



Citi-el

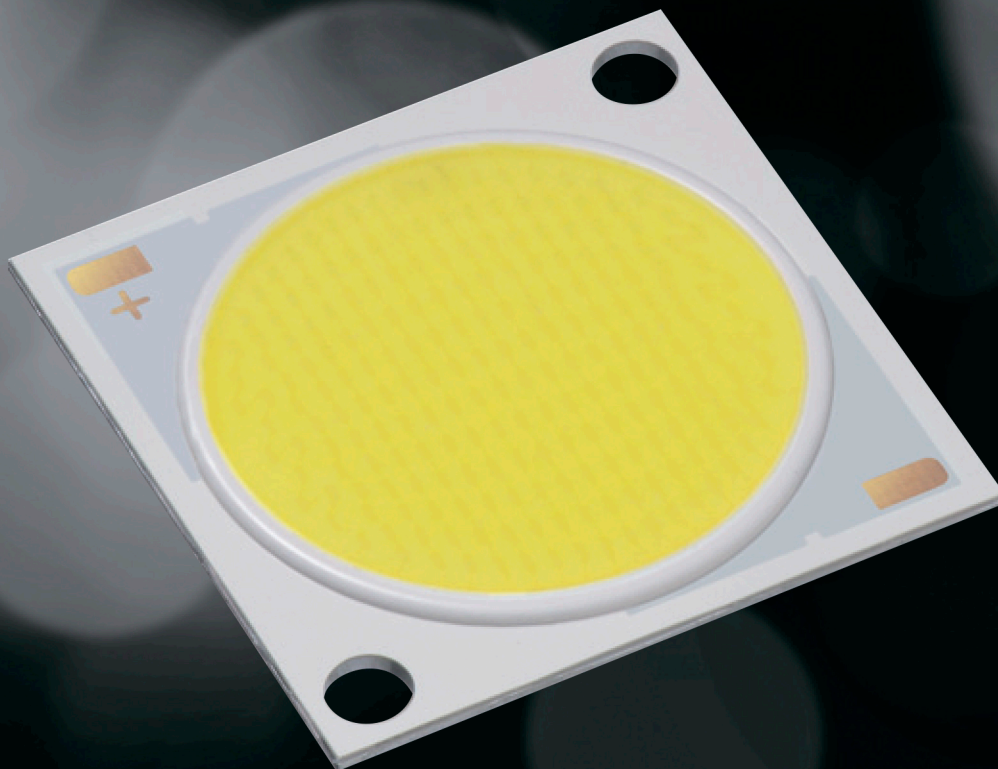
LED up your business

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CITIZEN



LED for General Lighting

CITILED[®]
The Light Engine

Four Lighting Solutions

High efficacy
and
High Power

The advanced LED packaging technology with high thermal dissipation makes high efficacy and high power driving available.

Optimized module solutions save customers design resources and system cost.

Module

CITILED
The Light Engine

Point Source

Population of multi LED dies with narrow pitch in the LED package makes sharp point light source and has light beam control easier with optics.

High color
quality

The advanced spectrum tuning technique makes high color quality LEDs suitable for many kinds of luminaire applications.

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| High efficacy & High Power | P.5 |
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| Ver.6 COB | P.6 |
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| CLU550 | P.13 |
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| CL-L104 | P.14 |
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| Compact SMD | P.16 |
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| High Intensity COB Ver.2 | P.18 |
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| Vivid Series Brilliant Type | P.23 |
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| Super High CRI | P.26 |
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| Amber color COB | P.29 |
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| Blue color COB | P.30 |
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| Module | P.31 |
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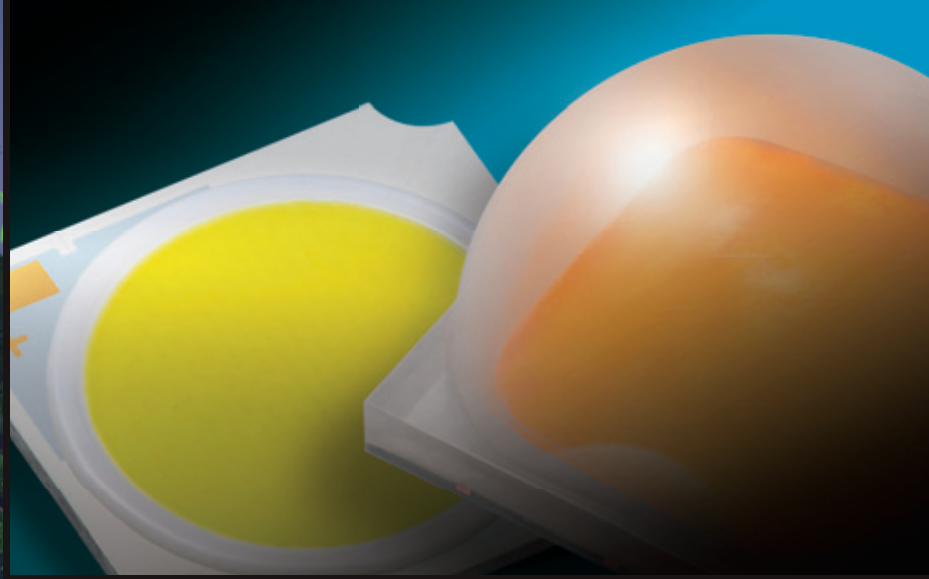
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| AC Disk Module | P.32 |
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| CSP Module | P.35 |
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CITILED LED Product List

| | | 65 CRI Typ. | | 70 CRI Min. | | | 80 CRI Min. | | | | | | 90 CRI Min. | | | | |
|---------|----------|-------------------|--------|-------------|--------|--------|-------------|--------|--------|--------|--------|--------|-------------|--------|--------|--------|--------|
| | | 2,200K (Amber) | 5,000K | 3,000K | 4,000K | 5,000K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 5,700K | 6,500K | 2,700K | 3,000K | 3,500K | 4,000K |
| COB | CLU028 | 1201C4 | | | | | | | | | | | | | | | |
| | | 1202C4 | | | | | | | | | | | | | | | |
| | | 1203C4 | | | | | | | | | | | | | | | |
| | | 1204C4 | | | | | | | | | | | | | | | |
| | CLU038 | 1205C4 | | | | | | | | | | | | | | | |
| | | 1206C4 | | | | | | | | | | | | | | | |
| | | 1208C4 | | | | | | | | | | | | | | | |
| | | 1210C4 | | | | | | | | | | | | | | | |
| | CLU048 | 1211C4 | | | | | | | | | | | | | | | |
| | | 1212C4 | | | | | | | | | | | | | | | |
| | | 1812C4 | | | | | | | | | | | | | | | |
| | | 1818C4 | | | | | | | | | | | | | | | |
| | CLU058 | 1825C4 | | | | | | | | | | | | | | | |
| | | 3618C4 | | | | | | | | | | | | | | | |
| | CLU550 | 3626C1 | | | | | | | | | | | | | | | |
| | CLU551 | 3626C4 | | | | | | | | | | | | | | | |
| | CLU701 | 0303C4 | | | | | | | | | | | | | | | |
| | | 0304C4 | | | | | | | | | | | | | | | |
| | 1002C4 | | | | | | | | | | | | | | | | |
| CLU711 | 1204C4 | | | | | | | | | | | | | | | | |
| CLU721 | 1206C4 | | | | | | | | | | | | | | | | |
| CLU731 | 1210C4 | | | | | | | | | | | | | | | | |
| CL-L104 | 3W | | | | | | | | | | | | | | | | |
| | 6W | | | | | | | | | | | | | | | | |
| SMD | PSL440 | | | | | | | | | | | | | | | | |
| | PSL445 | | | | | | | | | | | | | | | | |
| | CLL620 | | | | | | | | | | | | | | | | |
| | CLL130 | | | | | | | | | | | | | | | | |
| | CLL630 | | | | | | | | | | | | | | | | |
| Module | LMAW-001 | | | | | | | | | | | | | | | | |
| | LMAW-002 | | | | | | | | | | | | | | | | |
| | LMAW-003 | | | | | | | | | | | | | | | | |
| | LMAW-004 | | | | | | | | | | | | | | | | |
| | LMAC-001 | | | | | | | | | | | | | | | | |
| | LMZ001 | | | | | | | | | | | | | | | | |
| | LMZ002 | | | | | | | | | | | | | | | | |

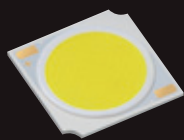
Note COB (chip on board), SMD (surface mounted device)
 Note Blue Color frames mean available products.



High efficacy
and
High Power



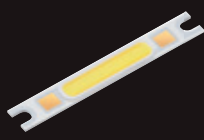
High efficacy and high power LED solutions make a great contribution to the high performance luminaires and luminaire design flexibility.



Ver.6 COB



CLU550



CL-L104



PSL445



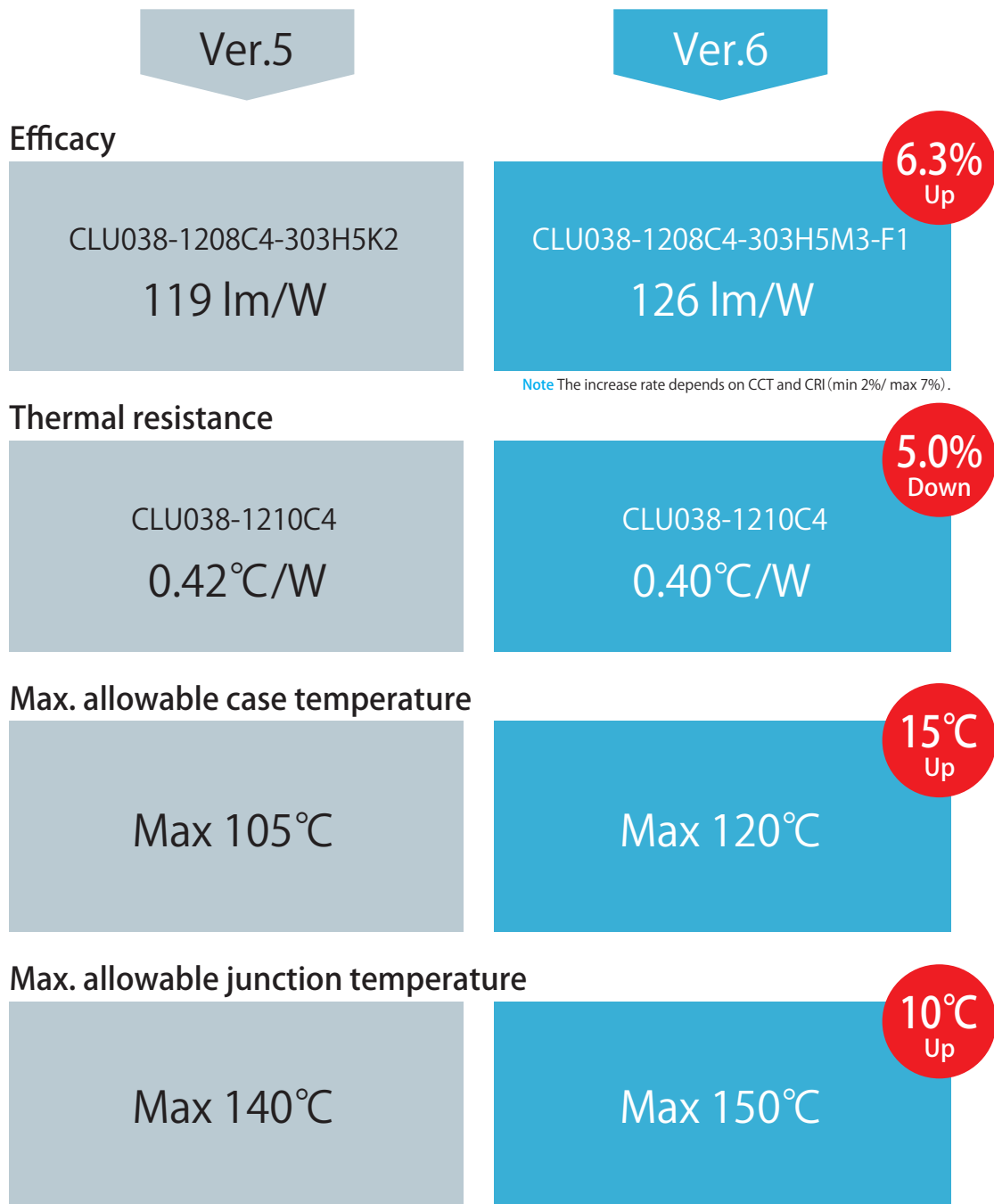
Compact SMD

Ver.6 COB

A wide variety of colors are available. They can be used for a wide range of applications from outdoor to indoor.

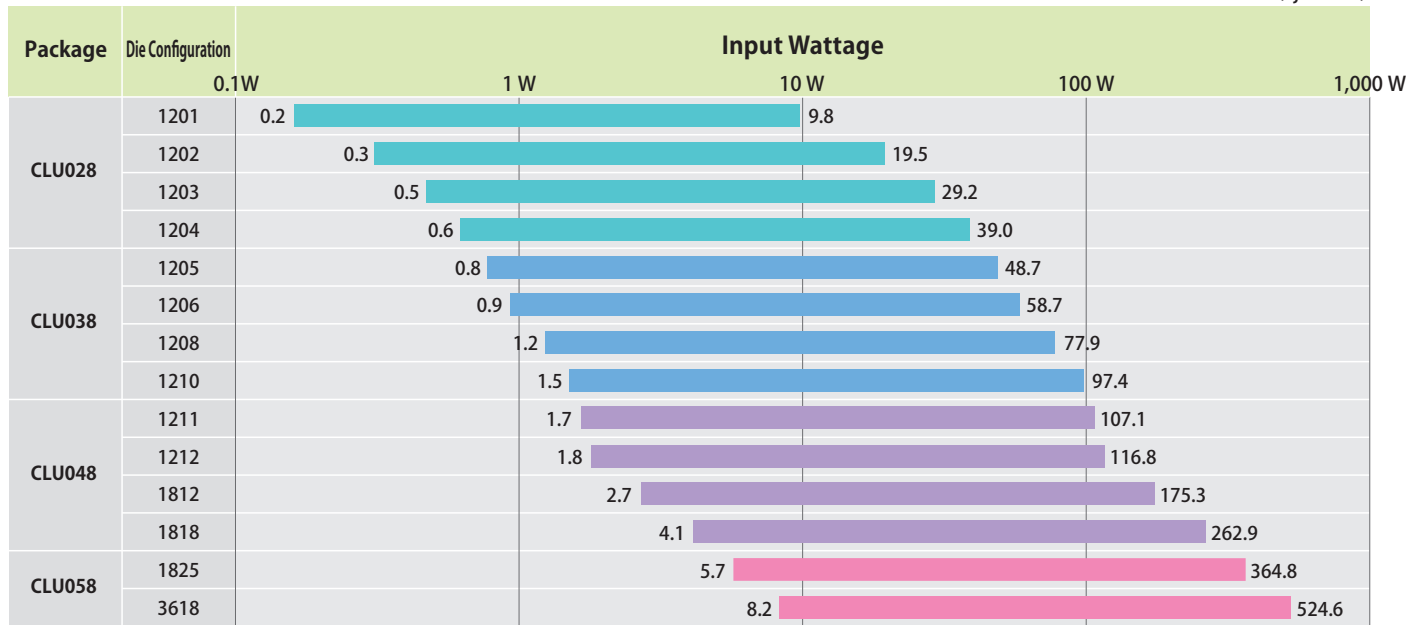


Ver.6 COB characteristics is greatly improved from Ver.5.



Wattage Range

(T_j = 85°C)




Color Variation

| Package | Die Configuration | 70 CRI Min. (ANSI 7-step quadrangle) | | | 80 CRI Min. (3-step MacAdam ellipse) | | | | | | 90 CRI Min. (3-step MacAdam ellipse) | | | | | |
|---------|-------------------|---|--------|--------|---|--------|--------|--------|--------|--------|---|--------|--------|--------|--------|--------|
| | | 3,000K | 4,000K | 5,000K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 5,700K | 6,500K | 2,700K | 3,000K | 3,500K | 4,000K | 5,700K |
| CLU028 | 1201 | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | |
| | 1202 | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | |
| | 1203 | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | |
| | 1204 | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | |
| CLU038 | 1205 | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | |
| | 1206 | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | |
| | 1208 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 1210 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| CLU048 | 1211 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 1212 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 1812 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 1818 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| CLU058 | 1825 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 3618 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |


Product List


(T_j = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating |
|--|--------------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) |
|  CLU028 (LES ϕ 9.8mm) | CLU028-1201C4-30AL7M4-F1 | 70 Min. | 3,000K | 90 | 34.0 | 3.1 | 495 | 162 | 2.6 | 230 |
| | CLU028-1201C4-40AL7M4-F1 | 70 Min. | 4,000K | 90 | 34.0 | 3.1 | 509 | 166 | 2.6 | 230 |
| | CLU028-1201C4-50AL7M4-F1 | 70 Min. | 5,000K | 90 | 34.0 | 3.1 | 516 | 169 | 2.6 | 230 |
| | CLU028-1201C4-273M2M2-F1 | 80 Min. | 2,700K | 90 | 34.0 | 3.1 | 449 | 147 | 2.6 | 230 |
| | CLU028-1201C4-303M2M2-F1 | 80 Min. | 3,000K | 90 | 34.0 | 3.1 | 468 | 153 | 2.6 | 230 |
| | CLU028-1201C4-353M2M2-F1 | 80 Min. | 3,500K | 90 | 34.0 | 3.1 | 476 | 156 | 2.6 | 230 |
| | CLU028-1201C4-403M2M2-F1 | 80 Min. | 4,000K | 90 | 34.0 | 3.1 | 480 | 157 | 2.6 | 230 |
| | CLU028-1201C4-503M2M2-F1 | 80 Min. | 5,000K | 90 | 34.0 | 3.1 | 487 | 159 | 2.6 | 230 |
| | CLU028-1201C4-653M2M2-F1 | 80 Min. | 6,500K | 90 | 34.0 | 3.1 | 496 | 162 | 2.6 | 230 |
| | CLU028-1201C4-273H5M3-F1 | 90 Min. | 2,700K | 90 | 34.0 | 3.1 | 385 | 126 | 2.6 | 230 |
| | CLU028-1201C4-303H5M3-F1 | 90 Min. | 3,000K | 90 | 34.0 | 3.1 | 401 | 131 | 2.6 | 230 |
| | CLU028-1201C4-353H5M3-F1 | 90 Min. | 3,500K | 90 | 34.0 | 3.1 | 407 | 133 | 2.6 | 230 |
| | CLU028-1201C4-403H5M3-F1 | 90 Min. | 4,000K | 90 | 34.0 | 3.1 | 407 | 133 | 2.6 | 230 |
| | CLU028-1202C4-30AL7M4-F1 | 70 Min. | 3,000K | 180 | 34.0 | 6.1 | 979 | 160 | 1.5 | 460 |
| | CLU028-1202C4-40AL7M4-F1 | 70 Min. | 4,000K | 180 | 34.0 | 6.1 | 1,007 | 165 | 1.5 | 460 |
| | CLU028-1202C4-50AL7M4-F1 | 70 Min. | 5,000K | 180 | 34.0 | 6.1 | 1,017 | 166 | 1.5 | 460 |
| | CLU028-1202C4-273M2M2-F1 | 80 Min. | 2,700K | 180 | 34.0 | 6.1 | 886 | 145 | 1.5 | 460 |
| | CLU028-1202C4-303M2M2-F1 | 80 Min. | 3,000K | 180 | 34.0 | 6.1 | 924 | 151 | 1.5 | 460 |
| | CLU028-1202C4-353M2M2-F1 | 80 Min. | 3,500K | 180 | 34.0 | 6.1 | 941 | 154 | 1.5 | 460 |
| | CLU028-1202C4-403M2M2-F1 | 80 Min. | 4,000K | 180 | 34.0 | 6.1 | 948 | 155 | 1.5 | 460 |
| | CLU028-1202C4-503M2M2-F1 | 80 Min. | 5,000K | 180 | 34.0 | 6.1 | 960 | 157 | 1.5 | 460 |
| | CLU028-1202C4-653M2M2-F1 | 80 Min. | 6,500K | 180 | 34.0 | 6.1 | 978 | 160 | 1.5 | 460 |
| | CLU028-1202C4-273H5M3-F1 | 90 Min. | 2,700K | 180 | 34.0 | 6.1 | 762 | 125 | 1.5 | 460 |
| | CLU028-1202C4-303H5M3-F1 | 90 Min. | 3,000K | 180 | 34.0 | 6.1 | 791 | 129 | 1.5 | 460 |
| | CLU028-1202C4-353H5M3-F1 | 90 Min. | 3,500K | 180 | 34.0 | 6.1 | 803 | 131 | 1.5 | 460 |
| | CLU028-1202C4-403H5M3-F1 | 90 Min. | 4,000K | 180 | 34.0 | 6.1 | 805 | 132 | 1.5 | 460 |
| | CLU028-1203C4-30AL7M4-F1 | 70 Min. | 3,000K | 270 | 34.0 | 9.2 | 1,442 | 157 | 1.0 | 690 |
| | CLU028-1203C4-40AL7M4-F1 | 70 Min. | 4,000K | 270 | 34.0 | 9.2 | 1,483 | 162 | 1.0 | 690 |
| | CLU028-1203C4-50AL7M4-F1 | 70 Min. | 5,000K | 270 | 34.0 | 9.2 | 1,498 | 163 | 1.0 | 690 |
| | CLU028-1203C4-273M2M2-F1 | 80 Min. | 2,700K | 270 | 34.0 | 9.2 | 1,306 | 142 | 1.0 | 690 |
| | CLU028-1203C4-303M2M2-F1 | 80 Min. | 3,000K | 270 | 34.0 | 9.2 | 1,362 | 148 | 1.0 | 690 |
| | CLU028-1203C4-353M2M2-F1 | 80 Min. | 3,500K | 270 | 34.0 | 9.2 | 1,384 | 151 | 1.0 | 690 |
| | CLU028-1203C4-403M2M2-F1 | 80 Min. | 4,000K | 270 | 34.0 | 9.2 | 1,397 | 152 | 1.0 | 690 |
| | CLU028-1203C4-503M2M2-F1 | 80 Min. | 5,000K | 270 | 34.0 | 9.2 | 1,414 | 154 | 1.0 | 690 |
| | CLU028-1203C4-653M2M2-F1 | 80 Min. | 6,500K | 270 | 34.0 | 9.2 | 1,439 | 157 | 1.0 | 690 |
| | CLU028-1203C4-273H5M3-F1 | 90 Min. | 2,700K | 270 | 34.0 | 9.2 | 1,122 | 122 | 1.0 | 690 |
| | CLU028-1203C4-303H5M3-F1 | 90 Min. | 3,000K | 270 | 34.0 | 9.2 | 1,167 | 127 | 1.0 | 690 |
| | CLU028-1203C4-353H5M3-F1 | 90 Min. | 3,500K | 270 | 34.0 | 9.2 | 1,182 | 129 | 1.0 | 690 |
| | CLU028-1203C4-403H5M3-F1 | 90 Min. | 4,000K | 270 | 34.0 | 9.2 | 1,185 | 129 | 1.0 | 690 |
| | CLU028-1204C4-30AL7M4-F1 | 70 Min. | 3,000K | 360 | 34.0 | 12.2 | 1,888 | 154 | 0.86 | 920 |
| | CLU028-1204C4-40AL7M4-F1 | 70 Min. | 4,000K | 360 | 34.0 | 12.2 | 1,941 | 159 | 0.86 | 920 |
| | CLU028-1204C4-50AL7M4-F1 | 70 Min. | 5,000K | 360 | 34.0 | 12.2 | 1,960 | 160 | 0.86 | 920 |
| CLU028-1204C4-273M2M2-F1 | 80 Min. | 2,700K | 360 | 34.0 | 12.2 | 1,709 | 140 | 0.86 | 920 | |
| CLU028-1204C4-303M2M2-F1 | 80 Min. | 3,000K | 360 | 34.0 | 12.2 | 1,783 | 146 | 0.86 | 920 | |
| CLU028-1204C4-353M2M2-F1 | 80 Min. | 3,500K | 360 | 34.0 | 12.2 | 1,814 | 148 | 0.86 | 920 | |
| CLU028-1204C4-403M2M2-F1 | 80 Min. | 4,000K | 360 | 34.0 | 12.2 | 1,830 | 150 | 0.86 | 920 | |


Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.


(T_j = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating |
|--|--------------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) |
|  CLU028 (LES ϕ 9.8mm) | CLU028-1204C4-503M2M2-F1 | 80 Min. | 5,000K | 360 | 34.0 | 12.2 | 1,850 | 151 | 0.86 | 920 |
| | CLU028-1204C4-653M2M2-F1 | 80 Min. | 6,500K | 360 | 34.0 | 12.2 | 1,884 | 154 | 0.86 | 920 |
| | CLU028-1204C4-273H5M3-F1 | 90 Min. | 2,700K | 360 | 34.0 | 12.2 | 1,468 | 120 | 0.86 | 920 |
| | CLU028-1204C4-303H5M3-F1 | 90 Min. | 3,000K | 360 | 34.0 | 12.2 | 1,528 | 125 | 0.86 | 920 |
| | CLU028-1204C4-353H5M3-F1 | 90 Min. | 3,500K | 360 | 34.0 | 12.2 | 1,549 | 127 | 0.86 | 920 |
| | CLU028-1204C4-403H5M3-F1 | 90 Min. | 4,000K | 360 | 34.0 | 12.2 | 1,552 | 127 | 0.86 | 920 |

| | | | | | | | | | | |
|---|--------------------------|---------|--------|-----|------|------|-------|-----|------|-------|
|  CLU038 (LES ϕ 14.5mm) | CLU038-1205C4-30AL7M4-F1 | 70 Min. | 3,000K | 450 | 34.0 | 15.3 | 2,463 | 161 | 0.68 | 1,150 |
| | CLU038-1205C4-40AL7M4-F1 | 70 Min. | 4,000K | 450 | 34.0 | 15.3 | 2,531 | 165 | 0.68 | 1,150 |
| | CLU038-1205C4-50AL7M4-F1 | 70 Min. | 5,000K | 450 | 34.0 | 15.3 | 2,557 | 167 | 0.68 | 1,150 |
| | CLU038-1205C4-273M2M2-F1 | 80 Min. | 2,700K | 450 | 34.0 | 15.3 | 2,231 | 146 | 0.68 | 1,150 |
| | CLU038-1205C4-303M2M2-F1 | 80 Min. | 3,000K | 450 | 34.0 | 15.3 | 2,326 | 152 | 0.68 | 1,150 |
| | CLU038-1205C4-353M2M2-F1 | 80 Min. | 3,500K | 450 | 34.0 | 15.3 | 2,366 | 155 | 0.68 | 1,150 |
| | CLU038-1205C4-403M2M2-F1 | 80 Min. | 4,000K | 450 | 34.0 | 15.3 | 2,385 | 156 | 0.68 | 1,150 |
| | CLU038-1205C4-503M2M2-F1 | 80 Min. | 5,000K | 450 | 34.0 | 15.3 | 2,414 | 158 | 0.68 | 1,150 |
| | CLU038-1205C4-653M2M2-F1 | 80 Min. | 6,500K | 450 | 34.0 | 15.3 | 2,458 | 161 | 0.68 | 1,150 |
| | CLU038-1205C4-273H5M3-F1 | 90 Min. | 2,700K | 450 | 34.0 | 15.3 | 1,916 | 125 | 0.68 | 1,150 |
| | CLU038-1205C4-303H5M3-F1 | 90 Min. | 3,000K | 450 | 34.0 | 15.3 | 1,992 | 130 | 0.68 | 1,150 |
| | CLU038-1205C4-353H5M3-F1 | 90 Min. | 3,500K | 450 | 34.0 | 15.3 | 2,020 | 132 | 0.68 | 1,150 |
| | CLU038-1205C4-403H5M3-F1 | 90 Min. | 4,000K | 450 | 34.0 | 15.3 | 2,023 | 132 | 0.68 | 1,150 |
| | CLU038-1206C4-30AL7M4-F1 | 70 Min. | 3,000K | 540 | 34.0 | 18.4 | 2,925 | 159 | 0.61 | 1,380 |
| | CLU038-1206C4-40AL7M4-F1 | 70 Min. | 4,000K | 540 | 34.0 | 18.4 | 3,006 | 164 | 0.61 | 1,380 |
| | CLU038-1206C4-50AL7M4-F1 | 70 Min. | 5,000K | 540 | 34.0 | 18.4 | 3,038 | 165 | 0.61 | 1,380 |
| | CLU038-1206C4-273M2M2-F1 | 80 Min. | 2,700K | 540 | 34.0 | 18.4 | 2,651 | 144 | 0.61 | 1,380 |
| | CLU038-1206C4-303M2M2-F1 | 80 Min. | 3,000K | 540 | 34.0 | 18.4 | 2,762 | 150 | 0.61 | 1,380 |
| | CLU038-1206C4-353M2M2-F1 | 80 Min. | 3,500K | 540 | 34.0 | 18.4 | 2,811 | 153 | 0.61 | 1,380 |
| | CLU038-1206C4-403M2M2-F1 | 80 Min. | 4,000K | 540 | 34.0 | 18.4 | 2,834 | 154 | 0.61 | 1,380 |
| | CLU038-1206C4-503M2M2-F1 | 80 Min. | 5,000K | 540 | 34.0 | 18.4 | 2,867 | 156 | 0.61 | 1,380 |
| | CLU038-1206C4-653M2M2-F1 | 80 Min. | 6,500K | 540 | 34.0 | 18.4 | 2,919 | 159 | 0.61 | 1,380 |
| | CLU038-1206C4-273H5M3-F1 | 90 Min. | 2,700K | 540 | 34.0 | 18.4 | 2,276 | 124 | 0.61 | 1,380 |
| | CLU038-1206C4-303H5M3-F1 | 90 Min. | 3,000K | 540 | 34.0 | 18.4 | 2,366 | 129 | 0.61 | 1,380 |
| | CLU038-1206C4-353H5M3-F1 | 90 Min. | 3,500K | 540 | 34.0 | 18.4 | 2,401 | 131 | 0.61 | 1,380 |
| | CLU038-1206C4-403H5M3-F1 | 90 Min. | 4,000K | 540 | 34.0 | 18.4 | 2,402 | 131 | 0.61 | 1,380 |
| | CLU038-1208C4-30AL7M4-F1 | 70 Min. | 3,000K | 720 | 34.0 | 24.5 | 3,825 | 156 | 0.48 | 1,840 |
| | CLU038-1208C4-40AL7M4-F1 | 70 Min. | 4,000K | 720 | 34.0 | 24.5 | 3,932 | 161 | 0.48 | 1,840 |
| | CLU038-1208C4-50AL7M4-F1 | 70 Min. | 5,000K | 720 | 34.0 | 24.5 | 3,972 | 162 | 0.48 | 1,840 |
| | CLU038-1208C4-273M2M2-F1 | 80 Min. | 2,700K | 720 | 34.0 | 24.5 | 3,465 | 142 | 0.48 | 1,840 |
| | CLU038-1208C4-303M2M2-F1 | 80 Min. | 3,000K | 720 | 34.0 | 24.5 | 3,612 | 148 | 0.48 | 1,840 |
| | CLU038-1208C4-353M2M2-F1 | 80 Min. | 3,500K | 720 | 34.0 | 24.5 | 3,676 | 150 | 0.48 | 1,840 |
| | CLU038-1208C4-403M2M2-F1 | 80 Min. | 4,000K | 720 | 34.0 | 24.5 | 3,706 | 151 | 0.48 | 1,840 |
| | CLU038-1208C4-503M2M2-F1 | 80 Min. | 5,000K | 720 | 34.0 | 24.5 | 3,749 | 153 | 0.48 | 1,840 |
| | CLU038-1208C4-573M2M2-F1 | 80 Min. | 5,700K | 720 | 34.0 | 24.5 | 3,786 | 155 | 0.48 | 1,840 |
| | CLU038-1208C4-653M2M2-F1 | 80 Min. | 6,500K | 720 | 34.0 | 24.5 | 3,817 | 156 | 0.48 | 1,840 |
| | CLU038-1208C4-273H5M3-F1 | 90 Min. | 2,700K | 720 | 34.0 | 24.5 | 2,976 | 122 | 0.48 | 1,840 |
| | CLU038-1208C4-303H5M3-F1 | 90 Min. | 3,000K | 720 | 34.0 | 24.5 | 3,095 | 126 | 0.48 | 1,840 |
| | CLU038-1208C4-353H5M3-F1 | 90 Min. | 3,500K | 720 | 34.0 | 24.5 | 3,140 | 128 | 0.48 | 1,840 |


(T_j = 85°C)


| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating |
|--|--------------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) |
|  <p>CLU038 (LES ϕ14.5mm)</p> | CLU038-1208C4-403H5M3-F1 | 90 Min. | 4,000K | 720 | 34.0 | 24.5 | 3,142 | 128 | 0.48 | 1,840 |
| | CLU038-1208C4-573H5M3-F1 | 90 Min. | 5,700K | 720 | 34.0 | 24.5 | 3,250 | 133 | 0.48 | 1,840 |
| | CLU038-1210C4-30AL7M4-F1 | 70 Min. | 3,000K | 900 | 34.0 | 30.6 | 4,752 | 155 | 0.40 | 2,300 |
| | CLU038-1210C4-40AL7M4-F1 | 70 Min. | 4,000K | 900 | 34.0 | 30.6 | 4,884 | 160 | 0.40 | 2,300 |
| | CLU038-1210C4-50AL7M4-F1 | 70 Min. | 5,000K | 900 | 34.0 | 30.6 | 4,933 | 161 | 0.40 | 2,300 |
| | CLU038-1210C4-273M2M2-F1 | 80 Min. | 2,700K | 900 | 34.0 | 30.6 | 4,296 | 140 | 0.40 | 2,300 |
| | CLU038-1210C4-303M2M2-F1 | 80 Min. | 3,000K | 900 | 34.0 | 30.6 | 4,487 | 147 | 0.40 | 2,300 |
| | CLU038-1210C4-353M2M2-F1 | 80 Min. | 3,500K | 900 | 34.0 | 30.6 | 4,564 | 149 | 0.40 | 2,300 |
| | CLU038-1210C4-403M2M2-F1 | 80 Min. | 4,000K | 900 | 34.0 | 30.6 | 4,602 | 150 | 0.40 | 2,300 |
| | CLU038-1210C4-503M2M2-F1 | 80 Min. | 5,000K | 900 | 34.0 | 30.6 | 4,656 | 152 | 0.40 | 2,300 |
| | CLU038-1210C4-573M2M2-F1 | 80 Min. | 5,700K | 900 | 34.0 | 30.6 | 4,703 | 154 | 0.40 | 2,300 |
| | CLU038-1210C4-653M2M2-F1 | 80 Min. | 6,500K | 900 | 34.0 | 30.6 | 4,741 | 155 | 0.40 | 2,300 |
| | CLU038-1210C4-273H5M3-F1 | 90 Min. | 2,700K | 900 | 34.0 | 30.6 | 3,689 | 121 | 0.40 | 2,300 |
| | CLU038-1210C4-303H5M3-F1 | 90 Min. | 3,000K | 900 | 34.0 | 30.6 | 3,844 | 126 | 0.40 | 2,300 |
| | CLU038-1210C4-353H5M3-F1 | 90 Min. | 3,500K | 900 | 34.0 | 30.6 | 3,896 | 127 | 0.40 | 2,300 |
| | CLU038-1210C4-403H5M3-F1 | 90 Min. | 4,000K | 900 | 34.0 | 30.6 | 3,903 | 128 | 0.40 | 2,300 |
| | CLU038-1210C4-573H5M3-F1 | 90 Min. | 5,700K | 900 | 34.0 | 30.6 | 4,036 | 132 | 0.40 | 2,300 |

| | | | | | | | | | | |
|--|--------------------------|---------|--------|-------|------|------|-------|-----|------|-------|
|  <p>CLU048 (LES ϕ22.0mm)</p> | CLU048-1211C4-30AL7M4-F1 | 70 Min. | 3,000K | 990 | 34.0 | 33.7 | 5,440 | 162 | 0.36 | 2,530 |
| | CLU048-1211C4-40AL7M4-F1 | 70 Min. | 4,000K | 990 | 34.0 | 33.7 | 5,590 | 166 | 0.36 | 2,530 |
| | CLU048-1211C4-50AL7M4-F1 | 70 Min. | 5,000K | 990 | 34.0 | 33.7 | 5,648 | 168 | 0.36 | 2,530 |
| | CLU048-1211C4-273M2M2-F1 | 80 Min. | 2,700K | 990 | 34.0 | 33.7 | 4,926 | 146 | 0.36 | 2,530 |
| | CLU048-1211C4-303M2M2-F1 | 80 Min. | 3,000K | 990 | 34.0 | 33.7 | 5,137 | 153 | 0.36 | 2,530 |
| | CLU048-1211C4-353M2M2-F1 | 80 Min. | 3,500K | 990 | 34.0 | 33.7 | 5,227 | 155 | 0.36 | 2,530 |
| | CLU048-1211C4-403M2M2-F1 | 80 Min. | 4,000K | 990 | 34.0 | 33.7 | 5,269 | 157 | 0.36 | 2,530 |
| | CLU048-1211C4-503M2M2-F1 | 80 Min. | 5,000K | 990 | 34.0 | 33.7 | 5,330 | 158 | 0.36 | 2,530 |
| | CLU048-1211C4-573M2M2-F1 | 80 Min. | 5,700K | 990 | 34.0 | 33.7 | 5,384 | 160 | 0.36 | 2,530 |
| | CLU048-1211C4-653M2M2-F1 | 80 Min. | 6,500K | 990 | 34.0 | 33.7 | 5,427 | 161 | 0.36 | 2,530 |
| | CLU048-1211C4-273H5M3-F1 | 90 Min. | 2,700K | 990 | 34.0 | 33.7 | 4,231 | 126 | 0.36 | 2,530 |
| | CLU048-1211C4-303H5M3-F1 | 90 Min. | 3,000K | 990 | 34.0 | 33.7 | 4,400 | 131 | 0.36 | 2,530 |
| | CLU048-1211C4-353H5M3-F1 | 90 Min. | 3,500K | 990 | 34.0 | 33.7 | 4,463 | 133 | 0.36 | 2,530 |
| | CLU048-1211C4-403H5M3-F1 | 90 Min. | 4,000K | 990 | 34.0 | 33.7 | 4,468 | 133 | 0.36 | 2,530 |
| | CLU048-1211C4-573H5M3-F1 | 90 Min. | 5,700K | 990 | 34.0 | 33.7 | 4,621 | 137 | 0.36 | 2,530 |
| | CLU048-1212C4-30AL7M4-F1 | 70 Min. | 3,000K | 1,080 | 34.0 | 36.7 | 5,935 | 162 | 0.32 | 2,760 |
| | CLU048-1212C4-40AL7M4-F1 | 70 Min. | 4,000K | 1,080 | 34.0 | 36.7 | 6,099 | 166 | 0.32 | 2,760 |
| | CLU048-1212C4-50AL7M4-F1 | 70 Min. | 5,000K | 1,080 | 34.0 | 36.7 | 6,161 | 168 | 0.32 | 2,760 |
| | CLU048-1212C4-273M2M2-F1 | 80 Min. | 2,700K | 1,080 | 34.0 | 36.7 | 5,374 | 146 | 0.32 | 2,760 |
| | CLU048-1212C4-303M2M2-F1 | 80 Min. | 3,000K | 1,080 | 34.0 | 36.7 | 5,603 | 153 | 0.32 | 2,760 |
| | CLU048-1212C4-353M2M2-F1 | 80 Min. | 3,500K | 1,080 | 34.0 | 36.7 | 5,702 | 155 | 0.32 | 2,760 |
| | CLU048-1212C4-403M2M2-F1 | 80 Min. | 4,000K | 1,080 | 34.0 | 36.7 | 5,748 | 157 | 0.32 | 2,760 |
| | CLU048-1212C4-503M2M2-F1 | 80 Min. | 5,000K | 1,080 | 34.0 | 36.7 | 5,815 | 158 | 0.32 | 2,760 |
| | CLU048-1212C4-573M2M2-F1 | 80 Min. | 5,700K | 1,080 | 34.0 | 36.7 | 5,873 | 160 | 0.32 | 2,760 |
| | CLU048-1212C4-653M2M2-F1 | 80 Min. | 6,500K | 1,080 | 34.0 | 36.7 | 5,920 | 161 | 0.32 | 2,760 |
| | CLU048-1212C4-273H5M3-F1 | 90 Min. | 2,700K | 1,080 | 34.0 | 36.7 | 4,615 | 126 | 0.32 | 2,760 |
| | CLU048-1212C4-303H5M3-F1 | 90 Min. | 3,000K | 1,080 | 34.0 | 36.7 | 4,800 | 131 | 0.32 | 2,760 |
| | CLU048-1212C4-353H5M3-F1 | 90 Min. | 3,500K | 1,080 | 34.0 | 36.7 | 4,869 | 133 | 0.32 | 2,760 |


Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

(T_j = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating |
|--|--------------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) |
|  <p>CLU048 (LES ϕ22.0mm)</p> | CLU048-1212C4-403H5M3-F1 | 90 Min. | 4,000K | 1,080 | 34.0 | 36.7 | 4,873 | 133 | 0.32 | 2,760 |
| | CLU048-1212C4-573H5M3-F1 | 90 Min. | 5,700K | 1,080 | 34.0 | 36.7 | 5,041 | 137 | 0.32 | 2,760 |
| | CLU048-1812C4-30AL7M4-F1 | 70 Min. | 3,000K | 1,080 | 51.1 | 55.2 | 8,687 | 157 | 0.24 | 2,760 |
| | CLU048-1812C4-40AL7M4-F1 | 70 Min. | 4,000K | 1,080 | 51.1 | 55.2 | 8,927 | 162 | 0.24 | 2,760 |
| | CLU048-1812C4-50AL7M4-F1 | 70 Min. | 5,000K | 1,080 | 51.1 | 55.2 | 9,017 | 163 | 0.24 | 2,760 |
| | CLU048-1812C4-273M2M2-F1 | 80 Min. | 2,700K | 1,080 | 51.1 | 55.2 | 7,864 | 142 | 0.24 | 2,760 |
| | CLU048-1812C4-303M2M2-F1 | 80 Min. | 3,000K | 1,080 | 51.1 | 55.2 | 8,201 | 149 | 0.24 | 2,760 |
| | CLU048-1812C4-353M2M2-F1 | 80 Min. | 3,500K | 1,080 | 51.1 | 55.2 | 8,340 | 151 | 0.24 | 2,760 |
| | CLU048-1812C4-403M2M2-F1 | 80 Min. | 4,000K | 1,080 | 51.1 | 55.2 | 8,412 | 152 | 0.24 | 2,760 |
| | CLU048-1812C4-503M2M2-F1 | 80 Min. | 5,000K | 1,080 | 51.1 | 55.2 | 8,511 | 154 | 0.24 | 2,760 |
| | CLU048-1812C4-573M2M2-F1 | 80 Min. | 5,700K | 1,080 | 51.1 | 55.2 | 8,596 | 156 | 0.24 | 2,760 |
| | CLU048-1812C4-653M2M2-F1 | 80 Min. | 6,500K | 1,080 | 51.1 | 55.2 | 8,664 | 157 | 0.24 | 2,760 |
| | CLU048-1812C4-273H5M3-F1 | 90 Min. | 2,700K | 1,080 | 51.1 | 55.2 | 6,753 | 122 | 0.24 | 2,760 |
| | CLU048-1812C4-303H5M3-F1 | 90 Min. | 3,000K | 1,080 | 51.1 | 55.2 | 7,026 | 127 | 0.24 | 2,760 |
| | CLU048-1812C4-353H5M3-F1 | 90 Min. | 3,500K | 1,080 | 51.1 | 55.2 | 7,121 | 129 | 0.24 | 2,760 |
| | CLU048-1812C4-403H5M3-F1 | 90 Min. | 4,000K | 1,080 | 51.1 | 55.2 | 7,133 | 129 | 0.24 | 2,760 |
| | CLU048-1812C4-573H5M3-F1 | 90 Min. | 5,700K | 1,080 | 51.1 | 55.2 | 7,380 | 134 | 0.24 | 2,760 |
| | CLU048-1818C4-30AL7M4-F1 | 70 Min. | 3,000K | 1,620 | 51.1 | 82.8 | 12,677 | 153 | 0.16 | 4,140 |
| | CLU048-1818C4-40AL7M4-F1 | 70 Min. | 4,000K | 1,620 | 51.1 | 82.8 | 13,029 | 157 | 0.16 | 4,140 |
| | CLU048-1818C4-50AL7M4-F1 | 70 Min. | 5,000K | 1,620 | 51.1 | 82.8 | 13,162 | 159 | 0.16 | 4,140 |
| | CLU048-1818C4-273M2M2-F1 | 80 Min. | 2,700K | 1,620 | 51.1 | 82.8 | 11,480 | 139 | 0.16 | 4,140 |
| | CLU048-1818C4-303M2M2-F1 | 80 Min. | 3,000K | 1,620 | 51.1 | 82.8 | 11,970 | 145 | 0.16 | 4,140 |
| | CLU048-1818C4-353M2M2-F1 | 80 Min. | 3,500K | 1,620 | 51.1 | 82.8 | 12,181 | 147 | 0.16 | 4,140 |
| | CLU048-1818C4-403M2M2-F1 | 80 Min. | 4,000K | 1,620 | 51.1 | 82.8 | 12,279 | 148 | 0.16 | 4,140 |
| | CLU048-1818C4-503M2M2-F1 | 80 Min. | 5,000K | 1,620 | 51.1 | 82.8 | 12,423 | 150 | 0.16 | 4,140 |
| | CLU048-1818C4-573M2M2-F1 | 80 Min. | 5,700K | 1,620 | 51.1 | 82.8 | 12,547 | 152 | 0.16 | 4,140 |
| | CLU048-1818C4-653M2M2-F1 | 80 Min. | 6,500K | 1,620 | 51.1 | 82.8 | 12,648 | 153 | 0.16 | 4,140 |
| | CLU048-1818C4-273H5M3-F1 | 90 Min. | 2,700K | 1,620 | 51.1 | 82.8 | 9,860 | 119 | 0.16 | 4,140 |
| | CLU048-1818C4-303H5M3-F1 | 90 Min. | 3,000K | 1,620 | 51.1 | 82.8 | 10,256 | 124 | 0.16 | 4,140 |
| | CLU048-1818C4-353H5M3-F1 | 90 Min. | 3,500K | 1,620 | 51.1 | 82.8 | 10,403 | 126 | 0.16 | 4,140 |
| | CLU048-1818C4-403H5M3-F1 | 90 Min. | 4,000K | 1,620 | 51.1 | 82.8 | 10,411 | 126 | 0.16 | 4,140 |
| | CLU048-1818C4-573H5M3-F1 | 90 Min. | 5,700K | 1,620 | 51.1 | 82.8 | 10,771 | 130 | 0.16 | 4,140 |

| | | | | | | | | | | |
|--|--------------------------|---------|--------|-------|------|-------|--------|-----|------|-------|
|  <p>CLU058 (LES ϕ32.8mm)</p> | CLU058-1825C4-30AL7M4-F1 | 70 Min. | 3,000K | 2,250 | 51.1 | 115.0 | 18,565 | 161 | 0.13 | 5,750 |
| | CLU058-1825C4-40AL7M4-F1 | 70 Min. | 4,000K | 2,250 | 51.1 | 115.0 | 19,080 | 166 | 0.13 | 5,750 |
| | CLU058-1825C4-50AL7M4-F1 | 70 Min. | 5,000K | 2,250 | 51.1 | 115.0 | 19,274 | 168 | 0.13 | 5,750 |
| | CLU058-1825C4-273M2M2-F1 | 80 Min. | 2,700K | 2,250 | 51.1 | 115.0 | 16,811 | 146 | 0.13 | 5,750 |
| | CLU058-1825C4-303M2M2-F1 | 80 Min. | 3,000K | 2,250 | 51.1 | 115.0 | 17,528 | 152 | 0.13 | 5,750 |
| | CLU058-1825C4-353M2M2-F1 | 80 Min. | 3,500K | 2,250 | 51.1 | 115.0 | 17,836 | 155 | 0.13 | 5,750 |
| | CLU058-1825C4-403M2M2-F1 | 80 Min. | 4,000K | 2,250 | 51.1 | 115.0 | 17,980 | 156 | 0.13 | 5,750 |
| | CLU058-1825C4-503M2M2-F1 | 80 Min. | 5,000K | 2,250 | 51.1 | 115.0 | 18,191 | 158 | 0.13 | 5,750 |
| | CLU058-1825C4-573M2M2-F1 | 80 Min. | 5,700K | 2,250 | 51.1 | 115.0 | 18,373 | 160 | 0.13 | 5,750 |
| | CLU058-1825C4-653M2M2-F1 | 80 Min. | 6,500K | 2,250 | 51.1 | 115.0 | 18,520 | 161 | 0.13 | 5,750 |
| | CLU058-1825C4-273H5M3-F1 | 90 Min. | 2,700K | 2,250 | 51.1 | 115.0 | 14,437 | 126 | 0.13 | 5,750 |
| | CLU058-1825C4-303H5M3-F1 | 90 Min. | 3,000K | 2,250 | 51.1 | 115.0 | 15,018 | 131 | 0.13 | 5,750 |
| | CLU058-1825C4-353H5M3-F1 | 90 Min. | 3,500K | 2,250 | 51.1 | 115.0 | 15,233 | 132 | 0.13 | 5,750 |

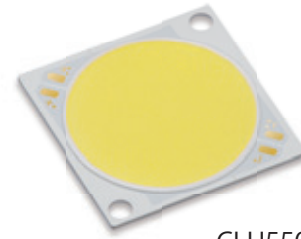
(T_j = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating |
|--|--------------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) |
|  <p>CLU058 (LES φ32.8mm)</p> | CLU058-1825C4-403H5M3-F1 | 90 Min. | 4,000K | 2,250 | 51.1 | 115.0 | 15,247 | 133 | 0.13 | 5,750 |
| | CLU058-1825C4-573H5M3-F1 | 90 Min. | 5,700K | 2,250 | 51.1 | 115.0 | 15,773 | 137 | 0.13 | 5,750 |
| | CLU058-3618C4-30AL7M4-F1 | 70 Min. | 3,000K | 1,620 | 102.1 | 165.4 | 25,566 | 155 | 0.095 | 4,140 |
| | CLU058-3618C4-40AL7M4-F1 | 70 Min. | 4,000K | 1,620 | 102.1 | 165.4 | 26,278 | 159 | 0.095 | 4,140 |
| | CLU058-3618C4-50AL7M4-F1 | 70 Min. | 5,000K | 1,620 | 102.1 | 165.4 | 26,615 | 161 | 0.095 | 4,140 |
| | CLU058-3618C4-273M2M2-F1 | 80 Min. | 2,700K | 1,620 | 102.1 | 165.4 | 23,110 | 140 | 0.095 | 4,140 |
| | CLU058-3618C4-303M2M2-F1 | 80 Min. | 3,000K | 1,620 | 102.1 | 165.4 | 24,137 | 146 | 0.095 | 4,140 |
| | CLU058-3618C4-353M2M2-F1 | 80 Min. | 3,500K | 1,620 | 102.1 | 165.4 | 24,562 | 148 | 0.095 | 4,140 |
| | CLU058-3618C4-403M2M2-F1 | 80 Min. | 4,000K | 1,620 | 102.1 | 165.4 | 24,764 | 150 | 0.095 | 4,140 |
| | CLU058-3618C4-503M2M2-F1 | 80 Min. | 5,000K | 1,620 | 102.1 | 165.4 | 25,120 | 152 | 0.095 | 4,140 |
| | CLU058-3618C4-573M2M2-F1 | 80 Min. | 5,700K | 1,620 | 102.1 | 165.4 | 25,371 | 153 | 0.095 | 4,140 |
| | CLU058-3618C4-653M2M2-F1 | 80 Min. | 6,500K | 1,620 | 102.1 | 165.4 | 25,573 | 155 | 0.095 | 4,140 |
| | CLU058-3618C4-273H5M3-F1 | 90 Min. | 2,700K | 1,620 | 102.1 | 165.4 | 19,847 | 120 | 0.095 | 4,140 |
| | CLU058-3618C4-303H5M3-F1 | 90 Min. | 3,000K | 1,620 | 102.1 | 165.4 | 20,681 | 125 | 0.095 | 4,140 |
| | CLU058-3618C4-353H5M3-F1 | 90 Min. | 3,500K | 1,620 | 102.1 | 165.4 | 20,975 | 127 | 0.095 | 4,140 |
| | CLU058-3618C4-403H5M3-F1 | 90 Min. | 4,000K | 1,620 | 102.1 | 165.4 | 20,998 | 127 | 0.095 | 4,140 |
| | CLU058-3618C4-573H5M3-F1 | 90 Min. | 5,700K | 1,620 | 102.1 | 165.4 | 21,725 | 131 | 0.095 | 4,140 |

Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

CLU550

500W COB Package




CLU550

Color Variation

| Package | Die Configuration | 70 CRI Min. (ANSI 7-step quadrangle) | | | | 80 CRI Min. (3-step MacAdam ellipse) | | | | | | 90 CRI Min. (3-step MacAdam ellipse) | |
|---------|-------------------|---|--------|--------|--------|---|--------|--------|--------|--------|--------|---|--------|
| | | 3,000K | 4,000K | 5,000K | 6,500K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 5,700K | 6,500K | 5,700K |
| CLU550 | 3626 (3613×2) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Product List

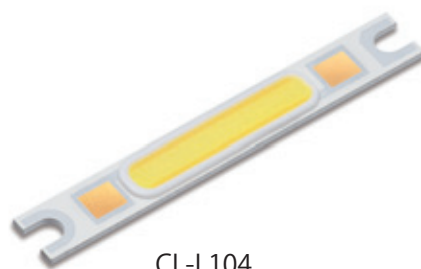
(T_j = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating | |
|--|---------------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|--|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) | |
|  <p>CLU550 (LES φ32.8mm)</p> | CLU550-3626C1-30AL7G4-B24 | 70 Min. | 3,000K | 2,340 | 103.9 | 243.1 | 33,900 | 139 | 0.10 | 4,680 | |
| | CLU550-3626C1-40AL7G4-B24 | 70 Min. | 4,000K | 2,340 | 103.9 | 243.1 | 35,500 | 146 | 0.10 | 4,680 | |
| | CLU550-3626C1-50AL7G4-B24 | 70 Min. | 5,000K | 2,340 | 103.9 | 243.1 | 36,000 | 148 | 0.10 | 4,680 | |
| | CLU550-3626C1-65AL7G4-B24 | 70 Min. | 6,500K | 2,340 | 103.9 | 243.1 | 36,650 | 151 | 0.10 | 4,680 | |
| | CLU550-3626C1-273M2G2-B24 | 80 Min. | 2,700K | 2,340 | 103.9 | 243.1 | 30,250 | 124 | 0.10 | 4,680 | |
| | CLU550-3626C1-303M2G2-B24 | 80 Min. | 3,000K | 2,340 | 103.9 | 243.1 | 31,700 | 130 | 0.10 | 4,680 | |
| | CLU550-3626C1-353M2G2-B24 | 80 Min. | 3,500K | 2,340 | 103.9 | 243.1 | 32,500 | 134 | 0.10 | 4,680 | |
| | CLU550-3626C1-403M2G2-B24 | 80 Min. | 4,000K | 2,340 | 103.9 | 243.1 | 33,150 | 136 | 0.10 | 4,680 | |
| | CLU550-3626C1-503M2G2-B24 | 80 Min. | 5,000K | 2,340 | 103.9 | 243.1 | 33,800 | 139 | 0.10 | 4,680 | |
| | CLU550-3626C1-573M2G2-B24 | 80 Min. | 5,700K | 2,340 | 103.9 | 243.1 | 34,100 | 140 | 0.10 | 4,680 | |
| | CLU550-3626C1-653M2G2-B24 | 80 Min. | 6,500K | 2,340 | 103.9 | 243.1 | 34,400 | 141 | 0.10 | 4,680 | |
| | CLU550-3626C1-573H5G3-B24 | 90 Min. | 5,700K | 2,340 | 103.9 | 243.1 | 28,730 | 118 | 0.10 | 4,680 | |

Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

CL-L104

The successor of the first COB LED in the market.



CL-L104

Color Variation

| Package | Wattage | 65 CRI Typ. (Original range) | 80 CRI Min. (3-step MacAdam ellipse) | | | | | 90 CRI Min. (3-step MacAdam ellipse) | | | | |
|---------|---------|---------------------------------|---|--------|--------|--------|--------|---|--------|--------|--------|--------|
| | | 5,000K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K |
| CL-L104 | 3W | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 6W | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Product List

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating | |
|------------------|-------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|--|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) | |
| CL-L104 (3W) | CL-L104-C3N-F5 | 65 Typ. | 5,000K | 350 | 9.2 | 3.2 | 385 | 120 | 6.4 | 720 | |
| | CL-L104-MC3L2-F5 | 80 Min. | 2,700K | 350 | 9.2 | 3.2 | 295 | 92 | 6.4 | 720 | |
| | CL-L104-MC3L1-F5 | 80 Min. | 3,000K | 350 | 9.2 | 3.2 | 305 | 95 | 6.4 | 720 | |
| | CL-L104-MC3WW1-F5 | 80 Min. | 3,500K | 350 | 9.2 | 3.2 | 315 | 98 | 6.4 | 720 | |
| | CL-L104-MC3W1-F5 | 80 Min. | 4,000K | 350 | 9.2 | 3.2 | 320 | 99 | 6.4 | 720 | |
| | CL-L104-MC3N1-F5 | 80 Min. | 5,000K | 350 | 9.2 | 3.2 | 325 | 101 | 6.4 | 720 | |
| | CL-L104-HC3L2-F5 | 90 Min. | 2,700K | 350 | 9.2 | 3.2 | 250 | 78 | 6.4 | 720 | |
| | CL-L104-HC3L1-F5 | 90 Min. | 3,000K | 350 | 9.2 | 3.2 | 260 | 81 | 6.4 | 720 | |
| | CL-L104-HC3WW1-F5 | 90 Min. | 3,500K | 350 | 9.2 | 3.2 | 265 | 82 | 6.4 | 720 | |
| | CL-L104-HC3W1-F5 | 90 Min. | 4,000K | 350 | 9.2 | 3.2 | 275 | 85 | 6.4 | 720 | |
| CL-L104-HC3N1-F5 | 90 Min. | 5,000K | 350 | 9.2 | 3.2 | 280 | 87 | 6.4 | 720 | | |

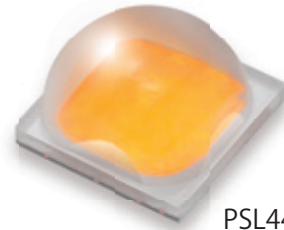
| | | | | | | | | | | |
|------------------|-------------------|---------|--------|-----|-----|-----|-----|-----|-------|-------|
| CL-L104 (6W) | CL-L104-C6N-F5 | 65 Typ. | 5,000K | 700 | 9.2 | 6.4 | 760 | 118 | 5.0 | 1,440 |
| | CL-L104-MC6L2-F5 | 80 Min. | 2,700K | 700 | 9.2 | 6.4 | 595 | 92 | 5.0 | 1,440 |
| | CL-L104-MC6L1-F5 | 80 Min. | 3,000K | 700 | 9.2 | 6.4 | 610 | 95 | 5.0 | 1,440 |
| | CL-L104-MC6WW1-F5 | 80 Min. | 3,500K | 700 | 9.2 | 6.4 | 630 | 98 | 5.0 | 1,440 |
| | CL-L104-MC6W1-F5 | 80 Min. | 4,000K | 700 | 9.2 | 6.4 | 640 | 99 | 5.0 | 1,440 |
| | CL-L104-MC6N1-F5 | 80 Min. | 5,000K | 700 | 9.2 | 6.4 | 650 | 101 | 5.0 | 1,440 |
| | CL-L104-HC6L2-F5 | 90 Min. | 2,700K | 700 | 9.2 | 6.4 | 500 | 78 | 5.0 | 1,440 |
| | CL-L104-HC6L1-F5 | 90 Min. | 3,000K | 700 | 9.2 | 6.4 | 520 | 81 | 5.0 | 1,440 |
| | CL-L104-HC6WW1-F5 | 90 Min. | 3,500K | 700 | 9.2 | 6.4 | 530 | 82 | 5.0 | 1,440 |
| | CL-L104-HC6W1-F5 | 90 Min. | 4,000K | 700 | 9.2 | 6.4 | 550 | 85 | 5.0 | 1,440 |
| CL-L104-HC6N1-F5 | 90 Min. | 5,000K | 700 | 9.2 | 6.4 | 565 | 88 | 5.0 | 1,440 | |

Note: Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

PSL445

High power SMD Package

New lineup of high-power and high-efficacy SMD packages.



PSL445


- Efficacy : 161lm/W at Tj=85°C
- 630 lm output from 6.5mm package
- Application : Spotlight , High-Bay Lighting, Outdoor

Color Variation

| Package | 70 CRI Min. (ANSI 7-step quadrangle) | | 80 CRI Min. (3-step MacAdam ellipse) | | | | | 80 CRI Min. (ANSI 7-step quadrangle) | 90 CRI Min. (3-step MacAdam ellipse) | | | | | 90 CRI Min. (ANSI 7-step quadrangle) |
|---------|---|--------|---|--------|--------|--------|--------|---|---|--------|--------|--------|--------|---|
| | 4,000K | 5,000K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 5,700K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 5,700K |
| PSL445 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

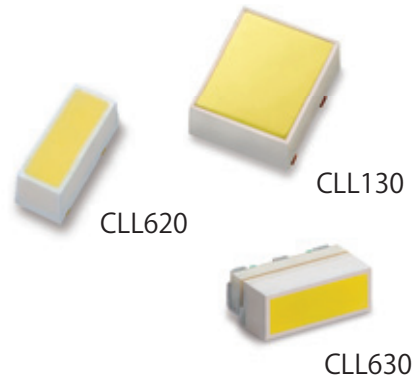
Product List

(Tj = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating | |
|--|-----------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--------------------------------|-------------------------|--|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance Rj-c (°C/W) | Forward current (mA) | |
|  <p>PSL445</p> | PSL445-0405C5-40AL7M4 | 70 Min. | 4,000K | 350 | 11.2 | 3.9 | 620 | 158 | 2.8 | 900 | |
| | PSL445-0405C5-50AL7M4 | 70 Min. | 5,000K | 350 | 11.2 | 3.9 | 630 | 161 | 2.8 | 900 | |
| | PSL445-0405C5-273M2M2 | 80 Min. | 2,700K | 350 | 11.2 | 3.9 | 535 | 136 | 2.8 | 900 | |
| | PSL445-0405C5-303M2M2 | 80 Min. | 3,000K | 350 | 11.2 | 3.9 | 545 | 139 | 2.8 | 900 | |
| | PSL445-0405C5-353M2M2 | 80 Min. | 3,500K | 350 | 11.2 | 3.9 | 565 | 144 | 2.8 | 900 | |
| | PSL445-0405C5-403M2M2 | 80 Min. | 4,000K | 350 | 11.2 | 3.9 | 570 | 145 | 2.8 | 900 | |
| | PSL445-0405C5-503M2M2 | 80 Min. | 5,000K | 350 | 11.2 | 3.9 | 575 | 147 | 2.8 | 900 | |
| | PSL445-0405C5-57AM2M2 | 80 Min. | 5,700K | 350 | 11.2 | 3.9 | 585 | 149 | 2.8 | 900 | |
| | PSL445-0405C5-273H5M3 | 90 Min. | 2,700K | 350 | 11.2 | 3.9 | 430 | 110 | 2.8 | 900 | |
| | PSL445-0405C5-303H5M3 | 90 Min. | 3,000K | 350 | 11.2 | 3.9 | 455 | 116 | 2.8 | 900 | |
| | PSL445-0405C5-353H5M3 | 90 Min. | 3,500K | 350 | 11.2 | 3.9 | 465 | 119 | 2.8 | 900 | |
| | PSL445-0405C5-403H5M3 | 90 Min. | 4,000K | 350 | 11.2 | 3.9 | 495 | 126 | 2.8 | 900 | |
| | PSL445-0405C5-503H5M3 | 90 Min. | 5,000K | 350 | 11.2 | 3.9 | 500 | 128 | 2.8 | 900 | |
| | PSL445-0405C5-57AH5M3 | 90 Min. | 5,700K | 350 | 11.2 | 3.9 | 510 | 130 | 2.8 | 900 | |

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Compact SMD






- 3-step MacAdam ellipse with small SMD packages

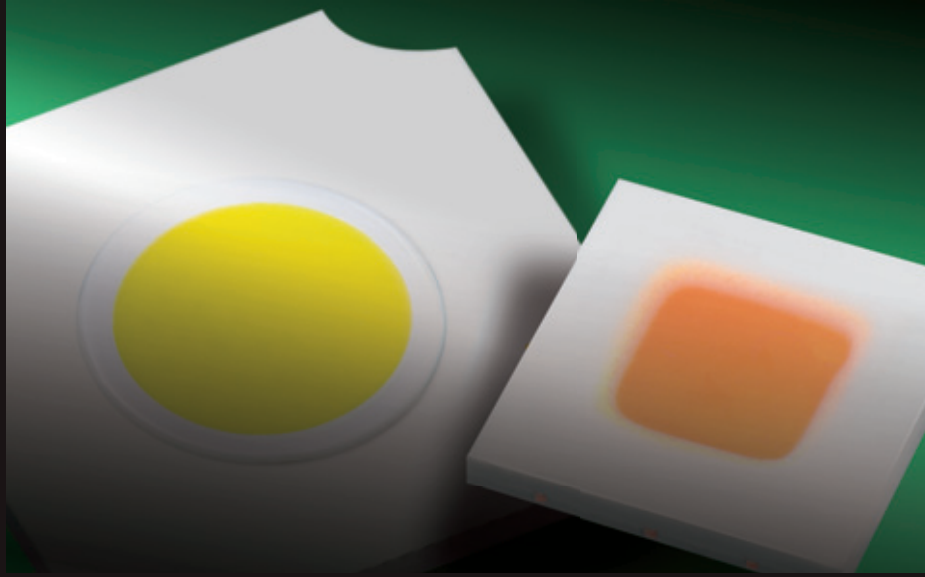
Color Variation

| Package | 80 CRI Min. (ANSI 7-step quadrangle) | | | | | 80 CRI Min. (3-step MacAdam ellipse) | | | | 80 CRI Min. (Original range) | |
|---------|---|--------|--------|--------|--------|---|--------|--------|--------|---------------------------------|--------|
| | 2,700K | 3,000K | 4,000K | 5,000K | 6,500K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 6,500K |
| CLL620 | | | | ● | ● | ● | ● | ● | ● | | |
| CLL130 | | | | ● | ● | ● | ● | ● | ● | | |
| CLL630 | ● | ● | ● | | | | | | | ● | ● |

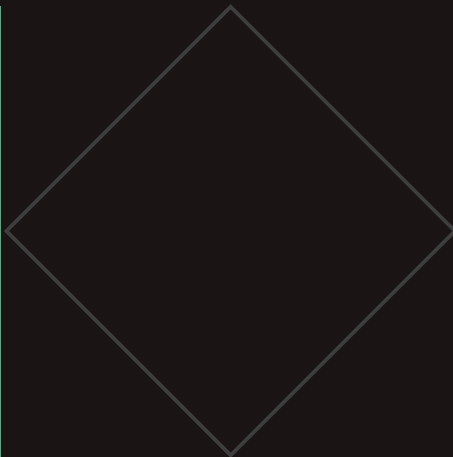
Product List

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating | |
|--|-----------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--------------------------------|-------------------------|--|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance Rj-c (°C/W) | Forward current (mA) | |
|  CLL620 | CLL620-0101B2-273M1C5 | 80 Min. | 2,700K | 80 | 3.2 | 0.256 | 24.9 | 97.3 | 90 | 90 | |
| | CLL620-0101B2-303M1C5 | 80 Min. | 3,000K | 80 | 3.2 | 0.256 | 25.5 | 99.6 | 90 | 90 | |
| | CLL620-0101B2-353M1C5 | 80 Min. | 3,500K | 80 | 3.2 | 0.256 | 25.9 | 101.2 | 90 | 90 | |
| | CLL620-0101B2-403M1C5 | 80 Min. | 4,000K | 80 | 3.2 | 0.256 | 27.0 | 105.5 | 90 | 90 | |
| | CLL620-0101B2-50AM1C5 | 80 Min. | 5,000K | 80 | 3.2 | 0.256 | 27.5 | 107.4 | 90 | 90 | |
| | CLL620-0101B2-65AM1C5 | 80 Min. | 6,500K | 80 | 3.2 | 0.256 | 26.5 | 103.5 | 90 | 90 | |
|  CLL130 | CLL130-0101C1-273M1F2 | 80 Min. | 2,700K | 65 | 2.87 | 0.187 | 24.3 | 130.0 | 40 | 85 | |
| | CLL130-0101C1-303M1F2 | 80 Min. | 3,000K | 65 | 2.87 | 0.187 | 25.0 | 134.3 | 40 | 85 | |
| | CLL130-0101C1-353M1F2 | 80 Min. | 3,500K | 65 | 2.87 | 0.187 | 26.1 | 140.1 | 40 | 85 | |
| | CLL130-0101C1-403M1F2 | 80 Min. | 4,000K | 65 | 2.87 | 0.187 | 26.6 | 142.8 | 40 | 85 | |
| | CLL130-0101C1-50AM1J1 | 80 Min. | 5,000K | 65 | 2.87 | 0.187 | 29.5 | 158.1 | 40 | 85 | |
| | CLL130-0101C1-65AM1J1 | 80 Min. | 6,500K | 65 | 2.87 | 0.187 | 28.3 | 151.8 | 40 | 85 | |
|  CLL630 | CLL630-0101B2-27AM1A2 | 80 Min. | 2,700K | 60 | 3.1 | 0.186 | 19.1 | 102.7 | 120 | 80 | |
| | CLL630-0101B2-30AM1A2 | 80 Min. | 3,000K | 60 | 3.1 | 0.186 | 19.6 | 105.4 | 120 | 80 | |
| | CLL630-0101B2-40AM1A2 | 80 Min. | 4,000K | 60 | 3.1 | 0.186 | 20.6 | 110.8 | 120 | 80 | |
| | CLL630-0101B2-50CM1A2 | 80 Min. | 5,000K | 60 | 3.1 | 0.186 | 21.0 | 112.9 | 120 | 80 | |
| | CLL630-0101B2-65CM1A2 | 80 Min. | 6,500K | 60 | 3.1 | 0.186 | 20.2 | 108.6 | 120 | 80 | |

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Point Source



Point light source makes light beam control easier with optics and downsize luminaires.



High Intensity COB Ver.2



PSL440

High Intensity COB Ver.2

Small LES and high lumen density COB


- Downsize luminaires
- Application: Spotlight, Lamp



Color Variation


| Package | Die Configuration | 70 CRI Min. (ANSI 7-step quadrangle) | 80 CRI Min. (3-step MacAdam ellipse) | | | | | 90 CRI Min. (3-step MacAdam ellipse) | | | |
|---------|-------------------|---|---|--------|--------|--------|--------|---|--------|--------|--------|
| | | 5,000K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 2,700K | 3,000K | 3,500K | 4,000K |
| CLU701 | 0303 | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 0304 | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 1002 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| CLU711 | 1204 | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| CLU721 | 1206 | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| CLU731 | 1210 | ● | ● | ● | ● | ● | ● | ● | ● | ● | |


Product List


| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating | |
|--|-----------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|--|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) | |
|  CLU701 (LES φ6.0mm) | CLU701-0303C4-273M2K1 | 80 Min. | 2,700K | 525 | 9.4 | 4.9 | 581 | 118 | 3.5 | 690 | |
| | CLU701-0303C4-303M2K1 | 80 Min. | 3,000K | 525 | 9.4 | 4.9 | 607 | 123 | 3.5 | 690 | |
| | CLU701-0303C4-353M2K1 | 80 Min. | 3,500K | 525 | 9.4 | 4.9 | 618 | 125 | 3.5 | 690 | |
| | CLU701-0303C4-403M2K1 | 80 Min. | 4,000K | 525 | 9.4 | 4.9 | 625 | 127 | 3.5 | 690 | |
| | CLU701-0303C4-503M2K1 | 80 Min. | 5,000K | 525 | 9.4 | 4.9 | 636 | 129 | 3.5 | 690 | |
| | CLU701-0303C4-273H5K2 | 90 Min. | 2,700K | 525 | 9.4 | 4.9 | 480 | 97 | 3.5 | 690 | |
| | CLU701-0303C4-303H5K2 | 90 Min. | 3,000K | 525 | 9.4 | 4.9 | 502 | 102 | 3.5 | 690 | |
| | CLU701-0303C4-353H5K2 | 90 Min. | 3,500K | 525 | 9.4 | 4.9 | 511 | 103 | 3.5 | 690 | |
| | CLU701-0303C4-403H5K2 | 90 Min. | 4,000K | 525 | 9.4 | 4.9 | 516 | 105 | 3.5 | 690 | |
| | CLU701-0304C4-273M2K1 | 80 Min. | 2,700K | 700 | 9.4 | 6.6 | 775 | 118 | 2.7 | 920 | |
| | CLU701-0304C4-303M2K1 | 80 Min. | 3,000K | 700 | 9.4 | 6.6 | 809 | 123 | 2.7 | 920 | |
| | CLU701-0304C4-353M2K1 | 80 Min. | 3,500K | 700 | 9.4 | 6.6 | 824 | 125 | 2.7 | 920 | |
| | CLU701-0304C4-403M2K1 | 80 Min. | 4,000K | 700 | 9.4 | 6.6 | 834 | 127 | 2.7 | 920 | |
| | CLU701-0304C4-503M2K1 | 80 Min. | 5,000K | 700 | 9.4 | 6.6 | 848 | 129 | 2.7 | 920 | |
| | CLU701-0304C4-273H5K2 | 90 Min. | 2,700K | 700 | 9.4 | 6.6 | 640 | 97 | 2.7 | 920 | |
| | CLU701-0304C4-303H5K2 | 90 Min. | 3,000K | 700 | 9.4 | 6.6 | 668 | 102 | 2.7 | 920 | |
| | CLU701-0304C4-353H5K2 | 90 Min. | 3,500K | 700 | 9.4 | 6.6 | 680 | 103 | 2.7 | 920 | |
| | CLU701-0304C4-403H5K2 | 90 Min. | 4,000K | 700 | 9.4 | 6.6 | 687 | 104 | 2.7 | 920 | |


Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

(T_j = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating |
|--|-----------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) |
|  CLU701 (LES ϕ 6.0mm) | CLU701-1002C4-50AL7K3 | 70 Min. | 5,000K | 350 | 31.3 | 11.0 | 1,372 | 125 | 1.6 | 460 |
| | CLU701-1002C4-273M2K1 | 80 Min. | 2,700K | 350 | 31.3 | 11.0 | 1,163 | 106 | 1.6 | 460 |
| | CLU701-1002C4-303M2K1 | 80 Min. | 3,000K | 350 | 31.3 | 11.0 | 1,224 | 112 | 1.6 | 460 |
| | CLU701-1002C4-353M2K1 | 80 Min. | 3,500K | 350 | 31.3 | 11.0 | 1,257 | 115 | 1.6 | 460 |
| | CLU701-1002C4-403M2K1 | 80 Min. | 4,000K | 350 | 31.3 | 11.0 | 1,278 | 117 | 1.6 | 460 |
| | CLU701-1002C4-503M2K1 | 80 Min. | 5,000K | 350 | 31.3 | 11.0 | 1,305 | 119 | 1.6 | 460 |
| | CLU701-1002C4-273H5K2 | 90 Min. | 2,700K | 350 | 31.3 | 11.0 | 962 | 88 | 1.6 | 460 |
| | CLU701-1002C4-303H5K2 | 90 Min. | 3,000K | 350 | 31.3 | 11.0 | 1,011 | 92 | 1.6 | 460 |
| | CLU701-1002C4-353H5K2 | 90 Min. | 3,500K | 350 | 31.3 | 11.0 | 1,037 | 95 | 1.6 | 460 |
| | CLU701-1002C4-403H5K2 | 90 Min. | 4,000K | 350 | 31.3 | 11.0 | 1,055 | 96 | 1.6 | 460 |

| | | | | | | | | | | |
|--|-----------------------|---------|--------|-----|------|------|-------|-----|------|-----|
|  CLU711 (LES ϕ 8.5mm) | CLU711-1204C4-50AL7K3 | 70 Min. | 5,000K | 700 | 37.6 | 26.3 | 3,398 | 129 | 0.91 | 920 |
| | CLU711-1204C4-273M2K1 | 80 Min. | 2,700K | 700 | 37.6 | 26.3 | 2,877 | 109 | 0.91 | 920 |
| | CLU711-1204C4-303M2K1 | 80 Min. | 3,000K | 700 | 37.6 | 26.3 | 3,042 | 116 | 0.91 | 920 |
| | CLU711-1204C4-353M2K1 | 80 Min. | 3,500K | 700 | 37.6 | 26.3 | 3,107 | 118 | 0.91 | 920 |
| | CLU711-1204C4-403M2K1 | 80 Min. | 4,000K | 700 | 37.6 | 26.3 | 3,172 | 121 | 0.91 | 920 |
| | CLU711-1204C4-503M2K1 | 80 Min. | 5,000K | 700 | 37.6 | 26.3 | 3,232 | 123 | 0.91 | 920 |
| | CLU711-1204C4-273H5K2 | 90 Min. | 2,700K | 700 | 37.6 | 26.3 | 2,378 | 90 | 0.91 | 920 |
| | CLU711-1204C4-303H5K2 | 90 Min. | 3,000K | 700 | 37.6 | 26.3 | 2,514 | 96 | 0.91 | 920 |
| | CLU711-1204C4-353H5K2 | 90 Min. | 3,500K | 700 | 37.6 | 26.3 | 2,565 | 97 | 0.91 | 920 |
| | CLU711-1204C4-403H5K2 | 90 Min. | 4,000K | 700 | 37.6 | 26.3 | 2,619 | 100 | 0.91 | 920 |

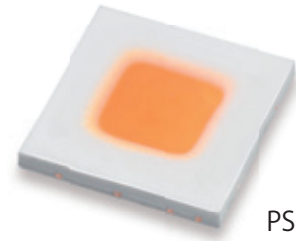
| | | | | | | | | | | |
|---|-----------------------|---------|--------|-------|------|------|-------|-----|------|-------|
|  CLU721 (LES ϕ 11.0mm) | CLU721-1206C4-50AL7K3 | 70 Min. | 5,000K | 1,050 | 37.6 | 39.5 | 5,084 | 129 | 0.60 | 1,380 |
| | CLU721-1206C4-273M2K1 | 80 Min. | 2,700K | 1,050 | 37.6 | 39.5 | 4,307 | 109 | 0.60 | 1,380 |
| | CLU721-1206C4-303M2K1 | 80 Min. | 3,000K | 1,050 | 37.6 | 39.5 | 4,555 | 115 | 0.60 | 1,380 |
| | CLU721-1206C4-353M2K1 | 80 Min. | 3,500K | 1,050 | 37.6 | 39.5 | 4,658 | 118 | 0.60 | 1,380 |
| | CLU721-1206C4-403M2K1 | 80 Min. | 4,000K | 1,050 | 37.6 | 39.5 | 4,750 | 120 | 0.60 | 1,380 |
| | CLU721-1206C4-503M2K1 | 80 Min. | 5,000K | 1,050 | 37.6 | 39.5 | 4,836 | 123 | 0.60 | 1,380 |
| | CLU721-1206C4-273H5K2 | 90 Min. | 2,700K | 1,050 | 37.6 | 39.5 | 3,560 | 90 | 0.60 | 1,380 |
| | CLU721-1206C4-303H5K2 | 90 Min. | 3,000K | 1,050 | 37.6 | 39.5 | 3,764 | 95 | 0.60 | 1,380 |
| | CLU721-1206C4-353H5K2 | 90 Min. | 3,500K | 1,050 | 37.6 | 39.5 | 3,845 | 97 | 0.60 | 1,380 |
| | CLU721-1206C4-403H5K2 | 90 Min. | 4,000K | 1,050 | 37.6 | 39.5 | 3,922 | 99 | 0.60 | 1,380 |

| | | | | | | | | | | |
|---|-----------------------|---------|--------|-------|------|------|-------|-----|------|-------|
|  CLU731 (LES ϕ 13.0mm) | CLU731-1210C4-50AL7K3 | 70 Min. | 5,000K | 1,750 | 37.6 | 65.8 | 8,595 | 131 | 0.42 | 2,300 |
| | CLU731-1210C4-273M2K1 | 80 Min. | 2,700K | 1,750 | 37.6 | 65.8 | 7,298 | 111 | 0.42 | 2,300 |
| | CLU731-1210C4-303M2K1 | 80 Min. | 3,000K | 1,750 | 37.6 | 65.8 | 7,699 | 117 | 0.42 | 2,300 |
| | CLU731-1210C4-353M2K1 | 80 Min. | 3,500K | 1,750 | 37.6 | 65.8 | 7,879 | 120 | 0.42 | 2,300 |
| | CLU731-1210C4-403M2K1 | 80 Min. | 4,000K | 1,750 | 37.6 | 65.8 | 8,036 | 122 | 0.42 | 2,300 |
| | CLU731-1210C4-503M2K1 | 80 Min. | 5,000K | 1,750 | 37.6 | 65.8 | 8,176 | 124 | 0.42 | 2,300 |
| | CLU731-1210C4-273H5K2 | 90 Min. | 2,700K | 1,750 | 37.6 | 65.8 | 6,031 | 92 | 0.42 | 2,300 |
| | CLU731-1210C4-303H5K2 | 90 Min. | 3,000K | 1,750 | 37.6 | 65.8 | 6,362 | 97 | 0.42 | 2,300 |
| | CLU731-1210C4-353H5K2 | 90 Min. | 3,500K | 1,750 | 37.6 | 65.8 | 6,505 | 99 | 0.42 | 2,300 |
| | CLU731-1210C4-403H5K2 | 90 Min. | 4,000K | 1,750 | 37.6 | 65.8 | 6,634 | 101 | 0.42 | 2,300 |

Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

PSL440

High lumen density SMD Package



PSL440


- Lumen density 107 lm/mm²
- Downsize luminaires
- Application : Spotlight, Lamp

Color Variation

| Package | 70 CRI Min. (ANSI 7-step quadrangle) | | 80 CRI Min. (3-step MacAdam ellipse) | | | | | 80 CRI Min. (ANSI 7-step quadrangle) | 90 CRI Min. (3-step MacAdam ellipse) | | | | | 90 CRI Min. (ANSI 7-step quadrangle) |
|---------|---|--------|---|--------|--------|--------|--------|---|---|--------|--------|--------|--------|---|
| | 4,000K | 5,000K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 5,700K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 5,700K |
| PSL440 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Product List

(T_j = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating | |
|--|-----------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|--|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) | |
|  <p>PSL440</p> | PSL440-0404C5-40AL7M4 | 70 Min. | 4,000K | 700 | 12.0 | 8.4 | 1,009 | 120 | 3.5 | 900 | |
| | PSL440-0404C5-50AL7M4 | 70 Min. | 5,000K | 700 | 12.0 | 8.4 | 1,025 | 122 | 3.5 | 900 | |
| | PSL440-0404C5-273M2M2 | 80 Min. | 2,700K | 700 | 12.0 | 8.4 | 840 | 100 | 3.5 | 900 | |
| | PSL440-0404C5-303M2M2 | 80 Min. | 3,000K | 700 | 12.0 | 8.4 | 875 | 104 | 3.5 | 900 | |
| | PSL440-0404C5-353M2M2 | 80 Min. | 3,500K | 700 | 12.0 | 8.4 | 895 | 107 | 3.5 | 900 | |
| | PSL440-0404C5-403M2M2 | 80 Min. | 4,000K | 700 | 12.0 | 8.4 | 900 | 107 | 3.5 | 900 | |
| | PSL440-0404C5-503M2M2 | 80 Min. | 5,000K | 700 | 12.0 | 8.4 | 920 | 110 | 3.5 | 900 | |
| | PSL440-0404C5-57AM2M2 | 80 Min. | 5,700K | 700 | 12.0 | 8.4 | 940 | 112 | 3.5 | 900 | |
| | PSL440-0404C5-273H5M3 | 90 Min. | 2,700K | 700 | 12.0 | 8.4 | 675 | 80 | 3.5 | 900 | |
| | PSL440-0404C5-303H5M3 | 90 Min. | 3,000K | 700 | 12.0 | 8.4 | 715 | 85 | 3.5 | 900 | |
| | PSL440-0404C5-353H5M3 | 90 Min. | 3,500K | 700 | 12.0 | 8.4 | 725 | 86 | 3.5 | 900 | |
| | PSL440-0404C5-403H5M3 | 90 Min. | 4,000K | 700 | 12.0 | 8.4 | 730 | 87 | 3.5 | 900 | |
| | PSL440-0404C5-503H5M3 | 90 Min. | 5,000K | 700 | 12.0 | 8.4 | 735 | 88 | 3.5 | 900 | |
| | PSL440-0404C5-57AH5M3 | 90 Min. | 5,700K | 700 | 12.0 | 8.4 | 755 | 90 | 3.5 | 900 | |

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High color
quality

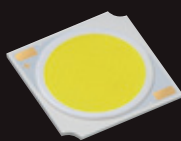
Vivid color provides
beautiful and enriched
high color quality light.



Vivid Series
Brilliant Type



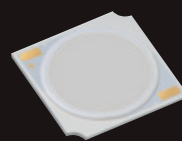
Vivid Series
Natural Type



Below B.B.L.,
Super High CRI



Amber color COB



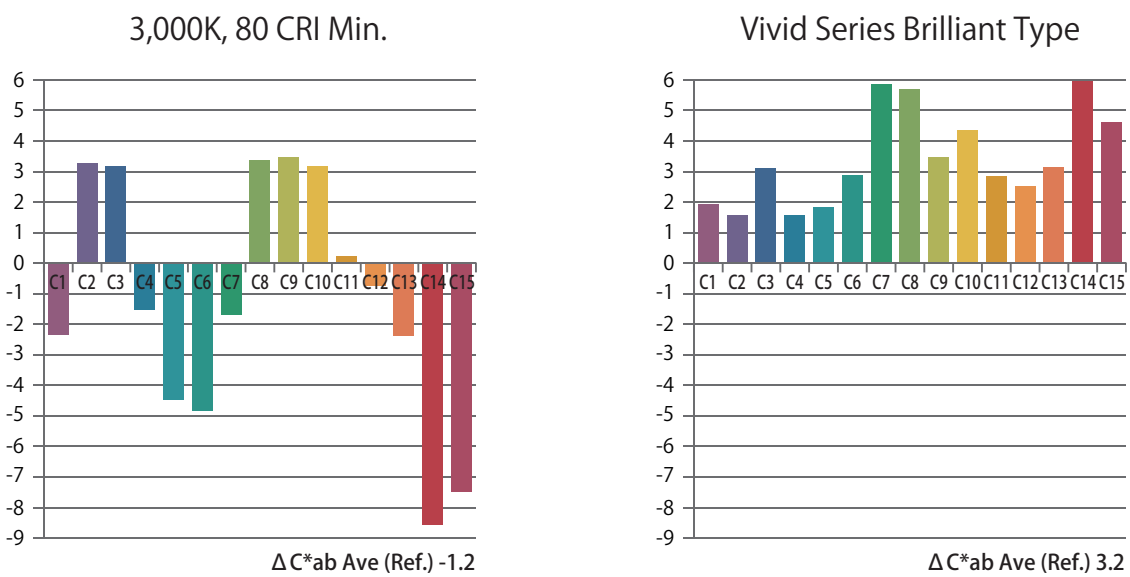
Blue color COB

Vivid Series expresses the subtle beauty of original color of objects.

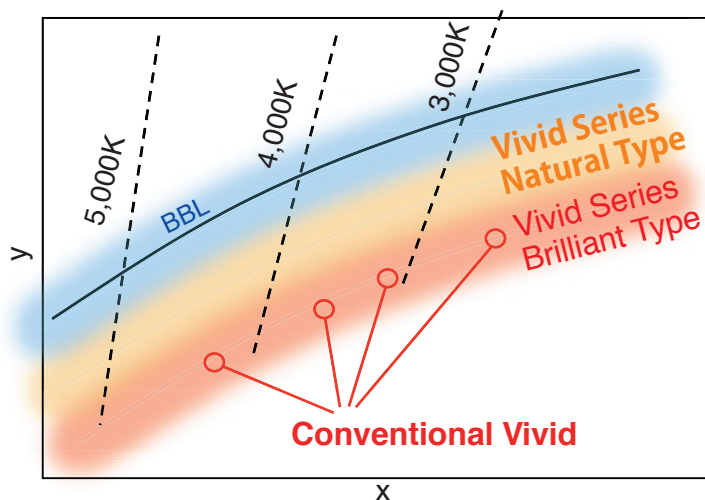
Vivid Series Brilliant Type has become the value of ΔC^*_{ab} positive zone, it can bring out things original color vividly

Note ΔC^*_{ab} is an index that represents the chroma difference.

● Comparison of the chroma difference



Two types of Vivid Series



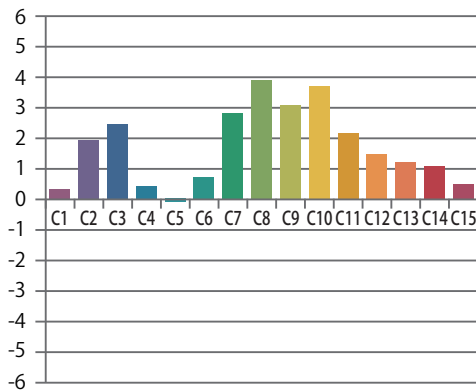
Vivid Series Brilliant Type

The chroma difference of the Brilliant type is twice as much as that of the standard vivid type.



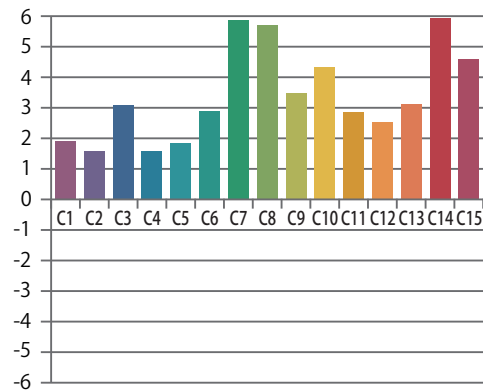
- Comparison of the chroma difference with the standard Vivid type

Conventional Vivid Series (Warm plus)



ΔC*ab Ave (Ref.) 1.6

Vivid Series Brilliant Type



ΔC*ab Ave (Ref.) 3.2

Vivid Series Natural Type

Natural color and high chroma light.



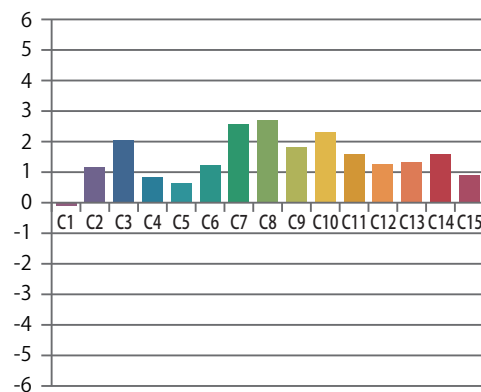
Standard light (5,000K, 80 CRI Min.)



Vivid Series Natural Type (5,000K)

- ΔC*ab (Vivid Series Natural Type)

Vivid Series Natural Type



ΔC*ab Ave (Ref.) 1.6




Color Variation

| Package | Die Configuration | Vivid Series Brilliant Type | | | | | Vivid Series Natural Type | | | | |
|---------|-------------------|-----------------------------|--------|--------|--------|--------|---------------------------|--------|--------|--------|--------|
| | | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K | 2,700K | 3,000K | 3,500K | 4,000K | 5,000K |
| CLU028 | 1204 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 1206 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| CLU038 | 1208 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 1212 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| CLU048 | 1812 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Product List

Vivid Series Brilliant Type






(T_j = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | Absolute Maximum Rating | ΔC* ab Ave (Ref.) |
|---|-----------------------|---------------------------------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|-------------------|
| | | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) | |
|  CLU028 (LES φ9.8mm) | CLU028-1204C4-27BV1N3 | 2,700K | 360 | 34.6 | 12.5 | 1,001 | 80 | 0.91 | 720 | 3.2 |
| | CLU028-1204C4-30BV1N3 | 3,000K | 360 | 34.6 | 12.5 | 1,056 | 85 | 0.91 | 720 | |
| | CLU028-1204C4-35BV1N3 | 3,500K | 360 | 34.6 | 12.5 | 1,112 | 89 | 0.91 | 720 | |
| | CLU028-1204C4-40BV1N3 | 4,000K | 360 | 34.6 | 12.5 | 1,151 | 92 | 0.91 | 720 | |
| | CLU028-1204C4-50BV1N3 | 5,000K | 360 | 34.6 | 12.5 | 1,179 | 95 | 0.91 | 720 | |
|  CLU038 (LES φ14.5mm) | CLU038-1206C4-27BV1N3 | 2,700K | 540 | 34.6 | 18.7 | 1,554 | 83 | 0.64 | 1,080 | 3.2 |
| | CLU038-1206C4-30BV1N3 | 3,000K | 540 | 34.6 | 18.7 | 1,638 | 88 | 0.64 | 1,080 | |
| | CLU038-1206C4-35BV1N3 | 3,500K | 540 | 34.6 | 18.7 | 1,726 | 92 | 0.64 | 1,080 | |
| | CLU038-1206C4-40BV1N3 | 4,000K | 540 | 34.6 | 18.7 | 1,786 | 96 | 0.64 | 1,080 | |
| | CLU038-1206C4-50BV1N3 | 5,000K | 540 | 34.6 | 18.7 | 1,830 | 98 | 0.64 | 1,080 | |
| | CLU038-1208C4-27BV1N3 | 2,700K | 720 | 34.6 | 24.9 | 2,031 | 82 | 0.51 | 1,440 | 3.2 |
| | CLU038-1208C4-30BV1N3 | 3,000K | 720 | 34.6 | 24.9 | 2,141 | 86 | 0.51 | 1,440 | |
| | CLU038-1208C4-35BV1N3 | 3,500K | 720 | 34.6 | 24.9 | 2,256 | 91 | 0.51 | 1,440 | |
| | CLU038-1208C4-40BV1N3 | 4,000K | 720 | 34.6 | 24.9 | 2,335 | 94 | 0.51 | 1,440 | |
|  CLU048 (LES φ22.0mm) | CLU048-1212C4-27BV1N3 | 2,700K | 1,080 | 34.6 | 37.4 | 3,148 | 84 | 0.34 | 2,160 | 3.2 |
| | CLU048-1212C4-30BV1N3 | 3,000K | 1,080 | 34.6 | 37.4 | 3,319 | 89 | 0.34 | 2,160 | |
| | CLU048-1212C4-35BV1N3 | 3,500K | 1,080 | 34.6 | 37.4 | 3,497 | 94 | 0.34 | 2,160 | |
| | CLU048-1212C4-40BV1N3 | 4,000K | 1,080 | 34.6 | 37.4 | 3,619 | 97 | 0.34 | 2,160 | |
| | CLU048-1212C4-50BV1N3 | 5,000K | 1,080 | 34.6 | 37.4 | 3,708 | 99 | 0.34 | 2,160 | |
| | CLU048-1812C4-27BV1N3 | 2,700K | 1,080 | 52.0 | 56.2 | 4,610 | 82 | 0.25 | 2,160 | 3.2 |
| | CLU048-1812C4-30BV1N3 | 3,000K | 1,080 | 52.0 | 56.2 | 4,860 | 87 | 0.25 | 2,160 | |
| | CLU048-1812C4-35BV1N3 | 3,500K | 1,080 | 52.0 | 56.2 | 5,121 | 91 | 0.25 | 2,160 | |
| | CLU048-1812C4-40BV1N3 | 4,000K | 1,080 | 52.0 | 56.2 | 5,300 | 94 | 0.25 | 2,160 | |
| CLU048-1812C4-50BV1N3 | 5,000K | 1,080 | 52.0 | 56.2 | 5,430 | 97 | 0.25 | 2,160 | | |

Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

Vivid Series Natural Type

(T_j = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | Absolute Maximum Rating | ΔC*ab Ave (Ref.) | |
|---|---|---------------------------------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|------------------|-----|
| | | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) | | |
|  CLU028 (LES φ9.8mm) | CLU028-1204C4-27NV1N2 | 2,700K | 360 | 34.6 | 12.5 | 1,167 | 94 | 0.91 | 720 | 1.6 | |
| | CLU028-1204C4-30NV1N2 | 3,000K | 360 | 34.6 | 12.5 | 1,246 | 100 | 0.91 | 720 | | |
| | CLU028-1204C4-35NV1N2 | 3,500K | 360 | 34.6 | 12.5 | 1,290 | 104 | 0.91 | 720 | | |
| | CLU028-1204C4-40NV1N2 | 4,000K | 360 | 34.6 | 12.5 | 1,324 | 106 | 0.91 | 720 | | |
| | CLU028-1204C4-50NV1N2 | 5,000K | 360 | 34.6 | 12.5 | 1,368 | 110 | 0.91 | 720 | | |
|  CLU038 (LES φ14.5mm) | CLU038-1206C4-27NV1N2 | 2,700K | 540 | 34.6 | 18.7 | 1,812 | 97 | 0.64 | 1,080 | 1.6 | |
| | CLU038-1206C4-30NV1N2 | 3,000K | 540 | 34.6 | 18.7 | 1,934 | 104 | 0.64 | 1,080 | | |
| | CLU038-1206C4-35NV1N2 | 3,500K | 540 | 34.6 | 18.7 | 2,002 | 107 | 0.64 | 1,080 | | |
| | CLU038-1206C4-40NV1N2 | 4,000K | 540 | 34.6 | 18.7 | 2,054 | 110 | 0.64 | 1,080 | | |
| | CLU038-1206C4-50NV1N2 | 5,000K | 540 | 34.6 | 18.7 | 2,123 | 114 | 0.64 | 1,080 | | |
| |  CLU038 (LES φ14.5mm) | CLU038-1208C4-27NV1N2 | 2,700K | 720 | 34.6 | 24.9 | 2,368 | 95 | 0.51 | 1,440 | 1.6 |
| | | CLU038-1208C4-30NV1N2 | 3,000K | 720 | 34.6 | 24.9 | 2,528 | 101 | 0.51 | 1,440 | |
| | | CLU038-1208C4-35NV1N2 | 3,500K | 720 | 34.6 | 24.9 | 2,617 | 105 | 0.51 | 1,440 | |
| | | CLU038-1208C4-40NV1N2 | 4,000K | 720 | 34.6 | 24.9 | 2,685 | 108 | 0.51 | 1,440 | |
|  CLU048 (LES φ22.0mm) | CLU048-1212C4-27NV1N2 | 2,700K | 1,080 | 34.6 | 37.4 | 3,670 | 98 | 0.34 | 2,160 | 1.6 | |
| | CLU048-1212C4-30NV1N2 | 3,000K | 1,080 | 34.6 | 37.4 | 3,918 | 105 | 0.34 | 2,160 | | |
| | CLU048-1212C4-35NV1N2 | 3,500K | 1,080 | 34.6 | 37.4 | 4,056 | 109 | 0.34 | 2,160 | | |
| | CLU048-1212C4-40NV1N2 | 4,000K | 1,080 | 34.6 | 37.4 | 4,162 | 111 | 0.34 | 2,160 | | |
| | CLU048-1212C4-50NV1N2 | 5,000K | 1,080 | 34.6 | 37.4 | 4,301 | 115 | 0.34 | 2,160 | | |
| |  CLU048 (LES φ22.0mm) | CLU048-1812C4-27NV1N2 | 2,700K | 1,080 | 52.0 | 56.2 | 5,375 | 96 | 0.25 | 2,160 | 1.6 |
| | | CLU048-1812C4-30NV1N2 | 3,000K | 1,080 | 52.0 | 56.2 | 5,739 | 102 | 0.25 | 2,160 | |
| | | CLU048-1812C4-35NV1N2 | 3,500K | 1,080 | 52.0 | 56.2 | 5,941 | 106 | 0.25 | 2,160 | |
| | | CLU048-1812C4-40NV1N2 | 4,000K | 1,080 | 52.0 | 56.2 | 6,095 | 109 | 0.25 | 2,160 | |
| | | CLU048-1812C4-50NV1N2 | 5,000K | 1,080 | 52.0 | 56.2 | 6,299 | 112 | 0.25 | 2,160 | |

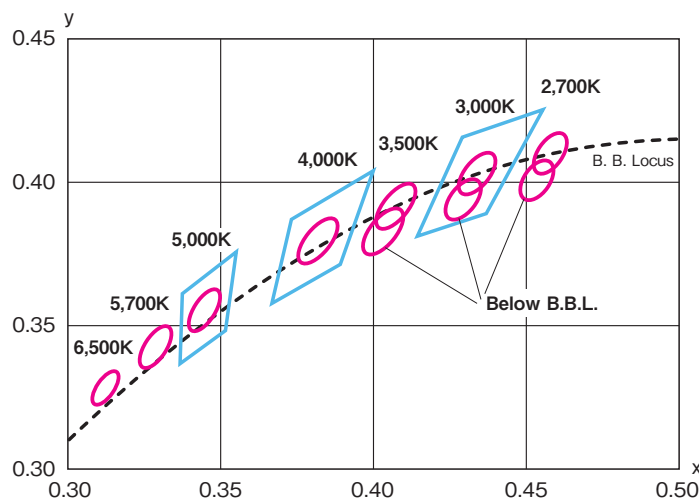
Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

Below B.B.L., Super High CRI



Below B.B.L. :

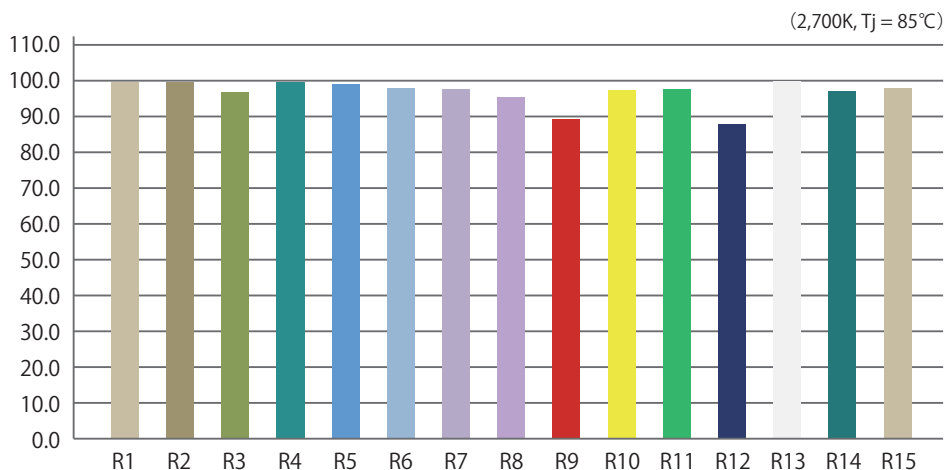
Below B.B.L. LED makes white objects beautiful



Super High CRI :

Super High CRI LED gives high color fidelity

Color Rendering Index





Color Variation

| Package | Die Configuration | Below B.B.L. 90 CRI Min. (3-step MacAdam ellipse) | | | Super High-CRI 97 CRI Typ. (3-step MacAdam ellipse) | | |
|---------|-------------------|--|--------|--------|--|--------|--------|
| | | 2,700K | 3,000K | 3,500K | 2,700K | 3,000K | 4,000K |
| CLU028 | 1201 | | | | ● | ● | ● |
| | 1202 | | | | ● | ● | ● |
| | 1203 | ● | ● | ● | ● | ● | ● |
| | 1204 | | | | ● | ● | ● |
| CLU038 | 1205 | ● | ● | ● | ● | ● | ● |
| | 1206 | ● | ● | ● | ● | ● | ● |
| | 1208 | ● | ● | ● | ● | ● | ● |
| CLU048 | 1211 | ● | ● | ● | ● | ● | ● |
| | 1212 | ● | ● | ● | ● | ● | ● |

Product List

Below B.B.L.


(T_j = 85°C)


| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating |
|---|--------------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) |
|  CLU028 (LES ϕ 9.8mm) | CLU028-1203C4-273H6M3-F1 | 90 Min. | 2,700K | 270 | 34.0 | 9.2 | 1,065 | 116 | 1.0 | 690 |
| | CLU028-1203C4-303H6M3-F1 | 90 Min. | 3,000K | 270 | 34.0 | 9.2 | 1,108 | 121 | 1.0 | 690 |
| | CLU028-1203C4-353H6M3-F1 | 90 Min. | 3,500K | 270 | 34.0 | 9.2 | 1,123 | 122 | 1.0 | 690 |
|  CLU038 (LES ϕ 14.5mm) | CLU038-1205C4-273H6M3-F1 | 90 Min. | 2,700K | 450 | 34.0 | 15.3 | 1,820 | 119 | 0.68 | 1,150 |
| | CLU038-1205C4-303H6M3-F1 | 90 Min. | 3,000K | 450 | 34.0 | 15.3 | 1,892 | 124 | 0.68 | 1,150 |
| | CLU038-1205C4-353H6M3-F1 | 90 Min. | 3,500K | 450 | 34.0 | 15.3 | 1,920 | 125 | 0.68 | 1,150 |
| | CLU038-1206C4-273H6M3-F1 | 90 Min. | 2,700K | 540 | 34.0 | 18.4 | 2,161 | 118 | 0.61 | 1,380 |
| | CLU038-1206C4-303H6M3-F1 | 90 Min. | 3,000K | 540 | 34.0 | 18.4 | 2,247 | 122 | 0.61 | 1,380 |
| | CLU038-1206C4-353H6M3-F1 | 90 Min. | 3,500K | 540 | 34.0 | 18.4 | 2,280 | 124 | 0.61 | 1,380 |
| | CLU038-1208C4-273H6M3-F1 | 90 Min. | 2,700K | 720 | 34.0 | 24.5 | 2,827 | 115 | 0.48 | 1,840 |
| | CLU038-1208C4-303H6M3-F1 | 90 Min. | 3,000K | 720 | 34.0 | 24.5 | 2,940 | 120 | 0.48 | 1,840 |
| CLU038-1208C4-353H6M3-F1 | 90 Min. | 3,500K | 720 | 34.0 | 24.5 | 2,982 | 122 | 0.48 | 1,840 | |
|  CLU048 (LES ϕ 22.0mm) | CLU048-1211C4-273H6M3-F1 | 90 Min. | 2,700K | 990 | 34.0 | 33.7 | 4,020 | 119 | 0.36 | 2,530 |
| | CLU048-1211C4-303H6M3-F1 | 90 Min. | 3,000K | 990 | 34.0 | 33.7 | 4,181 | 124 | 0.36 | 2,530 |
| | CLU048-1211C4-353H6M3-F1 | 90 Min. | 3,500K | 990 | 34.0 | 33.7 | 4,240 | 126 | 0.36 | 2,530 |
| | CLU048-1212C4-273H6M3-F1 | 90 Min. | 2,700K | 1,080 | 34.0 | 36.7 | 4,385 | 119 | 0.32 | 2,760 |
| | CLU048-1212C4-303H6M3-F1 | 90 Min. | 3,000K | 1,080 | 34.0 | 36.7 | 4,561 | 124 | 0.32 | 2,760 |
| | CLU048-1212C4-353H6M3-F1 | 90 Min. | 3,500K | 1,080 | 34.0 | 36.7 | 4,625 | 126 | 0.32 | 2,760 |


Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

Super High CRI

(T_j = 85°C)

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating |
|---|--------------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--|-------------------------|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance R _{j-c} (°C/W) | Forward current (mA) |
|  <p>CLU028 (LES φ9.8mm)</p> | CLU028-1201C4-273H7M5-F1 | 97 Typ. | 2,700K | 90 | 34.0 | 3.1 | 345 | 113 | 2.6 | 230 |
| | CLU028-1201C4-303H7M5-F1 | 97 Typ. | 3,000K | 90 | 34.0 | 3.1 | 358 | 117 | 2.6 | 230 |
| | CLU028-1201C4-403H7M5-F1 | 97 Typ. | 4,000K | 90 | 34.0 | 3.1 | 367 | 120 | 2.6 | 230 |
| | CLU028-1202C4-273H7M5-F1 | 97 Typ. | 2,700K | 180 | 34.0 | 6.1 | 681 | 111 | 1.5 | 460 |
| | CLU028-1202C4-303H7M5-F1 | 97 Typ. | 3,000K | 180 | 34.0 | 6.1 | 708 | 116 | 1.5 | 460 |
| | CLU028-1202C4-403H7M5-F1 | 97 Typ. | 4,000K | 180 | 34.0 | 6.1 | 726 | 119 | 1.5 | 460 |
| | CLU028-1203C4-273H7M5-F1 | 97 Typ. | 2,700K | 270 | 34.0 | 9.2 | 1,005 | 109 | 1.0 | 690 |
| | CLU028-1203C4-303H7M5-F1 | 97 Typ. | 3,000K | 270 | 34.0 | 9.2 | 1,044 | 114 | 1.0 | 690 |
| | CLU028-1203C4-403H7M5-F1 | 97 Typ. | 4,000K | 270 | 34.0 | 9.2 | 1,069 | 116 | 1.0 | 690 |
| | CLU028-1204C4-273H7M5-F1 | 97 Typ. | 2,700K | 360 | 34.0 | 12.2 | 1,314 | 107 | 0.86 | 920 |
| | CLU028-1204C4-303H7M5-F1 | 97 Typ. | 3,000K | 360 | 34.0 | 12.2 | 1,367 | 112 | 0.86 | 920 |
| | CLU028-1204C4-403H7M5-F1 | 97 Typ. | 4,000K | 360 | 34.0 | 12.2 | 1,402 | 115 | 0.86 | 920 |

| | | | | | | | | | | |
|---|--------------------------|---------|--------|-----|------|------|-------|-----|------|-------|
|  <p>CLU038 (LES φ14.5mm)</p> | CLU038-1205C4-273H7M5-F1 | 97 Typ. | 2,700K | 450 | 34.0 | 15.3 | 1,714 | 112 | 0.68 | 1,150 |
| | CLU038-1205C4-303H7M5-F1 | 97 Typ. | 3,000K | 450 | 34.0 | 15.3 | 1,783 | 117 | 0.68 | 1,150 |
| | CLU038-1205C4-403H7M5-F1 | 97 Typ. | 4,000K | 450 | 34.0 | 15.3 | 1,827 | 119 | 0.68 | 1,150 |
| | CLU038-1206C4-273H7M5-F1 | 97 Typ. | 2,700K | 540 | 34.0 | 18.4 | 2,037 | 111 | 0.61 | 1,380 |
| | CLU038-1206C4-303H7M5-F1 | 97 Typ. | 3,000K | 540 | 34.0 | 18.4 | 2,117 | 115 | 0.61 | 1,380 |
| | CLU038-1206C4-403H7M5-F1 | 97 Typ. | 4,000K | 540 | 34.0 | 18.4 | 2,170 | 118 | 0.61 | 1,380 |
| | CLU038-1208C4-273H7M5-F1 | 97 Typ. | 2,700K | 720 | 34.0 | 24.5 | 2,663 | 109 | 0.48 | 1,840 |
| | CLU038-1208C4-303H7M5-F1 | 97 Typ. | 3,000K | 720 | 34.0 | 24.5 | 2,769 | 113 | 0.48 | 1,840 |
| | CLU038-1208C4-403H7M5-F1 | 97 Typ. | 4,000K | 720 | 34.0 | 24.5 | 2,839 | 116 | 0.48 | 1,840 |

| | | | | | | | | | | |
|--|--------------------------|---------|--------|-------|------|------|-------|-----|------|-------|
|  <p>CLU048 (LES φ22.0mm)</p> | CLU048-1211C4-273H7M5-F1 | 97 Typ. | 2,700K | 990 | 34.0 | 33.7 | 3,786 | 112 | 0.36 | 2,530 |
| | CLU048-1211C4-303H7M5-F1 | 97 Typ. | 3,000K | 990 | 34.0 | 33.7 | 3,938 | 117 | 0.36 | 2,530 |
| | CLU048-1211C4-403H7M5-F1 | 97 Typ. | 4,000K | 990 | 34.0 | 33.7 | 4,036 | 120 | 0.36 | 2,530 |
| | CLU048-1212C4-273H7M5-F1 | 97 Typ. | 2,700K | 1,080 | 34.0 | 36.7 | 4,130 | 112 | 0.32 | 2,760 |
| | CLU048-1212C4-303H7M5-F1 | 97 Typ. | 3,000K | 1,080 | 34.0 | 36.7 | 4,295 | 117 | 0.32 | 2,760 |
| | CLU048-1212C4-403H7M5-F1 | 97 Typ. | 4,000K | 1,080 | 34.0 | 36.7 | 4,403 | 120 | 0.32 | 2,760 |
| | CLU048-1812C4-273H7M5-F1 | 97 Typ. | 2,700K | 1,080 | 51.1 | 55.2 | 6,044 | 110 | 0.24 | 2,760 |
| | CLU048-1812C4-303H7M5-F1 | 97 Typ. | 3,000K | 1,080 | 51.1 | 55.2 | 6,288 | 114 | 0.24 | 2,760 |
| | CLU048-1812C4-403H7M5-F1 | 97 Typ. | 4,000K | 1,080 | 51.1 | 55.2 | 6,444 | 117 | 0.24 | 2,760 |

Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

Amber color COB





Replacement of High Pressure Sodium Lamps

The solution for the replacement of high pressure sodium lamps used in street lights, seaport lights and high masts.



- Life time projection : L70 at 50,000H
- Color Rendering : 65 CRI Typ.
- Efficacy : 140lm/W at Tj=85°C

Product List

| Package | Product code | Electro-optical Characteristics | | | | | | | | Absolute Maximum Rating |
|---|---------------------------|---------------------------------|--------|----------------------|------------------|----------------------|-------------------------|----------------------|--------------------------------|-------------------------|
| | | CRI | CCT | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Thermal resistance Rj-c (°C/W) | Forward current (mA) |
|  CLU038 (LES φ14.5mm) | CLU038-1208C4-22AL1K3 | 65 Typ. | 2,200K | 720 | 34.6 | 24.9 | 3,495 | 140 | 0.51 | 1,440 |
| | CLU038-1210C4-22AL1K3 | 65 Typ. | 2,200K | 900 | 34.6 | 31.1 | 4,339 | 139 | 0.42 | 1,800 |
|  CLU048 (LES φ22.0mm) | CLU048-1212C4-22AL1K3 | 65 Typ. | 2,200K | 1,080 | 34.6 | 37.4 | 5,422 | 145 | 0.34 | 2,160 |
| | CLU048-1812C4-22AL1K3 | 65 Typ. | 2,200K | 1,080 | 52.0 | 56.2 | 7,935 | 141 | 0.25 | 2,160 |
| | CLU048-1818C4-22AL1K3 | 65 Typ. | 2,200K | 1,620 | 52.0 | 84.2 | 11,583 | 138 | 0.17 | 3,240 |
|  CLU058 (LES φ32.8mm) | CLU058-1825C4-22AL1K3 | 65 Typ. | 2,200K | 2,250 | 52.0 | 117.0 | 16,961 | 145 | 0.14 | 4,500 |
| | CLU058-3618C4-22AL1K3 | 65 Typ. | 2,200K | 1,620 | 103.9 | 168.3 | 23,421 | 139 | 0.10 | 3,240 |
|  CLU551 (LES φ32.8mm) | CLU551-3626C4-22AL1K3-B24 | 65 Typ. | 2,200K | 2,340 | 103.9 | 243.1 | 32,789 | 135 | 0.07 | 3,900 |

Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

Blue color COB





High Power Blue LED

High-power blue LED suitable for various applications such as lighting for swimming pools and architectural lighting.

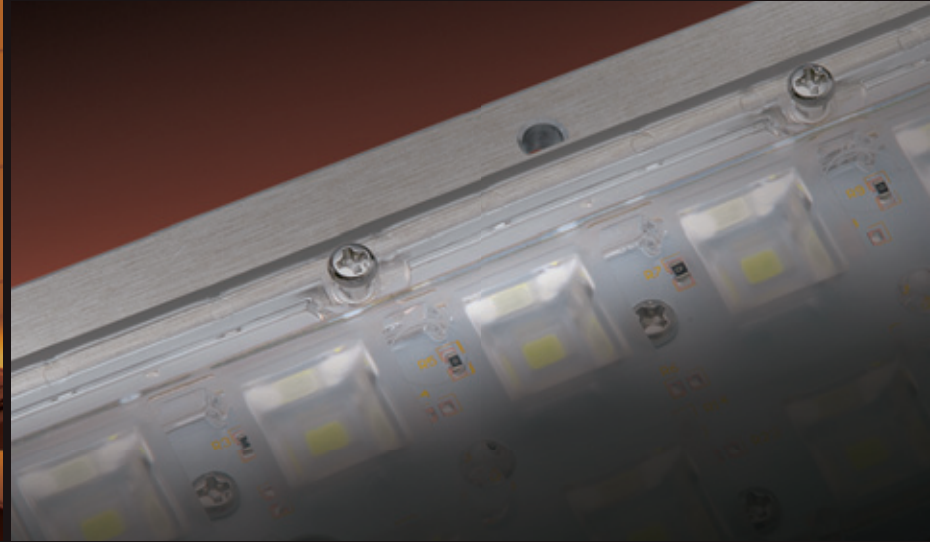
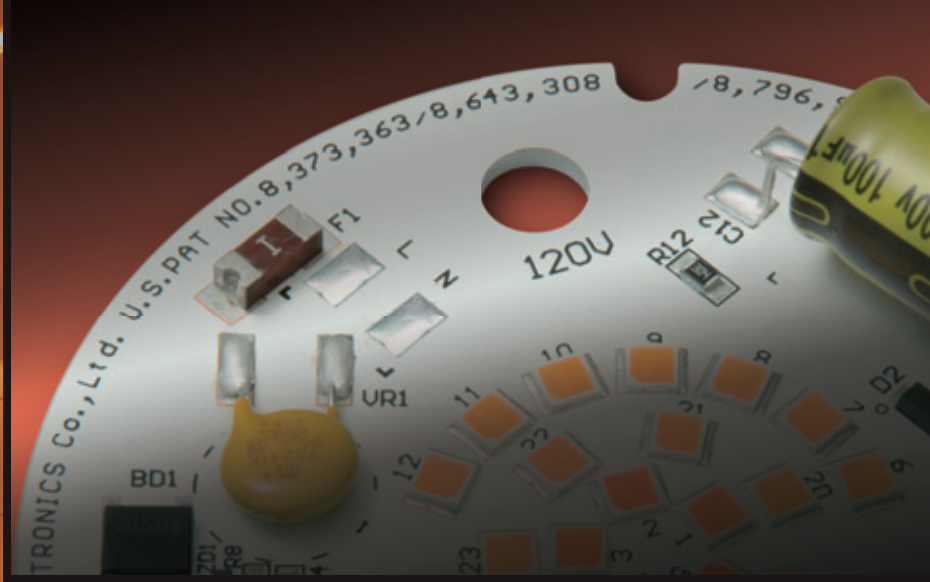


- High Power: Maximum output 474W
- Life time projection : L70 at 50,000H

Product List

| Package | Product code | Electro-optical Characteristics | | | | | | | | (T _c = 25°C) | |
|---|---------------------------|---------------------------------|------------------|----------------------|------------------|-----|---------------------------|-----|--|-------------------------|--|
| | | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Radiant Flux (W) | | Wave Length Dominant (nm) | | Thermal resistance R _{j-c} (°C/W) | Absolute Maximum Rating | |
|  CLU038 (LES φ14.5mm) | CLU038-1208C4-B455-XX | 720 | 35.8 | 25.8 | 11 | 17 | 445 | 465 | 0.51 | 1,440 | |
| | CLU038-1210C4-B455-XX | 900 | 35.8 | 32.2 | 13 | 21 | 445 | 465 | 0.42 | 1,800 | |
|  CLU048 (LES φ22.0mm) | CLU048-1212C4-B455-XX | 1,080 | 35.8 | 38.7 | 17 | 27 | 445 | 465 | 0.34 | 2,160 | |
| | CLU048-1812C4-B455-XX | 1,080 | 53.6 | 57.9 | 25 | 39 | 445 | 465 | 0.25 | 2,160 | |
| | CLU048-1818C4-B455-XX | 1,620 | 53.6 | 86.8 | 37 | 57 | 445 | 465 | 0.17 | 3,240 | |
|  CLU058 (LES φ32.8mm) | CLU058-1825C4-B455-XX | 2,250 | 53.6 | 120.6 | 54 | 82 | 445 | 465 | 0.14 | 4,500 | |
| | CLU058-3618C4-B455-XX | 1,620 | 107.1 | 173.5 | 75 | 113 | 445 | 465 | 0.10 | 3,240 | |
|  CLU551 (LES φ32.8mm) | CLU551-3626C4-B455-XX-B24 | 2,340 | 107.1 | 250.6 | 105 | 159 | 445 | 465 | 0.07 | 3,900 | |

Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.



Module

Compact module solution provides luminaire design flexibility with high efficacy and lumen density.



AC Disk Module



CSP Module

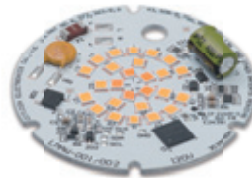
AC Disk Module

AC direct driving (AC 120V / 60Hz)

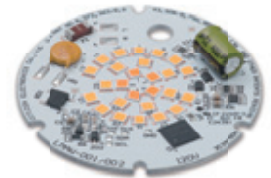
LMAW : AC Dim-to-Warm Module

All in one solution

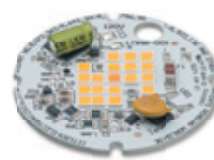
- No need for separate Control IC
- Dimming to warm from 3,000K to 2,000K
- Simulate dimming to warm of incandescent bulbs
- Application :
 - Down light, Sconce lighting
 - Ceiling light (Flushmount lighting)



LMAW-001YA-01



LMAW-002YA-01



LMAW-003YA-01

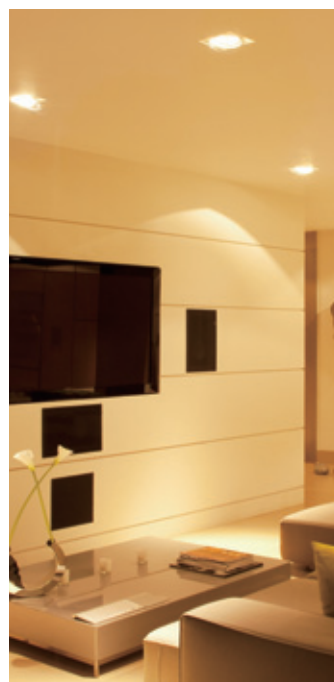


LMAW-004YA-01

● Example of Dim-to-warm downlight



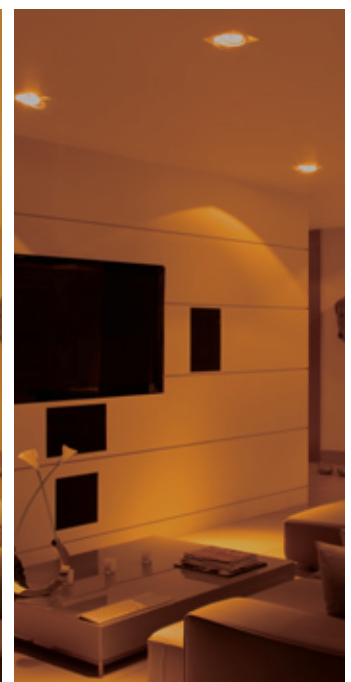
3,000K



2,700K



2,300K







2,000K

Color Variation

| Package | 2,000K, 80 CRI Min. / 3,000K, 90 CRI Min. |
|----------|---|
| LMAW-001 | ● |
| LMAW-002 | ● |
| LMAW-003 | ● |
| LMAW-004 | ● |

Product List

(3,000K, 90 CRI Min. T_c = 25°C)

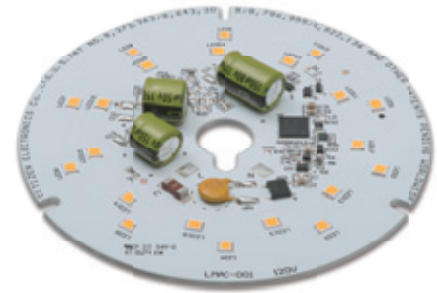
| Package | Product code | Electro-optical Characteristics | | | | | | | |
|--|----------------|---------------------------------|---|----------|----------------------|-------------------------|----------------------|---------------------|---------|
| | | Diameter (mm) | CCT, CRI | LEDs | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Percent Flicker (%) | THD (%) |
|  LMAW-001 | LMAW-001YA-01* | Φ59 | 2,000K, 80 CRI Min. / 3,000K, 90 CRI Min. | 2 colors | 12.5 | 1,060 | 84.8 | — | ≤20 |
|  LMAW-002 | LMAW-002YA-01* | Φ59 | 2,000K, 80 CRI Min. / 3,000K, 90 CRI Min. | 2 colors | 10.5 | 900 | 85.7 | — | ≤20 |
|  LMAW-003 | LMAW-003YA-01 | Φ45 | 2,000K, 80 CRI Min. / 3,000K, 90 CRI Min. | 2 colors | 9.1 | 740 | 81.3 | — | ≤20 |
|  LMAW-004 | LMAW-004YA-01 | Φ70 | 2,000K, 80 CRI Min. / 3,000K, 90 CRI Min. | 2 colors | 12.5 | 1,060 | 84.8 | <30 | ≤20 |

* LMAW-001YA and 002YA are same product but different watt setting.

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LMAC : Lower Percent Flicker Module

- Lower Percent Flicker (<30%)
- High compatibility with TRIAC dimmer
- Application : Ceiling light, Down light, Spot light




LMAC-001YA-01

Color Variation

| | |
|----------|---------------------|
| Package | 3,000K, 90 CRI Min. |
| LMAC-001 | ● |

Product List

(Tc = 25°C)

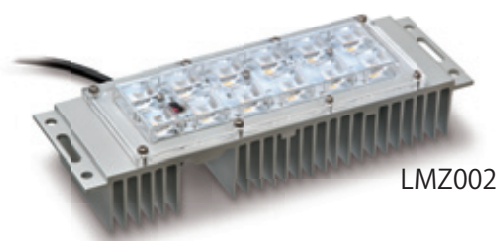
| Package | Product code | Electro-optical Characteristics | | | | | | | |
|--|---------------|---------------------------------|---------------------|--------------|----------------------|-------------------------|----------------------|---------------------|---------|
| | | Diameter (mm) | CCT, CRI | LEDs | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Percent Flicker (%) | THD (%) |
|  LMAC-001 | LMAC-001YA-01 | Ø 100 | 3,000K, 90 CRI Min. | Single Color | 15.7 | 1,360 | 86.6 | <30 | ≤20 |

Note Product code and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

CSP Module

High performance module with high efficient CSP



- Downsizing, High Lumen Density
- Lighting system cost reduction
- Application : Street light, Highbay light, Flood light



Color Variation/ Heat sink



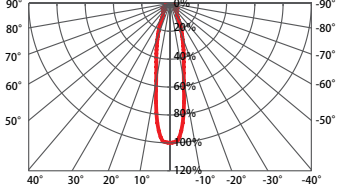


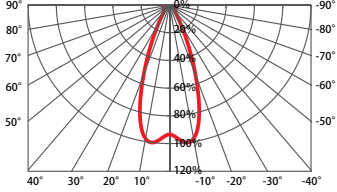


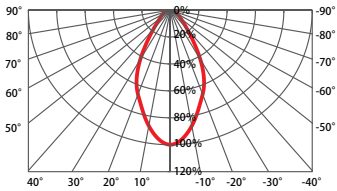


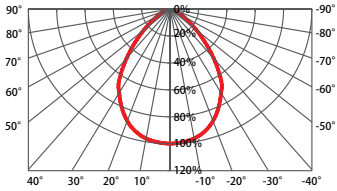
| Package | 70 CRI Min. | | 80 CRI Min. | | Heat sink |
|---------|-------------|--------|-------------|--------|-----------|
| | 4,000K | 5,000K | 4,000K | 5,000K | |
| LMZ001 | ● | ● | ● | ● | |
| LMZ002 | ● | ● | ● | ● | ● |

Product List

| Package | Product type | Electro-optical Characteristics | | | | | | | | | | | Absolute Maximum Rating |
|--|--------------------------|---------------------------------|------|------|--------|---------|----------------------|------------------|----------------------|-------------------------|----------------------|-----------------------------|-------------------------|
| | | Size (mm) | | | CCT | CRI | Forward current (mA) | Voltage Typ. (V) | Input power Typ. (W) | Luminous flux Typ. (lm) | Efficacy Typ. (lm/W) | Ths at typical wattage (°C) | |
|  LMZ001 | LMZ001 without Heat sink | 196.5 | 93.5 | 17.4 | 4,000K | 70 Min. | 1,050 | 46.4 | 48.7 | 6,750 | 139 | 25 | 1,350 |
| | | 196.5 | 93.5 | 17.4 | 4,000K | 80 Min. | 1,050 | 46.4 | 48.7 | 6,150 | 126 | 25 | 1,350 |
| | | 196.5 | 93.5 | 17.4 | 5,000K | 70 Min. | 1,050 | 46.4 | 48.7 | 6,950 | 143 | 25 | 1,350 |
| | | 196.5 | 93.5 | 17.4 | 5,000K | 80 Min. | 1,050 | 46.4 | 48.7 | 6,650 | 136 | 25 | 1,350 |
|  LMZ002 | LMZ002 with Heat sink | 230.0 | 71.5 | 50.4 | 4,000K | 70 Min. | 1,050 | 44.8 | 47.0 | 6,560 | 139 | 60 | 1,350 |
| | | 230.0 | 71.5 | 50.4 | 4,000K | 80 Min. | 1,050 | 44.8 | 47.0 | 5,990 | 127 | 60 | 1,350 |
| | | 230.0 | 71.5 | 50.4 | 5,000K | 70 Min. | 1,050 | 44.8 | 47.0 | 6,770 | 144 | 60 | 1,350 |
| | | 230.0 | 71.5 | 50.4 | 5,000K | 80 Min. | 1,050 | 44.8 | 47.0 | 6,460 | 137 | 60 | 1,350 |

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Lens List

| Type | Appearance | Directivity | FWHM (Ref.) |
|------|---|--|-------------|
| RS |   |  | 25deg |
| M |   |  | 40deg |
| W |   |  | 55deg |
| WWW |   |  | 78deg |

Technical Note

- Chromaticity Range P.38
- Structure of Product Code P.39
- Outline Drawings P.40
- Application Guide P.45
- Customer Support P.46

Chromaticity Range

Ver.6 COB, CLU550, Below B.B.L., Super High CRI, High Intensity COB Ver.2, Amber color COB, PSL445, PSL440

● 3-step MacAdam Ellipse

Ver.6 COB, CLU550, High Intensity COB Ver.2

80 CRI Min. : 2,700K, 3,000K, 3,500K, 4,000K, 5,000K, 5,700K, 6,500K

90 CRI Min. : 2,700K, 3,000K, 3,500K, 4,000K, 5,700K

Below B.B.L.

90 CRI Min. : 2,700K, 3,000K, 3,500K

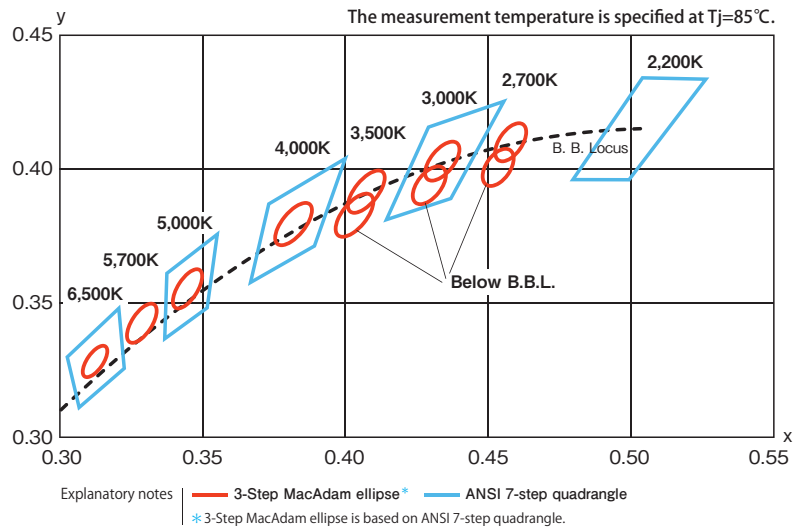
Super High CRI

97 CRI Typ. : 2,700K, 3,000K, 4,000K

PSL440, PSL445

80 CRI Min. : 2,700K, 3,000K, 3,500K, 4,000K, 5,000K

90 CRI Min. : 2,700K, 3,000K, 3,500K, 4,000K, 5,000K



● ANSI 7-step quadrangle

Ver.6 COB, CLU550, High Intensity COB Ver.2

70 CRI Min. : 3,000K, 4,000K, 5,000K, 6,500K

Amber color COB

65 CRI Typ. : 2,200K

PSL440, PSL445

70 CRI Min. : 4,000K, 5,000K

80 CRI Min. : 5,700K

90 CRI Min. : 5,700K

Compact SMD

● 3-step MacAdam Ellipse

CLL620, CLL130

80 CRI Min. : 2,700K, 3,000K, 3,500K, 4,000K

● ANSI 7-step quadrangle

CLL620, CLL130

80 CRI Min. : 5,000K, 6,500K

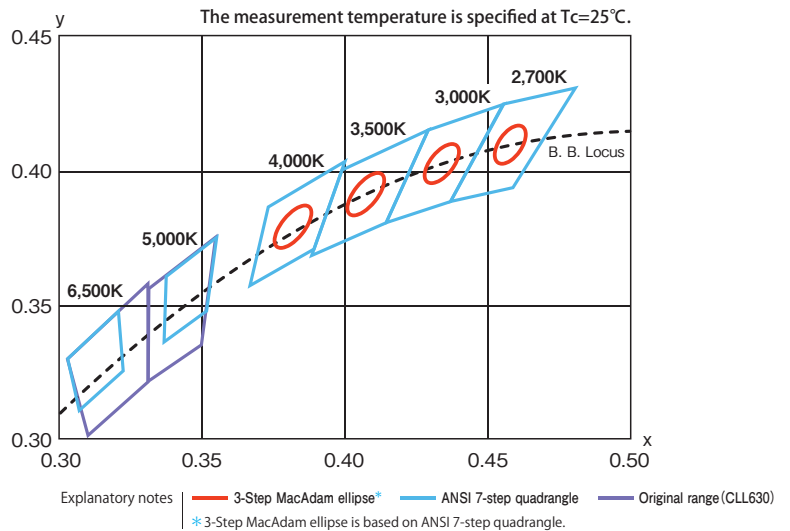
CLL630

80 CRI Min. : 2,700K, 3,000K, 4,000K

● Original range

CLL630

80 CRI Min. : 5,000K, 6,500K



CL-L104

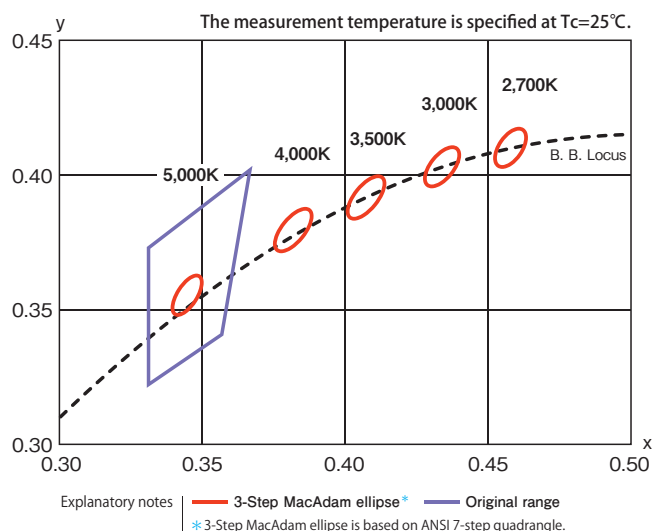
● 3-step MacAdam Ellipse

80 CRI Min. : 2,700K, 3,000K, 3,500K, 4,000K, 5,000K

90 CRI Min. : 2,700K, 3,000K, 3,500K, 4,000K, 5,000K

● Original range

65 CRI Typ. : 5,000K



Structure of Product Code

Ver.6 COB, CLU550, PSL445, PSL440, High Intensity COB Ver.2, Vivid Series Brilliant Type, Vivid Series Natural Type, Below B.B.L., Super High CRI, Amber color COB, Blue color COB

CLU028-1201C4-503M2M2

- Product package
- Die count in series
12:12
- Die count in parallel
01:1
- Correlated color temperature
50:5,000K
- Color rendering
M2:80 CRI Min.

Compact SMD

CLL620-0101B2-50AM1C5


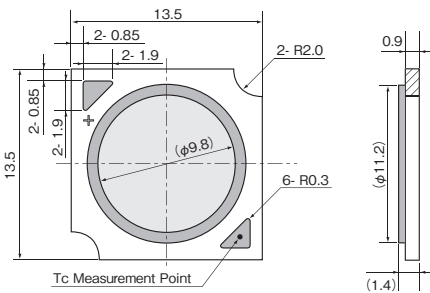

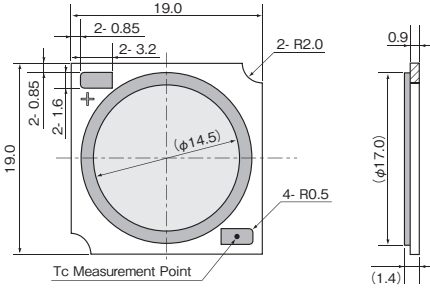

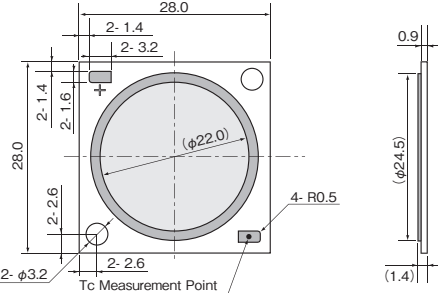
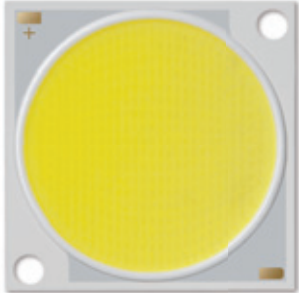
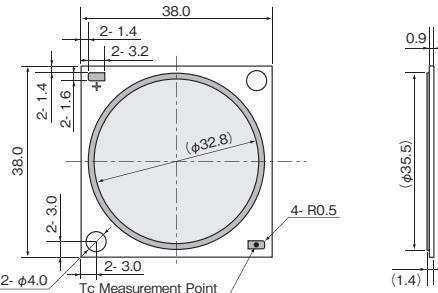
- Product package
- Die count in series
01:1
- Die count in parallel
01:1
- Correlated color temperature
50:5,000K
- Color rendering
M1:80 CRI Min.

CL-L104

CL-L104-MC3L1-F5

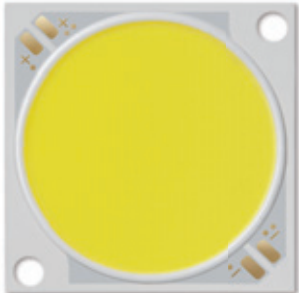
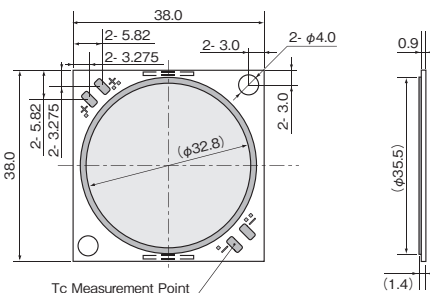
- Product package
- Color rendering
M:80 CRI Min.
- Wattage class
C3:3 watt class
- Correlated color temperature
L1:3,000K

Ver.6 COB, Below B.B.L., Super High CRI, Vivid Series Brilliant Type, Vivid Series Natural Type, Amber color COB, Blue color COB


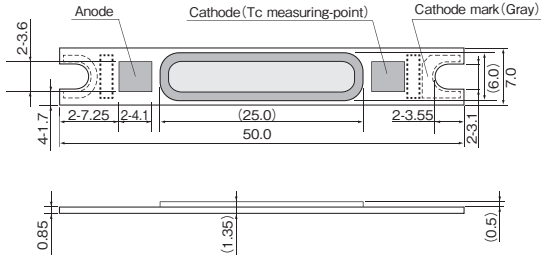
| Package | Appearance (Actual size) | Outline drawing |
|---------|---|---|
| CLU028 |  13.5×13.5 mm |  Unit:mm |
| CLU038 |  19.0×19.0 mm |  Unit:mm |
| CLU048 |  28.0×28.0 mm |  Unit:mm |
| CLU058 |  38.0×38.0 mm |  Unit:mm |

Note "Appearance" in the above table shows the photos of Ver.6 COB, Below B.B.L. and Super High CRI. The photos of Vivid Series Brilliant Type and Vivid Series Natural Type are shown in Page 23. The photos of Amber color COBs are shown in Page 29. And, the photos of Blue color COBs are shown in Page 30. The CLU058 does not have Below B.B.L., Super High CRI, Vivid Series Brilliant Type and Vivid Series Natural Type.

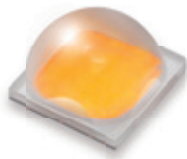
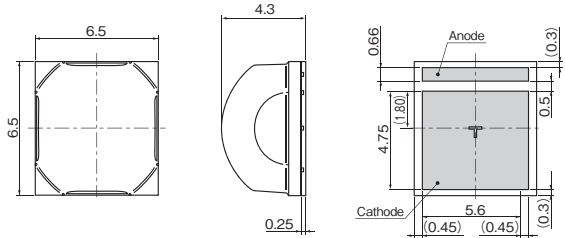
CLU550

| | | |
|--------|---|---|
| CLU550 |  38.0×38.0 mm |  Unit:mm |
|--------|---|---|


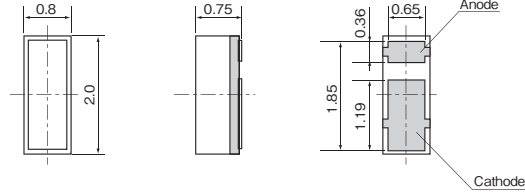

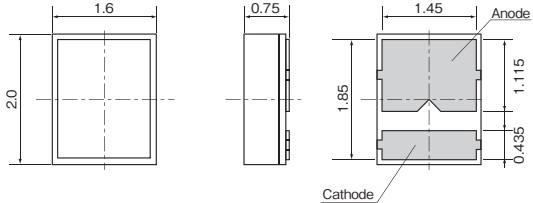

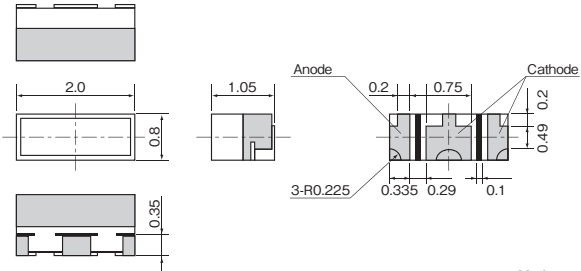
CL-L104

| Package | Appearance (Actual size) | Outline drawing |
|---------|--|---|
| CL-L104 |  <p>50.0 × 7.0 mm</p> |  <p>Unit:mm</p> |

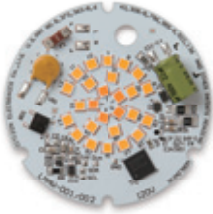
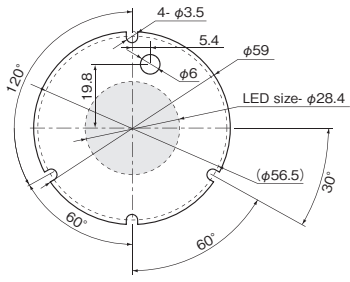
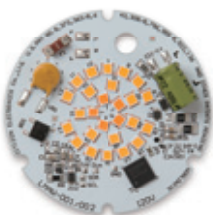
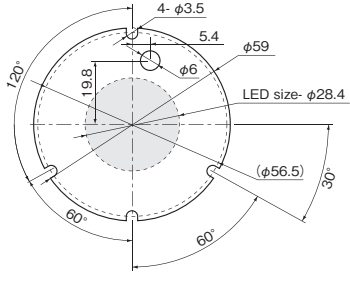
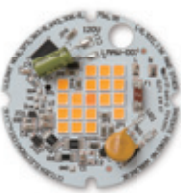
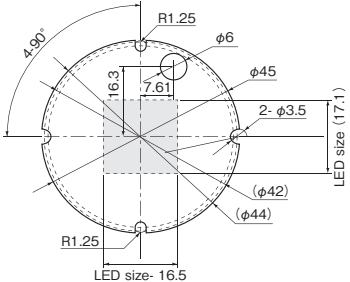
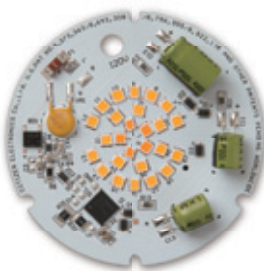
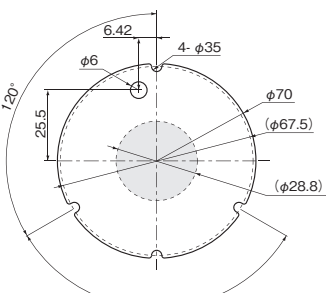
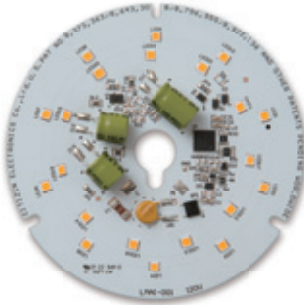
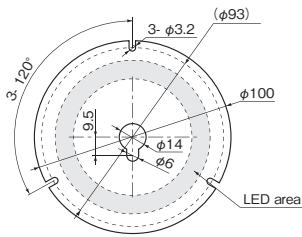
PSL445

| Package | Appearance | Outline drawing |
|---------|--|--|
| PSL445 |  <p>6.5 (L) × 6.5 (W) × 4.3 (H) mm</p> |  <p>Unit:mm</p> |


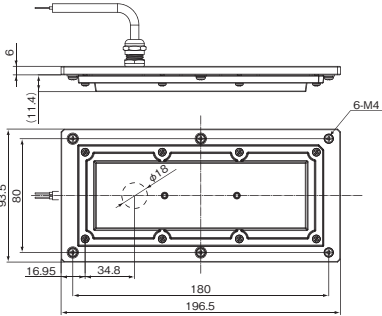

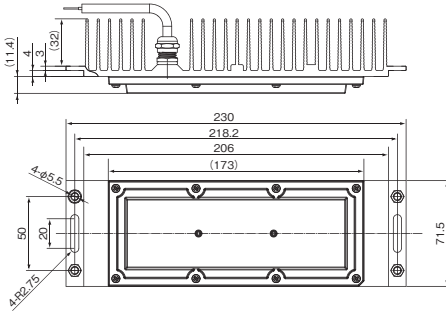
Compact SMD








| | | |
|--------|--|---|
| CLL620 |  <p>0.8 (L) × 2.0 (W) × 0.75 (H) mm</p> |  <p>Unit:mm</p> |
| CLL130 |  <p>1.6 (L) × 2.0 (W) × 0.75 (H) mm</p> |  <p>Unit:mm</p> |
| CLL630 |  <p>1.05 (L) × 2.0 (W) × 0.8 (H) mm</p> |  <p>Unit:mm</p> |

AC Disk Module

| Package | Appearance | Outline drawing |
|-----------|--|---|
| LMAW-001A |  <p data-bbox="483 571 638 600">Φ59×1.6 mm</p> |  <p data-bbox="1385 577 1465 607">Unit:mm</p> |
| LMAW-002A |  <p data-bbox="483 896 638 925">Φ59×1.6 mm</p> |  <p data-bbox="1385 902 1465 931">Unit:mm</p> |
| LMAW-003A |  <p data-bbox="483 1220 638 1249">Φ45×1.6 mm</p> |  <p data-bbox="1385 1227 1465 1256">Unit:mm</p> |
| LMAW-004A |  <p data-bbox="483 1590 638 1619">Φ70×1.6 mm</p> |  <p data-bbox="1385 1597 1465 1626">Unit:mm</p> |
| LMAC-001A |  <p data-bbox="483 1993 638 2022">Φ100×1.6 mm</p> |  <p data-bbox="1385 2000 1465 2029">Unit:mm</p> |

CSP Module

| Package | Appearance | Outline drawing |
|---------|--|--|
| LMZ001 |  <p data-bbox="375 611 750 645">196.5 (L) × 93.5 (W) × 17.4 (H) mm</p> |  <p data-bbox="1385 618 1465 645">Unit:mm</p> |
| LMZ002 |  <p data-bbox="375 981 750 1014">230.0 (L) × 71.5 (W) × 50.4 (H) mm</p> |  <p data-bbox="1385 985 1465 1012">Unit:mm</p> |

| Product | Lamp  | Downlight  | Spotlight  | Panel lighting  | Linear Ambient  | High-bay lighting  | Outdoor  |
|-----------------------------|---|--|--|--|---|--|--|
| Ver.6 COB | | | | | | | |
| CLU550 | | | | | | | |
| CLL104 | | | | | | | |
| PSL445 | | | | | | | |
| Compact SMD | | | | | | | |
| High Intensty COB Ver.2 | | | | | | | |
| PSL440 | | | | | | | |
| Vivid Series Brilliant Type | | | | | | | |
| Vivid Series Natural Type | | | | | | | |
| Below B.B.L. | | | | | | | |
| Super High CRI | | | | | | | |
| Amber color COB | | | | | | | |
| Blue color COB | | | | | | | |
| AC Disk Module | | | | | | | |
| CSP Module | | | | | | | |

Note Orange Color frames mean preferable application for our products.

We offer various kinds of customer support.
Our goal is to support your application development efficiently.

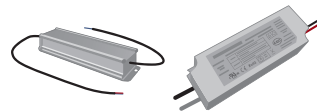
Solution Information

We have introduced a variety of solutions produced by manufacturers in several countries, in order to support business solutions.

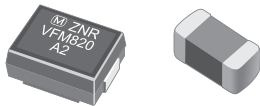
■ Optical solutions



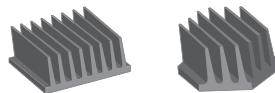
■ Electrical solutions



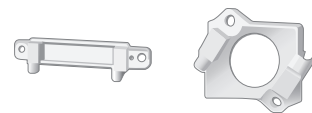
■ Electrical devices



■ Thermal solutions



■ Connectors



▶ <http://ce.citizen.co.jp/productse/solutions.php>

Application Notes

We have prepared a variety of technical information to support your development easily. Our application notes solve your design problems with Thermal management, Driving, LM80, Instruction Manual.

■ Instruction Manual (COB LED Package)



■ LM80 (Laboratory accreditation)



■ Thermal management



▶ <http://ce.citizen.co.jp/productse/technology.php>

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