# Cree® XLamp® CXA1507 LED

## PRODUCT DESCRIPTION

The XLamp CXA1507 LED array expands Cree's family of high-flux, multi-die arrays in a smaller, easy-to-use platform. With XLamp lighting-class reliability, the CXA1507's small, uniform emitting surface enables both directional and non-directional lighting applications including lamp retrofit and luminaire designs. Available in 2-step and 4-step color consistency, and featuring a 9-mm optical source, the CXA1507 brings new levels of flux and efficacy to this form factor.

## FEATURES

- Available in ANSI white bins as well as 4-step and 2-step EasyWhite bins at 2700K, 3000K, 3500K, 4000K and 5000K CCT
- 80 and 90 minimum CRI options
- Forward voltage: 37 V
- 85 °C binning and characterization
- Maximum drive current: 375 mA
- 115° viewing angle, uniform chromaticity profile
- Top-side solder connections
- Thermocouple attach point
- NEMA SSL-3 2011 standard flux bins
- UL-recognized component (E349212)

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Cree, Inc.
4600 Silicon Drive
Durham, NC 27703
USA Tel: +1.919.313.5300

## CHARACTERISTICS

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---|---|---|---|
| Effective thermal resistance, junction to case | °C/W | | 2.5 | |
| Viewing angle (FWHM) | degrees | | 115 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 2 | |
| DC forward current | mA | | 200 | 375 |
| Reverse current | mA | | | 0.1 |
| Forward voltage (@ 200 mA, 85 °C) | V | | 37 | |
| Forward voltage (@ 200 mA, 25 °C) | V | | 38.4 | 42 |
| LED junction temperature | °C | | | 150 |
| Temperature coefficient of voltage | mV/°C | | -21 | |

## FLUX CHARACTERISTICS, STANDARD ORDER CODES AND BINS ($I_F$ = 200 mA, $T_J$ = 85 °C)

The following tables provide order codes for XLamp CXA1507 LEDs. For a complete description of the order code nomenclature, please reference Bin and Order Code Formats (page 13).

| Color | CCT Range | Base Order Codes Min. Luminous Flux @ 200 mA | | | 2-Step Order Code | | 4-Step Order Code | |
|---|---|---|---|---|---|---|---|---|
| | | Group | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Chromaticity Region | | Chromaticity Region | |
| EasyWhite | 5000K | G2 | 780 | 871 | 50H | CXA1507-0000-000N00G250H | 50F | CXA1507-0000-000N00G250F |
| | | G4 | 840 | 938 | | CXA1507-0000-000N00G450H | | CXA1507-0000-000N00G450F |
| | 4000K | F4 | 730 | 815 | 40H | CXA1507-0000-000N00F440H | 40F | CXA1507-0000-000N00F440F |
| | | G2 | 780 | 871 | | CXA1507-0000-000N00G240H | | CXA1507-0000-000N00G240F |
| | | G4 | 840 | 938 | | CXA1507-0000-000N00G440H | | CXA1507-0000-000N00G440F |
| | 3500K | F2 | 680 | 759 | 35H | CXA1507-0000-000N00F235H | 35F | CXA1507-0000-000N00F235F |
| | | F4 | 730 | 815 | | CXA1507-0000-000N00F435H | | CXA1507-0000-000N00F435F |
| | | G2 | 780 | 871 | | CXA1507-0000-000N00G235H | | CXA1507-0000-000N00G235F |
| | 3000K | F2 | 680 | 759 | 30H | CXA1507-0000-000N00F230H | 30F | CXA1507-0000-000N00F230F |
| | | F4 | 730 | 815 | | CXA1507-0000-000N00F430H | | CXA1507-0000-000N00F430F |
| | 2700K | E4 | 635 | 709 | 27H | CXA1507-0000-000N00E427H | 27F | CXA1507-0000-000N00E427F |
| | | F2 | 680 | 759 | | CXA1507-0000-000N00F227H | | CXA1507-0000-000N00F227F |
| | | F4 | 730 | 815 | | CXA1507-0000-000N00F427H | | CXA1507-0000-000N00F427F |

Notes:
- Cree maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ±2 on CRI measurements.
- Minimum CRI for standard color temperatures 0E8, 27F, 27H, 0E7, 30F, 30H, 0E6, 35F, 35H is 80.
- Minimum CRI for standard color temperatures 0E5, 40F, 40H, 0E3, 50F, 50H is 70.
- Typical CRI for standard color temperatures 0E5, 40F, 40H, 0E3, 50F, 50H is 75.

* Flux values @ 25 °C are calculated and for reference only.

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| Color | CCT Range | Base Order Codes Min. Luminous Flux @ 200 mA | | | Chromaticity Regions | Order Code |
|---|---|---|---|---|---|---|
| | | Group | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | | |
| ANSI White | 5000K | G2 | 780 | 871 | 3A0, 3B0, 3C0, 3D0 | CXA1507-0000-000N00G20E3 |
| | | G4 | 840 | 938 | | CXA1507-0000-000N00G40E3 |
| | 4000K | F4 | 730 | 815 | 5A0, 5B0, 5C0, 5D0 | CXA1507-0000-000N00F40E5 |
| | | G2 | 780 | 871 | | CXA1507-0000-000N00G20E5 |
| | | G4 | 840 | 938 | | CXA1507-0000-000N00G40E5 |
| | 3500K | F2 | 680 | 759 | 6A0, 6B0, 6C0, 6D0 | CXA1507-0000-000N00F20E6 |
| | | F4 | 730 | 815 | | CXA1507-0000-000N00F40E6 |
| | | G2 | 780 | 871 | | CXA1507-0000-000N00G20E6 |
| | 3000K | F2 | 680 | 759 | 7A0, 7B0, 7C0, 7D0 | CXA1507-0000-000N00F20E7 |
| | | F4 | 730 | 815 | | CXA1507-0000-000N00F40E7 |
| | 2700K | E4 | 635 | 709 | 8A0, 8B0, 8C0, 8D0 | CXA1507-0000-000N00E40E8 |
| | | F2 | 680 | 759 | | CXA1507-0000-000N00F20E8 |
| | | F4 | 730 | 815 | | CXA1507-0000-000N00F40E8 |

Notes:

- Cree maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ±2 on CRI measurements.
- Minimum CRI for standard color temperatures 0E8, 27F, 27H, 0E7, 30F, 30H, 0E6, 35F, 35H is 80.
- Minimum CRI for standard color temperatures 0E5, 40F, 40H, 0E3, 50F, 50H is 70.
- Typical CRI for standard color temperatures 0E5, 40F, 40H, 0E3, 50F, 50H is 75.

* Flux values @ 25 °C are calculated and for reference only.

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## FLUX CHARACTERISTICS, STANDARD ORDER CODES AND BINS, 90 CRI ($I_F$ = 200 mA, $T_J$= 85 °C)

The following tables provide order codes for XLamp CXA1507 90 CRI minimum LEDs. For a complete description of the order code nomenclature, please reference Bin and Order Code Formats (page 13).

| Color | CCT Range | Base Order Codes Min. Luminous Flux @ 200 mA | | | 2-Step Order Code | | 4-Step Order Code | |
|---|---|---|---|---|---|---|---|---|
| | | Group | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Chromaticity Region | | Chromaticity Region | |
| EasyWhite | 3000K | D4 | 550 | 614 | 30H | CXA1507-0000-000N0UD430H | 30F | CXA1507-0000-000N0UD430F |
| | | E2 | 590 | 659 | | CXA1507-0000-000N0UE230H | | CXA1507-0000-000N0UE230F |
| | 2700K | C4 | 475 | 530 | 27H | CXA1507-0000-000N0UC427H | 27F | CXA1507-0000-000N0UC427F |
| | | D2 | 510 | 569 | | CXA1507-0000-000N0UD227H | | CXA1507-0000-000N0UD227F |
| | | D4 | 550 | 614 | | CXA1507-0000-000N0UD427H | | CXA1507-0000-000N0UD427F |

| Color | CCT Range | Base Order Codes Min Luminous Flux @ 200 mA | | | Chromaticity Regions | Order Code |
|---|---|---|---|---|---|---|
| | | Group | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | | |
| ANSI White | 3000K | D4 | 550 | 614 | 7A0, 7B0, 7C0, 7D0 | CXA1507-0000-000N0UD40E7 |
| | | E2 | 590 | 659 | | CXA1507-0000-000N0UE20E7 |
| | 2700K | C4 | 475 | 530 | 8A0, 8B0, 8C0, 8D0 | CXA1507-0000-000N0UC40E8 |
| | | D2 | 510 | 569 | | CXA1507-0000-000N0UD20E8 |
| | | D4 | 550 | 614 | | CXA1507-0000-000N0UD40E8 |

Notes:

- Cree maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ±2 on CRI measurements.
- Minimum CRI for high CRI color temperatures 0E8, 27F, 27H, 0E7, 30F, 30H is 90.

* Flux values @ 25 °C are calculated and for reference only.

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## FLUX CHARACTERISTICS, STANDARD ORDER CODES AND BINS, 80 CRI ($I_F$ = 200 mA, $T_J$= 85 °C)

The following tables provide order codes for XLamp CXA1507 80 CRI minimum LEDs. For a complete description of the order code nomenclature, please reference Bin and Order Code Formats (page 13).

| Color | CCT Range | Base Order Codes Min. Luminous Flux @ 200 mA | | | 2-Step Order Code | | 4-Step Order Code | |
|---|---|---|---|---|---|---|---|---|
| | | Group | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Chromaticity Region | | Chromaticity Region | |
| EasyWhite | 5000K | E4 | 635 | 709 | 50H | CXA1507-0000-000N0HE450H | 50F | CXA1507-0000-000N0HE450F |
| | | F2 | 680 | 759 | | CXA1507-0000-000N0HF250H | | CXA1507-0000-000N0HF250F |
| | | F4 | 730 | 815 | | CXA1507-0000-000N0HF450H | | CXA1507-0000-000N0HF450F |
| | 4000K | F2 | 680 | 759 | 40H | CXA1507-0000-000N0HF240H | 40F | CXA1507-0000-000N0HF240F |
| | | F4 | 730 | 815 | | CXA1507-0000-000N0HF440H | | CXA1507-0000-000N0HF440F |

| Color | CCT Range | Base Order Codes Min Luminous Flux @ 200 mA | | | Chromaticity Regions | Order Code |
|---|---|---|---|---|---|---|
| | | Group | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | | |
| ANSI White | 5000K | E4 | 635 | 709 | 3A0, 3B0, 3C0, 3D0 | CXA1507-0000-000N0HE40E3 |
| | | F2 | 680 | 759 | | CXA1507-0000-000N0HF20E3 |
| | | F4 | 730 | 815 | | CXA1507-0000-000N0HF40E3 |
| | 4000K | F2 | 680 | 759 | 5A0, 5B0, 5C0, 5D0 | CXA1507-0000-000N0HF20E5 |
| | | F4 | 730 | 815 | | CXA1507-0000-000N0HF40E5 |

Notes:

- Cree maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ±2 on CRI measurements.
- Minimum CRI for high CRI color temperatures 0E5, 40F, 40H, 0E3, 50F, 50H is 80.

* Flux values @ 25 °C are calculated and for reference only.

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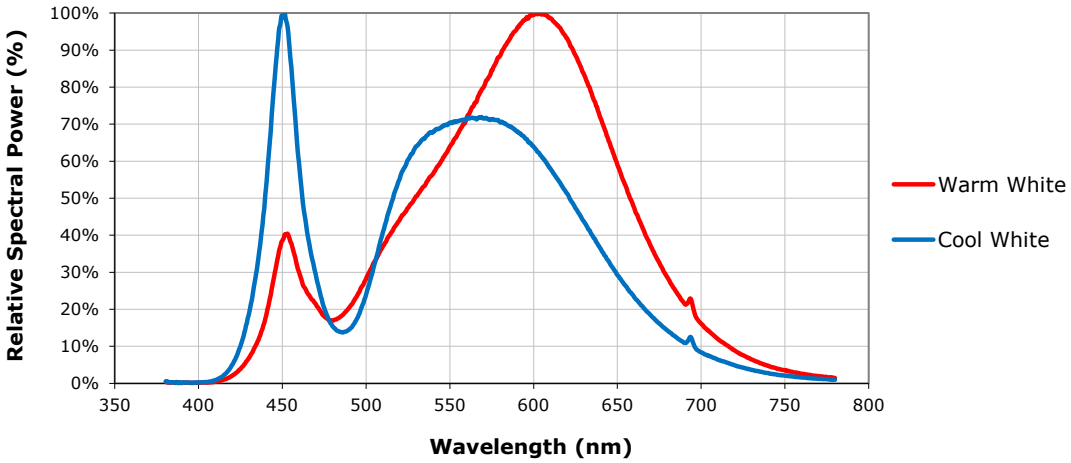
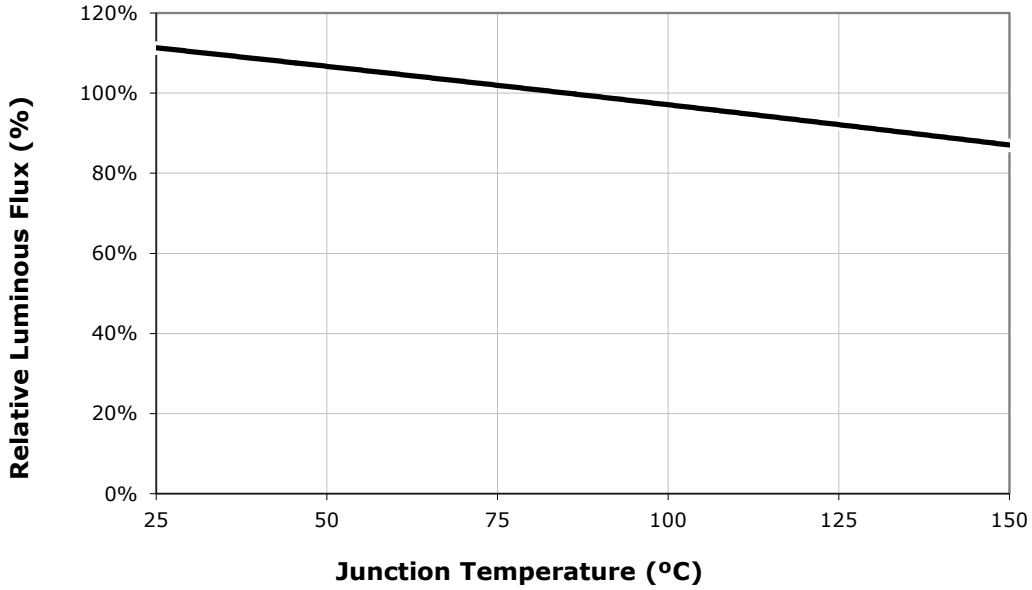
## RELATIVE SPECTRAL POWER DISTRIBUTION ($I_F$ = 200 mA, $T_J$ = 85 °C)




## RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE ($I_F$ = 200 mA)

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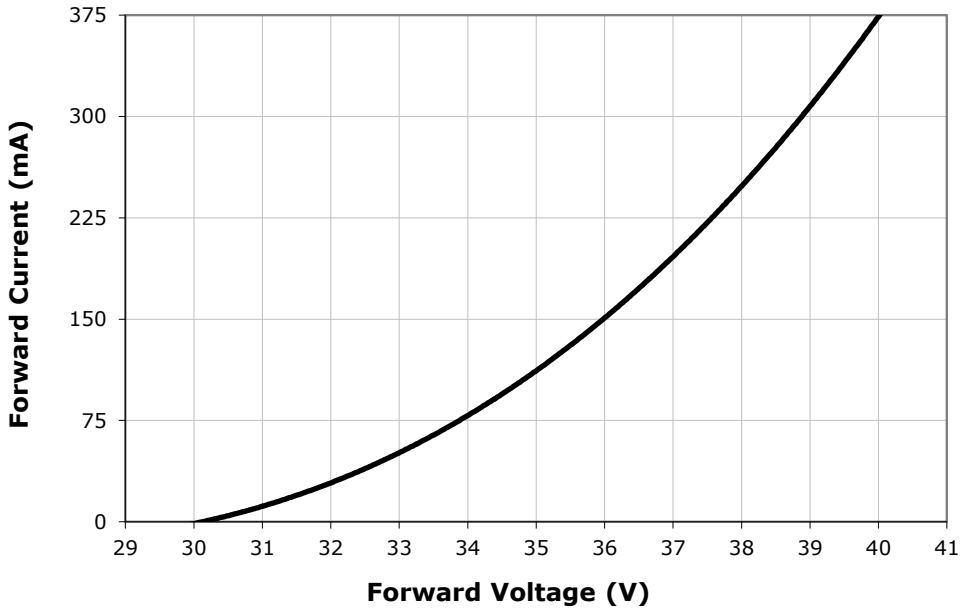
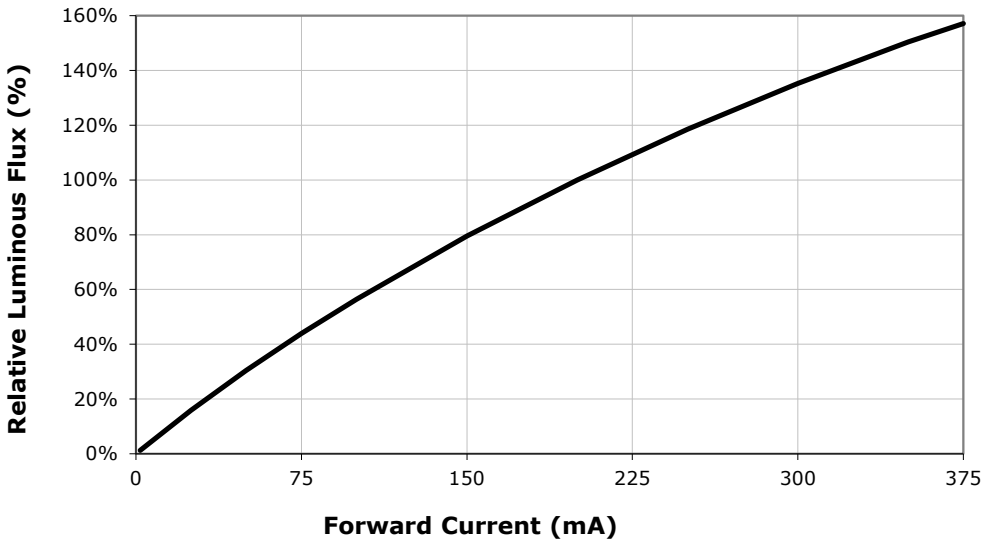
## ELECTRICAL CHARACTERISTICS ($T_J$ = 85 °C)




## RELATIVE LUMINOUS FLUX VS. CURRENT ($T_J$ = 85 °C)

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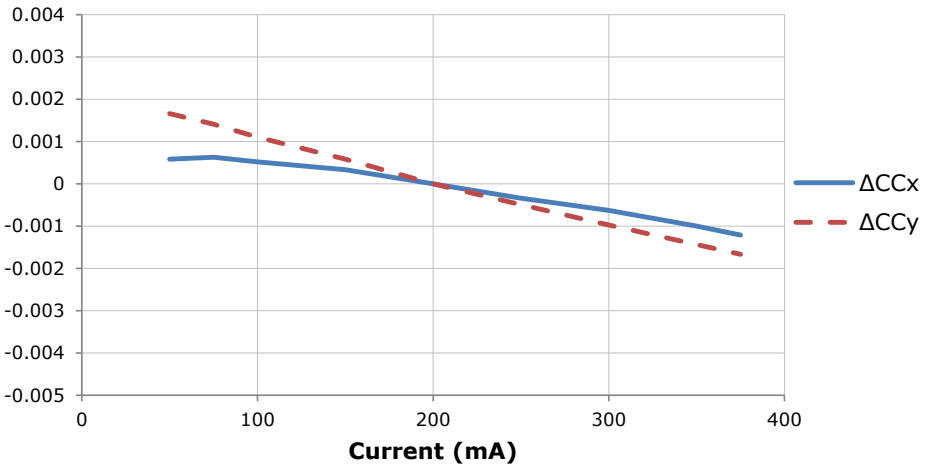
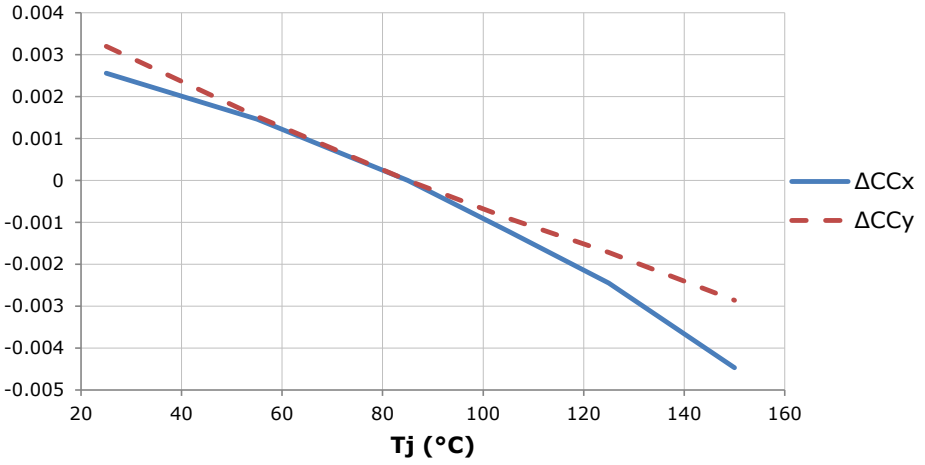
## RELATIVE CHROMATICITY VS. CURRENT AND TEMPERATURE (3000K, 80 CRI)

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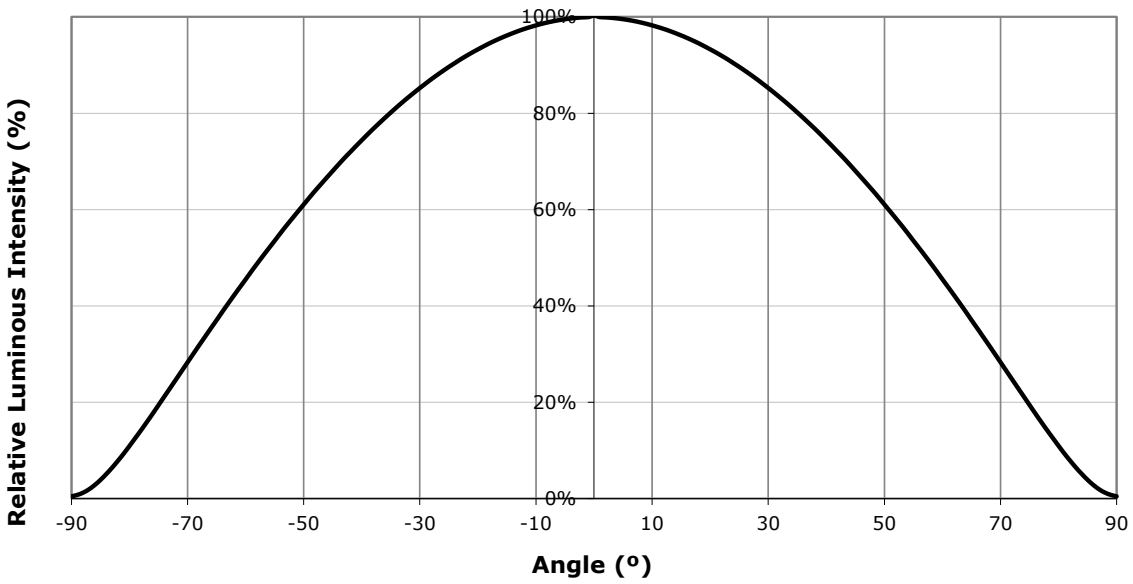
## TYPICAL SPATIAL DISTRIBUTION




## PERFORMANCE GROUPS - BRIGHTNESS ($I_F$ = 200 mA, $T_J$ = 85 °C)

XLamp CXA1507 LEDs are tested for luminous flux and placed into one of the following bins.

| Group Code | Min. Luminous Flux @ 200 mA | Max. Luminous Flux @ 200 mA |
|---|---|---|
| C4 | 475 | 510 |
| D2 | 510 | 550 |
| D4 | 550 | 590 |
| E2 | 590 | 635 |
| E4 | 635 | 680 |
| F2 | 680 | 730 |
| F4 | 730 | 780 |
| G2 | 780 | 840 |
| G4 | 840 | 900 |

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## PERFORMANCE GROUPS - CHROMATICITY ($T_J$ = 85 °C)

XLamp CXA1507 LEDs are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates.

| EasyWhite Color Temperatures – 4-Step | | | |
|---|---|---|---|
| **Code** | **CCT** | **x** | **y** |
| 50F | 5000K | 0.3407 | 0.3459 |
| | | 0.3415 | 0.3586 |
| | | 0.3499 | 0.3654 |
| | | 0.3484 | 0.3521 |
| 40F | 4000K | 0.3744 | 0.3685 |
| | | 0.3782 | 0.3837 |
| | | 0.3912 | 0.3917 |
| | | 0.3863 | 0.3758 |
| 35F | 3500K | 0.3981 | 0.3800 |
| | | 0.4040 | 0.3966 |
| | | 0.4186 | 0.4037 |
| | | 0.4116 | 0.3865 |
| 30F | 3000K | 0.4242 | 0.3919 |
| | | 0.4322 | 0.4096 |
| | | 0.4449 | 0.4141 |
| | | 0.4359 | 0.3960 |
| 27F | 2700K | 0.4475 | 0.3994 |
| | | 0.4573 | 0.4178 |
| | | 0.4695 | 0.4207 |
| | | 0.4589 | 0.4021 |

| EasyWhite Color Temperatures – 2-Step | | | |
|---|---|---|---|
| **Code** | **CCT** | **x** | **y** |
| 50H | 5000K | 0.3429 | 0.3507 |
| | | 0.3434 | 0.3571 |
| | | 0.3475 | 0.3604 |
| | | 0.3469 | 0.3539 |
| 40H | 4000K | 0.3784 | 0.3741 |
| | | 0.3804 | 0.3818 |
| | | 0.3867 | 0.3857 |
| | | 0.3844 | 0.3778 |
| 35H | 3500K | 0.4030 | 0.3857 |
| | | 0.4061 | 0.3941 |
| | | 0.4132 | 0.3976 |
| | | 0.4099 | 0.3890 |
| 30H | 3000K | 0.4291 | 0.3973 |
| | | 0.4333 | 0.4062 |
| | | 0.4395 | 0.4084 |
| | | 0.4351 | 0.3994 |
| 27H | 2700K | 0.4528 | 0.4046 |
| | | 0.4578 | 0.4138 |
| | | 0.4638 | 0.4152 |
| | | 0.4586 | 0.4060 |

| ANSI White Bins | | | | |
|---|---|---|---|---|
| **Code** | **CCT** | **Bin Code** | **x** | **y** |
| 0E3 | 5000K | 3A0 | .3371 | .3490 |
| | | | .3451 | .3554 |
| | | | .3440 | .3427 |
| | | | .3366 | .3369 |
| | | 3B0 | .3376 | .3616 |
| | | | .3463 | .3687 |
| | | | .3451 | .3554 |
| | | | .3371 | .3490 |
| | | 3C0 | .3463 | .3687 |
| | | | .3551 | .3760 |
| | | | .3533 | .3620 |
| | | | .3451 | .3554 |
| | | 3D0 | .3451 | .3554 |
| | | | .3533 | .3620 |
| | | | .3515 | .3487 |
| | | | .3440 | .3427 |

| ANSI White Bins | | | | |
|---|---|---|---|---|
| **Code** | **CCT** | **Bin Code** | **x** | **y** |
| 0E5 | 4000K | 5A0 | .3670 | .3578 |
| | | | .3702 | .3722 |
| | | | .3825 | .3798 |
| | | | .3783 | .3646 |
| | | 5B0 | .3702 | .3722 |
| | | | .3736 | .3874 |
| | | | .3869 | .3958 |
| | | | .3825 | .3798 |
| | | 5C0 | .3825 | .3798 |
| | | | .3869 | .3958 |
| | | | .4006 | .4044 |
| | | | .3950 | .3875 |
| | | 5D0 | .3783 | .3646 |
| | | | .3825 | .3798 |
| | | | .3950 | .3875 |
| | | | .3898 | .3716 |

| ANSI White Bins | | | | |
|---|---|---|---|---|
| **Code** | **CCT** | **Bin Code** | **x** | **y** |
| 0E6 | 3500K | 6A0 | .3889 | .3690 |
| | | | .3941 | .3848 |
| | | | .4080 | .3916 |
| | | | .4017 | .3751 |
| | | 6B0 | .3941 | .3848 |
| | | | .3996 | .4015 |
| | | | .4146 | .4089 |
| | | | .4080 | .3916 |
| | | 6C0 | .4080 | .3916 |
| | | | .4146 | .4089 |
| | | | .4299 | .4165 |
| | | | .4221 | .3984 |
| | | 6D0 | .4017 | .3751 |
| | | | .4080 | .3916 |
| | | | .4221 | .3984 |
| | | | .4147 | .3814 |

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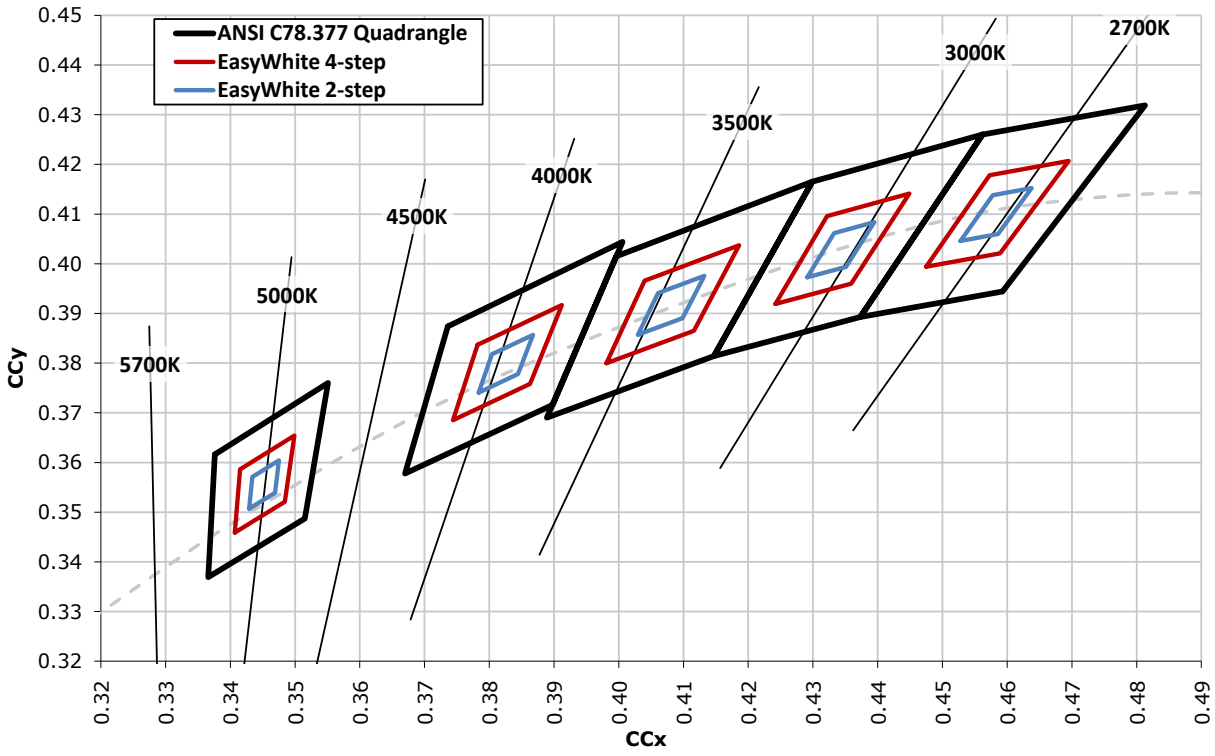
| ANSI White Bins | | | | |
|---|---|---|---|---|
| Code | CCT | Bin Code | x | y |
| 0E7 | 3000K | 7A0 | .4147 | .3814 |
| | | | .4221 | .3984 |
| | | | .4342 | .4028 |
| | | | .4259 | .3853 |
| | | 7B0 | .4221 | .3984 |
| | | | .4299 | .4165 |
| | | | .4430 | .4212 |
| | | | .4342 | .4028 |
| | | 7C0 | .4342 | .4028 |
| | | | .4430 | .4212 |
| | | | .4562 | .4260 |
| | | | .4465 | .4071 |
| | | 7D0 | .4259 | .3853 |
| | | | .4342 | .4028 |
| | | | .4465 | .4071 |
| | | | .4373 | .3893 |

| ANSI White Bins | | | | |
|---|---|---|---|---|
| Code | CCT | Bin Code | x | y |
| 0E8 | 2700K | 8A0 | .4373 | .3893 |
| | | | .4465 | .4071 |
| | | | .4582 | .4099 |
| | | | .4483 | .3919 |
| | | 8B0 | .4465 | .4071 |
| | | | .4562 | .4260 |
| | | | .4687 | .4289 |
| | | | .4582 | .4099 |
| | | 8C0 | .4582 | .4099 |
| | | | .4687 | .4289 |
| | | | .4813 | .4319 |
| | | | .4700 | .4126 |
| | | 8D0 | .4483 | .3919 |
| | | | .4582 | .4099 |
| | | | .4700 | .4126 |
| | | | .4593 | .3944 |

## CREE EASYWHITE BINS PLOTTED ON THE 1931 CIE COLOR SPACE ($T_j$ = 85 °C)

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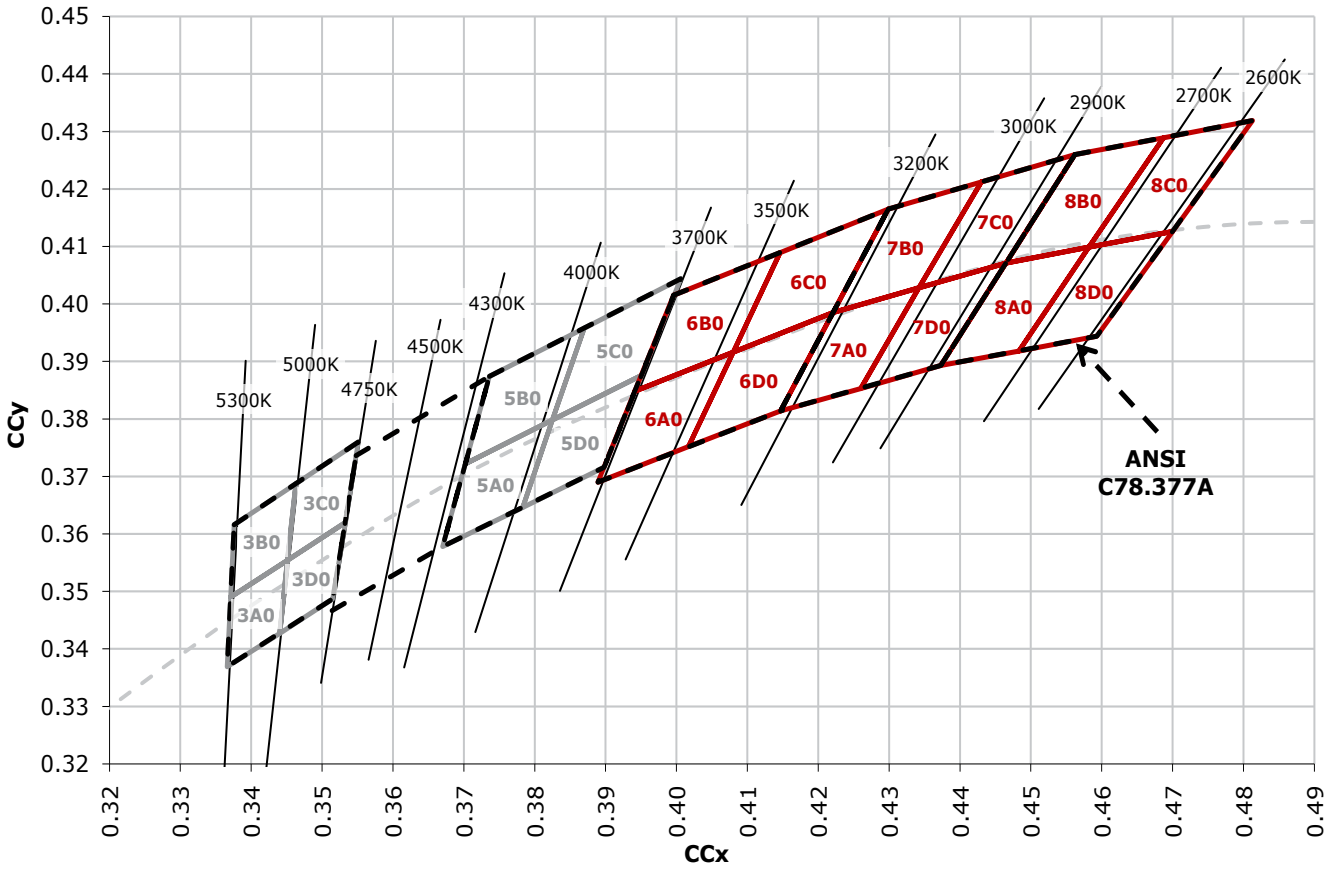
## CREE ANSI WHITE BINS PLOTTED ON THE 1931 CIE COLOR SPACE ($T_J$ = 85 °C)

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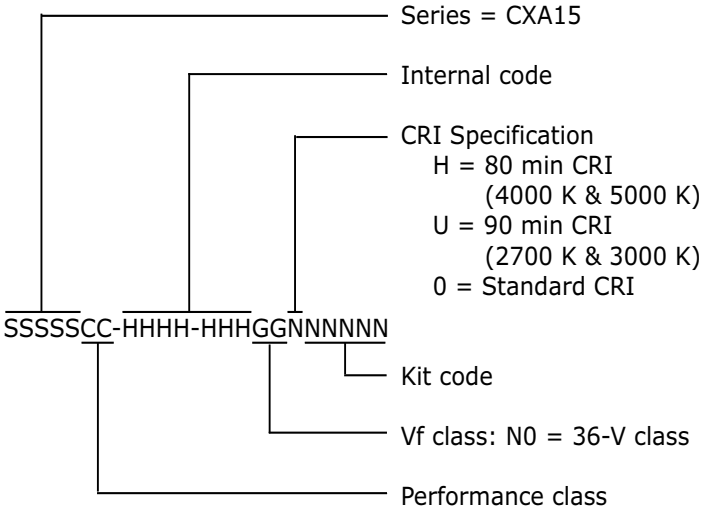
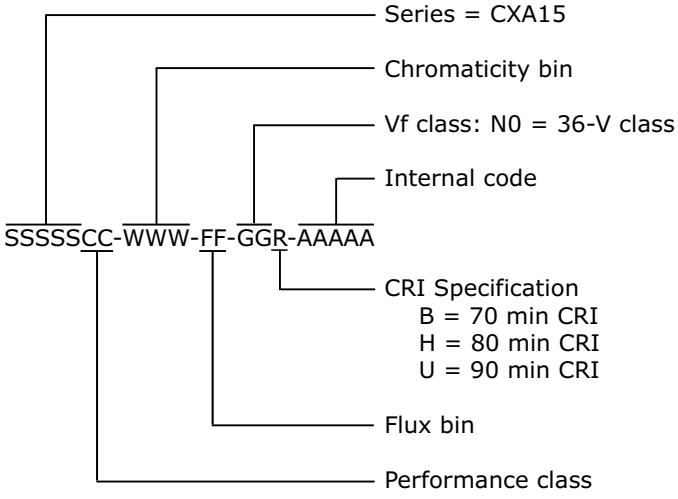
## BIN AND ORDER CODE FORMATS

Bin codes and order codes are configured as follows:

### Order Code

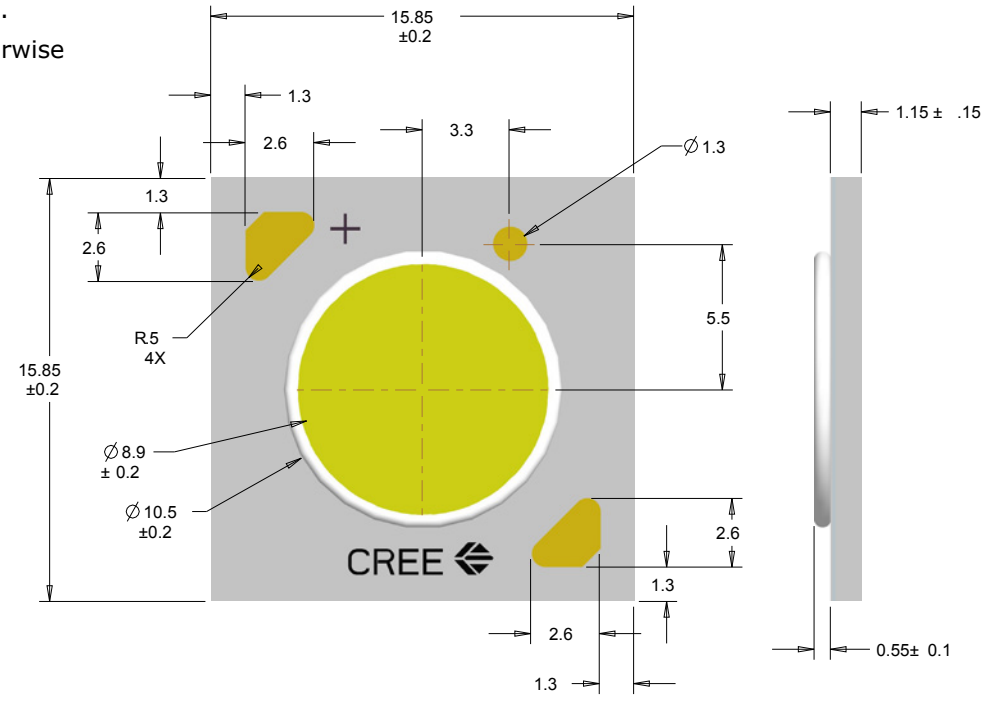



### Bin Code




## MECHANICAL DIMENSIONS

Dimensions are in mm.
Tolerances unless otherwise specified:
.x ± .10
.xx ± .03
.xxx ± .010
x° ± 1°

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## NOTES

### Lumen Maintenance Projections

Cree now uses standardized IES LM-80-08 and TM-21-11 methods for collecting long-term data and extrapolating LED lumen maintenance. For information on the specific LM-80 data sets available for this LED, refer to the public LM-80 results document at www.cree.com/xlamp_app_notes/LM80_results.

Please read the XLamp Long-Term Lumen Maintenance application note at www.cree.com/xlamp_app_notes/lumen_maintenance for more details on Cree's lumen maintenance testing and forecasting. Please read the XLamp Thermal Management application note at www.cree.com/xlamp_app_notes/thermal_management for details on how thermal design, ambient temperature, and drive current affect the LED junction temperature.

### UL Recognized Component

Level 4 enclosure consideration. The LED package or a portion thereof has been investigated as a fire and electrical enclosure per ANSI/UL 8750.

### Vision Advisory Claim

Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.

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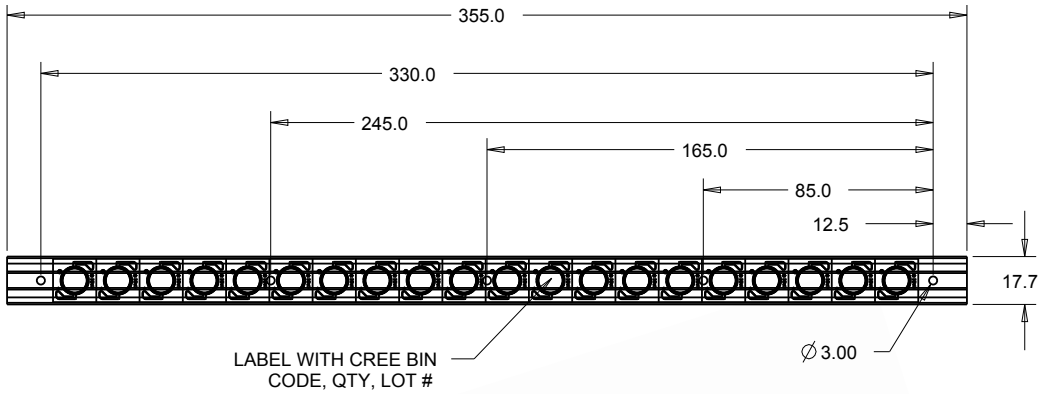
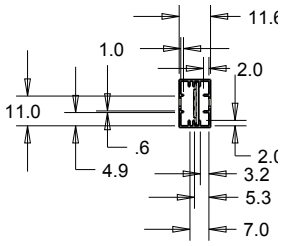
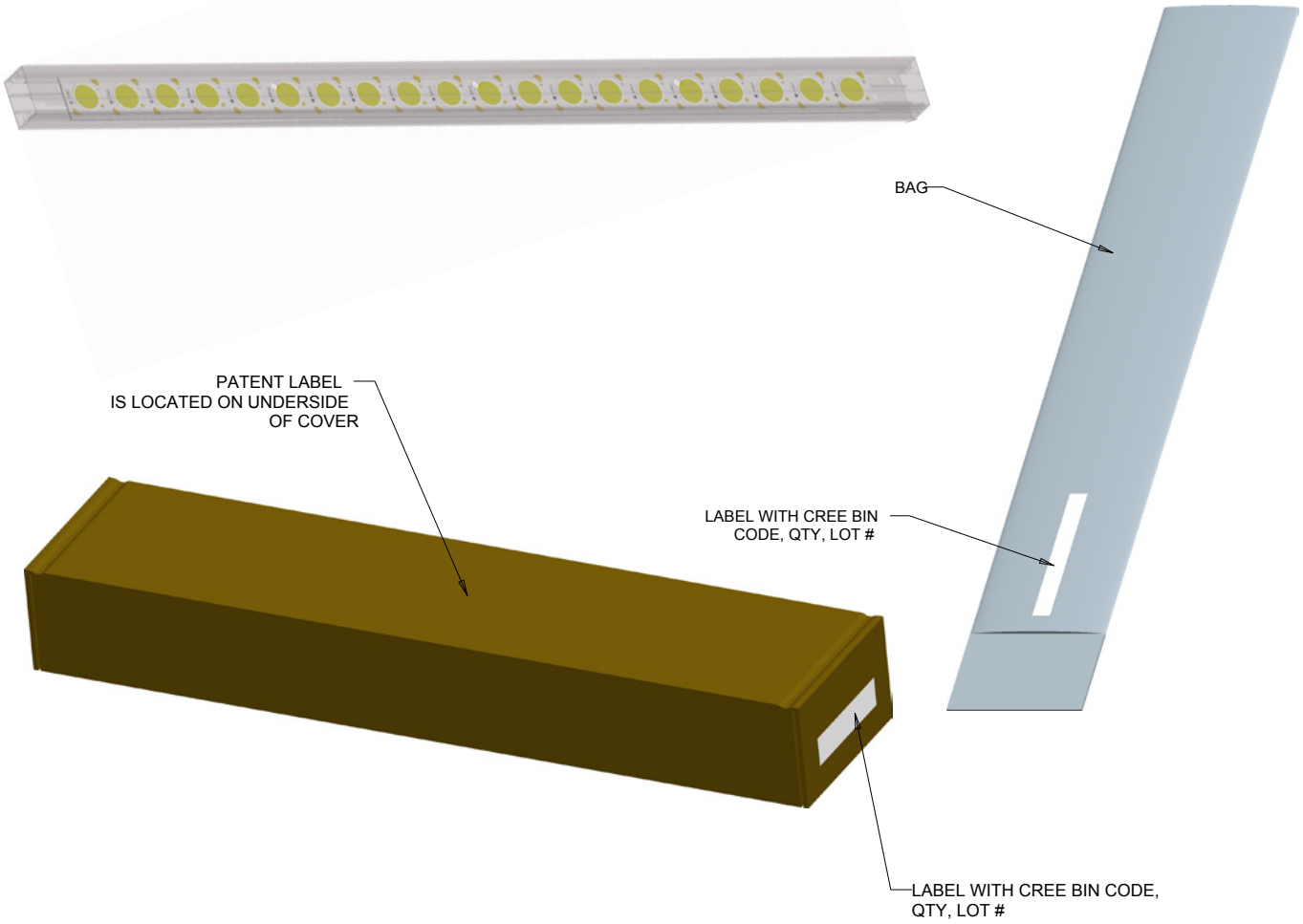
## PACKAGING

Cree CXA1507 LEDs are packaged in tubes of 20, which are then combined in boxes of 5 tubes, or 100 LEDs. Boxes of 100 LEDs are of the same performance bin.

Dimensions are in mm.
Tolerances unless otherwise specified:
.x ± .10
.xx ± .03
.xxx ± .010
x° ± 1°

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LifeElectronics
Живое партнерство

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*ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703*

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- *Специальные условия для постоянных клиентов.*
- *Подбор аналогов.*
- *Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.*

- *Приемлемые сроки поставки, возможна ускоренная поставка.*
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*Тел: +7 (812) 336 43 04 (многоканальный)*
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