



# CATALOGUE 2026-2027 —— AUTOMOTIVE LED

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**EVERLIGHT**



# EVERLIGHT

One Source For Every Need

EVERLIGHT Electronics Co., Ltd. was founded in 1983 in Taipei, Taiwan led by Chairman Robert Yeh. EVERLIGHT Electronics Co. has over 40 years of R&D experience for reliable capability. With immediate service and an excellent brand reputation, EVERLIGHT has taken top five in the competitive LED market. Our products are manufactured and packed in-house to guarantee maximum quality and service.

EVERLIGHT provides a diverse product portfolio consisting of High Power LEDs, SMD LEDs, Lamps, Lighting Components, LED Lighting Modules, Digital Displays, Opto-couplers and Infrared Components for various applications. Today, EVERLIGHT is a global company with over 6,400 employees based in China, Hong Kong, Japan, Korea, Singapore, Malaysia, India, Germany and U.S.A.

For more information, please visit our website :

[www.everlight.com](http://www.everlight.com)



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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 |

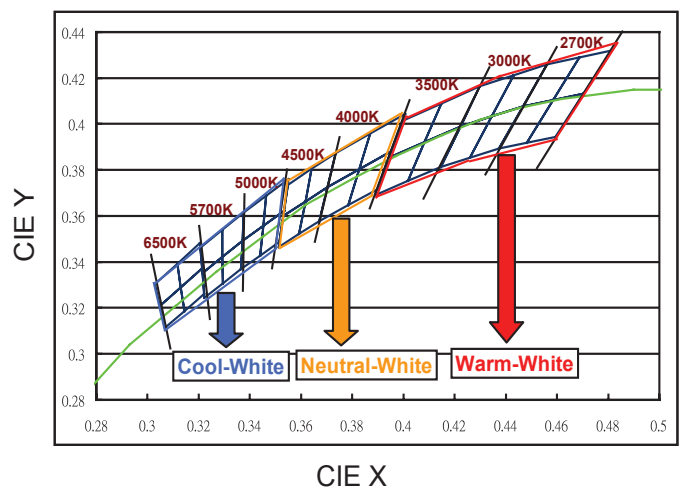
| 3500K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 35K-1 | 35K-2 | 35K-3 | 35K-4 |
| CIE X | 0.415 | 0.400 | 0.394 | 0.408 |
|       | 0.408 | 0.394 | 0.389 | 0.402 |
|       | 0.422 | 0.408 | 0.402 | 0.415 |
|       | 0.430 | 0.415 | 0.408 | 0.422 |
| CIE Y | 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              |
| D<br>Deep-<br>Red            | 7       | 630              | 635              |
|                              | 1       | 635              | 640              |
|                              | 2       | 640              | 645              |
|                              | 3       | 645              | 650              |
|                              | 4       | 650              | 655              |
|                              | 5       | 655              | 660              |
|                              | 6       | 660              | 665              |
|                              | 7       | 665              | 670              |
| F<br>Far-<br>Red             | 8       | 670              | 675              |
|                              | 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 | --     | --     |
| CIE Y | 0.3533 | 0.3456 | 0.3422 | 0.3515 | --     | --     |
|       | 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 | --     | --     |
| CIE Y | 0.3371 | 0.3292 | 0.3262 | 0.3366 | --     | --     |
|       | 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 | --     | --     |
| CIE Y | 0.3213 | 0.3125 | 0.3100 | 0.3221 | --     | --     |
|       | 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 | --     | --     |
| CIE Y | 0.3952 | 0.3843 | 0.3779 | 0.3898 | --     | --     |
|       | 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 | --     | --     |
| CIE Y | 0.3703 | 0.3626 | 0.3584 | 0.3670 | --     | --     |
|       | 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 | --     | --     |

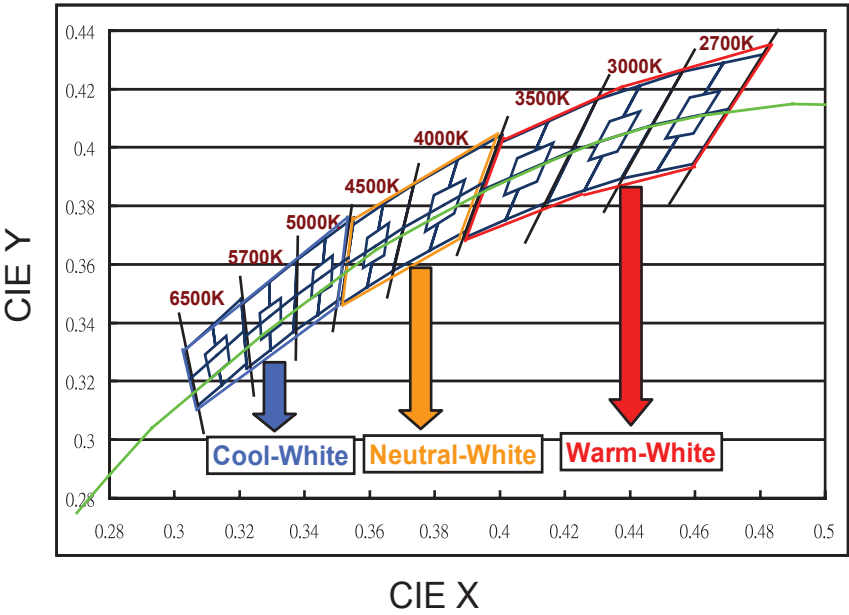
Warm-White Bin Coordinates

| 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

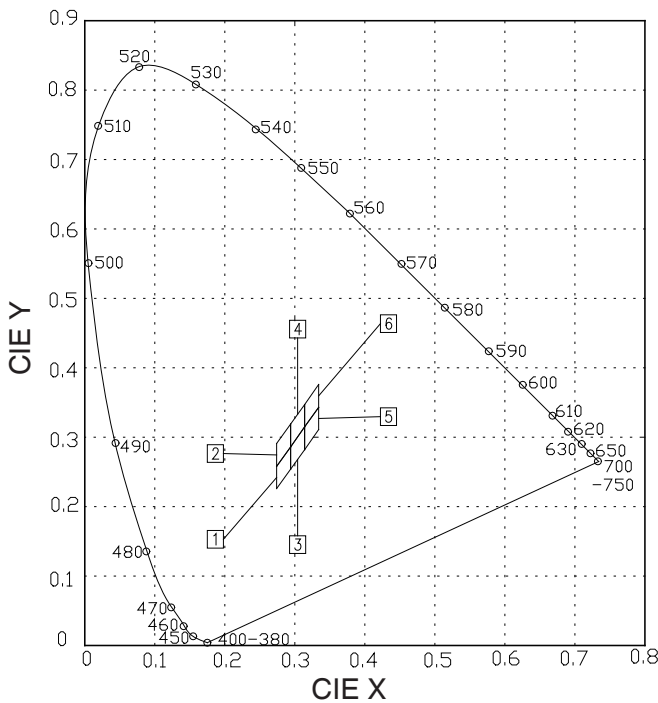
| Forward Voltage Groups |  | Bin | Min. | Max. |
|------------------------|--|-----|------|------|
|                        |  | 00  | 1.55 | 1.75 |
|                        |  | 0   | 1.75 | 1.95 |
|                        |  | 1   | 1.95 | 2.15 |
|                        |  | 2   | 2.15 | 2.35 |
|                        |  | 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)

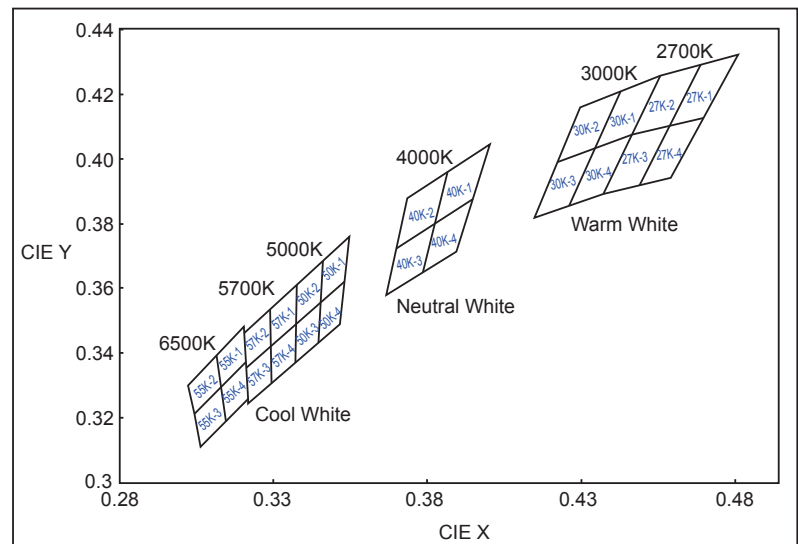
Unit : V ( I<sub>F</sub>=150mA )

| 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



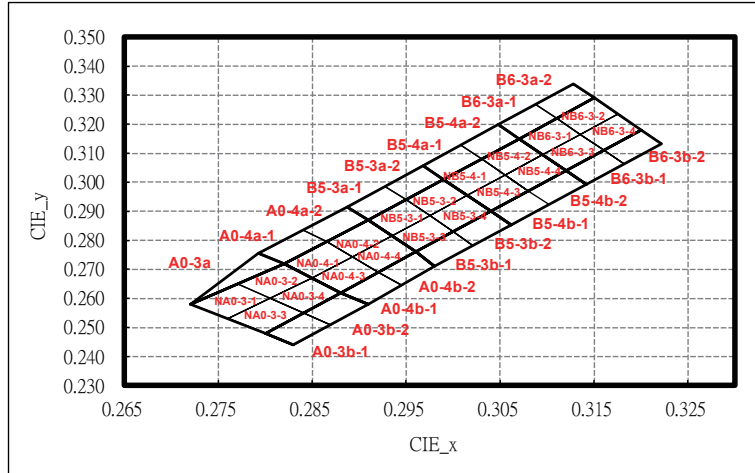
## Bin Coordinate

| 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 |          | 0.2975 | 0.2885 |
|          | 0.2820 | 0.2720 |          | 0.2935 | 0.2815 |          | 0.2910 | 0.2870 |          | 0.2975 | 0.2885 |
|          | 0.2720 | 0.2580 |          | 0.2935 | 0.2815 |          | 0.2910 | 0.2870 |          | 0.2975 | 0.2885 |
| NB5-3-3  | 0.2960 | 0.2760 | NB5-3-4  | 0.3000 | 0.2830 | B5-4b-1  | 0.3062 | 0.2853 | B5-4b-2  | 0.3102 | 0.2923 |
|          | 0.2935 | 0.2815 |          | 0.2975 | 0.2885 |          | 0.3040 | 0.2900 |          | 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 |
| B5-3b-1  | 0.2980 | 0.2710 | B5-3b-2  | 0.3021 | 0.2782 | B6-3a-1  | 0.3070 | 0.3150 | B6-3a-2  | 0.3110 | 0.3220 |
|          | 0.2960 | 0.2760 |          | 0.3000 | 0.2830 |          | 0.3048 | 0.3198 |          | 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 |
| B5-4a-1  | 0.2990 | 0.3010 | B5-4a-2  | 0.3030 | 0.3080 | NB6-3-1  | 0.3095 | 0.3095 | NB6-3-2  | 0.3135 | 0.3165 |
|          | 0.2968 | 0.3058 |          | 0.3008 | 0.3128 |          | 0.3070 | 0.3150 |          | 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 |
| NB5-4-1  | 0.3015 | 0.2955 | NB5-4-2  | 0.3055 | 0.3025 | NB6-3-3  | 0.3120 | 0.3040 | NB6-3-4  | 0.3160 | 0.3110 |
|          | 0.2990 | 0.3010 |          | 0.3030 | 0.3080 |          | 0.3095 | 0.3095 |          | 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 |
| NB5-4-3  | 0.3040 | 0.2900 | NB5-4-4  | 0.3080 | 0.2970 | B6-3b-1  | 0.3142 | 0.2993 | B6-3b-2  | 0.3182 | 0.3063 |
|          | 0.3015 | 0.2955 |          | 0.3055 | 0.3025 |          | 0.3120 | 0.3040 |          | 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:  $\pm 0.05V$

### Luminous Flux

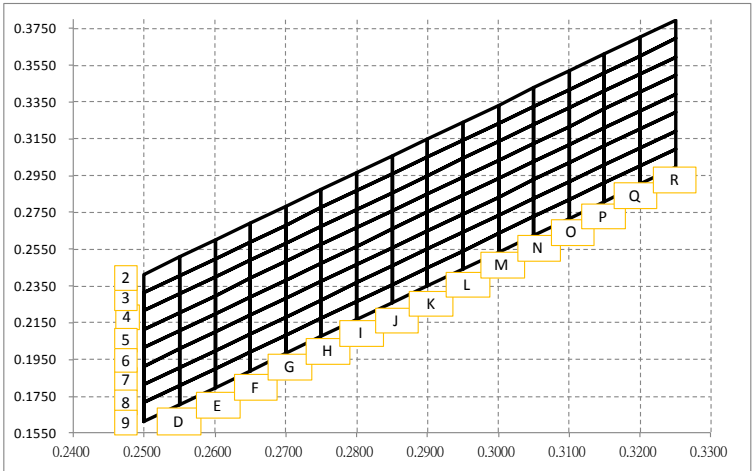
| Bin | Unit: lm |       | Unit: mcd. |      |
|-----|----------|-------|------------|------|
|     | Min      | Max   | Min        | Max  |
| B45 | 4.50     | 4.75  | 1605       | 1695 |
| B47 | 4.75     | 5.00  | 1695       | 1785 |
| B50 | 5.00     | 5.25  | 1785       | 1875 |
| B52 | 5.25     | 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:  $\pm 7\%$ .

# 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 | 0.2082 |     | 0.2750 | 0.2174 |
| D9  | 0.2500 | 0.1414 | E9  | 0.2550 | 0.1606 | F9  | 0.2600 | 0.1698 | G9  | 0.2650 | 0.1790 | H9  | 0.2700 | 0.2082 |
|     | 0.2500 | 0.1314 |     | 0.2550 | 0.1506 |     | 0.2600 | 0.1598 |     | 0.2650 | 0.1690 |     | 0.2700 | 0.1982 |
|     | 0.2550 | 0.1606 |     | 0.2600 | 0.1798 |     | 0.2650 | 0.1890 |     | 0.2700 | 0.1982 |     | 0.2750 | 0.2074 |
|     | 0.2550 | 0.1506 |     | 0.2600 | 0.1698 |     | 0.2650 | 0.1798 |     | 0.2700 | 0.1890 |     | 0.2750 | 0.1982 |

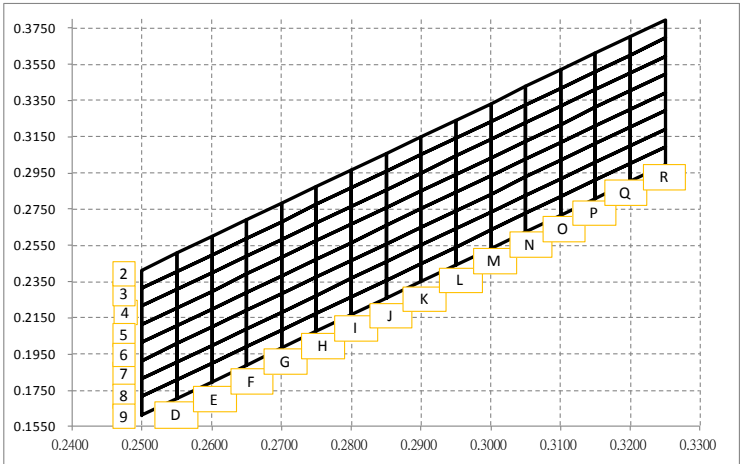
### Bin code of Chromaticity Coordinates

| 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 | 0.2174 | J9  | 0.2800 | 0.2266 | K9  | 0.2850 | 0.2358 | L9  | 0.2900 | 0.2450 | M9  | 0.2950 | 0.2542 |
|     | 0.2750 | 0.2074 |     | 0.2800 | 0.2166 |     | 0.2850 | 0.2258 |     | 0.2900 | 0.2350 |     | 0.2950 | 0.2442 |
|     | 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 |

# 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)

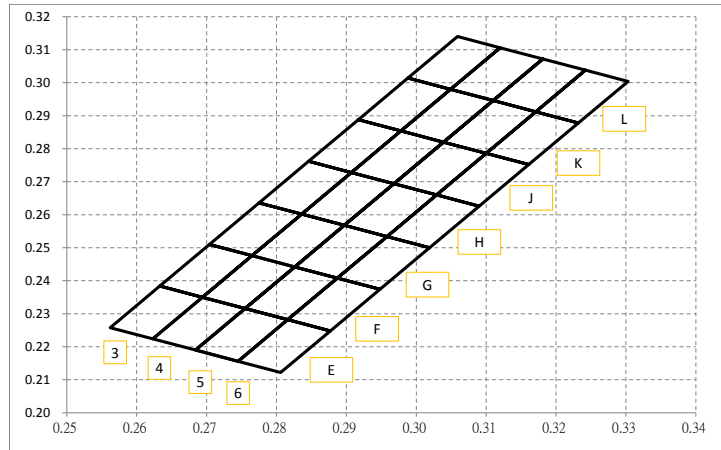
| Bin | Unit: V |      |
|-----|---------|------|
|     | Min.    | Max. |
| D26 | 2.60    | 2.70 |
| D27 | 2.70    | 2.80 |
| D28 | 2.80    | 2.90 |
| D29 | 2.90    | 3.00 |
| D30 | 3.00    | 3.10 |
| D31 | 3.10    | 3.20 |
| D32 | 3.20    | 3.30 |
| D33 | 3.30    | 3.40 |
| D34 | 3.40    | 3.50 |

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)

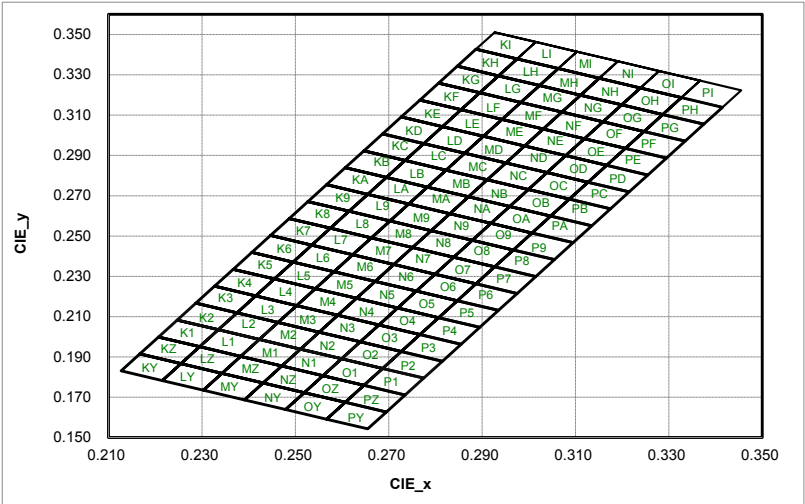
| Bin | Unit: V |      |
|-----|---------|------|
|     | Min.    | Max. |
| D26 | 2.60    | 2.70 |
| D27 | 2.70    | 2.80 |
| D28 | 2.80    | 2.90 |
| D29 | 2.90    | 3.00 |
| D30 | 3.00    | 3.10 |
| D31 | 3.10    | 3.20 |
| D32 | 3.20    | 3.30 |
| D33 | 3.30    | 3.40 |
| D34 | 3.40    | 3.50 |

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 | 0.2635 |
|     | 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)

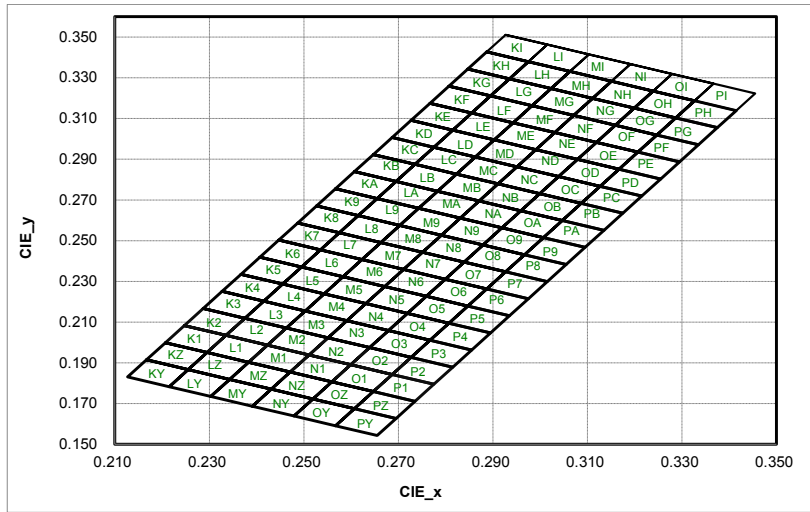
| Bin | Unit: lm |      |
|-----|----------|------|
|     | Min.     | Max. |
| E28 | 2.8      | 3    |
| E30 | 3        | 3.2  |
| E32 | 3.2      | 3.4  |
| E34 | 3.4      | 3.6  |
| E36 | 3.6      | 3.8  |
| E38 | 3.8      | 4.0  |
| D28 | 2.8      | 2.9  |
| D29 | 2.9      | 3    |
| D30 | 3        | 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

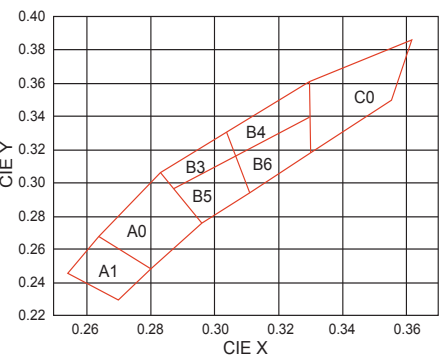
| Item     | Intensity Iv (mcd) |        |
|----------|--------------------|--------|
| Bin Code | Min.               | Max.   |
| a7       | 6.0                | 8.0    |
| a6       | 8.0                | 10.0   |
| a5       | 10.0               | 12.0   |
| a4       | 12.0               | 15.0   |
| 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.

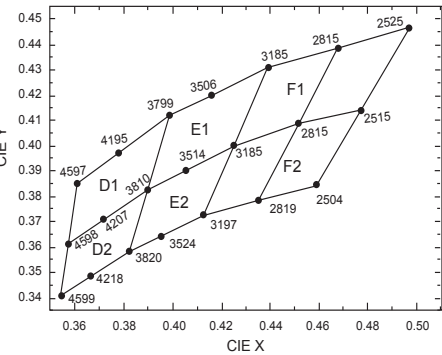


Warm White / CIE Chromaticity Diagram

(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.

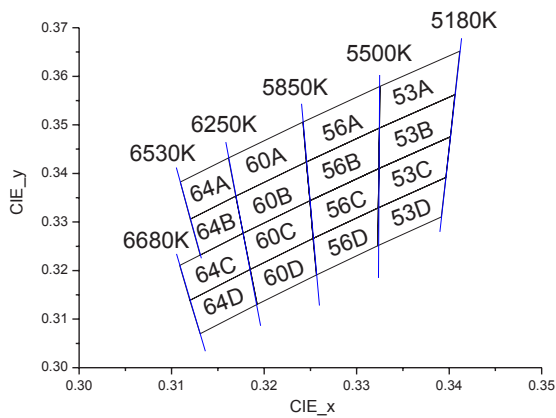


DIGITAL DISPLAY  
BRIGHTNESS BIN SELECTION

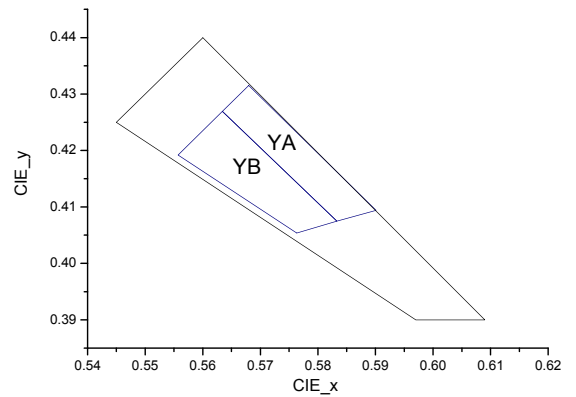
| Bin Code | Brightness Range (μcd) |        |
|----------|------------------------|--------|
|          | Min.                   | Max.   |
| C        | 70                     | 140    |
| D        | 110                    | 220    |
| E        | 180                    | 360    |
| F        | 280                    | 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 |        |        |                             |        |        |

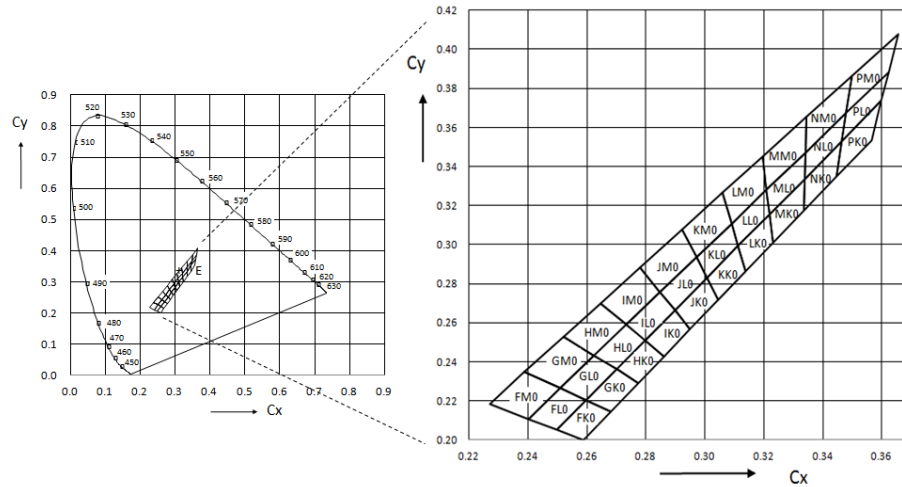
### Amber Bin Coordinates

| 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



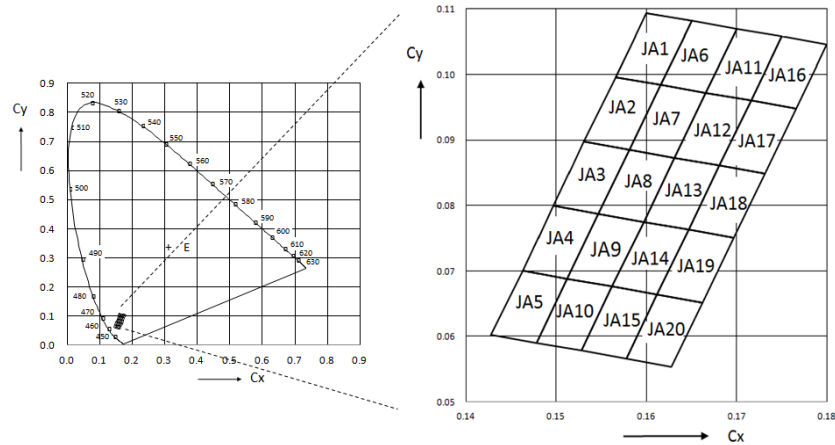
### Bin Range of Chromaticity Coordinates Specifications

| 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

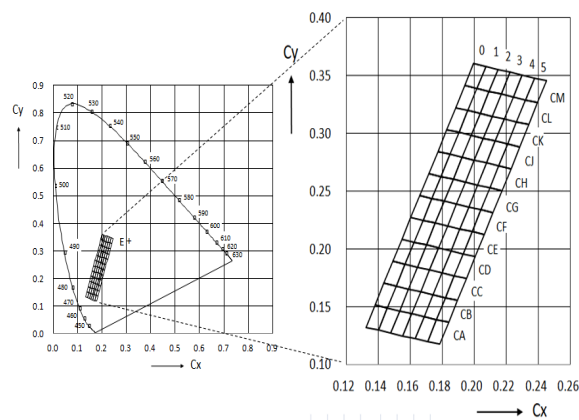


## Bin Range of Chromaticity Coordinates Specifications

| 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 |

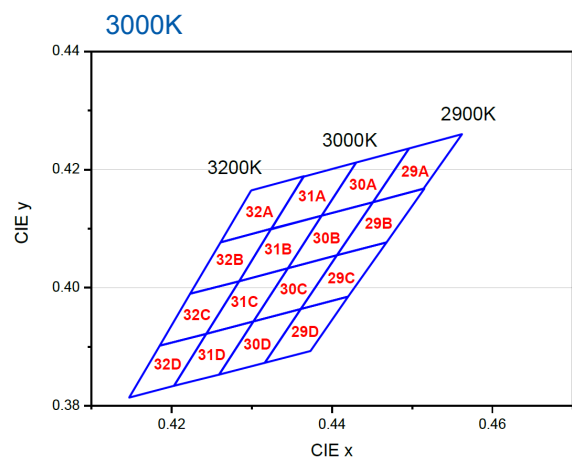
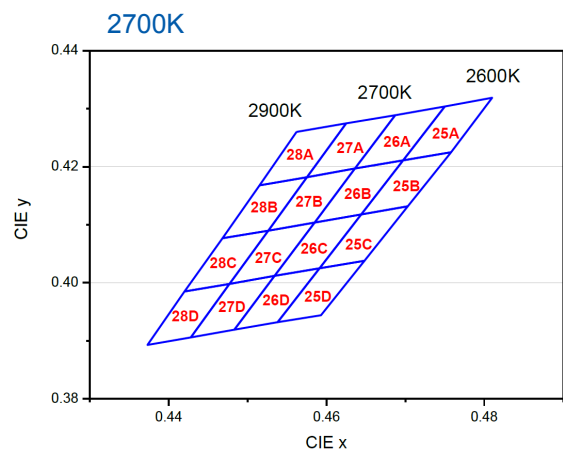
| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| CK2      | 0.1980 | 0.2986 | CH1      | 0.1792 | 0.2630 |
|          | 0.2036 | 0.3176 |          | 0.1848 | 0.2820 |
|          | 0.2112 | 0.3151 |          | 0.1924 | 0.2796 |
|          | 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

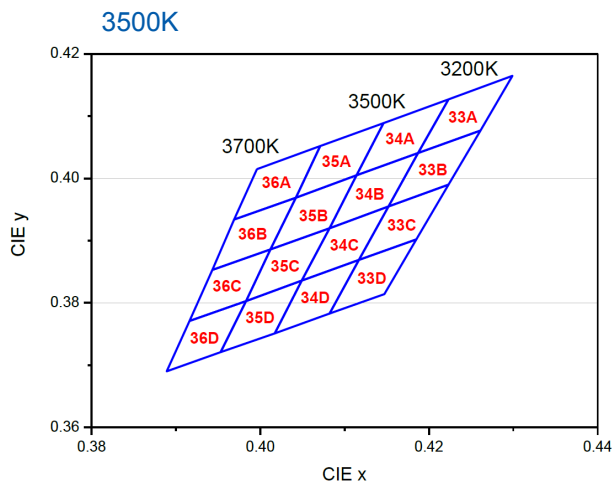
Interior / 5630/2835



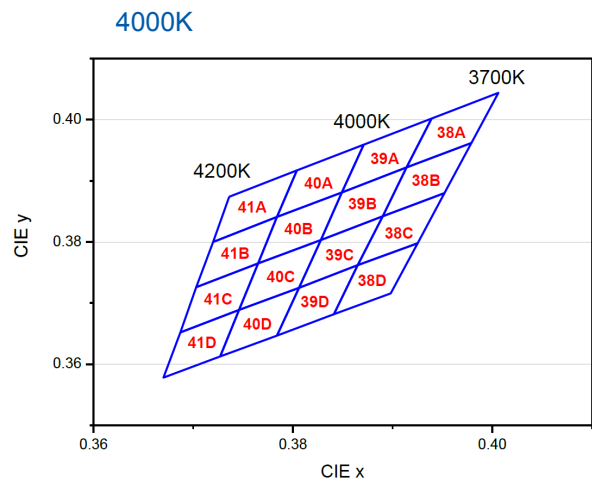
Bin Range of Chromaticity Coordinates Specifications

| 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

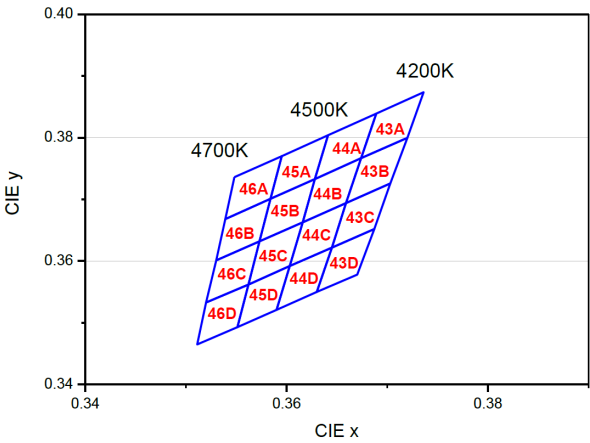
| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 3500K | 33A      | 0.4223 | 0.4127 | 33B      | 0.4187 | 0.4041 |
|       |          | 0.4187 | 0.4041 |          | 0.4152 | 0.3955 |
|       |          | 0.4261 | 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 |

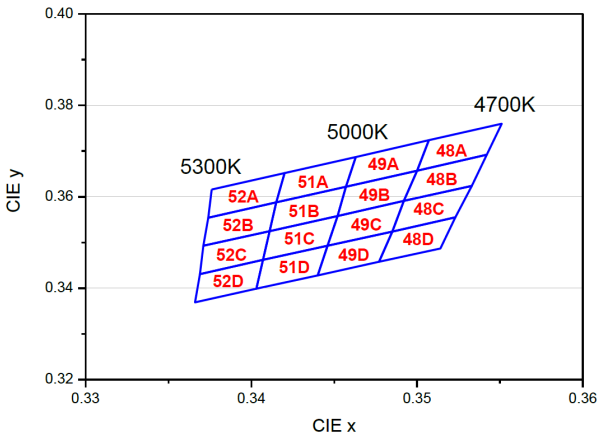
AUTOMOTIVE  
BIN SELECTION

Interior / 5630/2835

4500K

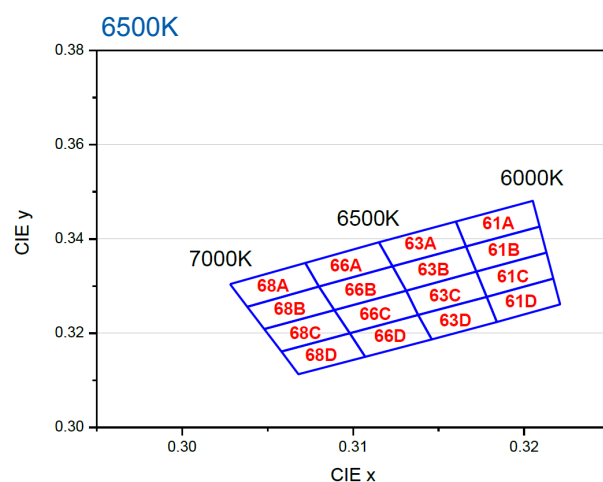
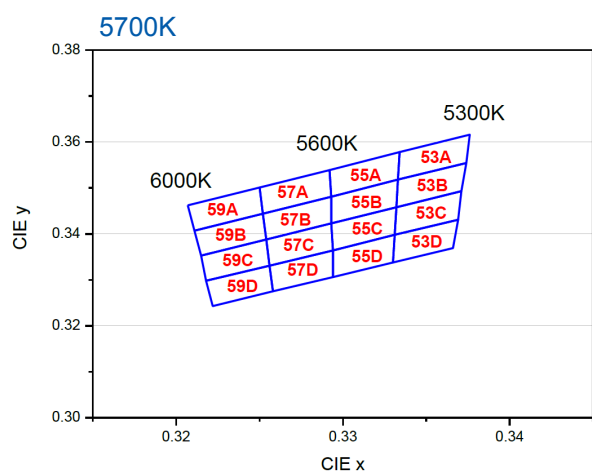


5000K



| 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 |



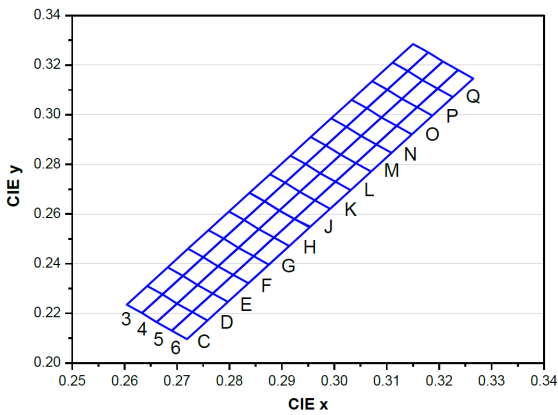
Bin Range of Chromaticity Coordinates Specifications

| 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 |

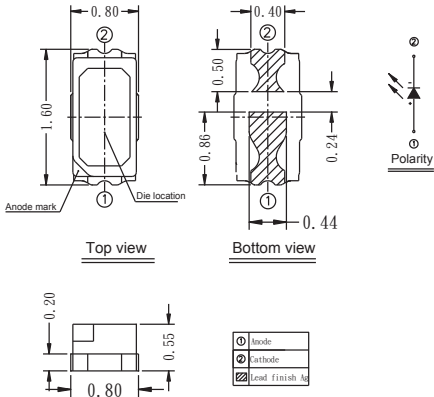
| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| D3       | 0.2672 | 0.2276 | E5       | 0.2768 | 0.2280 |
|          | 0.2643 | 0.2310 |          | 0.2739 | 0.2314 |
|          | 0.2682 | 0.2385 |          | 0.2778 | 0.2389 |
|          | 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 |          |        |        |



Automotive LED ■ Interior Lighting



UNIT : mm

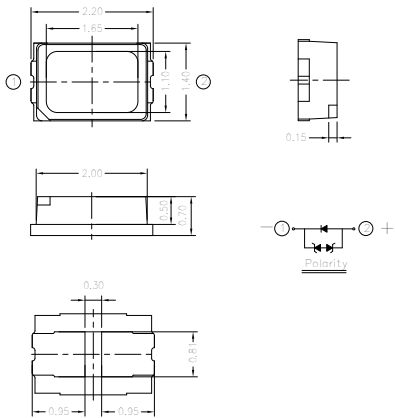


EL 1608

| 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



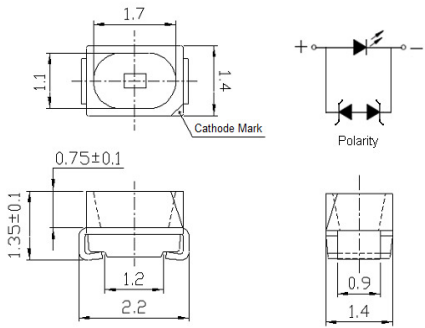
EL 2214

| 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

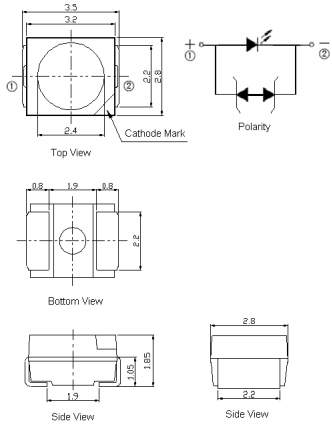


EL Mini Top View

| 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



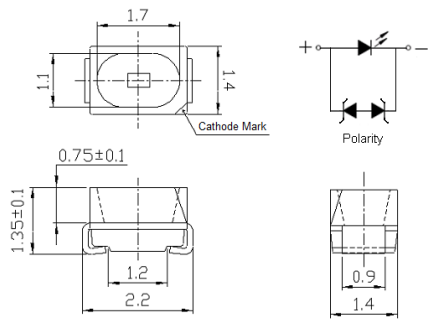
EL Top View

| 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



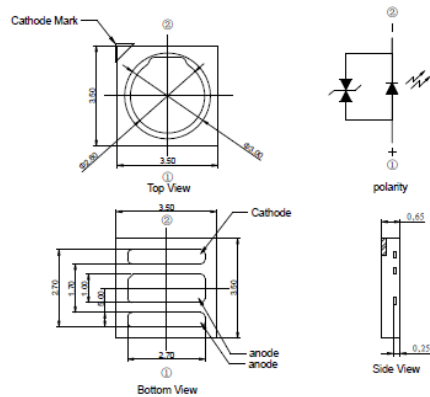
EL Top View 2835

| 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

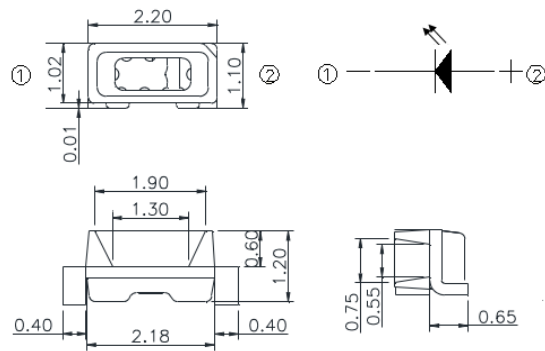


XI3535

| Product           | Chip quantity | Dimension (mm) | Color   | Chromaticity Coordinate Typ(x,y) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|-------------------|---------------|----------------|---------|----------------------------------|-----------------|---------------------|----------------------|
| XI3535-W03501H-AM | 1             | 3.5x3.5x0.65   | ○ White | 0.3,0.3                          | 110             | 3.1                 | 350                  |



UNIT : mm



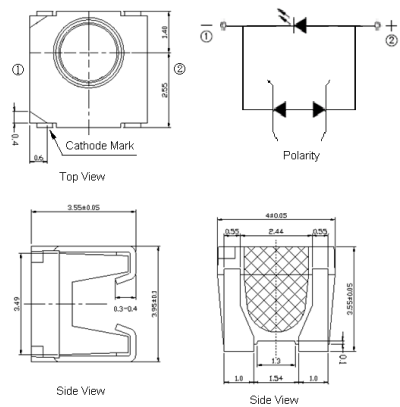
EL Micro Side View

| Product           | Chip quantity | Dimension (mm) | Color          | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (mcd) | Forward Voltage (V) | Driving current (mA) |
|-------------------|---------------|----------------|----------------|----------------------------------|-----------------|------------------|---------------------|----------------------|
| 3011L-C70201H-AM  | 1             | 3.0x1.1x1.2    | ○ White        | 0.3,0.28                         | -               | 1150             | 3                   | 20                   |
| 3011L-PYG0201H-AM | 1             | 3.0x1.1x1.2    | ● Yellow Green | 0.44,0.28                        | -               | 920              | 3                   | 20                   |
| 3011L-UB0201H-AM  | 1             | 3.0x1.1x1.2    | ● Blue         | -                                | 457             | 270              | 3                   | 20                   |
| 3011L-UG0201H-AM  | 1             | 3.0x1.1x1.2    | ● Green        | -                                | 523             | 850              | 3                   | 20                   |
| 3011L-UR0201H-AM  | 1             | 3.0x1.1x1.2    | ● Red          | -                                | 622             | 850              | 1.9                 | 20                   |
| 3011L-UY0201H-AM  | 1             | 3.0x1.1x1.2    | ● Yellow       | -                                | 589             | 850              | 1.9                 | 20                   |
| 3011L-SR0201H-AM  | 1             | 3.0x1.1x1.2    | ● Super Red    | -                                | 629             | 580              | 1.9                 | 20                   |

Automotive LED ■ Interior Lighting



UNIT : mm

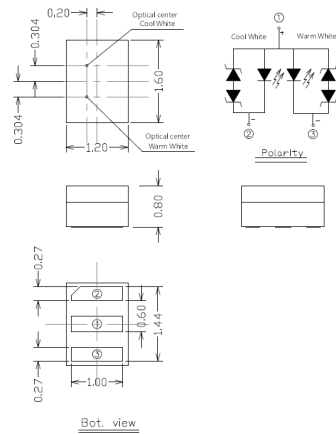


EL Side View

| 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



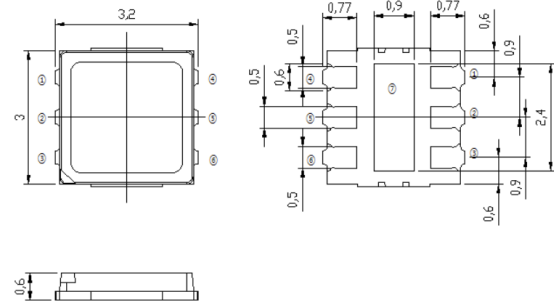
EL Micro Multi

| 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

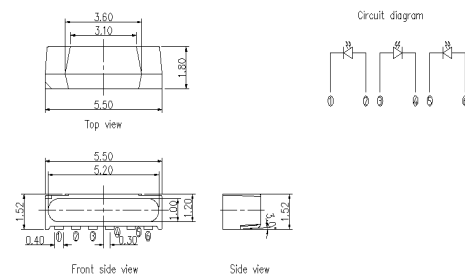
UNIT : mm



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



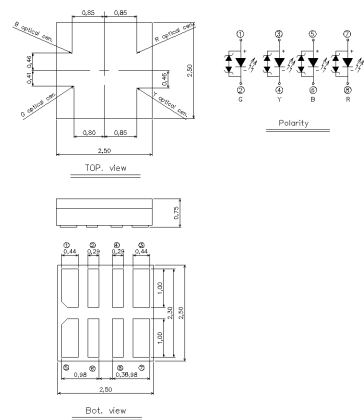
ELSide View 5515

| 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



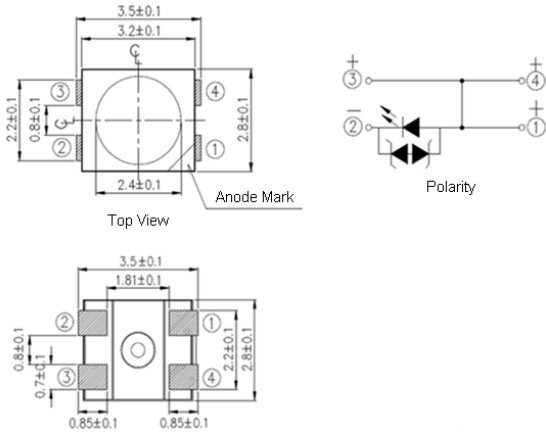
EL Multi Color

| 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, CIE y = 0.307 | -               | 3300             | 2.82                | 40                   |

Automotive LED ■ Exterior Lighting



UNIT : mm

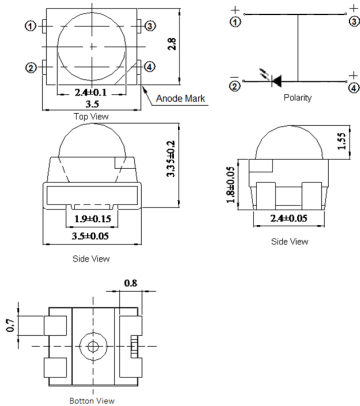


PLCC4

| 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



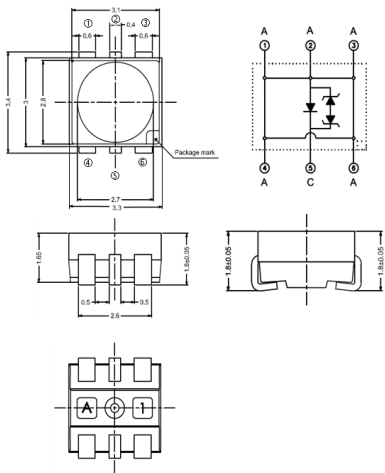
PLCC3 LENS

| 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

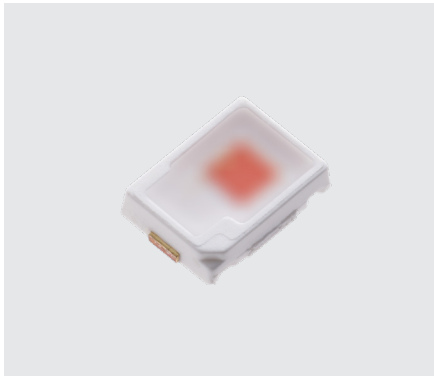


UNIT : mm

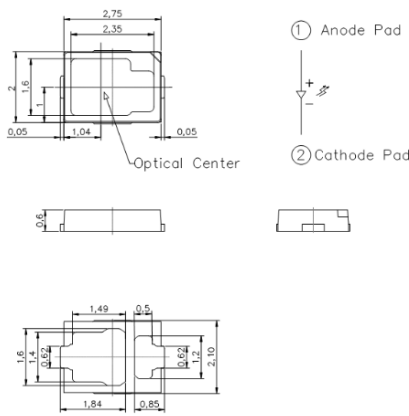


EL Advanced Power Top View

| 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



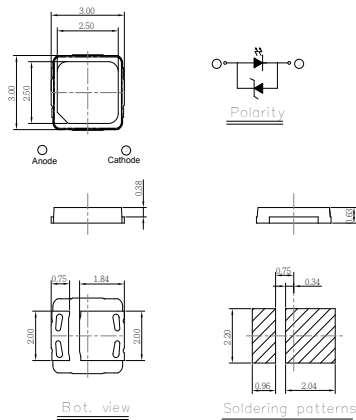
EL 2820

| 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



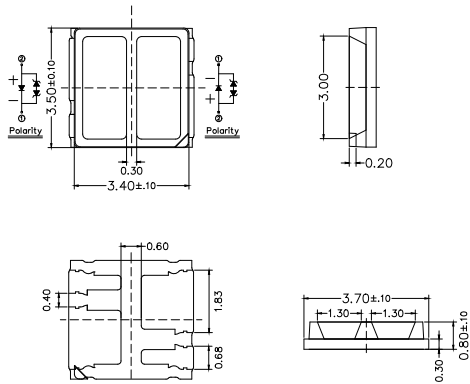
Suggested post dimension is just reference only.  
Please modify the post dimension based on individual need.

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



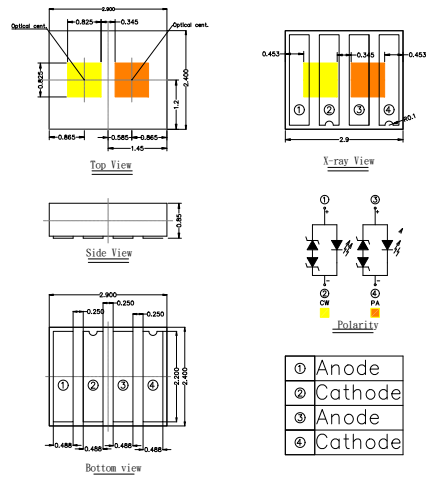
EL 3735

| 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                  |

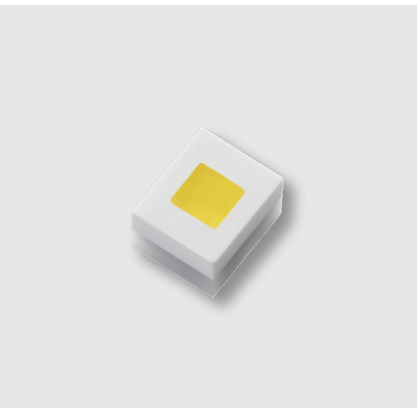
Automotive LED ■ Exterior Lighting



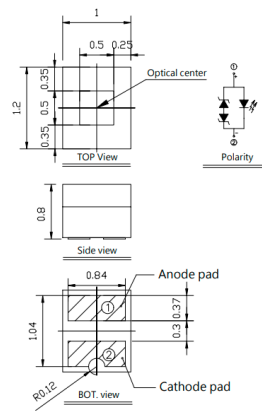
UNIT : mm



| 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                  |



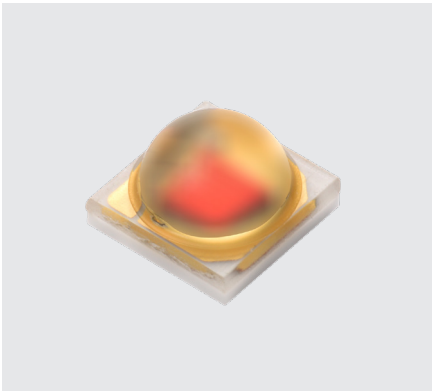
UNIT : mm



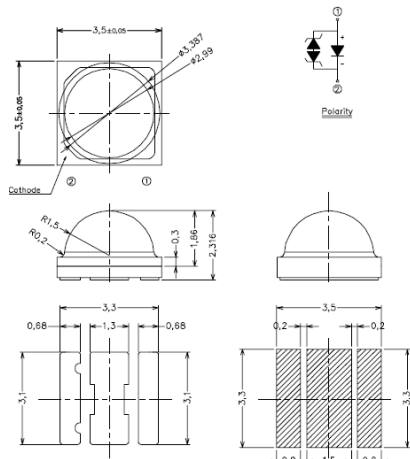
EL 1210

| 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



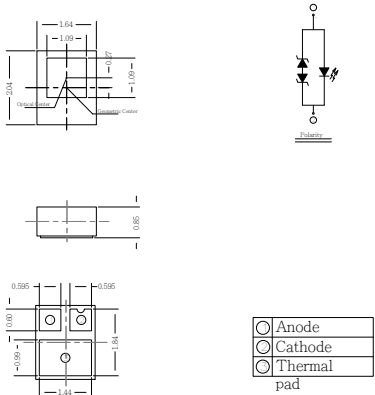
EL 3535E

| 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

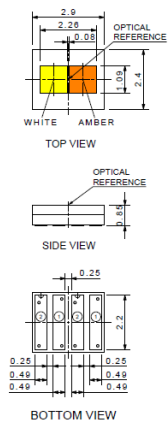


ALFS B series

| 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                 |



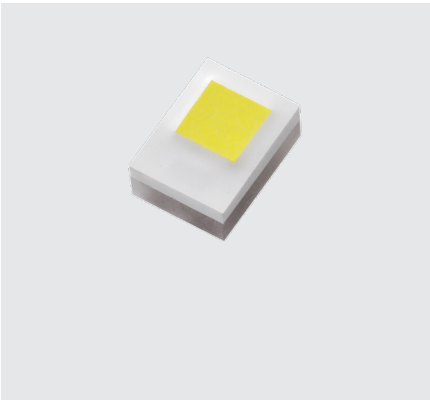
UNIT : mm



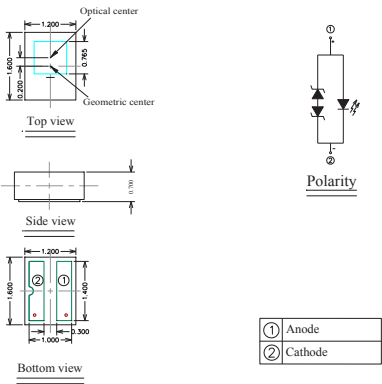
ALFS B series

| 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

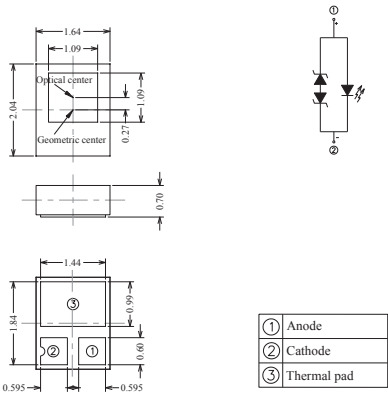


ALFS E series

| 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



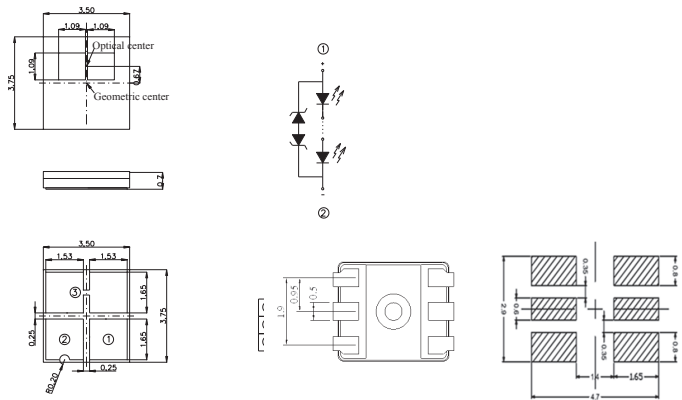
ALFS G series

| 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

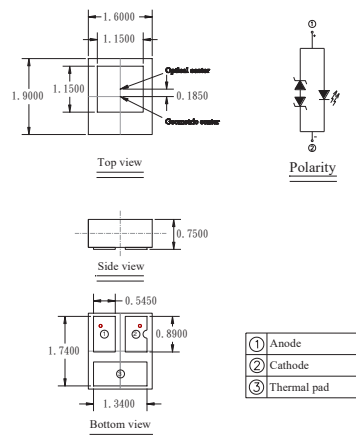


## ALFS G series

| 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



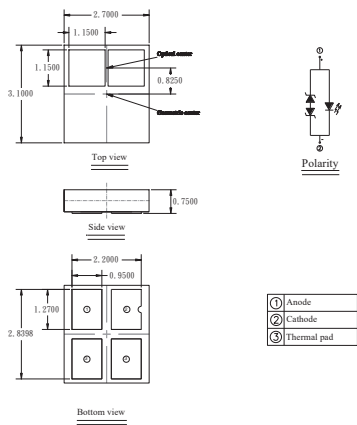
## ALFS H series

| 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

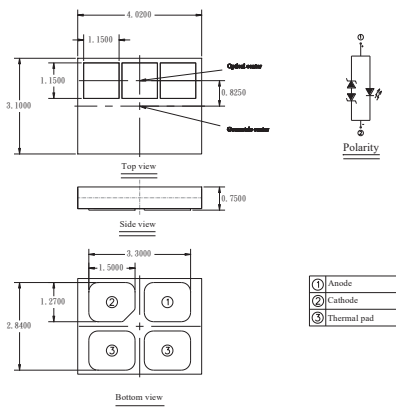


ALFS H series

| 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



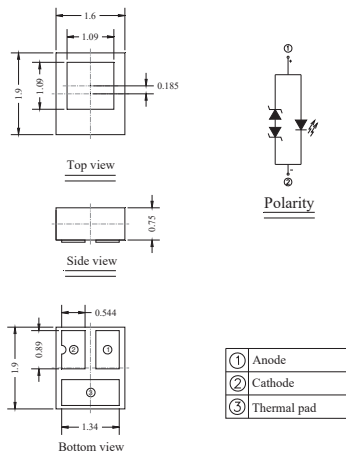
ALFS H series

| 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

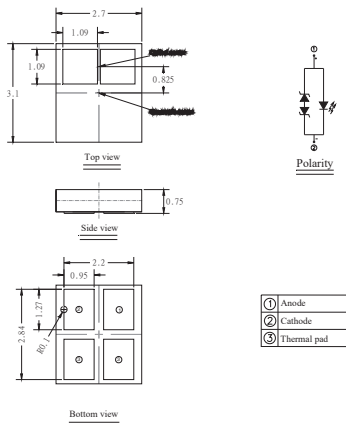


ALFS J series

| 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



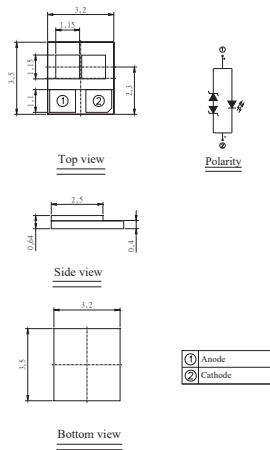
ALFS J series

| 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

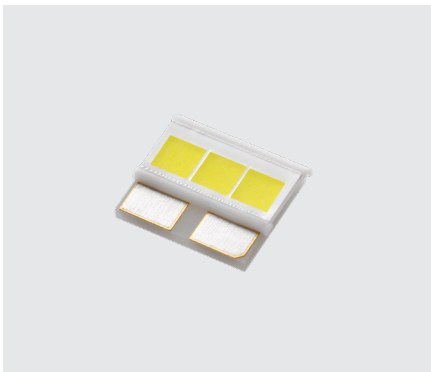


UNIT : mm

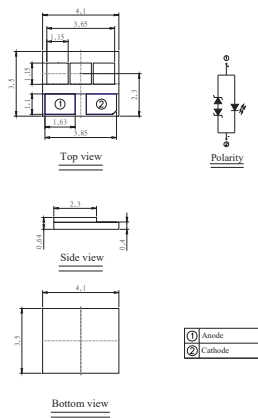


## ALFS HT series

| Product             | Chip quantity | Dimension (mm) | Color  | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|---------------------|---------------|----------------|--------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| ALFS2HT-C010001H-AM | 2             | 3.5x3.2x0.75   | ○White | 0.3,0.3                          | -               | 1380            | 6.5                 | 1000                 |



UNIT : mm



## ALFS HT series

| Product             | Chip quantity | Dimension (mm) | Color   | Chromaticity Coordinate Typ(x,y) | Wavelength (nm) | Brightness (lm) | Forward Voltage (V) | Driving current (mA) |
|---------------------|---------------|----------------|---------|----------------------------------|-----------------|-----------------|---------------------|----------------------|
| ALFS3HT-C010001H-AM | 3             | 3.5x4x0.75     | ○ White | 0.3,0.3                          | -               | 1380            | 9.75                | 1000                 |

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**ASIA****CHINA****CHINA, HONG KONG**

EVERLIGHT ELECTRONICS CO., LTD.

Units 305, 3/F., Prosperity Place,  
6 Shing Yip Street, Kwun Tong, Kowloon,  
Hong Kong

TEL: +852-2388-0602

FAX: +852-2388-1127

**CHINA, SHENZHEN**

EVERLIGHT ELECTRONICS CO., LTD.

Room 1101-1102, 3A Building, Period 1,  
Tian An Cloud Park, NO.2018, Xuegang Rd.,  
Bantian Sub-District, LongGang District,  
Shenzhen City, Guangdong Province, China  
Postcode: 518010

TEL: +86-0755-2163-8620

FAX: +86-0755-2163-8764

**CHINA, GUANGZHOU**

EVERLIGHT ELECTRONICS CO., LTD.

508 Room, Jiaotou Building, 131 Dongxing Road,  
Panyu District, Guangzhou city, Guangdong, China  
Postcode: 511400

TEL: +86-(0)20-8466-3392

FAX: +86-(0)20-8466-3372

**CHINA, SUZHOU**

EVERLIGHT ELECTRONICS CO., LTD.

5F, Wanrong International Building,  
NO. 3158, Renmin Rd., Gusu Dist., Suzhou City,  
Jiangsu Province, P.R. China  
Postcode: 215011

TEL: +86-(0)512-8860-5888

**CHINA, TIANJIN**

EVERLIGHT ELECTRONICS CO., LTD

ROOM 505, Zhongguancun E-Valley Creative  
World, No 37, NanKai Three Road, NanKai District,  
TianJin, China, 300100

Postcode: 300100

TEL: +86-22-2635-1122

**KOREA**

EVERLIGHT OPTOELECTRONICS

KOREA CO., LTD.

7F S706-1 Garden 5 Works Choongmin Rd52.,  
Songpa-gu, Seoul, KOREA.

TEL: +82-2-2047-3960

FAX: +82-2-2047-3961

EMAIL: terrychoi@everlightkorea.com

**JAPAN, TOKYO**

EVERLIGHT JAPAN CORPORATION

4F, FTK Building, 11-22 Higashidacho,  
Kawasaki-ku, Kawasaki-shi,  
Kanagawa 210-0005, Japan

TEL: +81-44-280-7385

FAX: +81-44-280-7395

EMAIL: elj@everlight.com

**JAPAN, KYOTO**

EVERLIGHT JAPAN CORPORATION

7F, KYOTO YAMASHINA BLDG.

46-1, TAKEHANADONOMAECCHOU,  
YAMASHINA KU, KYOTO, 607-8085, JAPAN

TEL: +81-75-584-6070

FAX: +81-75-584-6080

EMAIL: elj@everlight.com

**INDIA, NEW DELHI**

EVERLIGHT ELECTRONICS INDIA PRIVATE LTD.

No. 606, 6th Floor, Surya Kiran Building,  
Connaught Place, KG Marg, Delhi 110001  
Mobile: +91-914-8657774

EMAIL: salesindia@everlight.com

**MALAYSIA**

EVERLIGHT OPTOELECTRONICS(M) SDN BHD

B-04-20 Krystal Point,  
303 Jalan Sultan Azlan Shah,  
11900 Penang, Malaysia

TEL: +60-4-646-4233

EMAIL: inquiry@everlight.com.my

**SINGAPORE**

EVERLIGHT ELECTRONICS SINGAPORE PTE LTD

5 Tampines Central 6, #03-38 Telepark Building,  
Singapore 529482

TEL: +65-6747-7937

EMAIL: asean@everlight.com.my

**AMERICA****TEXAS USA**

EVERLIGHT AMERICAS INC.

3220 Commander Drive, Suite 100  
Carrollton, Texas, 75006, United States  
TEL: +1-972-490-4008

FAX: +1-972-490-5009

EMAIL: salesmarketing@everlightamericas.com

**ONTARIO USA**

EVERLIGHT AMERICAS INC.

8599 Haven Avenue, Suite 205, Rancho  
Cucamonga, California 91730, United States  
TEL: +1-909-308-4770

FAX: +1-909-308-4780

EMAIL: salesmarketing@everlightamericas.com

**SAN JOSE USA**

EVERLIGHT AMERICAS INC.

960 Saratoga Ave., Suite 112,  
San Jose, California, 95129, United States  
TEL: +1-408-816-7548

FAX: +1-408-816-7569

EMAIL: salesmarketing@everlightamericas.com

**MICHIGAN USA**

EVERLIGHT AMERICAS INC.

34405 W 12 Mile Rd, Suite 218  
Farmington Hills, Michigan 48331  
TEL: +1-734-224-9880

FAX: +1-734-224-9922

EMAIL: salesmarketing@everlightamericas.com

**EUROPE****GERMANY, KARLSRUHE**

EVERLIGHT ELECTRONICS EUROPE GMBH

Siemensallee 84, Building 7302, 5F  
76187 Karlsruhe, Germany  
TEL: +49-721-82447-3

FAX: +49-721-82447-40

EMAIL: info@everlight-eu.de

全国免费电话：400-6258-289

**HEADQUARTERS**

No. 6-8, Zhonghua Rd., Shulin Dist., New Taipei City, Taiwan 23860

TEL: +886-2-2685-6688 FAX: +886-2-2685-6699

[www.everlight.com](http://www.everlight.com)