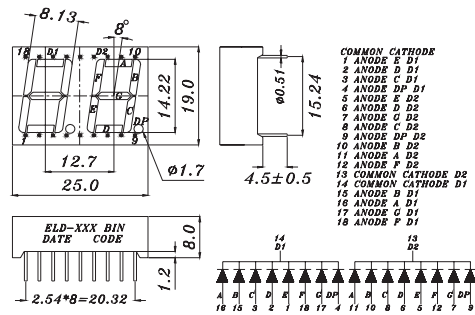
| Product           | Dimension (mm)            |                        | Color                  |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|---------------------------|------------------------|------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segement Height mm (inch) | Segment Width mm(inch) | Color                  | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| D426SURWB/S530-A3 | 10.16 (0.4")              | 5.9                    | Brilliant Red          | 624                   | White       | Black      | CA    | 7.8                       | 15.0                      |
| D426USOWA/S530-A3 | 10.16 (0.4")              | 5.9                    | Reddish Orange         | 615                   | White       | Gray       | CA    | 11.0                      | 24.0                      |
| D426UYOWB/S530-A3 | 10.16 (0.4")              | 5.9                    | Orange                 | 605                   | White       | Black      | CA    | 5.6                       | 12.5                      |
| D426SYGWA/S530-E2 | 10.16 (0.4")              | 5.9                    | Brilliant Yellow Green | 573                   | White       | Gray       | CA    | 2.0                       | 3.2                       |
| D426SURWB/S530-A3 | 10.16 (0.4")              | 5.9                    | Brilliant Red          | 624                   | White       | Black      | CA    | 7.8                       | 15.0                      |
| D426UYOWB/S530-A3 | 10.16 (0.4")              | 5.9                    | Orange                 | 605                   | White       | Black      | CA    | 5.6                       | 12.5                      |
| D426SYGWA/S530-E2 | 10.16 (0.4")              | 5.9                    | Brilliant Yellow Green | 573                   | White       | Gray       | CA    | 2.0                       | 3.2                       |

LED Digital Displays

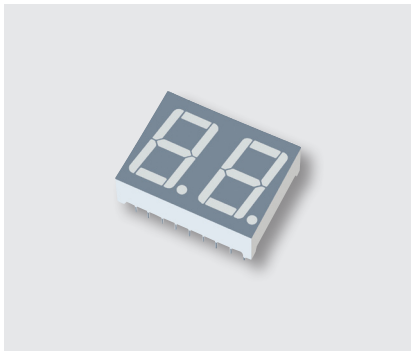
LED Digital Displays | Chip On Board Display | Dual Digit Display



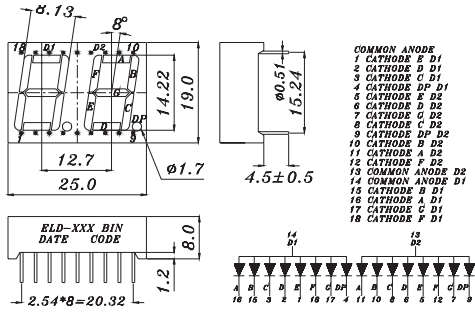
UNIT : mm



| Product                | Dimension (mm)           |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |                          |
|------------------------|--------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|--------------------------|
|                        | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. | I <sub>v</sub> (mcd) max |
| D511SURWB/S530-A3      | 14.22 (0.5")             | 8.13                   | ● Brilliant Red          | 624                   | White       | Black      | CC    | 7.8                       | 15.0                      | -                        |
| D511SYGWA/S530-E2      | 14.22 (0.5")             | 8.13                   | ● Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 2.8                       | 6.4                       | -                        |
| D511UTWA/T5/S700/S1025 | 14.22 (0.5")             | 8.13                   | ○ Pure White             | X=0.28,Y=0.267        | White       | Gray       | CC    | 100.0                     | -                         | 195.0                    |
| D511UBWA/C470          | 14.22 (0.5")             | 8.13                   | ● Blue                   | 470                   | White       | Gray       | CC    | 4.0                       | 6.4                       | -                        |
| D511USOWA/S530-A4      | 14.22 (0.5")             | 8.13                   | ● Reddish Orange         | 615                   | White       | Gray       | CC    | 7.8                       | 15.0                      | -                        |
| D511SDRWB/A3/S982      | 14.22 (0.5")             | 8.13                   | ● Deep Red               | 639                   | White       | Black      | CC    | 4.0                       | 8.9                       | -                        |
| D511SYGWB/S530-E2      | 14.22 (0.5)              | 8.13                   | ● Brilliant Yellow Green | 573                   | White       | Black      | CC    | 2.8                       | 6.4                       | -                        |



UNIT : mm

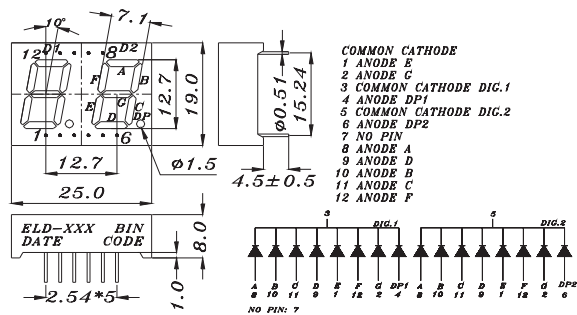


| Product           | Dimension (mm)           |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|--------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| D512SURWB/S530-A3 | 14.22 (0.5")             | 8.13                   | ● Brilliant Red          | 624                   | White       | Black      | CA    | 7.8                       | 17.6                      |
| D512SYGWB/E2/S962 | 14.22 (0.5")             | 8.13                   | ● Brilliant Yellow Green | 573                   | White       | Black      | CA    | 2.8                       | 6.4                       |
| D512SDRWB/S530-A3 | 14.22 (0.5")             | 8.13                   | ● Deep Red               | 639                   | White       | Black      | CA    | 4.0                       | 8.9                       |

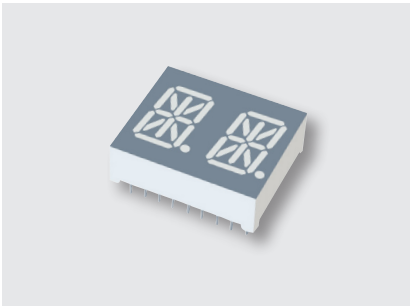
LED Digital Displays | Chip On Board Display | Dual Digit Display



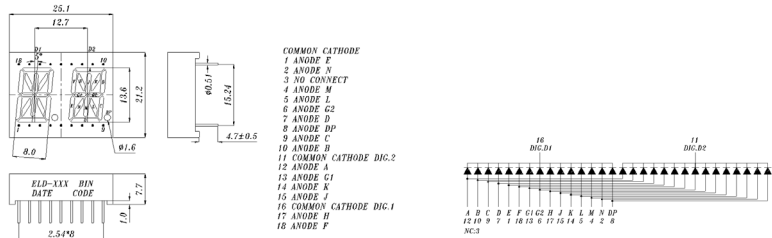
UNIT : mm



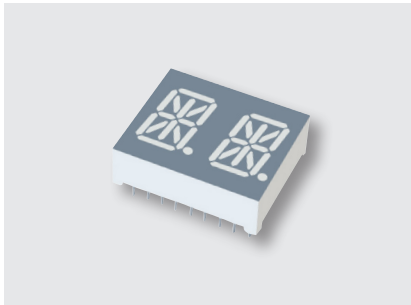
| Product           | Dimension (mm)            |                        | Color           |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|---------------------------|------------------------|-----------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segement Height mm (inch) | Segment Width mm(inch) | Color           | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| D515SURWA/S530-A3 | 12.7 (0.5")               | 7.1                    | ● Brilliant Red | 624                   | White       | Gray       | CC    | 7.8                       | 15.0                      |



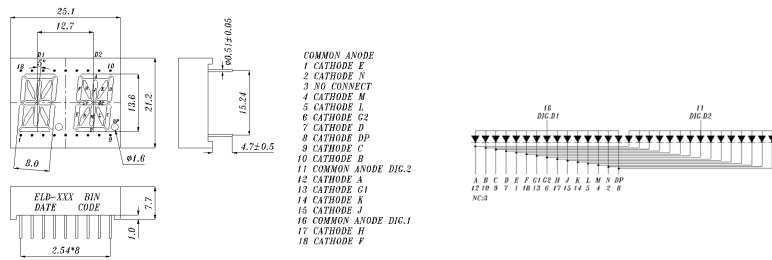
UNIT : mm



| Product           | Dimension (mm)            |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|---------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segement Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| D525SURWA/S530-A3 | 13.6(0.5)                 | 8                      | ● Brilliant Red          | 624                   | White       | Gray       | CC    | 7.8                       | 12.5                      |
| D525SYGWA/S530-E2 | 13.6(0.5)                 | 8                      | ● Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 2.8                       | 4.5                       |
| D525USOWA/S530-A3 | 13.6(0.5)                 | 8                      | ● Reddish Orange         | 615                   | White       | Gray       | CC    | 5.6                       | 12.5                      |



UNIT : mm



| Product           | Dimension (mm)            |                        | Color            |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|---------------------------|------------------------|------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segement Height mm (inch) | Segment Width mm(inch) | Color            | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| D526SURWA/S530-A3 | 13.6(0.5)                 | 8                      | ● Brilliant Red  | 624                   | White       | Gray       | CA    | 7.8                       | 12.5                      |
| D526USOWA/S530-A4 | 13.6(0.5)                 | 8                      | ● Reddish Orange | 615                   | White       | Gray       | CA    | 5.6                       | 12.5                      |

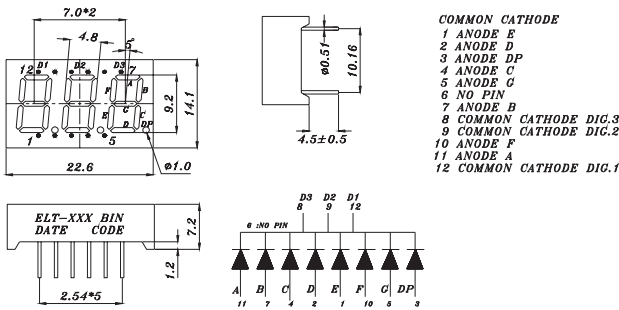
LED Digital Displays



LED Digital Displays | Chip On Board Display | Three Digit Display



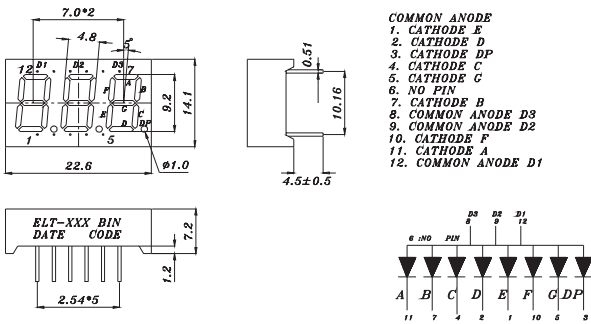
UNIT : mm



| Product           | Dimension (mm)           |                        | Color                  |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|--------------------------|------------------------|------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segment Height mm (inch) | Segment Width mm(inch) | Color                  | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| T315SYGWA/S530-E2 | 9.2 (0.3")               | 4.8                    | Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 1.4                       | 3.2                       |
| T315SURWA/S530-A3 | 9.2 (0.3")               | 4.8                    | Brilliant Red          | 624                   | White       | Gray       | CC    | 5.6                       | 12.5                      |
| T315UYOWA/S530-A3 | 9.2 (0.3")               | 4.8                    | Orange                 | 605                   | White       | Gray       | CC    | 4.0                       | 8.9                       |
| T315UYWA/S530-A3  | 9.2 (0.3")               | 4.8                    | Brilliant Yellow       | 589                   | White       | Gray       | CC    | 2.8                       | 4.5                       |
| T315SDRWA/S530-A3 | 9.2 (0.3")               | 4.8                    | Deep Red               | 639                   | White       | Gray       | CC    | 4.0                       | 6.4                       |



UNIT : mm

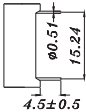
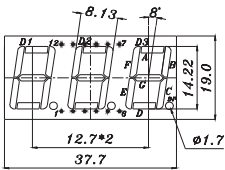


| Product           | Dimension (mm)           |                        | Color                  |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|--------------------------|------------------------|------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segment Height mm (inch) | Segment Width mm(inch) | Color                  | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| T316SURWA/S530-A3 | 9.2 (0.3)                | 4.8                    | Brilliant Red          | 624                   | White       | Gray       | CA    | 5.6                       | 8.9                       |
| T316SYGWA/S530-E2 | 9.2 (0.3)                | 4.8                    | Brilliant Yellow Green | 573                   | White       | Gray       | CA    | 1.4                       | 3.2                       |
| T316SDRWA/S530-A3 | 9.2 (0.3)                | 4.8                    | Deep Red               | 639                   | White       | Gray       | CA    | 4.0                       | 6.4                       |

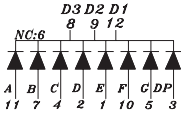
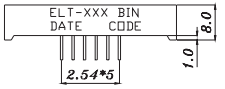
LED Digital Displays | Chip On Board Display | Three Digit Display



UNIT : mm



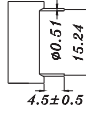
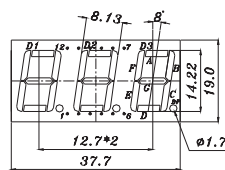
- COMMON CATHODE
- 1 ANODE E
  - 2 ANODE D
  - 3 ANODE DP
  - 4 ANODE C
  - 5 ANODE B
  - 6 NO CONNECT
  - 7 ANODE A
  - 8 COMMON CATHODE D3
  - 9 COMMON CATHODE D2
  - 10 ANODE F
  - 11 ANODE A
  - 12 COMMON CATHODE D1



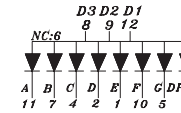
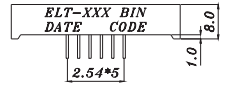
| Product                | Dimension (mm)            |                        | Color                  |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|------------------------|---------------------------|------------------------|------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                        | Segement Height mm (inch) | Segment Width mm(inch) | Color                  | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| T511SURWA/S530-A3      | 14.22 (0.5")              | 8.13                   | Brilliant Red          | 624                   | White       | Gray       | CC    | 7.8                       | 17.6                      |
| T511SYGWA/S530-E2      | 14.22 (0.5")              | 8.13                   | Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 2.8                       | 4.5                       |
| T511SUGWB/S400-A4/S800 | 14.22 (0.5")              | 8.13                   | Brilliant Green        | 525                   | White       | Black      | CC    | 30.0                      | 67.0                      |
| T511UYOWA/S530-A3      | 14.22 (0.5")              | 8.13                   | Orange                 | 605                   | White       | Gray       | CC    | 5.6                       | 12.5                      |
| T511SDRWA/S530-A3      | 14.22 (0.5")              | 8.13                   | Deep Red               | 639                   | White       | Gray       | CC    | 5.6                       | 12.5                      |



UNIT : mm

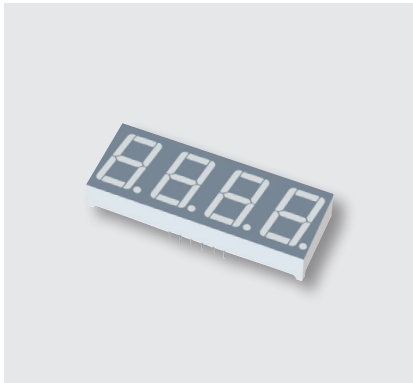


- COMMON ANODE
- 1 CATHODE E
  - 2 CATHODE D
  - 3 CATHODE DP
  - 4 CATHODE C
  - 5 CATHODE B
  - 6 NO CONNECT
  - 7 CATHODE A
  - 8 COMMON ANODE D3
  - 9 COMMON ANODE D2
  - 10 COMMON ANODE F
  - 11 CATHODE A
  - 12 COMMON ANODE D1

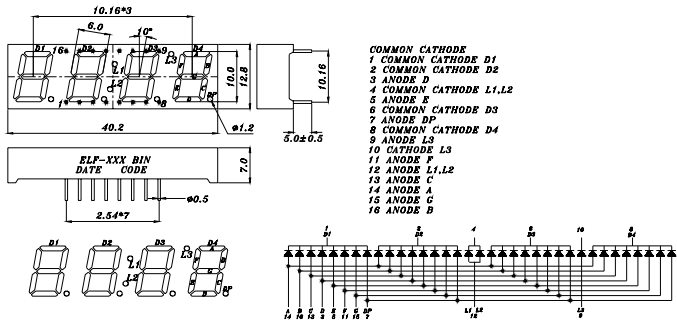


| Product           | Dimension (mm)            |                        | Color                  |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|---------------------------|------------------------|------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segement Height mm (inch) | Segment Width mm(inch) | Color                  | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| T512SYGWA/S530-E2 | 14.22 (0.5")              | 8.13                   | Brilliant Yellow Green | 573                   | White       | Gray       | CA    | 2.8                       | 4.5                       |
| T512SURWA/S530-A3 | 14.22 (0.5")              | 8.13                   | Brilliant Red          | 624                   | White       | Gray       | CA    | 7.8                       | 17.6                      |
| T512UYOWA/S530-A3 | 14.22 (0.5")              | 8.13                   | Orange                 | 605                   | White       | Gray       | CA    | 5.6                       | 12.5                      |
| T512USOWA/S530-A4 | 14.22 (0.5")              | 8.13                   | Reddish Orange         | 615                   | White       | Gray       | CA    | 7.8                       | 17.6                      |
| T512SUBWA/X9      | 14.22 (0.5")              | 8.13                   | Blue                   | 470                   | White       | Gray       | CA    | 11.0                      | 24.0                      |
| T512SDRWB/A3      | 14.22 (0.5")              | 8.13                   | Deep Red               | 639                   | White       | Black      | CA    | 5.6                       | 12.5                      |
| T512SURWB/S530-A3 | 14.22 (0.5)               | 8.13                   | Brilliant Red          | 624                   | White       | Black      | CA    | 7.8                       | 17.6                      |
| T512SYGWB/S530-E2 | 14.22 (0.5)               | 8.13                   | Brilliant Yellow Green | 573                   | White       | Black      | CA    | 2.8                       | 4.5                       |

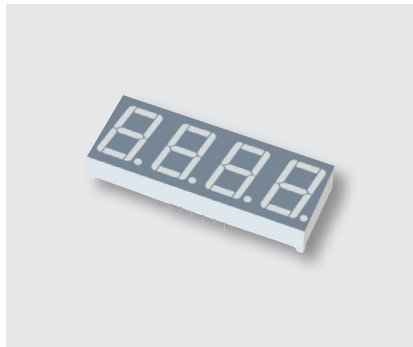
LED Digital Displays | Chip On Board Display | Four Digit Display



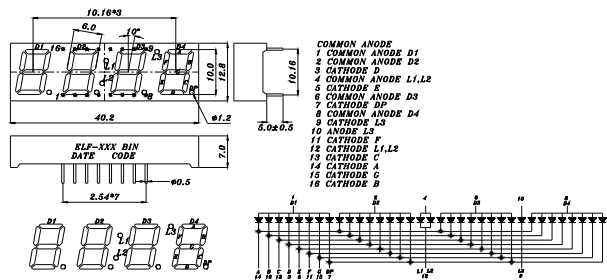
UNIT : mm



| Product                | Dimension<br>(mm)              |                              | Color           |                          |                |               | CC/<br>CA | I <sub>v</sub>               |                              |
|------------------------|--------------------------------|------------------------------|-----------------|--------------------------|----------------|---------------|-----------|------------------------------|------------------------------|
|                        | Segment<br>Height<br>mm (inch) | Segment<br>Width<br>mm(inch) | Color           | Wavelength<br>(nm) / CIE | Resin<br>Color | Face<br>Color |           | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. |
| F415SURWA/S530-A3      | 10(0.4)                        | 6                            | ● Brilliant Red | 624                      | White          | Gray          | CC        | 5.6                          | 8.9                          |
| F415SURWB/S530-A3      | 10 (0.4)                       | 6                            | ● Brilliant Red | 625                      | White          | Black         | CC        | 5.0                          | 8.9                          |
| F415UYOWB/S530-A3/S715 | 10 (0.4")                      | 6                            | ● Orange        | 605                      | White          | Black         | CC        | 7.8                          | 17.6                         |

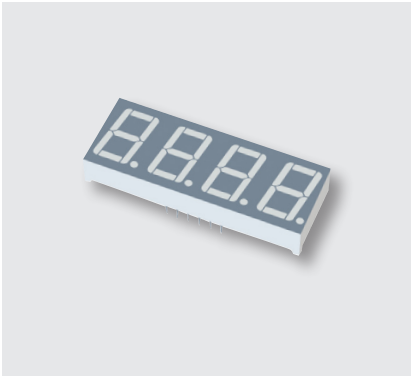


UNIT : mm

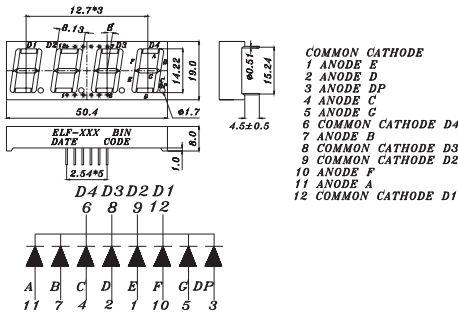


| Product              | Dimension<br>(mm)              |                              | Color                    |                          |                |               | CC/<br>CA | I <sub>v</sub>               |                              |
|----------------------|--------------------------------|------------------------------|--------------------------|--------------------------|----------------|---------------|-----------|------------------------------|------------------------------|
|                      | Segment<br>Height<br>mm (inch) | Segment<br>Width<br>mm(inch) | Color                    | Wavelength<br>(nm) / CIE | Resin<br>Color | Face<br>Color |           | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. |
| F416SYGWA/S530-E3    | 10 (0.4")                      | 6                            | ● Brilliant Yellow Green | 573                      | White          | Gray          | CA        | 4.0                          | 8.9                          |
| F416SURWB/S530-A3    | 10 (0.4")                      | 6                            | ● Brilliant Red          | 624                      | White          | Black         | CA        | 5.6                          | 8.9                          |
| F416USRWA/S530-A3    | 10 (0.4")                      | 6                            | ● Dark Red               | 631                      | White          | Gray          | CA        | 5.6                          | 8.9                          |
| F416UYWB/S530-A3/P53 | 10 (0.4")                      | 6                            | ● Brilliant Yellow       | 589                      | White          | Black         | CA        | 5.6                          | 12.5                         |
| F416SURWA/S530-A3    | 10 (0.4)                       | 6                            | ● Brilliant Red          | 624                      | White          | Gray          | CA        | 5.6                          | 12.5                         |

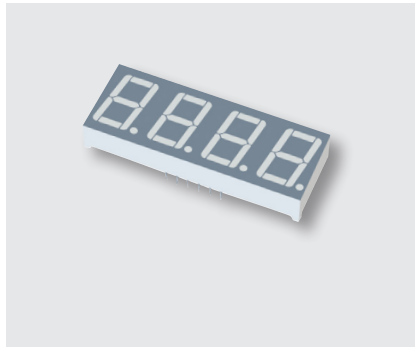
LED Digital Displays | Chip On Board Display | Four Digit Display



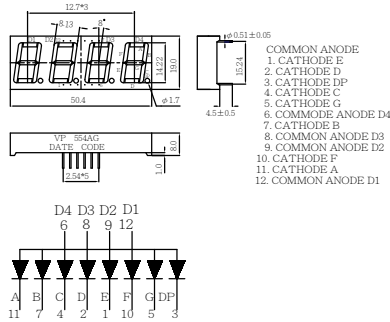
UNIT : mm



| Product           | Dimension (mm)           |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|--------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| F511SURWA/S530-A3 | 14.22 (0.5")             | 8.13                   | ● Brilliant Red          | 624                   | White       | Gray       | CC    | 7.8                       | 15.0                      |
| F511SYGWA/S530-E2 | 14.22 (0.5")             | 8.13                   | ● Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 2.8                       | 6.4                       |
| F511SDRWB/S530-A3 | 14.22 (0.5")             | 8.13                   | ● Deep Red               | 639                   | White       | Black      | CC    | 5.6                       | 12.5                      |
| F511SURWB/S530-A3 | 14.22 (0.5")             | 8.13                   | ● Brilliant Red          | 624                   | White       | Black      | CC    | 11                        | 24                        |

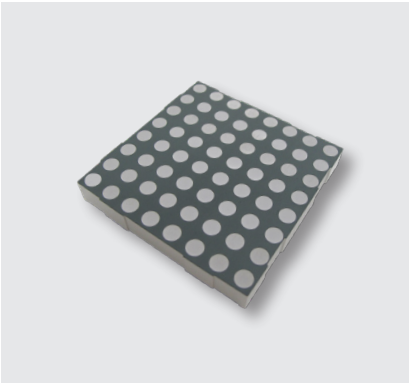


UNIT : mm

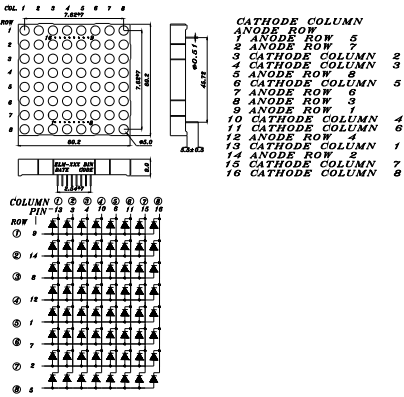


| Product           | Dimension (mm)           |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------|--------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                   | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| F512SURWA/S530-A3 | 14.22 (0.5")             | 8.13                   | ● Brilliant Red          | 624                   | White       | Gray       | CA    | 7.8                       | 15.0                      |
| F512SYGWA/S530-E2 | 14.22 (0.5")             | 8.13                   | ● Brilliant Yellow Green | 573                   | White       | Gray       | CA    | 2.8                       | 6.4                       |
| F512SDRWB/S530-A3 | 14.22 (0.5")             | 8.13                   | ● Deep Red               | 639                   | White       | Black      | CA    | 5.6                       | 12.5                      |
| F512SUBWB/X9/S800 | 14.22 (0.5")             | 8.13                   | ● Blue                   | 470                   | White       | Black      | CA    | 7.8                       | 17.6                      |

LED Digital Displays | Chip On Board Display | Dot Matrix Display



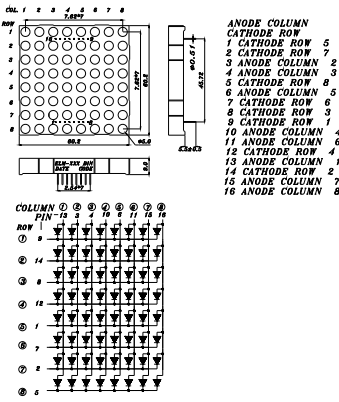
UNIT : mm



| Product            | Size<br>(LxWmm) | Color                    |                          |                |               | CC/CA | I <sub>v</sub>               |                              |
|--------------------|-----------------|--------------------------|--------------------------|----------------|---------------|-------|------------------------------|------------------------------|
|                    |                 | Color                    | Wavelength<br>(nm) / CIE | Resin<br>Color | Face<br>Color |       | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. |
| M2881SURWA/S530-A3 | 60.2x60.2       | ● Brilliant Red          | 624                      | White          | Gray          | CC    | 7.8                          | 21.0                         |
| M2881SYGWA/S530-E2 | 60.2x60.2       | ● Brilliant Yellow Green | 573                      | White          | Gray          | CC    | 7.8                          | 17.6                         |
| M2881UYWA/S530-A3  | 60.2x60.2       | ● Brilliant Yellow       | 589                      | White          | Gray          | CC    | 11.0                         | 17.6                         |

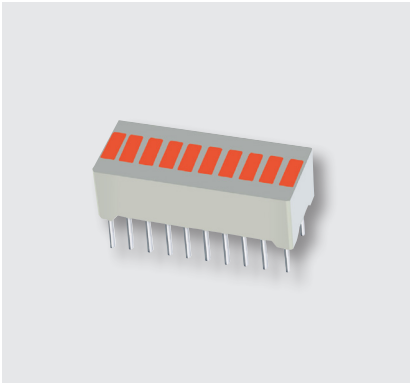


UNIT : mm

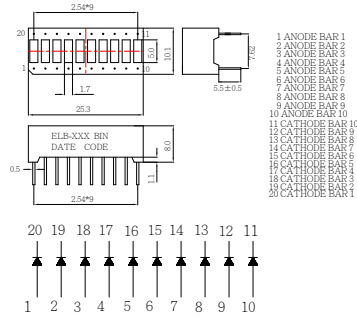


| Product            | Size<br>(LxWmm) | Color                    |                          |                |               | CC/CA | I <sub>v</sub>               |                              |
|--------------------|-----------------|--------------------------|--------------------------|----------------|---------------|-------|------------------------------|------------------------------|
|                    |                 | Color                    | Wavelength<br>(nm) / CIE | Resin<br>Color | Face<br>Color |       | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. |
| M2882SYGWA/S530-E2 | 60.2x60.2       | ● Brilliant Yellow Green | 573                      | White          | Gray          | CA    | 7.8                          | 17.6                         |

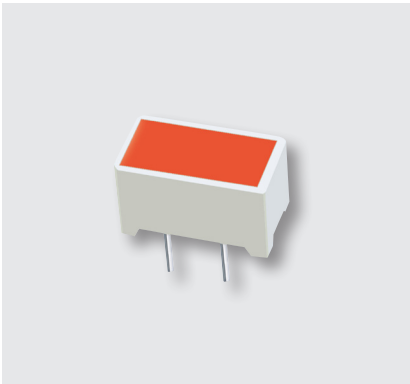
LED Digital Displays | Chip On Board Display | Light Bar Display



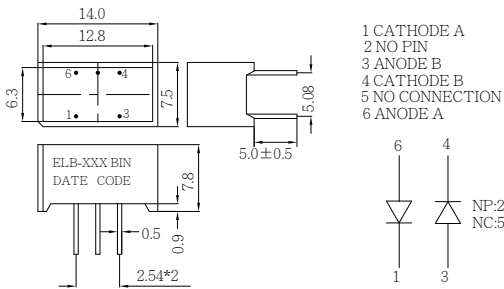
UNIT : mm



| Product            | Size<br>(LxWmm) | Color                    |                          |             |            | CC/CA | I <sub>v</sub>               |                              |
|--------------------|-----------------|--------------------------|--------------------------|-------------|------------|-------|------------------------------|------------------------------|
|                    |                 | Color                    | Wavelength<br>(nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. |
| B1001SDRWB/S530-A3 | 25.3x10.1       | ● Deep Red               | 639                      | White       | Black      | CC    | 4.0                          | 8.9                          |
| B1001SURWB/S530-A3 | 25.3x10.1       | ● Brilliant Red          | 624                      | White       | Black      | CC    | 5.6                          | 12.5                         |
| B1001USOWA/S530-A4 | 25.3x10.1       | ● Reddish Orange         | 615                      | White       | Gray       | CC    | 7.8                          | 17.6                         |
| B1001SYGWA/S530-E2 | 25.3x10.1       | ● Brilliant Yellow Green | 573                      | White       | Gray       | CC    | 2.8                          | 4.5                          |
| B1001UBWA/C470     | 25.3x10.1       | ● Blue                   | 470                      | White       | Gray       | CC    | 4.0                          | 8.9                          |
| B1001UYWA/S530-A3  | 25.3x10.1       | ● Super Yellow           | 589                      | White       | Gray       | CC    | 7.8                          | 12.5                         |



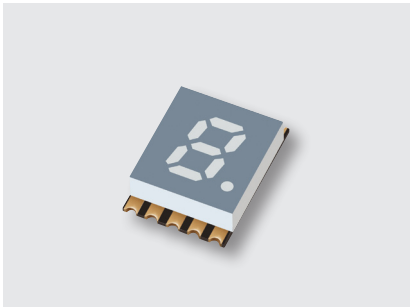
UNIT : mm



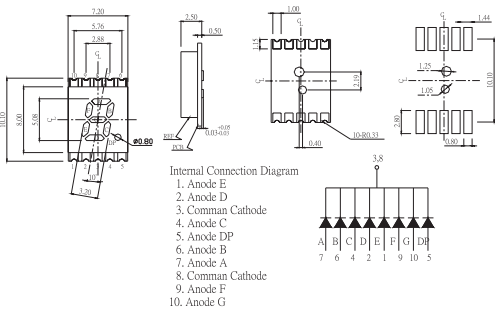
| Product           | Size<br>(LxWmm) | Color                    |                          |             |            | CC/CA | I <sub>v</sub>               |                              |
|-------------------|-----------------|--------------------------|--------------------------|-------------|------------|-------|------------------------------|------------------------------|
|                   |                 | Color                    | Wavelength<br>(nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. |
| B1010SURD/S530-A3 | 14.0x7.5        | ● Brilliant Red          | 624                      | Red         | White      | CA    | 11.0                         | 24.0                         |
| B1010SYGD/S530-E2 | 14.0x7.5        | ● Brilliant Yellow Green | 573                      | Green       | White      | CA    | 2.8                          | 6.4                          |
| B1010UYD/S530-A3  | 14.0x7.5        | ● Brilliant Yellow       | 589                      | Yellow      | White      | CA    | 15.0                         | 34.0                         |

LED Digital Displays

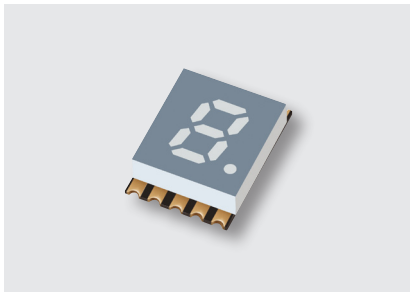
LED Digital Displays | SMD Display | Single Digit Display



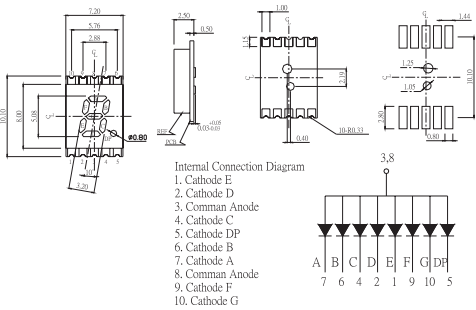
UNIT : mm



| Product                 | Dimension (mm)           |                        | Color                  |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------------|--------------------------|------------------------|------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color                  | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| SS205SURWA/S530-A3/S290 | 5.08 (0.2")              | 3.2                    | Brilliant Red          | 624                   | White       | Gray       | CC    | 5.6                       | 12.5                      |
| SS205UYOWA/S530-A3/S290 | 5.08 (0.2")              | 3.2                    | Brilliant Orange       | 605                   | White       | Gray       | CC    | 7.8                       | 17.6                      |
| SS205UYWA/S530-A3/S290  | 5.08 (0.2")              | 3.2                    | Brilliant Yellow       | 589                   | White       | Gray       | CC    | 7.8                       | 17.6                      |
| SS205SYGWA/S530-E2/S290 | 5.08 (0.2")              | 3.2                    | Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 4.0                       | 8.9                       |
| SS205SUBWA/S400-A3/S669 | 5.08 (0.2")              | 3.2                    | Blue                   | 470                   | White       | Gray       | CC    | 7.8                       | 17.6                      |



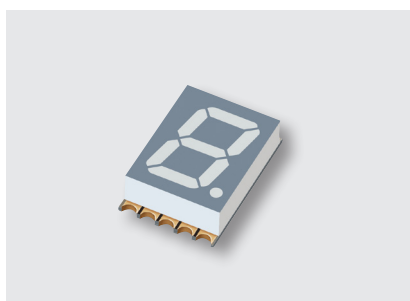
UNIT : mm



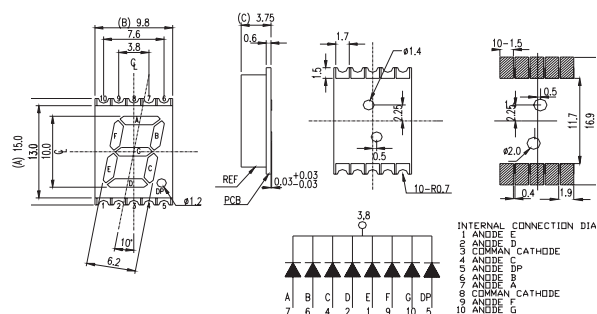
| Product                 | Dimension (mm)           |                        | Color                  |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------------|--------------------------|------------------------|------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color                  | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| SS206SURWA/S530-A3/S290 | 5.08 (0.2")              | 3.2                    | Brilliant Red          | 624                   | White       | Gray       | CA    | 5.6                       | 12.5                      |
| SS206SYGWA/S530-E2/S290 | 5.08 (0.2")              | 3.2                    | Brilliant Yellow Green | 573                   | White       | Gray       | CA    | 4.0                       | 8.9                       |
| SS206USRWA/S530-A3/S290 | 5.08 (0.2")              | 3.2                    | Dark Red               | 631                   | White       | Gray       | CA    | 4.0                       | 8.9                       |



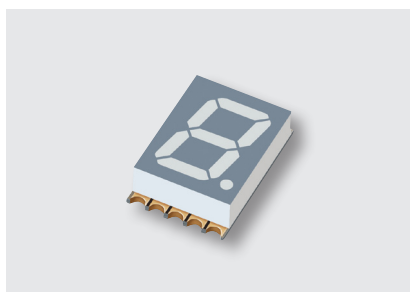
## LED Digital Displays | SMD Display | Single Digit Display



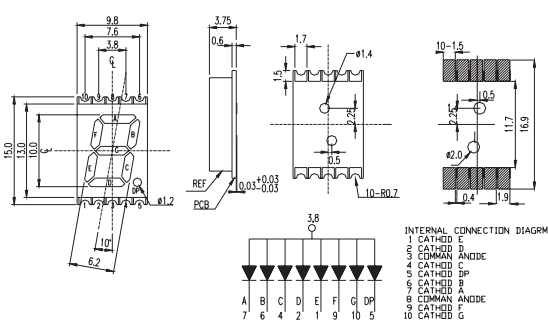
UNIT : mm



| Product                 | Dimension<br>(mm)              |                              | Color                    |                          |                |               | CC/<br>CA | I <sub>v</sub>               |                              |
|-------------------------|--------------------------------|------------------------------|--------------------------|--------------------------|----------------|---------------|-----------|------------------------------|------------------------------|
|                         | Segment<br>Height<br>mm (inch) | Segment<br>Width<br>mm(inch) | Color                    | Wavelength<br>(nm) / CIE | Resin<br>Color | Face<br>Color |           | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. |
| SS405SURWA/S530-A3/S290 | 10 (0.4")                      | 6.2                          | ● Brilliant Red          | 624                      | White          | Gray          | CC        | 7.8                          | 17.6                         |
| SS405SYGWA/S530-E2      | 10 (0.4")                      | 6.2                          | ● Brilliant Yellow Green | 573                      | White          | Gray          | CC        | 5.6                          | 12.5                         |



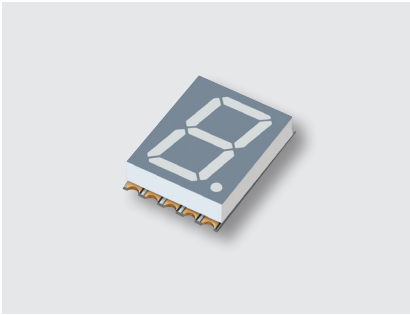
UNIT : mm



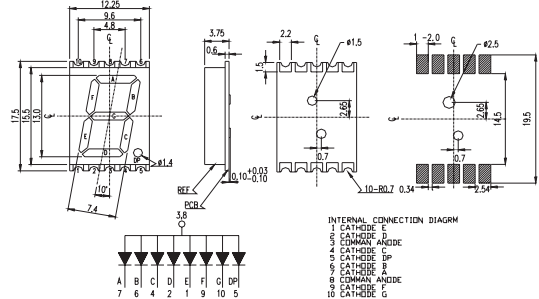
| Product                 | Dimension<br>(mm)               |                              | Color                    |                                |                |               | CC/<br>CA | I <sub>v</sub>               |                              |
|-------------------------|---------------------------------|------------------------------|--------------------------|--------------------------------|----------------|---------------|-----------|------------------------------|------------------------------|
|                         | Segement<br>Height<br>mm (inch) | Segment<br>Width<br>mm(inch) | Color                    | Wavelength<br>(nm) / CIE       | Resin<br>Color | Face<br>Color |           | I <sub>v</sub> (mcd)<br>min. | I <sub>v</sub> (mcd)<br>typ. |
| SS406SURWA/S530-A3/S290 | 10 (0.4")                       | 6.2                          | ● Brilliant Red          | 624                            | White          | Gray          | CA        | 7.8                          | 17.6                         |
| SS406SYGWA/S530-E2      | 10 (0.4")                       | 6.2                          | ● Brilliant Yellow Green | 573                            | White          | Gray          | CA        | 5.6                          | 12.5                         |
| SS406UBWA/C470/S290     | 10 (0.4")                       | 6.2                          | ● Blue                   | 470                            | White          | Gray          | CA        | 15.0                         | 40.5                         |
| SS406USRWA/S530-A3/S290 | 10 (0.4")                       | 6.2                          | ● Dark Red               | 631                            | White          | Gray          | CA        | 5.6                          | 12.5                         |
| SS406UWWA/S290          | 10 (0.4")                       | 6.2                          | ○ Pure White             | X=0.270/0.310<br>Y=0.222/0.343 | White          | Gray          | CA        | 30.0                         | 67.0                         |
| SS406UYWA/S530-A4/S290  | 10 (0.4")                       | 6.2                          | ● Brilliant Yellow       | 589                            | White          | Gray          | CA        | 15.0                         | 34.0                         |



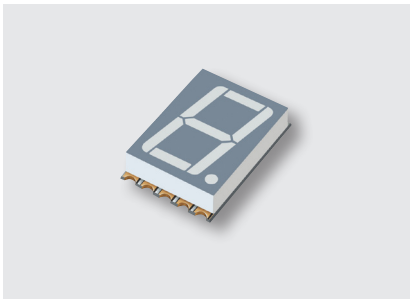
LED Digital Displays | SMD Display | Single Digit Display



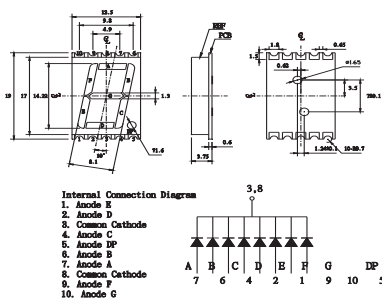
UNIT : mm



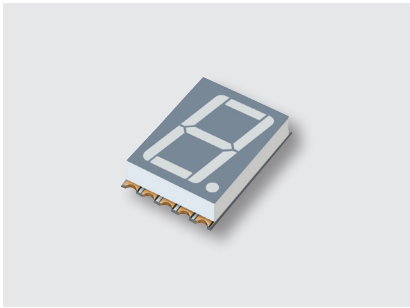
| Product                 | Dimension (mm)           |                        | Color                    |                                |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------------|--------------------------|------------------------|--------------------------|--------------------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE          | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| SS506SYGWA/S530-E2      | 13.0(0.5)                | 7.4                    | ● Brilliant Yellow Green | 573                            | White       | Gray       | CA    | 5.6                       | 9.1                       |
| SS506SURWA/S530-A4/S290 | 13.0(0.5)                | 7.4                    | ● Brilliant Red          | 624                            | White       | Gray       | CA    | 7.8                       | 15.0                      |
| SS506UTWA/T5/S290       | 13.0(0.5)                | 7.4                    | ○ Pure White             | X=0.270/0.310<br>Y=0.222/0.343 | White       | Gray       | CA    | 30.0                      | 86.9                      |



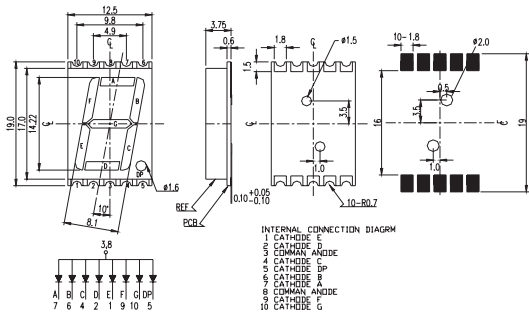
UNIT : mm



| Product                 | Dimension (mm)           |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------------|--------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| SS511SURWA/S530-A3/S290 | 14.22 (0.5")             | 8.1                    | ● Hyper Red              | 624                   | White       | Gray       | CC    | 15.0                      | 34                        |
| SS511SYGWA/S530-E2/S290 | 14.22 (0.5")             | 8.1                    | ● Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 4.0                       | 8.9                       |
| SS511UBWA/C470          | 14.22 (0.5")             | 8.1                    | ● Blue                   | 470                   | White       | Gray       | CC    | 11.0                      | 24.0                      |

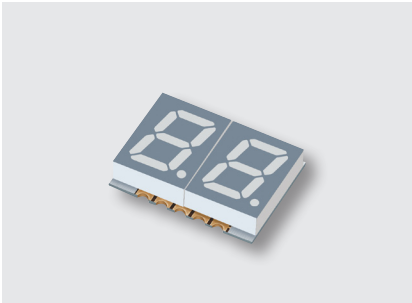


UNIT : mm

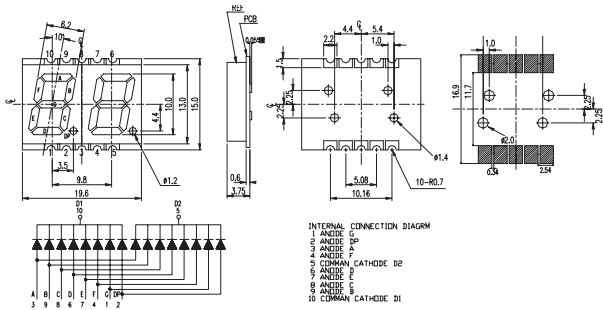


| Product                 | Dimension (mm)           |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------------|--------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| SS512SURWA/S530-A3/S290 | 14.22 (0.5")             | 8.1                    | ● Brilliant Red          | 624                   | White       | Gray       | CA    | 11.0                      | 24                        |
| SS512SYGWA/S530-E2      | 14.22 (0.5")             | 8.1                    | ● Brilliant Yellow Green | 573                   | White       | Gray       | CA    | 4.0                       | 8.9                       |

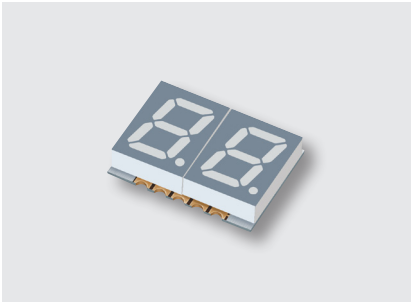
LED Digital Displays | SMD Display | Dual Digit Display



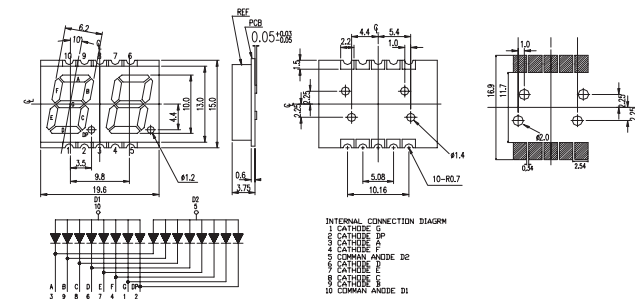
UNIT : mm



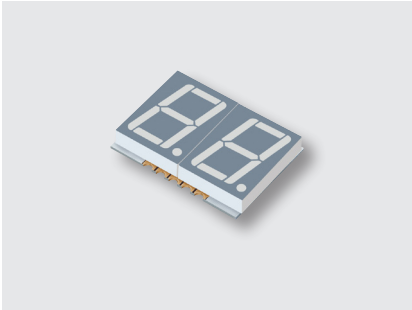
| Product                 | Dimension (mm)           |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------------|--------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| SD405SURWA/S530-A3/S290 | 10 (0.4")                | 6.2                    | ● Brilliant Red          | 624                   | White       | Gray       | CC    | 7.8                       | 17.6                      |
| SD405SYGWA/S530-E2      | 10 (0.4")                | 6.2                    | ● Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 5.6                       | 12.5                      |
| SD405SDRWB/S530-A3/S968 | 10 (0.4")                | 6.2                    | ● Deep Red               | 639                   | White       | Black      | CC    | 7.8                       | 17.6                      |



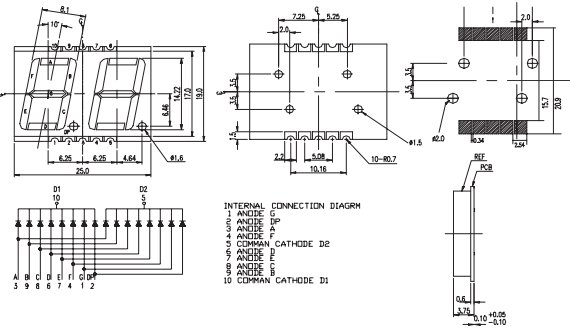
UNIT : mm



| Product                 | Dimension (mm)           |                        | Color                    |                                |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------------|--------------------------|------------------------|--------------------------|--------------------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE          | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| SD406SURWA/S530-A4/S290 | 10 (0.4")                | 6.2                    | ● Brilliant Red          | 624                            | White       | Gray       | CA    | 7.8                       | 17.6                      |
| SD406SYGWA/S530-E2/S290 | 10 (0.4")                | 6.2                    | ● Brilliant Yellow Green | 573                            | White       | Gray       | CA    | 5.6                       | 12.5                      |
| SD406UWWA/S290          | 10 (0.4")                | 6.2                    | ○ Pure White             | X=0.270/0.310<br>Y=0.222/0.343 | White       | Gray       | CA    | 30.0                      | 67.0                      |



UNIT : mm

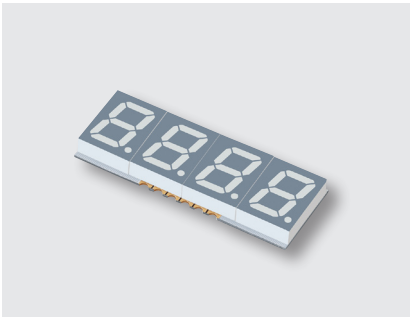


| Product                 | Dimension (mm)           |                        | Color                    |                       |             |            | CC/CA | I <sub>v</sub>            |                           |
|-------------------------|--------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>v</sub> (mcd) min. | I <sub>v</sub> (mcd) typ. |
| SD511SYGWA/S530-E2/S290 | 14.22 (0.5")             | 8.1                    | ● Brilliant Yellow Green | 573                   | White       | Gray       | CC    | 5.6                       | 12.5                      |

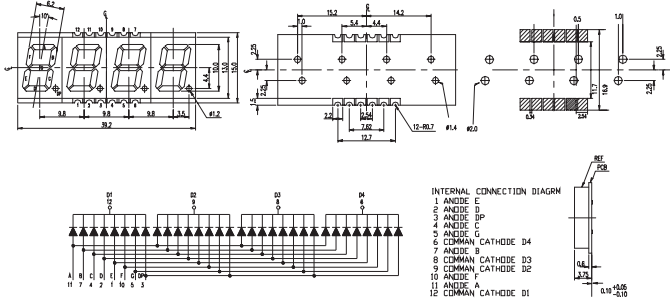
LED Digital Displays



LED Digital Displays | SMD Display | Four Digit Display



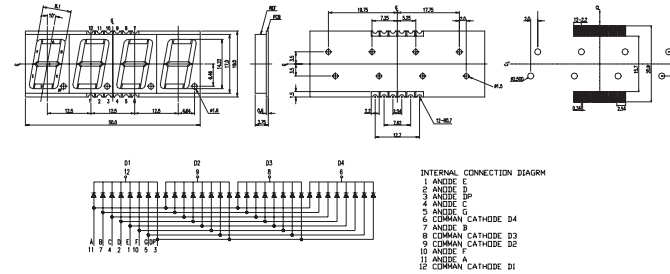
UNIT : mm



| Product                 | Dimension (mm)           |                        | Color              |                       |             |            | CC/CA | I <sub>V</sub>            |                           |
|-------------------------|--------------------------|------------------------|--------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color              | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. |
| SF405SURWA/S530-A3/S290 | 10 (0.4")                | 6.2                    | ● Brilliant Red    | 624                   | White       | Gray       | CC    | 7.8                       | 17.6                      |
| SF405UYOWA/A3/S290      | 10 (0.4")                | 6.2                    | ● Brilliant Orange | 605                   | White       | Gray       | CC    | 11.0                      | 24.0                      |



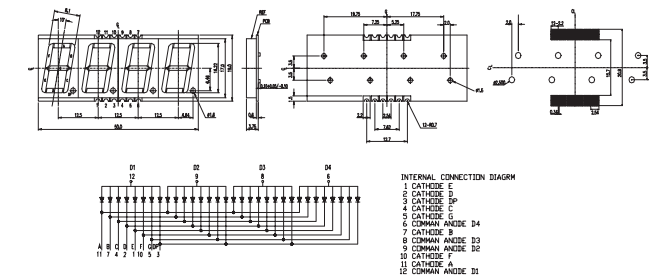
UNIT : mm



| Product                 | Dimension (mm)           |                        | Color                    |                       |             |            | CC/CA | I <sub>V</sub>            |                           |
|-------------------------|--------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. |
| SF511SURWA/S530-A3/S290 | 14.22 (0.5")             | 8.1                    | ● Brilliant Red          | 624                   | White       | Gray       | CC    | 11.0                      | 24                        |
| SF511SYGWA/S530-E2/S796 | 14.22 (0.5")             | 8.1                    | ● Brilliant Yellow Green | 568.5~574.5           | White       | Gray       | CC    | 4.0                       | 8.9                       |



UNIT : mm



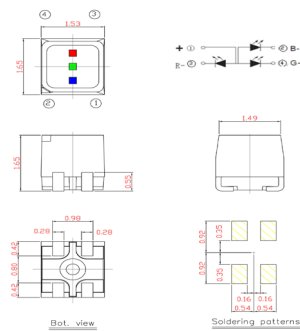
| Product                 | Dimension (mm)           |                        | Color                    |                       |             |            | CC/CA | I <sub>V</sub>            |                           |
|-------------------------|--------------------------|------------------------|--------------------------|-----------------------|-------------|------------|-------|---------------------------|---------------------------|
|                         | Segment Height mm (inch) | Segment Width mm(inch) | Color                    | Wavelength (nm) / CIE | Resin Color | Face Color |       | I <sub>V</sub> (mcd) min. | I <sub>V</sub> (mcd) typ. |
| SF512SYGWA/S530-E2/S290 | 14.22 (0.5")             | 8.1                    | ● Brilliant Yellow Green | 573                   | White       | Gray       | CA    | 4.0                       | 8.9                       |
| SF512SURWA/S530-A3/S290 | 14.22 (0.5")             | 8.1                    | ● Brilliant Red          | 624                   | White       | Gray       | CA    | 11                        | 24                        |

LED Digital Displays

Signage LED | Surface Mount PLCC LED (Reflector) | Top View PLCC4



UNIT : mm

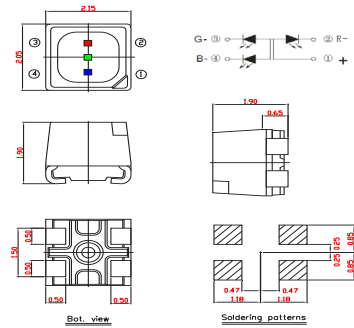


| Product       | Size<br>(LxWxHmm) | Color   |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF(mA) | View<br>Angle(°) |
|---------------|-------------------|---------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|--------|------------------|
|               |                   | Color   | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |        |                  |
| HNB1515W-OS01 | 1.65 x 1.5 x 1.65 | ● Red   | 615~625                | 340                          | 585                          | 1.8                        | 2.5                        | 15     | 110              |
|               |                   | ● Green | 515~525                | 550                          | 940                          | 2.5                        | 3.3                        | 8      | 110              |
|               |                   | ● Blue  | 460~475                | 70                           | 130                          | 2.5                        | 3.3                        | 5      | 110              |

• Product Availability : Please visit EVERLIGHT website for more updated information ( [www.everlight.com](http://www.everlight.com) ) or contact EVERLIGHT sales for regional options.



UNIT : mm

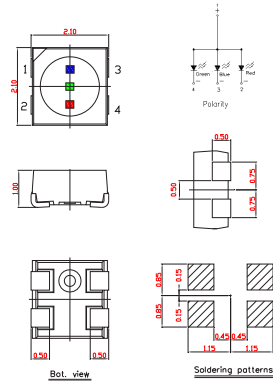


| Product       | Size<br>(LxWxHmm) | Color   |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF(mA) | View<br>Angle(°) |
|---------------|-------------------|---------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|--------|------------------|
|               |                   | Color   | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |        |                  |
| HNB1921W-OS03 | 2.15 x 2.05 x 1.9 | ● Red   | 618~628                | 400                          | 676                          | 1.8                        | 2.6                        | 15     | 110              |
|               |                   | ● Green | 515~535                | 692                          | 1170                         | 2.5                        | 3.3                        | 8      | 110              |
|               |                   | ● Blue  | 462~477                | 83                           | 140                          | 2.5                        | 3.3                        | 5      | 110              |

Signage LED | Surface Mount PLCC LED (Reflector) | Top View PLCC4



UNIT : mm

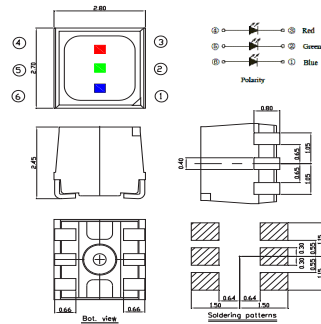


| Product       | Size<br>(LxWxHmm) | Color |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF(mA) |
|---------------|-------------------|-------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|--------|
|               |                   | Color | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |        |
| HNA2121W-IS01 | 2.1x2.1x1.0       | Red   | 615~630                | 185                          | 408                          | 1.8                        | 2.5                        | 15     |
|               |                   | Green | 517~535                | 255                          | 562                          | 2.5                        | 3.2                        | 8      |
|               |                   | Blue  | 465~480                | 35                           | 76                           | 2.5                        | 3.2                        | 5      |

Signage LED | Surface Mount PLCC LED (Reflector) | Top View PLCC6



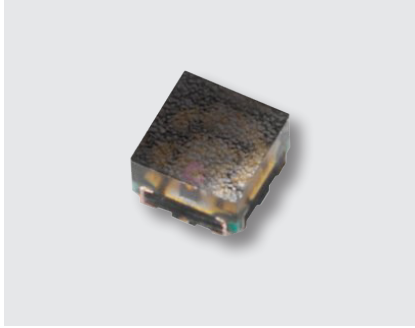
UNIT : mm



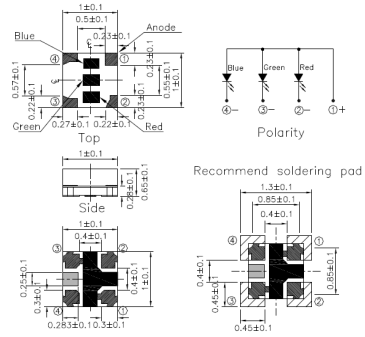
| Product            | Size<br>(LxWxHmm)  | Color           |                        | I <sub>V</sub>               |                              | V <sub>F</sub>             |                            | IF(mA) | View<br>Angle(°) |
|--------------------|--------------------|-----------------|------------------------|------------------------------|------------------------------|----------------------------|----------------------------|--------|------------------|
|                    |                    | Color           | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>max. |        |                  |
| HNB2727W-OS01-FM00 | 2.84 x 2.74 x 2.45 | Brilliant Red   | 615~630                | 300                          | 800                          | 1.8                        | 2.5                        | 15     | 110              |
|                    |                    | Brilliant Green | 515~540                | 450                          | 1300                         | 2.5                        | 2.8                        | 8      | 110              |
|                    |                    | Blue            | 455~480                | 60                           | 190                          | 2.5                        | 3.2                        | 5      | 110              |

Signage LED

## Signage LED ■ Surface Mount PLCC LED (Reflector) ■ Top View Full Color



UNIT : mm



| Product                      | Size<br>(LxWxHmm) | Color  |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF(mA) |
|------------------------------|-------------------|--------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|--------|
|                              |                   | Color  | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |        |
| 18-038BT/BDGAR6S1-FM03/38T   | 1.0x1.0x0.65      | ●Red   | 615-630                | 10                           | -                            | 30                           | 1.6                        | -                          | 2.4                        | 5      |
|                              | 1.0x1.0x0.65      | ●Green | 520-545                | 20                           | -                            | 50                           | 2.2                        | -                          | 3.4                        | 2      |
|                              | 1.0x1.0x0.65      | ●Blue  | 460-480                | 2.8                          | -                            | 10                           | 2.2                        | -                          | 3.4                        | 2      |
| 18-038FBT/BDGAR6S1-FM03/38T  | 1.0x1.0x0.65      | ●Red   | 618~623                | 29                           | -                            | 73                           | 2.0                        | -                          | 2.4                        | 5      |
|                              | 1.0x1.0x0.65      | ●Green | 519~534                | 26                           | -                            | 63                           | 2.4                        | -                          | 2.8                        | 2      |
|                              | 1.0x1.0x0.65      | ●Blue  | 464~479                | 5                            | -                            | 13                           | 2.6                        | -                          | 3.0                        | 2      |
| 18-038FABT/BDGAR6S1-FM04/38T | 1.0x1.0x0.65      | ●Red   | 615~625                | 20                           | -                            | 60                           | 1.9                        | -                          | 2.4                        | 5      |
|                              | 1.0x1.0x0.65      | ●Green | 520~540                | 20                           | -                            | 60                           | 2.4                        | -                          | 2.8                        | 2      |
|                              | 1.0x1.0x0.65      | ●Blue  | 460~480                | 4                            | -                            | 12                           | 2.6                        | -                          | 3.0                        | 2      |

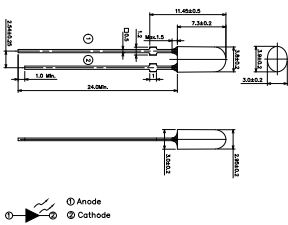


Signage LED | 3mm Oval Type

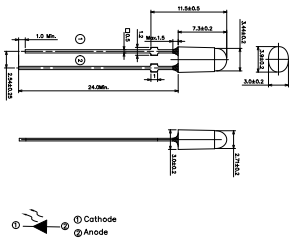


UNIT : mm

3474BAGR  
3474BABR



3474BARR

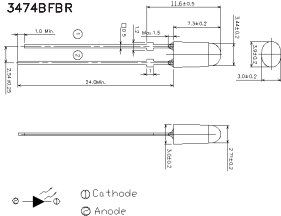


| Product     | Dimension<br>(mm) | Color   |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|-------------|-------------------|---------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|             |                   | Color   | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 3474BARR/MS | 3.9x3x7.3         | ● Red   | 619~629                | 715                          | -                            | 1573                         | 1.6                        | -                          | 2.6                        | 15         | X:110 Y: 60         |
| 3474BAGR/MS | 3.9x3x7.3         | ● Green | 520~535                | 1230                         | -                            | 3515                         | 2.4                        | -                          | 3.4                        | 10         | X:110 Y: 60         |
| 3474BABR/MS | 3.9x3x7.3         | ● Blue  | 460~475                | 240                          | -                            | 685                          | 2.4                        | -                          | 3.4                        | 10         | X:110 Y: 60         |

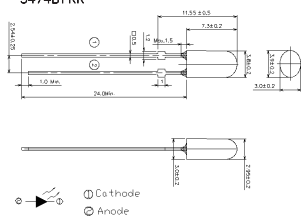


UNIT : mm

3474BFGR  
3474BFBR



3474BFRR



| Product     | Dimension<br>(mm) | Color   |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|-------------|-------------------|---------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|             |                   | Color   | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 3474BFRR/MS | 3.9x3x7.3         | ● Red   | 619~629                | 1205                         | 1605                         | 2490                         | 1.6                        | -                          | 2.6                        | 20         | X:110 Y: 60         |
| 3474BFGR/MS | 3.9x3x7.3         | ● Green | 520~535                | 2781                         | 4635                         | 5760                         | 2.4                        | -                          | 3.6                        | 20         | X:110 Y: 60         |
| 3474BFBR/MS | 3.9x3x7.3         | ● Blue  | 460~475                | 550                          | 800                          | 1130                         | 2.4                        | -                          | 3.6                        | 20         | X:110 Y: 60         |

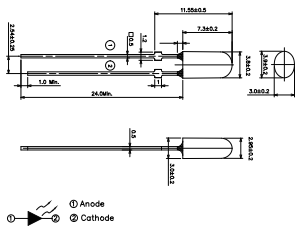


Signage LED | 3mm Oval Type

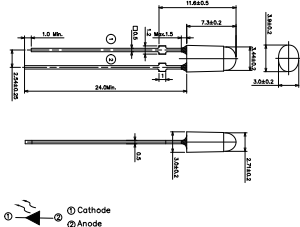


UNIT : mm

3474BKGR  
3474BKBR



3474BKRR



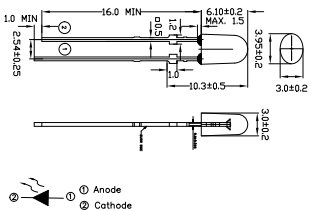
| Product     | Dimension<br>(mm) | Color   |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|-------------|-------------------|---------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|             |                   | Color   | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 3474BKRR/MS | 3.9x3x7.3         | ● Red   | 619~629                | 1205                         | 1605                         | 2490                         | 1.6                        | -                          | 2.6                        | 20         | X:110 Y: 60         |
| 3474BKGR/MS | 3.9x3x7.3         | ● Green | 520~535                | 2781                         | 4635                         | 5760                         | 2.4                        | -                          | 3.4                        | 20         | X:110 Y: 60         |
| 3474BKBR/MS | 3.9x3x7.3         | ● Blue  | 460~472                | 550                          | 800                          | 1130                         | 2.4                        | -                          | 3.4                        | 20         | X:110 Y: 60         |

• Product Availability : Please visit EVERLIGHT website for more updated information ( [www.everlight.com](http://www.everlight.com) ) or contact EVERLIGHT sales for regional options.

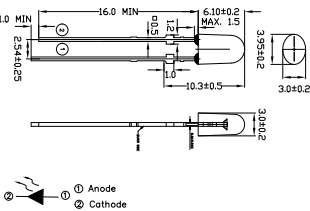


UNIT : mm

3474DKGR  
3474DKBR



3474DKRR



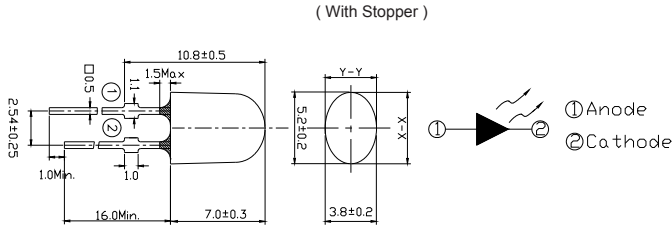
| Product     | Dimension<br>(mm) | Color   |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|-------------|-------------------|---------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|             |                   | Color   | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 3474DKRR/MS | 3.95x3x6.1        | ● Red   | 619~629                | 1976                         | 2800                         | 4600                         | 1.6                        | -                          | 2.6                        | 20         | X:90Y:45            |
| 3474DKGR/MS | 3.95x3x6.1        | ● Green | 520~535                | 5020                         | 6480                         | 12000                        | 2.4                        | -                          | 3.4                        | 20         | X:90Y:45            |
| 3474DKBR/MS | 3.95x3x6.1        | ● Blue  | 460~475                | 934                          | 1140                         | 2130                         | 2.4                        | -                          | 3.4                        | 20         | X:90Y:45            |

• Product Availability : Please visit EVERLIGHT website for more updated information ( [www.everlight.com](http://www.everlight.com) ) or contact EVERLIGHT sales for regional options.

Signage LED | 5mm Oval Type



UNIT : mm

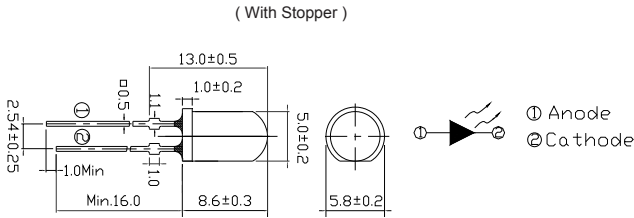


| Product               | Dimension<br>(mm) | Color |                        | $I_V$               |                     |                     | $V_F$             |                   |                   | IF<br>(mA) | Viewing<br>Angle(°) |
|-----------------------|-------------------|-------|------------------------|---------------------|---------------------|---------------------|-------------------|-------------------|-------------------|------------|---------------------|
|                       |                   | Color | Wavelength<br>nm / CIE | $I_V$ (mcd)<br>min. | $I_V$ (mcd)<br>typ. | $I_V$ (mcd)<br>max. | $V_F$ (V)<br>min. | $V_F$ (V)<br>typ. | $V_F$ (V)<br>max. |            |                     |
| 5484BN/R7DC-AHJB/P/MS | 5.2x3.8x7         | Red   | 619~628                | 1220                | -                   | 2040                | 1.8               | -                 | 2.4               | 20         | X:110 Y: 40         |
| 5484BN/GADC-AMNA/P/MS | 5.2x3.8x7         | Green | 525~535                | 2880                | -                   | 2970                | 2.8               | -                 | 3.6               | 20         | X:110 Y: 40         |
| 5484BN/BADC-AGJA/P/MS | 5.2x3.8x7         | Blue  | 465~475                | 720                 | -                   | 1450                | 2.8               | -                 | 3.6               | 20         | X:110 Y: 40         |

Signage LED | 5mm Round Type

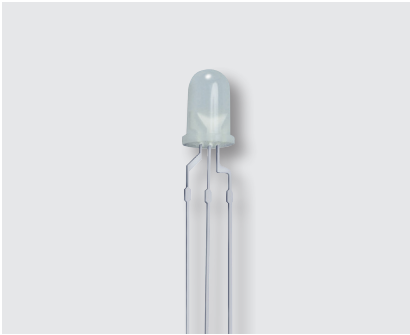


UNIT : mm

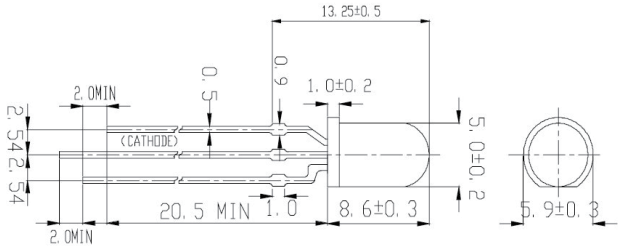


| Product          | Dimension<br>(mm) | Color  |                        | $I_V$               |                     |                     | $V_F$             |                   |                   | IF<br>(mA) | Viewing<br>Angle(°) |
|------------------|-------------------|--------|------------------------|---------------------|---------------------|---------------------|-------------------|-------------------|-------------------|------------|---------------------|
|                  |                   | Color  | Wavelength<br>nm / CIE | $I_V$ (mcd)<br>min. | $I_V$ (mcd)<br>typ. | $I_V$ (mcd)<br>max. | $V_F$ (V)<br>min. | $V_F$ (V)<br>typ. | $V_F$ (V)<br>max. |            |                     |
| 333/Y5C1-ATWB/MS | 5.8 x 5 x 8.6     | Yellow | 586~594                | 7150                | -                   | 18000               | 1.8               | 2                 | 2.6               | 20         | 15                  |
| 333/G1C1-AVYA/MS | 5.8 x 5 x 8.6     | Green  | 525~535                | 18000               | 28500               | 45000               | 2.8               | 3.2               | 3.6               | 20         | 15                  |
| 333/B1C1-ARUA/MS | 5.8 x 5 x 8.6     | Blue   | 465~470                | 4500                | 7150                | 11250               | 2.8               | 3.2               | 3.6               | 20         | 15                  |

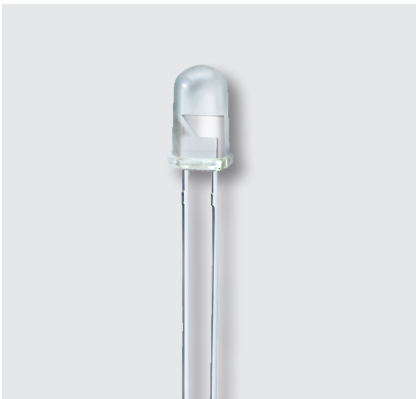
Signage LED ■ 5mm Round Type



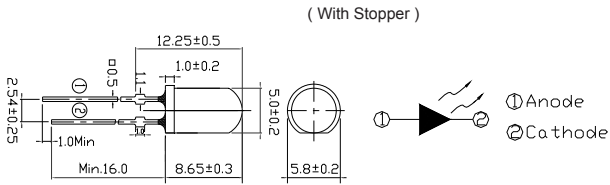
UNIT : mm



| Product                  | Dimension<br>(mm) | Color             |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|--------------------------|-------------------|-------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                          |                   | Color             | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 339-9SUGSURSUBW/S1182/MS | 5                 | ● Brilliant Red   | 620~628                | 1800                         | -                            | 4500                         | 1.6                        | 2.0                        | 2.4                        | 20         | 65                  |
|                          | 5                 | ● Brilliant Green | 525~535                | 1800                         | -                            | 4500                         | 2.8                        | 3.2                        | 3.6                        | 20         | 65                  |
|                          | 5                 | ● Blue            | 465~475                | 1800                         | -                            | 4500                         | 2.8                        | 3.2                        | 3.6                        | 20         | 65                  |



UNIT : mm

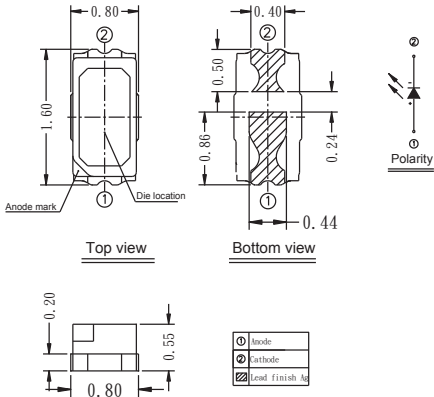


| Product           | Dimension<br>(mm) | Color          |                        | I <sub>V</sub>               |                              |                              | V <sub>F</sub>             |                            |                            | IF<br>(mA) | Viewing<br>Angle(°) |
|-------------------|-------------------|----------------|------------------------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|------------|---------------------|
|                   |                   | Color          | Wavelength<br>nm / CIE | I <sub>V</sub> (mcd)<br>min. | I <sub>V</sub> (mcd)<br>typ. | I <sub>V</sub> (mcd)<br>max. | V <sub>F</sub> (V)<br>min. | V <sub>F</sub> (V)<br>typ. | V <sub>F</sub> (V)<br>max. |            |                     |
| 7383/R7C3-ARUB/MS | 5.8 x 5 x 8.65    | ● Red          | 619~628                | 4500                         | 7150                         | 11250                        | 1.8                        | 2.0                        | 2.6                        | 20         | 30                  |
| 7383/Y7C3-ARUB/MS | 5.8 x 5 x 8.65    | ● Yellow       | 586~594                | 4500                         | 7150                         | 11250                        | 1.8                        | 2.0                        | 2.6                        | 20         | 30                  |
| 7383/G1C3-ATVA/MS | 5.8 x 5 x 8.65    | ● Green        | 525~535                | 7150                         | 9000                         | 14250                        | 2.8                        | -                          | 3.6                        | 20         | 30                  |
| 7383/BAC3-ANQA/MS | 5.8 x 5 x 8.65    | ● Blue         | 465~475                | 2250                         | 2850                         | 4500                         | 2.8                        | -                          | 3.6                        | 20         | 30                  |
| 7383/V7C3-ARTA/MS | 5.8 x 5 x 8.65    | ● Bluish Green | 498~513                | 4500                         | 6300                         | 9000                         | 2.8                        | -                          | 3.6                        | 20         | 30                  |
| 7343/R5C2-ASUB/MS | 5.8 x 5 x 8.65    | ● Red          | 620~628                | 5650                         | 7150                         | 11250                        | 1.8                        | 2                          | 2.6                        | 20         | 23                  |
| 7343/Y5C2-ASVB/MS | 5.8 x 5 x 8.65    | ● Yellow       | 586~594                | 5650                         | 9000                         | 14250                        | 1.8                        | 2.2                        | 2.6                        | 20         | 23                  |
| 7344/V7C2-ASVA/MS | 5.8 x 5 x 8.65    | ● Bluish Green | 498~513                | 5650                         | -                            | 14250                        | 2.8                        | 3.2                        | 3.6                        | 20         | 23                  |
| 7343/B1C2-APSA/MS | 5.8 x 5 x 8.65    | ● Green        | 465~475                | 5650                         | -                            | 14250                        | 2.8                        | 3.2                        | 3.6                        | 20         | 23                  |

Automotive LED ■ Interior Lighting



UNIT : mm

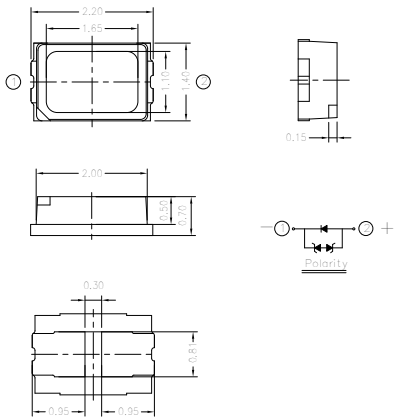


EL 1608

| Product         | Chip quantity | Dimension (mm) | Color       | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|-----------------|---------------|----------------|-------------|----------------------------------|-----------------|------------------|---------------------|----------------------|
| 1608-C70100M-AM | 1             | 1.6x0.8x0.55   | ○ White     | 0.288,0.27                       | -               | 970              | 2.85                | 10                   |
| 1608-UY0100M-AM | 1             | 1.6x0.8x0.55   | ● Yellow    | -                                | 588             | 370              | 2.1                 | 10                   |
| 1608-UR0100M-AM | 1             | 1.6x0.8x0.55   | ● Red       | -                                | 617             | 350              | 2.1                 | 10                   |
| 1608-SR0100M-AM | 1             | 1.6x0.8x0.55   | ● Super Red | -                                | 630             | 210              | 2.1                 | 10                   |
| 1608-UB0100M-AM | 1             | 1.6x0.8x0.55   | ● Blue      | -                                | 462             | 150              | 2.9                 | 10                   |
| 1608-UG0100M-AM | 1             | 1.6x0.8x0.55   | ● Green     | -                                | 525             | 700              | 2.65                | 10                   |
| 1608-IB0100M-AM | 1             | 1.6x0.8x0.55   | ● Ice Blue  | 0.20,0.25                        | -               | 650              | 3.0                 | 10                   |



UNIT : mm



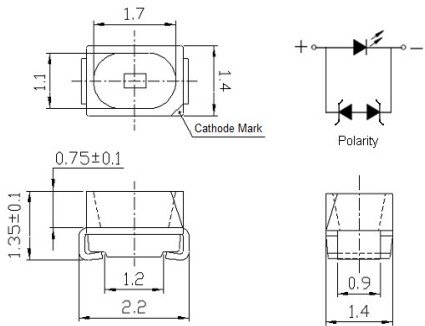
EL 2214

| Product         | Chip quantity | Dimension (mm) | Color      | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|-----------------|---------------|----------------|------------|----------------------------------|-----------------|------------------|---------------------|----------------------|
| 2214-C70201M-AM | 1             | 2.2x1.4x0.7    | ○ White    | 0.315,0.315                      | -               | 1200             | 2.9                 | 20                   |
| 2214-C70301H-AM | 1             | 2.2x1.4x0.7    | ○ White    | 0.3,0.32                         | -               | 3000             | 3.0                 | 30                   |
| 2214-PA0201H-AM | 1             | 2.2x1.4x0.7    | ● PC-Amber | 0.56,0.43                        | -               | 1100             | 2.9                 | 20                   |

Automotive LED ■ Interior Lighting



UNIT : mm

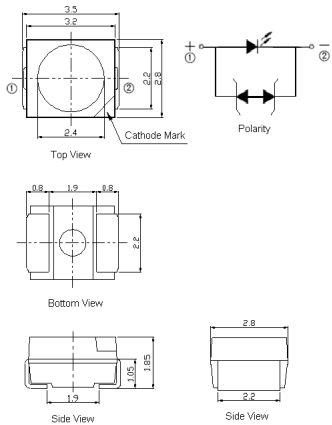


EL Mini Top View

| Product          | Chip quantity | Dimension (mm) | Color      | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|------------------|---------------|----------------|------------|----------------------------------|-----------------|------------------|---------------------|----------------------|
| 65-11-C70200H-AM | 1             | 2.2x1.4x1.35   | ○ White    | 0.3, 0.3                         | -               | 1800             | 3.1                 | 20                   |
| 65-11-IB0100L-AM | 1             | 2.2x1.4x1.35   | ○ Ice Blue | 0.18, 0.23                       | -               | 355              | 3.1                 | 10                   |
| 65-11-SB0100L-AM | 1             | 2.2x1.4x1.35   | ● Sky Blue | 0.16, 0.08                       | -               | 300              | 3.1                 | 10                   |
| 65-11-UB0200L-AM | 1             | 2.2x1.4x1.35   | ● Blue     | -                                | 468             | 355              | 3.1                 | 20                   |
| 65-11-UG0200H-AM | 1             | 2.2x1.4x1.35   | ● Green    | -                                | 523             | 1400             | 3.1                 | 20                   |
| 65-21-UR0200H-AM | 1             | 2.2x1.4x1.35   | ● Red      | -                                | 622             | 1120             | 2                   | 20                   |
| 65-21-UY0200H-AM | 1             | 2.2x1.4x1.35   | ● Yellow   | -                                | 592             | 1120             | 2                   | 20                   |



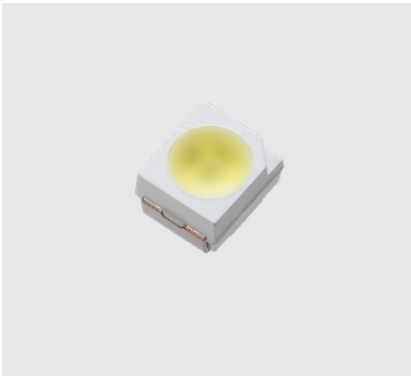
UNIT : mm



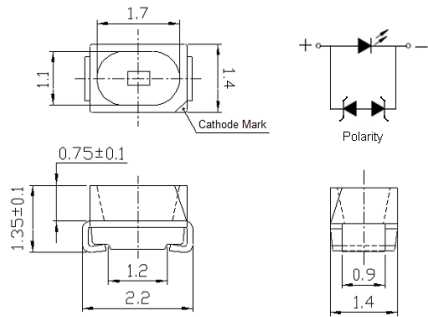
EL Top View

| Product          | Chip quantity | Dimension (mm) | Color      | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|------------------|---------------|----------------|------------|----------------------------------|-----------------|------------------|---------------------|----------------------|
| 67-11-C70200H-AM | 1             | 3.5x2.8x1.85   | ○ White    | 0.3, 0.3                         | -               | 1800             | 3.1                 | 20                   |
| 67-11-C70100H-AM | 1             | 3.5x2.8x1.85   | ○ White    | 0.3, 0.3                         | -               | 1800             | 3.1                 | 10                   |
| 67-11-IB0100L-AM | 1             | 3.5x2.8x1.85   | ○ Ice Blue | 0.18, 0.23                       | -               | 355              | 3.1                 | 10                   |
| 67-11-SB0100L-AM | 1             | 3.5x2.8x1.85   | ● Sky Blue | 0.16, 0.08                       | -               | 300              | 3.1                 | 10                   |
| 67-11-UB0200H-AM | 1             | 3.5x2.8x1.85   | ● Blue     | -                                | 468             | 355              | 3.1                 | 20                   |
| 67-11-UG0200H-AM | 1             | 3.5x2.8x1.85   | ● Green    | -                                | 523             | 1400             | 3.1                 | 20                   |
| 67-21-UR0200H-AM | 1             | 3.5x2.8x1.85   | ● Red      | -                                | 623             | 1120             | 2                   | 20                   |
| 67-21-UY0200H-AM | 1             | 3.5x2.8x1.85   | ● Yellow   | -                                | 590             | 1120             | 2                   | 20                   |

Automotive LED | Interior Lighting



UNIT : mm



EL Top View 2835

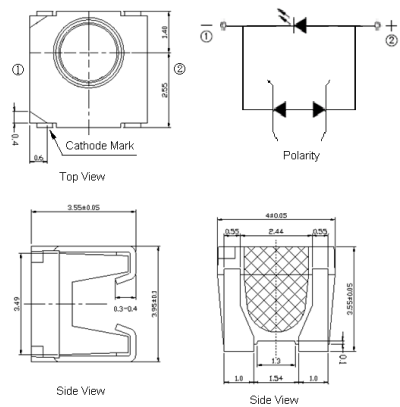
| Product           | Chip quantity | Dimension (mm) | Color      | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|-------------------|---------------|----------------|------------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| 67-11S-G81000H-AM | 1             | 2.8x3.5x0.7    | ○ White    | 0.33,0.34                        | -               | 42              | 2.8                 | 100                  |
| 67-11S-PA1500H-AM | 1             | 2.8x3.5x0.7    | ● PC-Amber | 0.57,0.41                        | -               | 44              | 3.1                 | 150                  |
| 67-11S-IB0600H-AM | 1             | 2.8x3.5x0.7    | ● Ice Blue | 0.168,0.225                      | -               | 21              | 3                   | 60                   |



Automotive LED ■ Interior Lighting



UNIT : mm

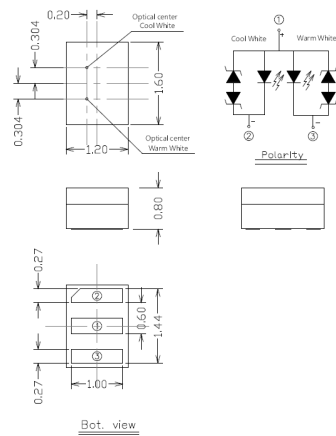


EL Side View

| Product           | Chip quantity | Dimension (mm) | Color      | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|-------------------|---------------|----------------|------------|----------------------------------|-----------------|------------------|---------------------|----------------------|
| 57-11-C70200H-AM  | 1             | 4.0x4.0x3.6    | ○ White    | 0.3,0.3                          | -               | 1800             | 3                   | 20                   |
| 57-11-IB0100L-AM  | 1             | 4.0x4.0x3.6    | ○ Ice Blue | 0.19,0.25                        | -               | 355              | 2.9                 | 10                   |
| 57-11-SB0100L-AM  | 1             | 4.0x4.0x3.6    | ● Sky Blue | 0.16,0.08                        | -               | 355              | 3                   | 10                   |
| 57-11-UB0200H-AM  | 1             | 4.0x4.0x3.6    | ● Blue     | -                                | 468             | 355              | 3.1                 | 20                   |
| 57-21-UR0200H-AM  | 1             | 4.0x4.0x3.6    | ● Red      | -                                | 622             | 1120             | 2                   | 20                   |
| 57-21-UY0200H--AM | 1             | 4.0x4.0x3.6    | ● Yellow   | -                                | 590             | 1120             | 2                   | 20                   |



UNIT : mm



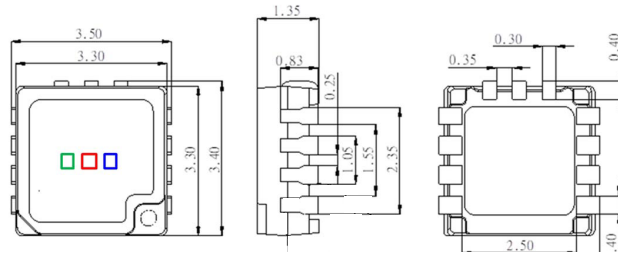
EL Micro Multi

| Product             | Chip quantity | Dimension (mm) | Color        | Chromaticity Coordinate Typ(x,y) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|---------------------|---------------|----------------|--------------|----------------------------------|-----------------|---------------------|----------------------|
| CH1216-C8W80801H-AM | 2             | 1.6x1.2x0.8    | ○ Cool White | 0.322,0.336                      | 25              | 3.0                 | 80                   |
|                     |               |                | ● Warm White | 0.466,0.422                      | 22              | 3.0                 | 80                   |



## Automotive LED ■ Ambient Lighting

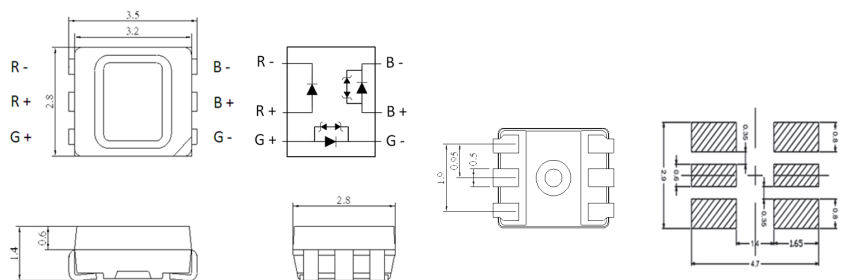
UNIT : mm



## SMART RGB

| Product                  | Chip quantity | Dimension (mm) | Color | Chromaticity Coordinate Typ(x,y)                       | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|--------------------------|---------------|----------------|-------|--------------------------------------------------------|-----------------|------------------|---------------------|----------------------|
| EL3534-RGBISE0141L-8H-AM | 3             | 3.5x3.4x1.35   | Red   | White:<br>CIE x = 0.3127,<br>CIE y = 0.3290<br>0.3,0.3 | 615             | 400              | 5                   | 12.5                 |
|                          |               |                | Green |                                                        | 530             | 900              | 5                   | 9.5                  |
|                          |               |                | Blue  |                                                        | 468             | 100              | 5                   | 7                    |
|                          |               |                | White |                                                        | -               | 1400             | 5                   | 26                   |
| EL3534-RGBISE0201H-8H-AM | 3             | 3.5x3.4x1.35   | Red   | White:<br>CIE x = 0.3127,<br>CIE y = 0.3290<br>0.3,0.3 | 620             | 600              | 5                   | 12.5                 |
|                          |               |                | Green |                                                        | 530             | 1250             | 5                   | 14.5                 |
|                          |               |                | Blue  |                                                        | 468             | 150              | 5                   | 9.5                  |
|                          |               |                | White |                                                        | -               | 2000             | 5                   | 34                   |

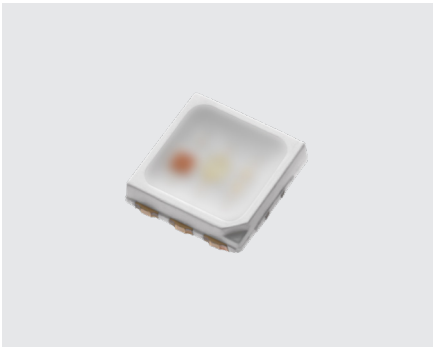
UNIT : mm



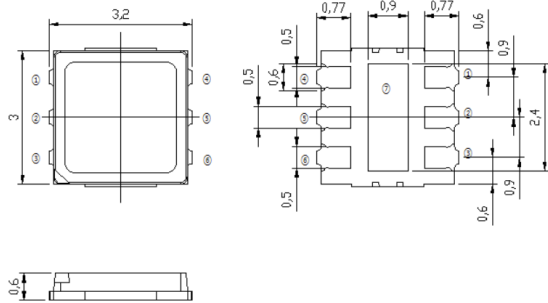
## EL Top View RGB

| Product           | Chip quantity | Dimension (mm) | Color   | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|-------------------|---------------|----------------|---------|-----------------|------------------|---------------------|----------------------|
| 67-63-RGB0201H-AM | 3             | 3.5x2.8x1.4    | ● Red   | 623             | 710              | 1.95                | 20                   |
|                   |               |                | ● Green | 527             | 1400             | 3.1                 | 20                   |
|                   |               |                | ● Blue  | 451             | 280              | 3.0                 | 20                   |

Automotive LED | Ambient Lighting



UNIT : mm

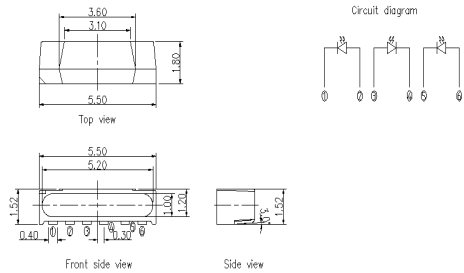


EL Top View 3030

| Product            | Chip quantity | Dimension (mm) | Color | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|-------|-----------------|-----------------|---------------------|----------------------|
| XI3030-RGB200BH-AM | 3             | 3.0x3.0x0.6    | Red   | 617             | 30              | 2.24                | 200                  |
|                    |               |                | Green | 520             | 44              | 3.0                 | 200                  |
|                    |               |                | Blue  | 456             | 10              | 3.5                 | 200                  |



UNIT : mm



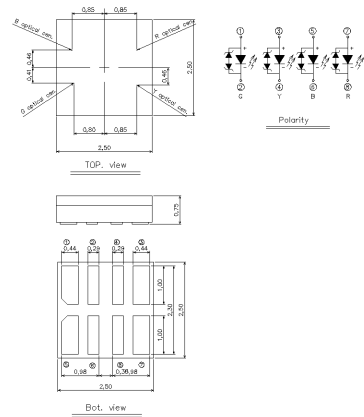
ELSide View 5515

| Product          | Chip quantity | Dimension (mm) | Color | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|------------------|---------------|----------------|-------|-----------------|------------------|---------------------|----------------------|
| 5515-RGB020AH-AM | 3             | 5.5x1.5x0.8    | Red   | 621             | 1120             | 2                   | 20                   |
|                  |               |                | Green | 527             | 2800             | 2.75                | 20                   |
|                  |               |                | Blue  | 467             | 450              | 3                   | 20                   |

Automotive LED ■ Ambient Lighting



UNIT : mm



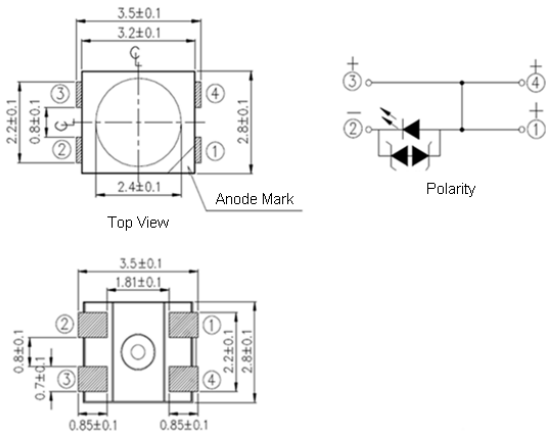
EL Multi Color

| Product              | Chip quantity | Dimension (mm) | Color   | Chromaticity Coordinate Typ(x,y)      | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|----------------------|---------------|----------------|---------|---------------------------------------|-----------------|------------------|---------------------|----------------------|
| CH2525E-RGBW0401H-AM | 4             | 2.5x2.5x0.75   | ● Red   | -                                     | 627             | 1050             | 1.95                | 40                   |
|                      |               |                | ● Green | -                                     | 520             | 2900             | 2.66                | 40                   |
|                      |               |                | ● Blue  | -                                     | 460             | 550              | 2.78                | 40                   |
|                      |               |                | ○ White | White:CIE x = 0.313,<br>CIE y = 0.307 | -               | 3300             | 2.82                | 40                   |

Automotive LED ■ Exterior Lighting



UNIT : mm

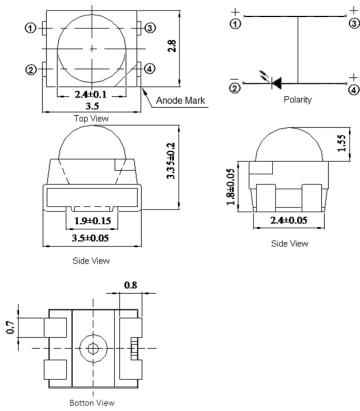


PLCC4

| Product          | Chip quantity | Dimension (mm) | Color       | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|------------------|---------------|----------------|-------------|----------------------------------|-----------------|------------------|---------------------|----------------------|
| 67-41-C70301H-AM | 1             | 3.5*2.8*1.85   | ○ White     | 0.33,0.34                        | -               | 2800             | 3.1                 | 30                   |
| 67-41-PA0601H-AM | 1             | 3.5*2.8*1.85   | ● PC-Amber  | 0.57,0.42                        | -               | 3500             | 3.1                 | 60                   |
| 67-41-UR0501H-AM | 1             | 3.5*2.8*1.85   | ● Red       | -                                | 615             | 2800             | 2.2                 | 50                   |
| 67-41-UY0501H-AM | 1             | 3.5*2.8*1.85   | ● Yellow    | -                                | 590             | 2240             | 2.2                 | 50                   |
| 67-41-SR0501H-AM | 1             | 3.5*2.8*1.85   | ● Super Red | -                                | 590             | 1500             | 2.2                 | 50                   |
| 67-41-UR0502H-AM | 1             | 3.5*2.8*1.85   | ● Red       | -                                | 615             | 3000             | 2.2                 | 50                   |



UNIT : mm



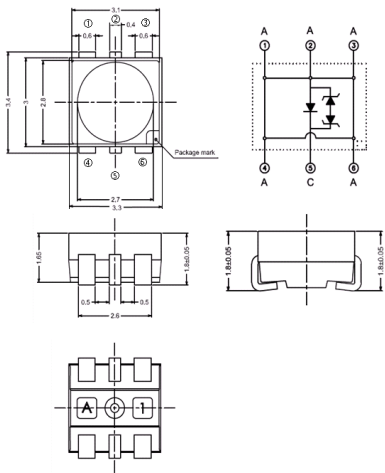
PLCC3 LENS

| Product             | Chip quantity | Dimension (mm) | Color       | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|---------------------|---------------|----------------|-------------|----------------------------------|-----------------|------------------|---------------------|----------------------|
| 67-31EP3-UY0500H-AM | 1             | 3.5x2.8x3.35   | ● Super Red | -                                | 590             | 12000            | 2                   | 50                   |
| 67-31EP3-UR0500H-AM | 1             | 3.5x2.8x3.35   | ● Red       | -                                | 616             | 12000            | 2                   | 50                   |

Automotive LED | Exterior Lighting



UNIT : mm

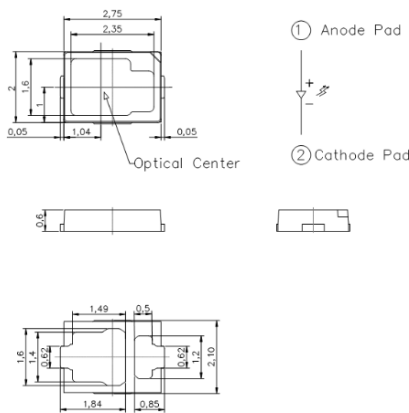


EL Advanced Power Top View

| Product         | Chip quantity | Dimension (mm) | Color       | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|-----------------|---------------|----------------|-------------|----------------------------------|-----------------|------------------|---------------------|----------------------|
| A09K-C71501H-AM | 1             | 3.4x3.4x1.8    | ○ White     | 0.33,0.34                        | -               | 12500            | 3.1                 | 150                  |
| A09K-PA1501H-AM | 1             | 3.4x3.4x1.8    | ● PC-Amber  | 0.57,0.42                        | -               | 7700             | 3.1                 | 150                  |
| A09K-UR1501H-AM | 1             | 3.4x3.4x1.8    | ● Red       | -                                | 613             | 8800             | 2.2                 | 150                  |
| A09K-SR1501H-AM | 1             | 3.4x3.4x1.8    | ● Super Red | -                                | 629             | 5600             | 2.2                 | 150                  |
| A09K-UY1501H-AM | 1             | 3.4x3.4x1.8    | ● Yellow    | -                                | 589             | 7100             | 2.2                 | 150                  |



UNIT : mm



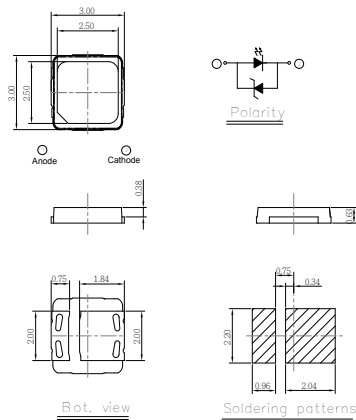
EL 2820

| Product         | Chip quantity | Dimension (mm) | Color       | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|-----------------|---------------|----------------|-------------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| 2820-UY2001M-AM | 1             | 2.8x2.0x0.6    | ● Yellow    | -                                | 590             | 33              | 2.3                 | 200                  |
| 2820-UR2001M-AM | 1             | 2.8x2.0x0.6    | ● Red       | -                                | 618             | 40              | 2.3                 | 200                  |
| 2820-SR2001M-AM | 1             | 2.8x2.0x0.6    | ● Super Red | -                                | 630             | 27              | 2.3                 | 200                  |
| 2820-C03501H-AM | 1             | 2.8x2.0x0.6    | ○ White     | 0.3,0.3                          | -               | 110             | 2.3                 | 350                  |
| 2820-PA3001H-AM | 1             | 2.8x2.0x0.6    | ● PC-Amber  | 2.75,3.75                        | -               | 60              | 2.3                 | 300                  |
| 2820-UY3501H-AM | 1             | 2.8x2.0x0.6    | ● Yellow    | -                                | 590             | 54              | 2.3                 | 350                  |
| 2820-UR3501H-AM | 1             | 2.8x2.0x0.6    | ● Red       | -                                | 618             | 76              | 2.5                 | 350                  |
| 2820-SR3501H-AM | 1             | 2.8x2.0x0.6    | ● Super Red | -                                | 630             | 50              | 2.5                 | 350                  |

Automotive LED | Exterior Lighting



UNIT : mm



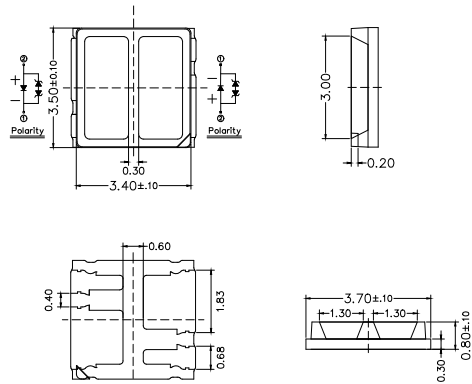
Suggested post dimension is just reference only.  
Please modify the post dimension based on individual need.

EL 3030

| Product           | Chip quantity | Dimension (mm) | Color       | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|-------------------|---------------|----------------|-------------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| XI3030-C01501M-AM | 1             | 3.0x3.0x0.63   | ○ White     | 0.332,0.332                      | -               | 60              | 3.1                 | 150                  |
| XI3030-PA1501M-AM | 1             | 3.0x3.0x0.63   | ● PC-Amber  | 0.57,0.42                        | -               | 42              | 2.9                 | 150                  |
| XI3030-C03501H-AM | 1             | 3.0x3.0x0.63   | ○ White     | 0.325,0.334                      | -               | 150             | 3.1                 | 350                  |
| XI3030-PA3501H-AM | 1             | 3.0x3.0x0.63   | ● PC-Amber  | 0.57,0.42                        | -               | 92              | 3.1                 | 350                  |
| XI3030-UR3501H-AM | 1             | 3.0x3.0x0.63   | ● Red       | -                                | 610             | 90              | 2.2                 | 350                  |
| XI3030-SR3501H-AM | 1             | 3.0x3.0x0.63   | ● Super Red | -                                | 630             | 43              | 2.2                 | 350                  |



UNIT : mm



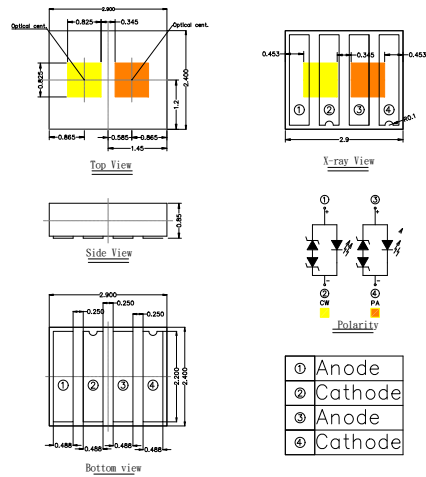
EL 3735

| Product           | Chip quantity | Dimension (mm) | Color      | Chromaticity Coordinate Typ(x,y) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|-------------------|---------------|----------------|------------|----------------------------------|------------------|---------------------|----------------------|
| 3735-C8PA1501H-AM | 2             | 3.7x3.5x0.8    | ○ White    | 0.3, 0.3                         | 60               | 3                   | 150                  |
|                   |               |                | ● PC-Amber | 0.57, 0.42                       | 40               | 3                   | 150                  |
| 3735-C8PA2501H-AM | 2             | 3.7x3.5x0.8    | ○ White    | 0.3, 0.3                         | 81               | 3                   | 250                  |
|                   |               |                | ● PC-Amber | 0.57, 0.42                       | 46               | 3                   | 250                  |

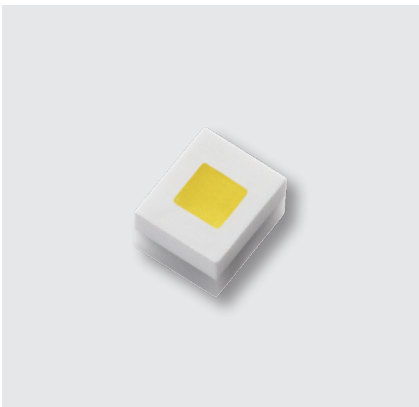
Automotive LED | Exterior Lighting



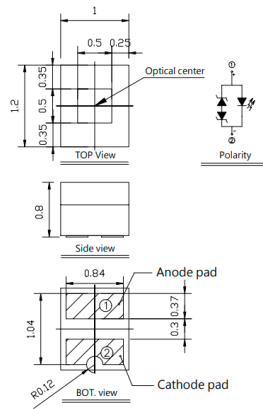
UNIT : mm



| Product             | Chip quantity | Dimension (mm) | Color      | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|---------------------|---------------|----------------|------------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| CH2924-C0PA3501H-AM | 2             | 2.9x2.4x0.85   | ○ White    | 0.3,0.3                          | -               | 140             | 3                   | 350                  |
|                     | 2             | 2.9x2.4x0.85   | ● PC-Amber | 0.57,0.42                        | -               | 82              | 3                   | 350                  |



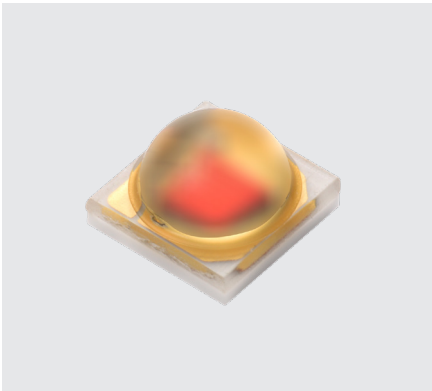
UNIT : mm



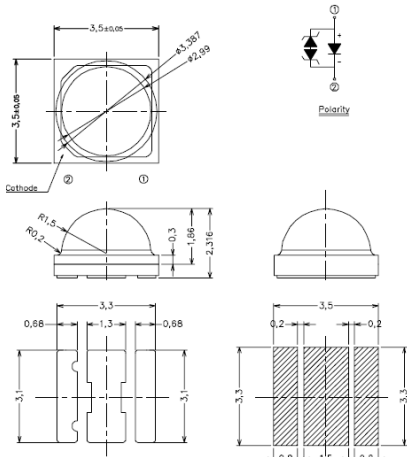
EL 1210

| Product            | Chip quantity | Dimension (mm) | Color      | Chromaticity Coordinate Typ (x,y) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|------------|-----------------------------------|-----------------|---------------------|----------------------|
| CH1210E-C80401H-AM | 1             | 1.2x1.0x0.8    | ○ White    | 0.3,0.3                           | 13              | 2.87                | 40                   |
| CH1210E-N80401H-AM | 1             |                | ○ White    | 0.38,0.38                         | 13              | 2.87                | 40                   |
| CH1210E-PA0801H-AM | 1             |                | ● PC-Amber | 0.57, 0.42                        | 18              | 3                   | 80                   |
| CH1210E-PR0801H-AM | 1             |                | ● PC Red   | 0.66, 0.335                       | 11              | 3                   | 80                   |

Automotive LED | Exterior Lighting



UNIT : mm



EL 3535E

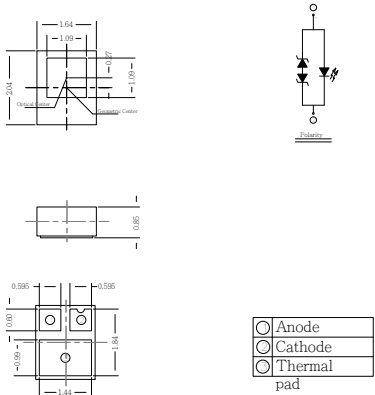
| Product            | Chip quantity | Dimension (mm) | Color       | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|-------------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| CH3535E-UR3501L-AM | 1             | 3.5x3.5x2.3    | ● Red       | -                                | 619             | 75              | 2.22                | 350                  |
| CH3535E-SR3501L-AM | 1             | 3.5x3.5x2.3    | ● Super Red | -                                | 630             | 57              | 2.15                | 350                  |



Automotive LED ■ Exterior Lighting



UNIT : mm

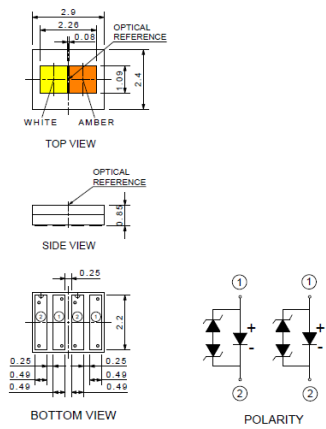


ALFS B series

| Product              | Chip quantity | Dimension (mm) | Color  | Chromaticity Coordinate Typ (x,y) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|----------------------|---------------|----------------|--------|-----------------------------------|-----------------|---------------------|----------------------|
| ALFS1BD-C010001L1-AM | 1             | 2.0x1.6x0.8    | ○White | 0.332,0.332                       | 350             | 3.5                 | 1000                 |



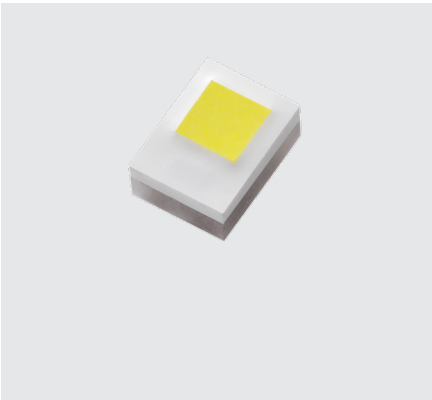
UNIT : mm



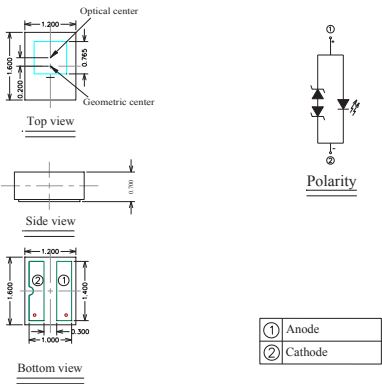
ALFS B series

| Product                | Chip quantity | Dimension (mm) | Color               | Chromaticity Coordinate Typ (x,y) | Brightness (lm) | Forward Voltag (V) | Driving current (mA) |
|------------------------|---------------|----------------|---------------------|-----------------------------------|-----------------|--------------------|----------------------|
| ALFS2BD-C0PA07001L1-AM | 2             | 2.9x2.4x0.85   | ○White<br>●PC-Amber | 0.33, 0.33<br>0.57, 0.42          | 260<br>160      | 3.35               | 700                  |
| ALFS2BD-C010001H-AM    | 2             | 2.9x2.4x0.85   | ○White              | 0.3,0.3                           | 700             | 6.7                | 1000                 |

Automotive LED ■ Exterior Lighting



UNIT : mm

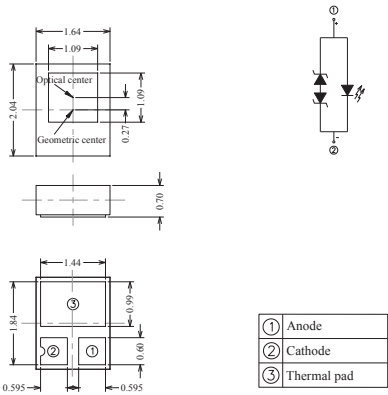


ALFS E series

| Product            | Chip quantity | Dimension (mm) | Color      | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|------------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| ALFS1E-C07001H-AM  | 1             | 1.2x1.6x0.7    | ○ White    | 0.3,0.3                          | -               | 285             | 3.2                 | 700                  |
| ALFS1E-PA07001H-AM | 1             | 1.2x1.6x0.7    | ● PC-Amber | 0.57,0.42                        | -               | 140             | 3.3                 | 700                  |



UNIT : mm



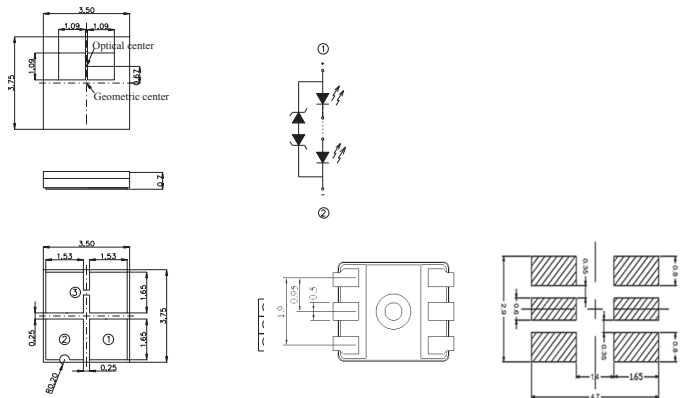
ALFS G series

| Product            | Chip quantity | Dimension (mm) | Color      | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|------------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| ALFS1G-C010001H-AM | 1             | 2x1.6x0.7      | ○ White    | 0.3,0.3                          | -               | 425             | 3.3                 | 1000                 |
| ALFS1G-PA10001H-AM | 1             | 2x1.6x0.7      | ● PC-Amber | 0.57,0.42                        | -               | 240             | 3.3                 | 1000                 |

## Automotive LED ■ Exterior Lighting



UNIT : mm

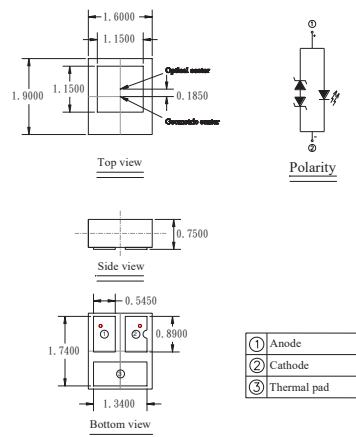


## ALFS G series

| Product            | Chip quantity | Dimension (mm) | Color  | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|--------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| ALFS2G-C010001H-AM | 2             | 3.75x3.5x0.7   | ○White | 0.3,0.3                          | -               | 850             | 6.7                 | 1000                 |



UNIT : mm



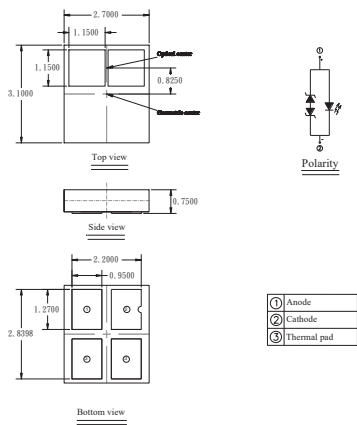
## ALFS H series

| Product            | Chip quantity | Dimension (mm) | Color  | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|--------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| ALFS1H-C010001H-AM | 1             | 1.9x1.6x0.7    | ○White | 0.3,0.3                          | -               | 500             | 3.3                 | 1000                 |

Automotive LED ■ Exterior Lighting



UNIT : mm

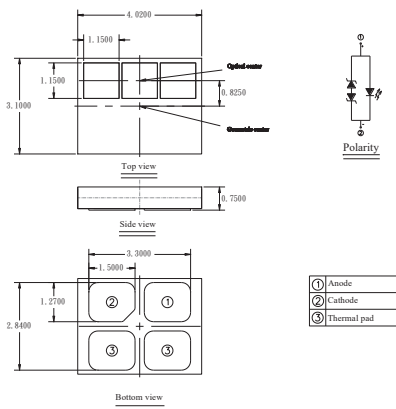


ALFS H series

| Product            | Chip quantity | Dimension (mm) | Color   | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|---------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| ALFS2H-C010001H-AM | 2             | 3.1x2.7x0.7    | ○ White | 0.3,0.3                          | -               | 1000            | 6.7                 | 1000                 |



UNIT : mm



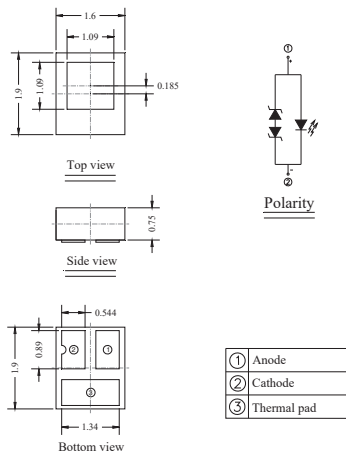
ALFS H series

| Product            | Chip quantity | Dimension (mm) | Color   | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|---------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| ALFS3H-C010001H-AM | 3             | 3.1x3.9x0.7    | ○ White | 0.3,0.3                          | -               | 1500            | 9.8                 | 1000                 |

Automotive LED ■ Exterior Lighting



UNIT : mm

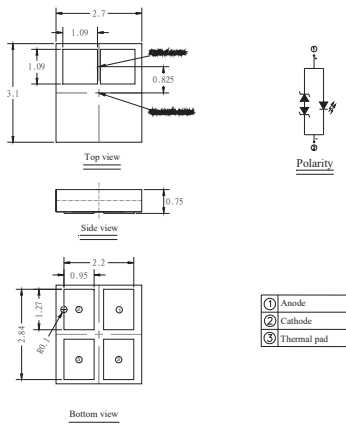


ALFS J series

| Product            | Chip quantity | Dimension (mm) | Color   | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|---------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| ALFS1J-C010001H-AM | 1             | 1.9x1.6x0.7    | ○ White | 0.3,0.3                          | -               | 460             | 3.3                 | 1000                 |



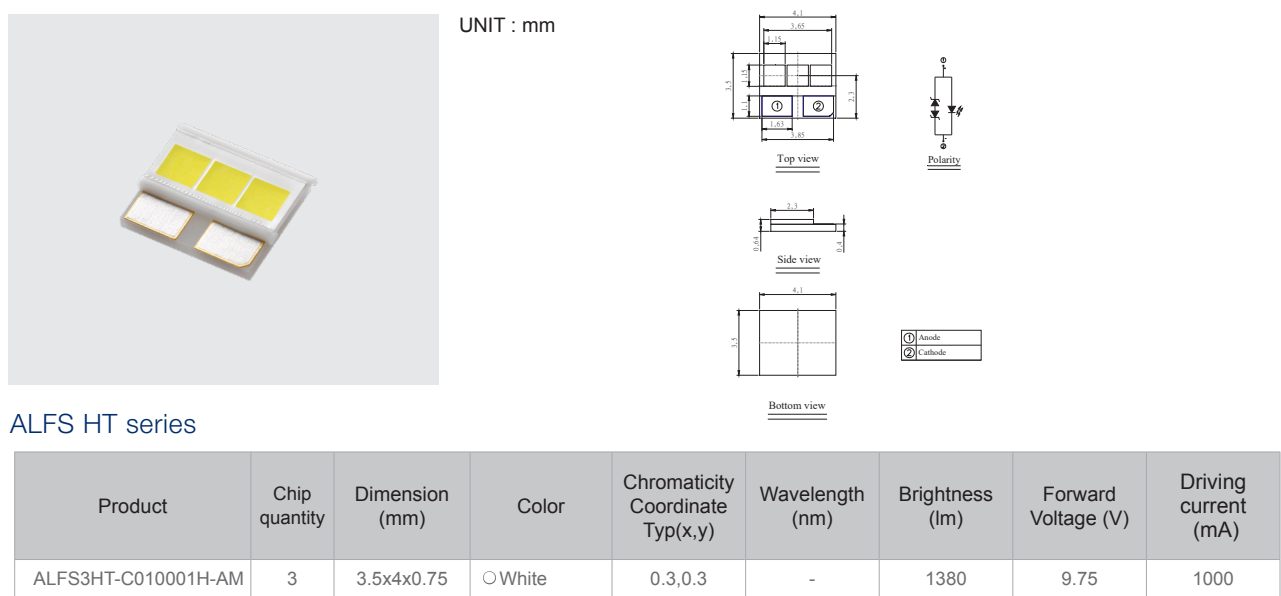
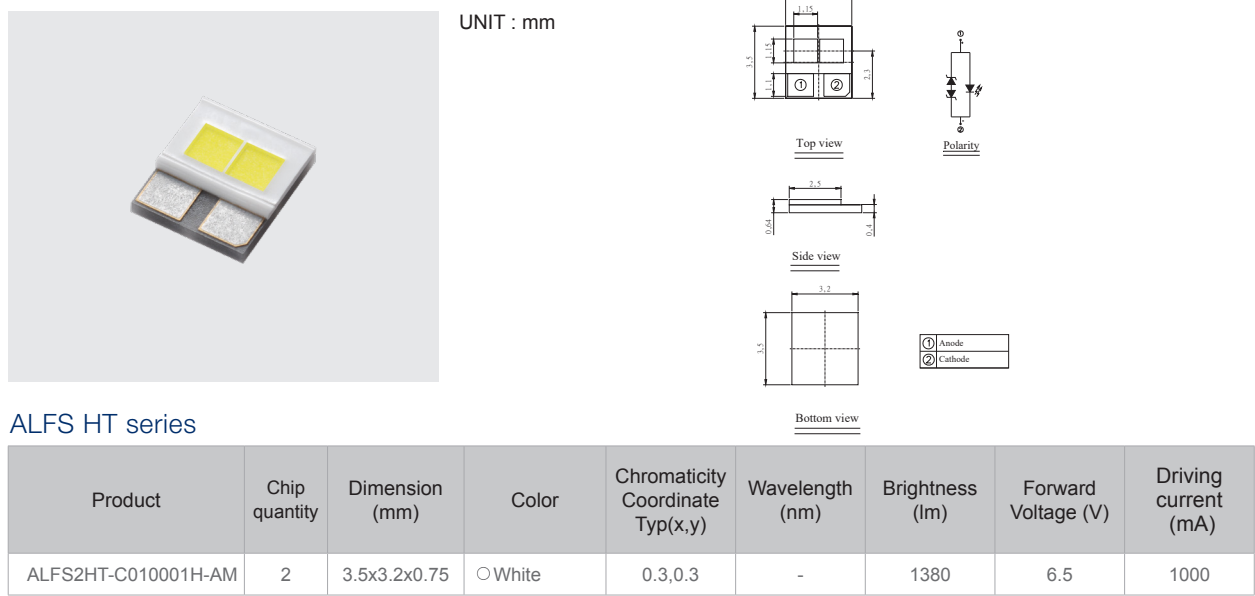
UNIT : mm



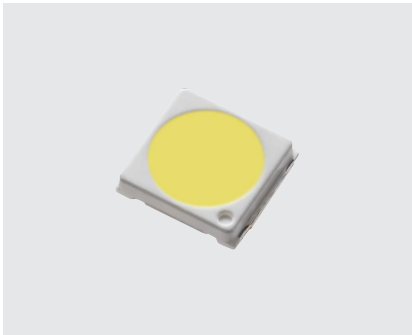
ALFS J series

| Product            | Chip quantity | Dimension (mm) | Color   | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|--------------------|---------------|----------------|---------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| ALFS2J-C010001H-AM | 2             | 3.1x2.7x0.7    | ○ White | 0.3,0.3                          | -               | 920             | 6.7                 | 1000                 |

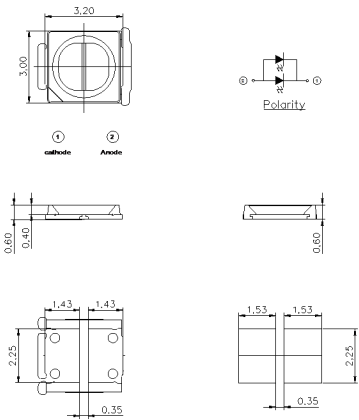
Automotive LED ■ Exterior Lighting



Backlighting LED ■ Direct type Product



UNIT : mm

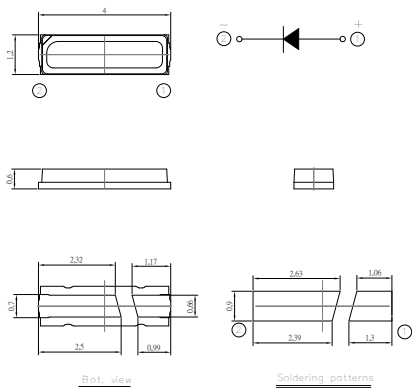


| Product     | Dimension (mm) | Color   | Power(W) | CIE(x,y)           | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|---------|----------|--------------------|-----------|---------|------------------|
| BL-3030GN2E | 3.0x3.0x0.6    | ○ White | 1.8      | X=0.2735, Y=0.2293 | 175-195   | 3.0-3.6 | 120              |

Backlighting LED ■ Edge Type Product

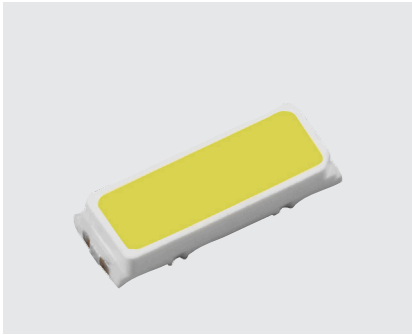


UNIT : mm

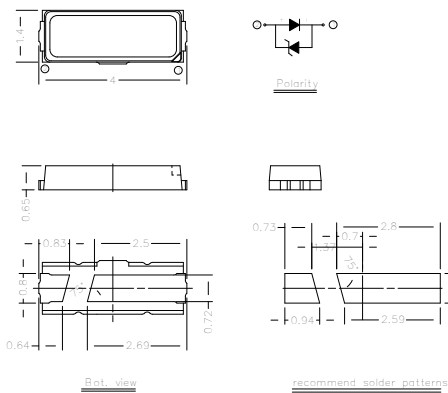


4012

| Product     | Dimension (mm) | Color   | Power(W) | CIE(x,y)       | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|---------|----------|----------------|-----------|---------|------------------|
| BL-4012NN1T | 4.0x1.2x0.6    | ○ White | 0.4      | X=0.28, Y=0.26 | 36-46     | 2.7-3.4 | 120              |



UNIT : mm



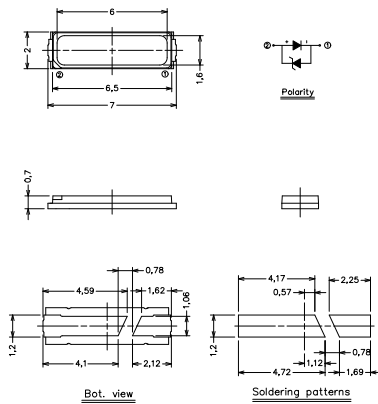
4014

| Product     | Dimension (mm) | Color   | Power(W) | CIE(x,y)       | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|---------|----------|----------------|-----------|---------|------------------|
| BL-4014CZ1T | 4.0x1.4x0.65   | ○ White | 0.4      | X=0.28, Y=0.26 | 38-48     | 2.7-3.4 | 120              |

Backlighting LED ■ Edge Type Product



UNIT : mm

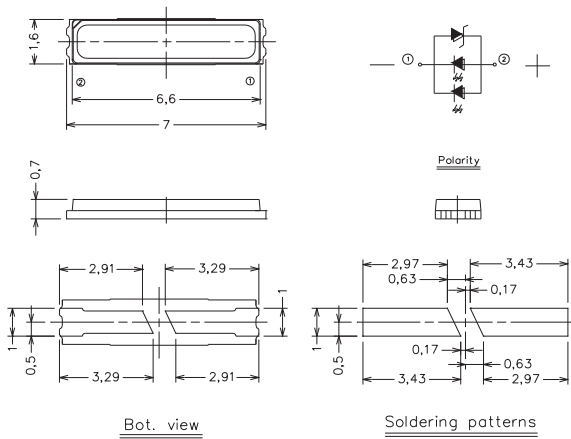


7020

| Product     | Dimension (mm) | Color   | Power(W) | CIE(x,y)       | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|---------|----------|----------------|-----------|---------|------------------|
| BL-7020NZ1T | 7.0x2.0x0.7    | ○ White | 0.4      | X=0.29, Y=0.29 | 47-51     | 2.7-3.4 | 120              |



UNIT : mm



7016

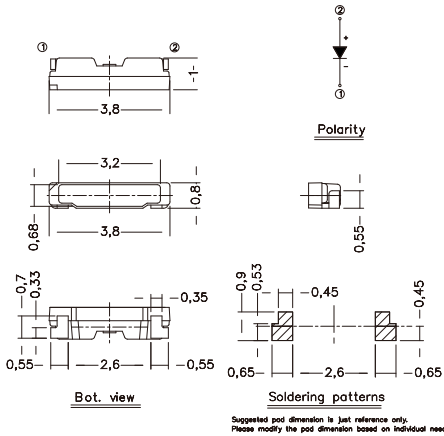
| Product     | Dimension (mm) | Color   | Power(W) | CIE(x,y)       | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|---------|----------|----------------|-----------|---------|------------------|
| BL-7016NZ2T | 7.0x1.6x0.7    | ○ White | 0.4      | X=0.28, Y=0.26 | 86-96     | 2.7-3.4 | 120              |



Backlighting LED ■ Side View Product



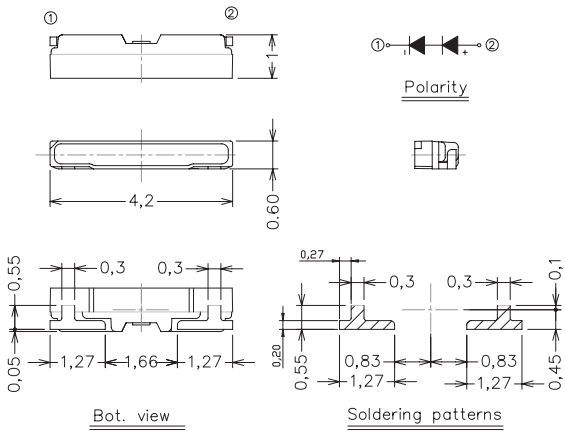
UNIT : mm



| Product    | Dimension (mm) | Color  | Power(W) | CIE(x,y)        | lv(lm,mW) | VF(V)   | Viewing Angle(°) |
|------------|----------------|--------|----------|-----------------|-----------|---------|------------------|
| BL-3808Z1P | 3.8x1.0x0.8    | ○White | 0.06     | X=0.295, Y=0.28 | 6.00-8.00 | 2.7-3.4 | 120              |



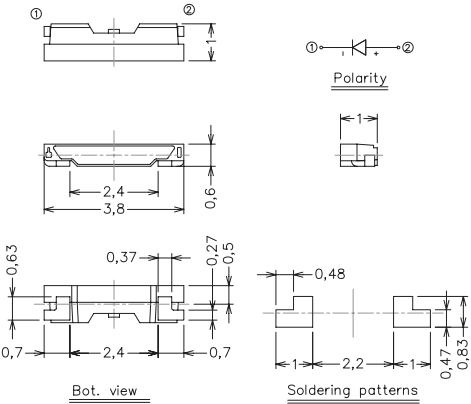
UNIT : mm



| Product     | Dimension (mm) | Color  | Power(W) | CIE(x,y)        | lv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|--------|----------|-----------------|-----------|---------|------------------|
| BL-4206SN2P | 4.2x1.0x0.6    | ○White | 0.12     | X=0.295, Y=0.28 | 14-17     | 5.4-6.8 | 120              |



UNIT : mm

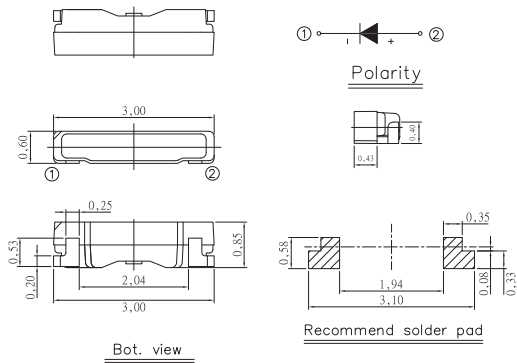


| Product     | Dimension (mm) | Color  | Power(W) | CIE(x,y)        | lv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|--------|----------|-----------------|-----------|---------|------------------|
| BL-3806NN1P | 3.8x1.0x0.6    | ○White | 0.06     | X=0.295, Y=0.28 | 6.0 0-9.5 | 2.7-3.4 | 120              |

Backlighting LED ■ Side View Product



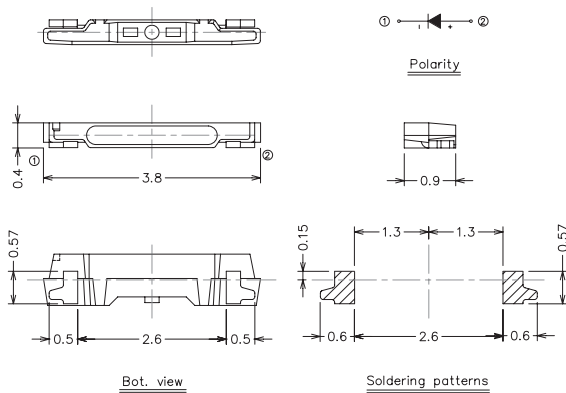
UNIT : mm



| Product     | Dimension (mm) | Color   | Power(W) | CIE(x,y)        | lv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|---------|----------|-----------------|-----------|---------|------------------|
| BL-3006NN1P | 3.0x0.85x0.6   | ○ White | 0.06     | X=0.295, Y=0.28 | 6.75-9.00 | 2.7-3.4 | 120              |



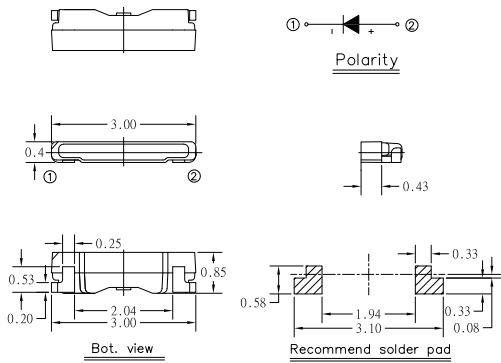
UNIT : mm



| Product     | Dimension (mm) | Color   | Power(W) | CIE(x,y)        | lv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|---------|----------|-----------------|-----------|---------|------------------|
| BL-3804GN1P | 3.8x0.9x0.4    | ○ White | 0.06     | X=0.295, Y=0.28 | 6.25-9.00 | 2.7-3.4 | 120              |



UNIT : mm

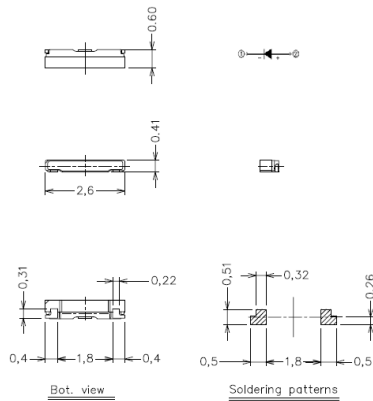


| Product     | Dimension (mm) | Color   | Power(W) | CIE(x,y)        | lv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|---------|----------|-----------------|-----------|---------|------------------|
| BL-3004TN1P | 3.0x0.85x0.4   | ○ White | 0.06     | X=0.295, Y=0.28 | 6.25-8.50 | 2.7-3.4 | 115              |

Backlighting LED ■ Side View Product



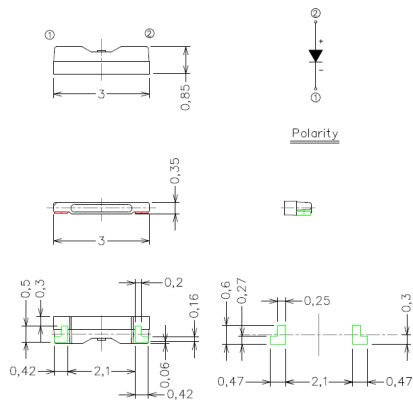
UNIT : mm



| Product     | Dimension (mm) | Color   | Power(W) | CIE(x,y)        | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|---------|----------|-----------------|-----------|---------|------------------|
| BL-2604DN1P | 2.6x0.7x0.4    | ○ White | 0.06     | X=0.295, Y=0.28 | 5.50-8.25 | 2.7-3.4 | 115              |



UNIT : mm

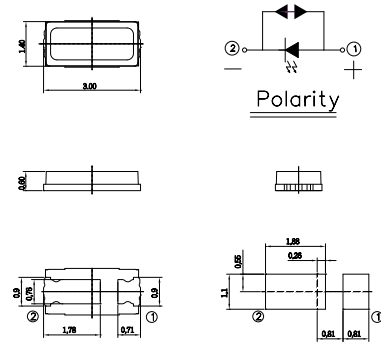


| Product     | Dimension (mm) | Color   | Power(W) | CIE(x,y)        | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|-------------|----------------|---------|----------|-----------------|-----------|---------|------------------|
| BL-3003LM2C | 3.0x0.85x0.3   | ○ White | 0.06     | X=0.295, Y=0.28 | 5.25-7.75 | 2.7-3.4 | 115              |

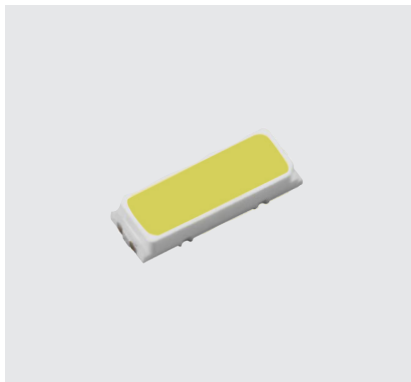
Backlighting LED ■ Automotive Product



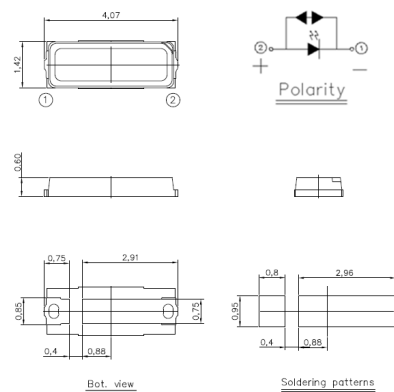
UNIT : mm



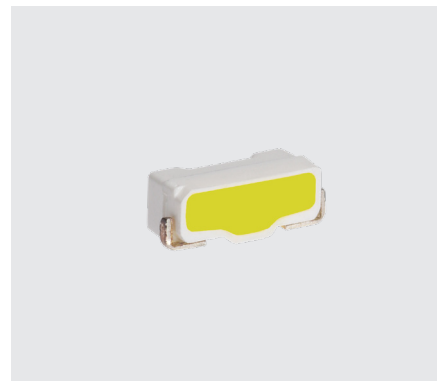
| Product      | Dimension (mm) | Color   | Power(W) | CIE(x,y)         | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|--------------|----------------|---------|----------|------------------|-----------|---------|------------------|
| BLA-3014PZ1U | 3.0x1.4x0.6    | ○ White | 0.25     | X=0.277, Y=0.247 | 22-40     | 2.7-3.4 | 120              |



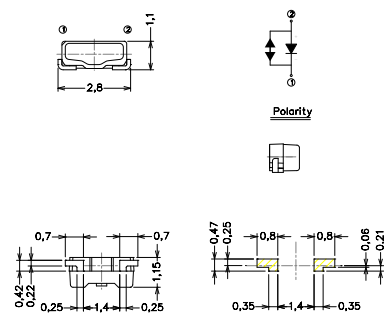
UNIT : mm



| Product      | Dimension (mm) | Color   | Power(W) | CIE(x,y)         | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|--------------|----------------|---------|----------|------------------|-----------|---------|------------------|
| BLA-4014PZ1E | 4.0x1.4x0.6    | ○ White | 0.4      | X=0.277, Y=0.247 | 22-56     | 2.7-3.4 | 120              |



UNIT : mm

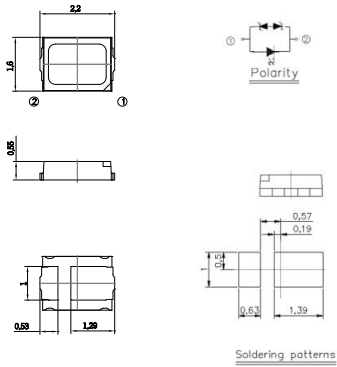


| Product      | Dimension (mm) | Color   | Power(W) | CIE(x,y)         | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|--------------|----------------|---------|----------|------------------|-----------|---------|------------------|
| BLA-2810NZ1T | 2.8x1.15x1.1   | ○ White | 0.25     | X=0.277, Y=0.247 | 20-38     | 2.7-3.4 | 120              |

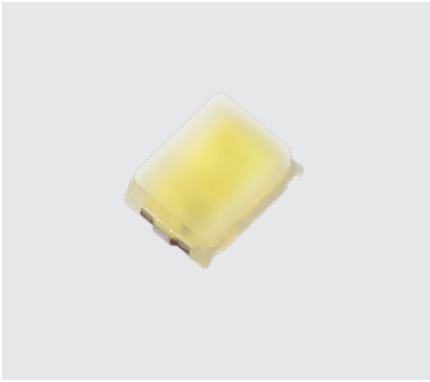
Backlighting LED ■ Automotive Product



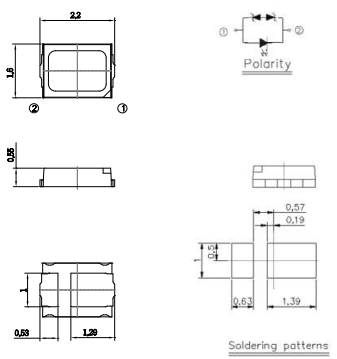
UNIT : mm



| Product         | Dimension (mm) | Color  | Power(W) | CIE(x,y)           | Iv(lm,mW) | VF(V)    | Viewing Angle(°) |
|-----------------|----------------|--------|----------|--------------------|-----------|----------|------------------|
| BLA-2016NZ1THBC | 2.0x1.6x0.55   | ○White | 0.03     | X=0.2735, Y=0.2293 | 2.3-4.3   | 2.6-2.85 | 120              |



UNIT : mm

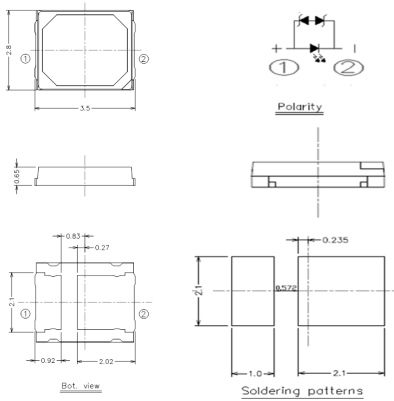


| Product          | Dimension (mm) | Color  | Power(W) | CIE(x,y)           | Iv(lm,mW) | VF(V)    | Viewing Angle(°) |
|------------------|----------------|--------|----------|--------------------|-----------|----------|------------------|
| BLA-2016NZ1CTHBC | 2.0x1.6x0.55   | ○White | 0.03     | X=0.2735, Y=0.2293 | 2.0-4.0   | 2.6-2.85 | 130              |

Backlighting LED ■ Automotive Product



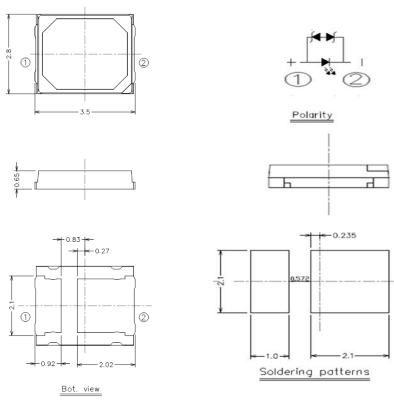
UNIT : mm



| Product         | Dimension (mm) | Color  | Power(W) | CIE(x,y)           | Iv(lm,mW) | VF(V)    | Viewing Angle(°) |
|-----------------|----------------|--------|----------|--------------------|-----------|----------|------------------|
| BLA-2835NZ1THBC | 3.5x2.8x0.7    | ○White | 0.03     | X=0.2735, Y=0.2293 | 3.25-4.5  | 2.6-2.85 | 120              |



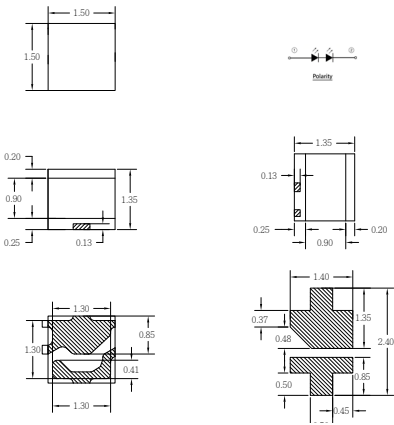
UNIT : mm



| Product          | Dimension (mm) | Color  | Power(W) | CIE(x,y)           | Iv(lm,mW) | VF(V)    | Viewing Angle(°) |
|------------------|----------------|--------|----------|--------------------|-----------|----------|------------------|
| BLA-2835NZ1CTHBC | 3.5x2.8x0.7    | ○White | 0.03     | X=0.2735, Y=0.2293 | 2.75-4    | 2.6-2.85 | 130              |



UNIT : mm

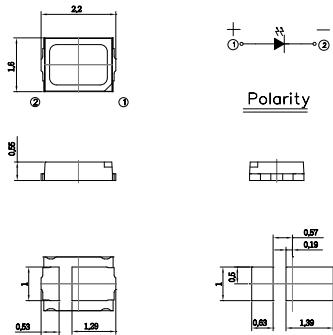


| Product            | Dimension (mm) | Color  | Power(W) | CIE(x,y)           | Iv(lm,mW) | VF(V)   | Viewing Angle(°) |
|--------------------|----------------|--------|----------|--------------------|-----------|---------|------------------|
| BLA-1515WRON2EMHBC | 1.5x1.5x1.35   | ○White | 0.08     | X=0.2735, Y=0.2293 | 7-13      | 5.1~5.6 | 180              |

Backlighting LED ■ Local Dimming Product



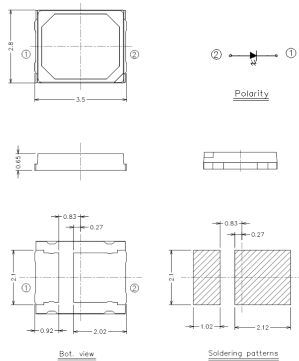
UNIT : mm



| Product     | Dimension (mm) | Color  | Power(W) | CIE(x,y)    | lv(lm,mW) | VF(V) | Viewing Angle(°) |
|-------------|----------------|--------|----------|-------------|-----------|-------|------------------|
| BL-2016NN1T | 2.0x1.6x0.55   | ● Blue | 0.03     | 447.5~457.5 | 8-20mW    | 2.5-3 | 120              |



UNIT : mm

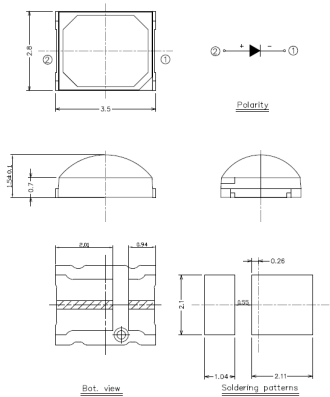


| Product     | Dimension (mm) | Color  | Power(W) | CIE(x,y)    | lv(lm,mW) | VF(V) | Viewing Angle(°) |
|-------------|----------------|--------|----------|-------------|-----------|-------|------------------|
| BL-2835SN1T | 3.5x2.8x0.7    | ● Blue | 0.03     | 447.5~457.5 | 20-38(mW) | 2.5-3 | 120              |

Backlighting LED ■ Local Dimming Product



UNIT : mm



| Product        | Dimension (mm) | Color  | Power(W) | CIE(x,y)    | Iv(lm,mW)  | VF(V)   | Viewing Angle(°) |
|----------------|----------------|--------|----------|-------------|------------|---------|------------------|
| BL-2835LN1CTBC | 3.5x2.8x1.4    | ● Blue | 0.15     | 447.5~457.5 | 70-100(mW) | 2.8-3.1 | 140              |



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