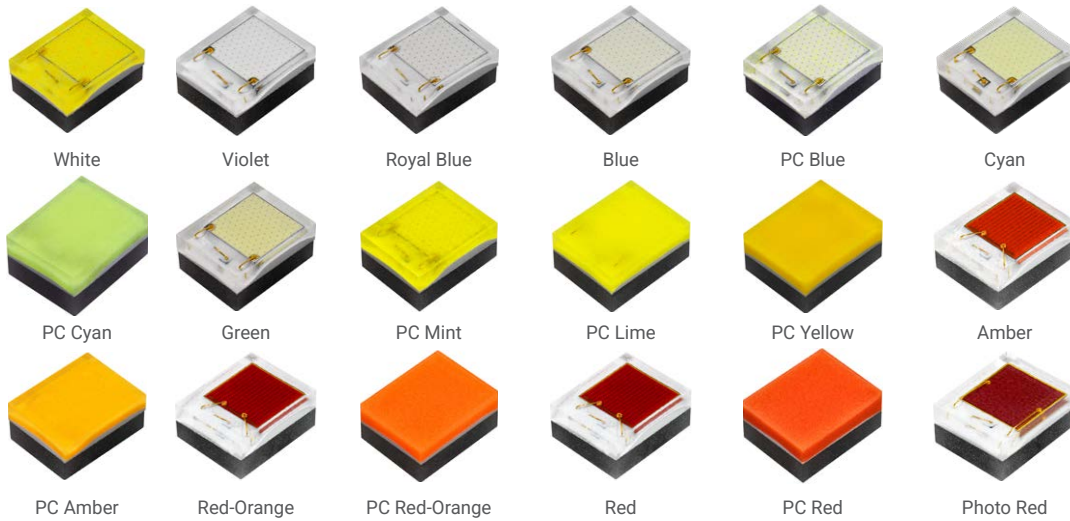


XLamp® Element G LEDs



PRODUCT DESCRIPTION

XLamp® Element G (XE-G) LEDs are breakthrough solutions for color-mixing lighting applications that require high levels of light output and full control over the spectral content. XLamp XE-G LEDs are available in 17 different colors plus a complete portfolio of white options, giving lighting manufacturers unprecedented flexibility to change and optimize their product's light output properties. The new XE-G 2.05 x 1.6 mm footprint package includes an industry-leading combination of features for LEDs in this size class, including a large isolated thermal pad, ESD protection and minimal spacing between the LED chip and the edge of the package.

The XE-G platform is consistent across all colors in key LED design parameters, including package size, PCB footprint, anode/cathode orientation, optical source size, optical source location and ESD protection. This consistency makes it easy to reuse core design elements, such as PCBs and optics, across a wide range of designs.

XLamp Element G (XE-G) LEDs are optimized for directional lighting applications that benefit from multi-color LED designs, including indoor directional, architectural, entertainment and aftermarket automotive.

FEATURES

- Available in 70, 80, & 90 CRI white, violet, royal blue, blue, PC blue, cyan, PC cyan, green, PC mint, PC lime, PC yellow, amber, PC amber, red-orange, PC red-orange, red, PC red, and photo red
- Maximum drive current: 3 A
- Reflow solderable - JEDEC J-STD-020C compatible
- Unlimited floor life at ≤ 30 °C/85% RH
- RoHS and REACH compliant
- UL® recognized component (E349212)



Cree LED / 4001 E. Hwy. 54, Suite 2000 / Durham, NC 27713 USA / +1.919.313.5330 / www.cree-led.com

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XLAMP XE-G LEDs - WHITE

CHARACTERISTICS - WHITE

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 2.4 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.27 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 85 °C) | V | | 2.9 | 3.25 |
| Forward voltage (@ 3000 mA, 85 °C) | V | | 3.5 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - EASYWHITE® ORDER CODES AND BINS (T_j = 85 °C)

The following tables provide order codes for XLamp XE-G white LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| Nominal CCT | CRI | Minimum Luminous Flux @1000 mA | | | 2-Step | | 3-Step | | 5-Step | |
|-------------|------|--------------------------------|-------------------|--------------------|--------|--------------------------------|--------|--------------------------------|--------|--------------------------------|
| | Min. | Flux Bin | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Group | Order Code | Group | Order Code | Group | Order Code |
| 6500 K | 70 | V2 | 400 | 438 | | | | | 65E | XEGAWT-H0-0000-000-00000BU565E |
| | | U6 | 380 | 416 | | | | | | XEGAWT-H0-0000-000-00000BU665E |
| | | U5 | 360 | 395 | | | | | | XEGAWT-H0-0000-000-00000BU565E |
| | | U4 | 340 | 373 | | | | | | XEGAWT-H0-0000-000-00000BU465E |
| | 80 | U5 | 320 | 351 | | | 65G | XEGAWT-H0-0000-000-00000HU565G | | |
| | | U4 | 340 | 373 | | | | XEGAWT-H0-0000-000-00000HU465G | | |
| | | U3 | 320 | 351 | | | | XEGAWT-H0-0000-000-00000HU365G | | |
| 5700 K | 70 | V2 | 400 | 438 | | | | | 57E | XEGAWT-H0-0000-000-00000BV257E |
| | | U6 | 380 | 416 | | | | | | XEGAWT-H0-0000-000-00000BU657E |
| | | U5 | 360 | 395 | | | | | | XEGAWT-H0-0000-000-00000BU557E |
| | | U4 | 340 | 373 | | | | | | XEGAWT-H0-0000-000-00000BU457E |
| | 80 | U5 | 320 | 351 | | | 57G | XEGAWT-H0-0000-000-00000HU557G | | |
| | | U4 | 340 | 373 | | | | XEGAWT-H0-0000-000-00000HU457G | | |
| | | U3 | 320 | 351 | | | | XEGAWT-H0-0000-000-00000HU357G | | |
| | 90 | U2 | 300 | 329 | | | 57G | XEGAWT-H0-0000-000-00000UU257G | | |
| | | T6 | 280 | 307 | | | | XEGAWT-H0-0000-000-00000UT657G | | |
| T5 | | 260 | 285 | | | XEGAWT-H0-0000-000-00000UT557G | | | | |

Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.
- * Flux values @ 25 °C are calculated and for reference only.

ORDER CODES SUGGESTED FOR NEW DESIGNS - EASYWHITE® ORDER CODES AND BINS (T_J = 85 °C) - CONTINUED

| Nominal CCT | CRI | Minimum Luminous Flux @1000 mA | | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|--------------------------------|----------|-------------------|--------------------|-------|------------|--------------------------------|------------|--------------------------------|
| | | Min. | Flux Bin | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Group | Order Code | Group | Order Code | Group |
| 5000 K | 70 | V2 | 400 | 438 | | | | | 50E | XEGAWT-H0-0000-000-00000BV250E |
| | | U6 | 380 | 416 | | | | XEGAWT-H0-0000-000-00000BU650E | | |
| | | U5 | 360 | 395 | | | | XEGAWT-H0-0000-000-00000BU550E | | |
| | | U4 | 340 | 373 | | | | XEGAWT-H0-0000-000-00000BU450E | | |
| | 80 | U5 | 360 | 395 | | | 50G | XEGAWT-H0-0000-000-00000HU550G | | |
| | | U4 | 340 | 373 | | | | XEGAWT-H0-0000-000-00000HU450G | | |
| | 90 | U2 | 300 | 329 | | | 50G | XEGAWT-H0-0000-000-00000UU250G | | |
| | | T6 | 280 | 307 | | | | XEGAWT-H0-0000-000-00000UT650G | | |
| | | T5 | 260 | 285 | | | | XEGAWT-H0-0000-000-00000UT550G | | |
| 4500 K | 70 | V2 | 400 | 438 | | | | | 45E | XEGAWT-H0-0000-000-00000BV245E |
| | | U6 | 380 | 416 | | | | XEGAWT-H0-0000-000-00000BU645E | | |
| | | U5 | 360 | 395 | | | | XEGAWT-H0-0000-000-00000BU545E | | |
| | | U4 | 340 | 373 | | | | XEGAWT-H0-0000-000-00000BU445E | | |
| | 80 | U5 | 360 | 395 | | | 45G | XEGAWT-H0-0000-000-00000HU545G | | |
| | | U4 | 340 | 373 | | | | XEGAWT-H0-0000-000-00000HU445G | | |
| | 90 | U2 | 300 | 329 | | | 45G | XEGAWT-H0-0000-000-00000UU245G | | |
| | | T6 | 280 | 307 | | | | XEGAWT-H0-0000-000-00000UT645G | | |
| | | T5 | 260 | 285 | | | | XEGAWT-H0-0000-000-00000UT545G | | |

Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.
- * Flux values @ 25 °C are calculated and for reference only.

ORDER CODES SUGGESTED FOR NEW DESIGNS - EASYWHITE® ORDER CODES AND BINS (T_J = 85 °C) - CONTINUED

| Nominal CCT | CRI | Minimum Luminous Flux @1000 mA | | | 2-Step | | 3-Step | | 5-Step | |
|-------------|--------|--------------------------------|----------|-------------------|--------------------|--------------------------------|------------|--------------------------------|--------------------------------|--------------------------------|
| | | Min. | Flux Bin | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Group | Order Code | Group | Order Code | Group |
| 4000 K | 70 | V2 | 400 | 438 | | | | | 40E | XEGAWT-H0-0000-000-00000BV240E |
| | | U6 | 380 | 416 | | | | | | XEGAWT-H0-0000-000-00000BU640E |
| | | U5 | 360 | 395 | | | | | | XEGAWT-H0-0000-000-00000BU540E |
| | | U4 | 340 | 373 | | | | | | XEGAWT-H0-0000-000-00000BU440E |
| | 80 | U5 | 360 | 395 | 40H | | 40G | XEGAWT-H0-0000-000-00000HU540G | | |
| | | U4 | 340 | 373 | | | | | XEGAWT-H0-0000-000-00000HU440G | |
| | 90 | U2 | 300 | 329 | 40H | XEGAWT-H0-0000-000-00000UU240H | 40G | XEGAWT-H0-0000-000-00000UU240G | | |
| | | T6 | 280 | 307 | | XEGAWT-H0-0000-000-00000UT640H | | XEGAWT-H0-0000-000-00000UT640G | | |
| | | T5 | 260 | 285 | | XEGAWT-H0-0000-000-00000UT540H | | XEGAWT-H0-0000-000-00000UT540G | | |
| | 3500 K | 70 | U6 | 380 | 416 | | | | 35E | XEGAWT-H0-0000-000-00000BU635E |
| U5 | | | 360 | 395 | | | | XEGAWT-H0-0000-000-00000BU535E | | |
| U4 | | | 340 | 373 | | | | XEGAWT-H0-0000-000-00000BU435E | | |
| U3 | | | 320 | 351 | | | | XEGAWT-H0-0000-000-00000BU335E | | |
| 80 | | U4 | 340 | 373 | 35H | XEGAWT-H0-0000-000-00000HU435H | 35G | XEGAWT-H0-0000-000-00000HU435G | | |
| | | U3 | 320 | 351 | | XEGAWT-H0-0000-000-00000HU335H | | XEGAWT-H0-0000-000-00000HU335G | | |
| 90 | | T6 | 280 | 307 | 35H | XEGAWT-H0-0000-000-00000UT635H | 35G | XEGAWT-H0-0000-000-00000UT635G | | |
| | | T5 | 260 | 285 | | XEGAWT-H0-0000-000-00000UT535H | | XEGAWT-H0-0000-000-00000UT535G | | |
| | | T4 | 240 | 263 | | XEGAWT-H0-0000-000-00000UT435H | | XEGAWT-H0-0000-000-00000UT435G | | |

Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.
- * Flux values @ 25 °C are calculated and for reference only.

ORDER CODES SUGGESTED FOR NEW DESIGNS - EASYWHITE® ORDER CODES AND BINS (T_J = 85 °C) - CONTINUED

| Nominal CCT | CRI | Minimum Luminous Flux @1000 mA | | | 2-Step | | 3-Step | | 5-Step | | |
|-------------|--------|--------------------------------|----------|-------------------|--------------------|--------------------------------|------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| | | Min. | Flux Bin | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Group | Order Code | Group | Order Code | Group | Order Code |
| 3000 K | 70 | U6 | 380 | 416 | | | | | 30E | XEGAWT-H0-0000-000-00000BU630E | |
| | | U5 | 360 | 395 | | | | | | XEGAWT-H0-0000-000-00000BU530E | |
| | | U4 | 340 | 373 | | | | | | XEGAWT-H0-0000-000-00000BU430E | |
| | | U3 | 320 | 351 | | | | | | XEGAWT-H0-0000-000-00000BU330E | |
| | 80 | U3 | 320 | 351 | | XEGAWT-H0-0000-000-00000HU330H | | XEGAWT-H0-0000-000-00000HU330G | | | |
| | | U2 | 300 | 329 | 30H | XEGAWT-H0-0000-000-00000HU230H | 30G | XEGAWT-H0-0000-000-00000HU230G | | | |
| | | T6 | 280 | 307 | | XEGAWT-H0-0000-000-00000HT630H | | XEGAWT-H0-0000-000-00000HT630G | | | |
| | 90 | T6 | 280 | 307 | | XEGAWT-H0-0000-000-00000UT630H | | XEGAWT-H0-0000-000-00000UT630G | | | |
| | | T5 | 260 | 285 | 30H | XEGAWT-H0-0000-000-00000UT530H | 30G | XEGAWT-H0-0000-000-00000UT530G | | | |
| | | T4 | 240 | 263 | | XEGAWT-H0-0000-000-00000UT430H | | XEGAWT-H0-0000-000-00000UT430G | | | |
| | 2700 K | 70 | U5 | 360 | 395 | | | | | 27E | XEGAWT-H0-0000-000-00000BU527E |
| | | | U4 | 340 | 373 | | | | | | XEGAWT-H0-0000-000-00000BU427E |
| U3 | | | 320 | 351 | | | | | XEGAWT-H0-0000-000-00000BU327E | | |
| U2 | | | 300 | 329 | | | | | XEGAWT-H0-0000-000-00000BU227E | | |
| 80 | | U2 | 300 | 329 | | XEGAWT-H0-0000-000-00000HU227H | | XEGAWT-H0-0000-000-00000HU227G | | | |
| | | T6 | 280 | 307 | 27H | XEGAWT-H0-0000-000-00000HT627H | 27G | XEGAWT-H0-0000-000-00000HT627G | | | |
| | | T5 | 260 | 285 | | XEGAWT-H0-0000-000-00000HT527H | | XEGAWT-H0-0000-000-00000HT527G | | | |
| 90 | | T5 | 260 | 285 | | XEGAWT-H0-0000-000-00000UT527H | | XEGAWT-H0-0000-000-00000UT527G | | | |
| | | T4 | 240 | 263 | 27H | XEGAWT-H0-0000-000-00000UT427H | 27G | XEGAWT-H0-0000-000-00000UT427G | | | |
| | | T3 | 220 | 241 | | XEGAWT-H0-0000-000-00000UT327H | | XEGAWT-H0-0000-000-00000UT327G | | | |

Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.
- * Flux values @ 25 °C are calculated and for reference only.

ORDER CODES SUGGESTED FOR NEW DESIGNS - EASYWHITE® ORDER CODES AND BINS (T_J = 85 °C) - CONTINUED

| Nominal CCT | CRI | Minimum Luminous Flux @1000 mA | | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|--------------------------------|----------|-------------------|--------------------|-------|------------|--------------------------------|------------|--------------------------------|
| | | Min. | Flux Bin | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Group | Order Code | Group | Order Code | Group |
| 2200 K | 70 | U2 | 300 | 329 | | | | | 22E | XEGAWT-H0-0000-000-00000BU222E |
| | | T6 | 280 | 307 | | | | | | XEGAWT-H0-0000-000-00000BT622E |
| | | T5 | 260 | 285 | | | | | | XEGAWT-H0-0000-000-00000BT522E |
| | 80 | T3 | 220 | 241 | | | 22G | XEGAWT-H0-0000-000-00000HT322G | | |
| | | T2 | 200 | 219 | | | | XEGAWT-H0-0000-000-00000HT222G | | |
| | | T1 | 180 | 197 | | | | XEGAWT-H0-0000-000-00000HT122G | | |
| | 90 | T2 | 200 | 219 | | | 22G | XEGAWT-H0-0000-000-00000UT222G | | |
| | | T1 | 180 | 197 | | | | XEGAWT-H0-0000-000-00000UT122G | | |
| | | S5 | 172 | 188 | | | | XEGAWT-H0-0000-000-00000US522G | | |
| | | S4 | 164 | 180 | | | | XEGAWT-H0-0000-000-00000US422G | | |

Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.
- * Flux values @ 25 °C are calculated and for reference only.

ORDER CODES SUGGESTED FOR NEW DESIGNS - ANSI ORDER CODES AND BINS (T_j = 85 °C)

The following tables provide order codes for XLamp XE-G white LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| Chromaticity | | Minimum Luminous Flux (lm) @ 1000 mA | | | Order Codes | |
|--------------|--------|--------------------------------------|-------------------|--------------------|--------------------------------|---------------------------------|
| Kit | CCT | Code | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | No Minimum CRI | 70 CRI Minimum |
| DT | 7000 K | V3 | 420 | 460 | XEGAWT-H0-0000-000-000000V30DT | |
| | | V2 | 400 | 438 | XEGAWT-H0-0000-000-000000V20DT | XEGAWT-H0-0000-000-000000BV20DT |
| | | U6 | 380 | 395 | XEGAWT-H0-0000-000-000000U60DT | XEGAWT-H0-0000-000-000000BU60DT |
| | | U5 | 360 | 351 | XEGAWT-H0-0000-000-000000U50DT | XEGAWT-H0-0000-000-000000BU50DT |
| | | U4 | 340 | 373 | | XEGAWT-H0-0000-000-000000BU40DT |
| E1 | 6500 K | V3 | 420 | 460 | XEGAWT-H0-0000-000-000000V30E1 | |
| | | V2 | 400 | 438 | XEGAWT-H0-0000-000-000000V20E1 | XEGAWT-H0-0000-000-000000BV20E1 |
| | | U6 | 380 | 395 | XEGAWT-H0-0000-000-000000U60E1 | XEGAWT-H0-0000-000-000000BU60E1 |
| | | U5 | 360 | 351 | XEGAWT-H0-0000-000-000000U50E1 | XEGAWT-H0-0000-000-000000BU50E1 |
| | | U4 | 340 | 373 | | XEGAWT-H0-0000-000-000000BU40E1 |
| DV | 5700 K | V3 | 420 | 460 | XEGAWT-H0-0000-000-000000V30DV | |
| | | V2 | 400 | 438 | XEGAWT-H0-0000-000-000000V20DV | XEGAWT-H0-0000-000-000000BV20DV |
| | | U6 | 380 | 395 | XEGAWT-H0-0000-000-000000U60DV | XEGAWT-H0-0000-000-000000BU60DV |
| | | U5 | 360 | 351 | XEGAWT-H0-0000-000-000000U50DV | XEGAWT-H0-0000-000-000000BU50DV |
| | | U4 | 340 | 373 | | XEGAWT-H0-0000-000-000000BU40DV |
| E2 | 5700 K | V3 | 420 | 460 | XEGAWT-H0-0000-000-000000V30E2 | |
| | | V2 | 400 | 438 | XEGAWT-H0-0000-000-000000V20E2 | XEGAWT-H0-0000-000-000000BV20E2 |
| | | U6 | 380 | 395 | XEGAWT-H0-0000-000-000000U60E2 | XEGAWT-H0-0000-000-000000BU60E2 |
| | | U5 | 360 | 351 | XEGAWT-H0-0000-000-000000U50E2 | XEGAWT-H0-0000-000-000000BU50E2 |
| | | U4 | 340 | 373 | | XEGAWT-H0-0000-000-000000BU40E2 |
| E3 | 5000 K | V3 | 420 | 460 | XEGAWT-H0-0000-000-000000V30E3 | |
| | | V2 | 400 | 438 | XEGAWT-H0-0000-000-000000V20E3 | XEGAWT-H0-0000-000-000000BV20E3 |
| | | U6 | 380 | 395 | XEGAWT-H0-0000-000-000000U60E3 | XEGAWT-H0-0000-000-000000BU60E3 |
| | | U5 | 360 | 351 | XEGAWT-H0-0000-000-000000U50E3 | XEGAWT-H0-0000-000-000000BU50E3 |
| | | U4 | 340 | 373 | | XEGAWT-H0-0000-000-000000BU40E3 |
| E4 | 4500 K | V2 | 400 | 438 | | XEGAWT-H0-0000-000-000000BV20E4 |
| | | U6 | 380 | 395 | | XEGAWT-H0-0000-000-000000BU60E4 |
| | | U5 | 360 | 351 | | XEGAWT-H0-0000-000-000000BU50E4 |
| | | U4 | 340 | 373 | | XEGAWT-H0-0000-000-000000BU40E4 |

Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.
- * Flux values @ 25 °C are calculated and for reference only.

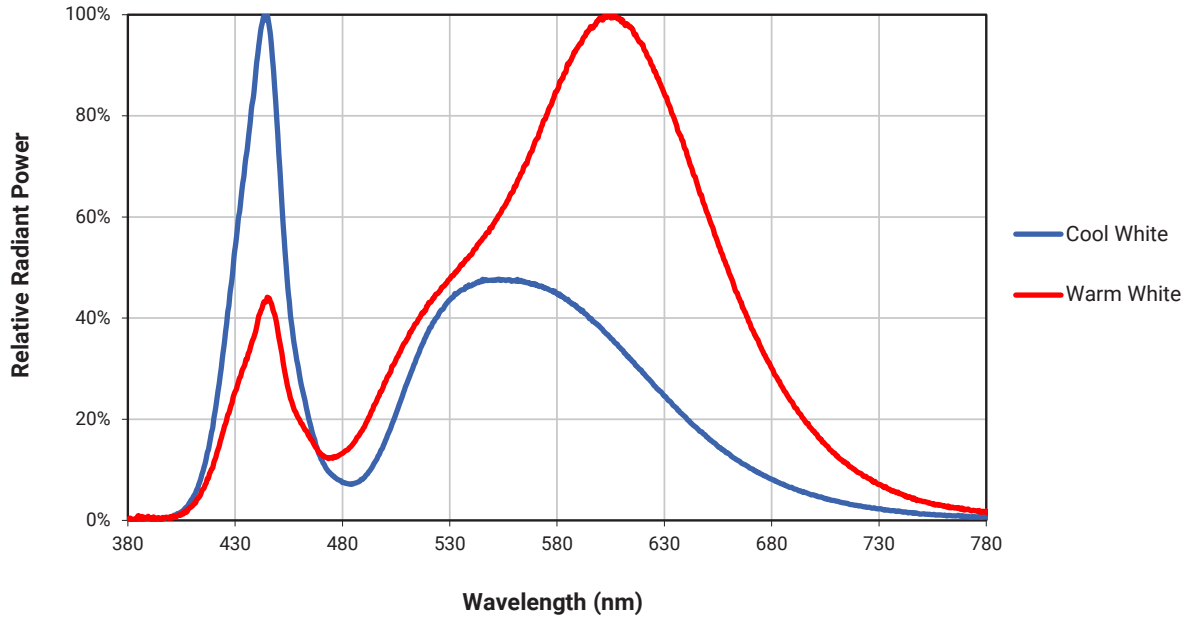
ORDER CODES SUGGESTED FOR NEW DESIGNS - ANSI ORDER CODES AND BINS (T_j = 85 °C) - CONTINUED

| Chromaticity | | Minimum Luminous Flux (lm) @ 1000 mA | | | Order Codes | |
|--------------|--------|--------------------------------------|-------------------|--------------------|----------------|--------------------------------|
| Kit | CCT | Code | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | No Minimum CRI | 70 CRI Minimum |
| E5 | 4000 K | V2 | 400 | 438 | | XEGAWT-H0-0000-000-00000BV20E5 |
| | | U6 | 380 | 395 | | XEGAWT-H0-0000-000-00000BU60E5 |
| | | U5 | 360 | 351 | | XEGAWT-H0-0000-000-00000BU50E5 |
| | | U4 | 340 | 373 | | XEGAWT-H0-0000-000-00000BU40E5 |
| E6 | 3500 K | U6 | 380 | 395 | | XEGAWT-H0-0000-000-00000BU60E6 |
| | | U5 | 360 | 351 | | XEGAWT-H0-0000-000-00000BU50E6 |
| | | U4 | 340 | 373 | | XEGAWT-H0-0000-000-00000BU40E6 |
| | | U3 | 320 | 351 | | XEGAWT-H0-0000-000-00000BU30E6 |
| E7 | 3000 K | U6 | 380 | 395 | | XEGAWT-H0-0000-000-00000BU60E7 |
| | | U5 | 360 | 351 | | XEGAWT-H0-0000-000-00000BU50E7 |
| | | U4 | 340 | 373 | | XEGAWT-H0-0000-000-00000BU40E7 |
| | | U3 | 320 | 351 | | XEGAWT-H0-0000-000-00000BU30E7 |
| E8 | 2700 K | U5 | 360 | 351 | | XEGAWT-H0-0000-000-00000BU50E8 |
| | | U4 | 340 | 373 | | XEGAWT-H0-0000-000-00000BU40E8 |
| | | U3 | 320 | 351 | | XEGAWT-H0-0000-000-00000BU30E8 |
| | | U2 | 300 | 329 | | XEGAWT-H0-0000-000-00000BU20E8 |
| EA | 2200 K | U2 | 300 | 329 | | XEGAWT-H0-0000-000-00000BU20EA |
| | | T6 | 280 | 307 | | XEGAWT-H0-0000-000-00000BT60EA |
| | | T5 | 260 | 285 | | XEGAWT-H0-0000-000-00000BT50EA |

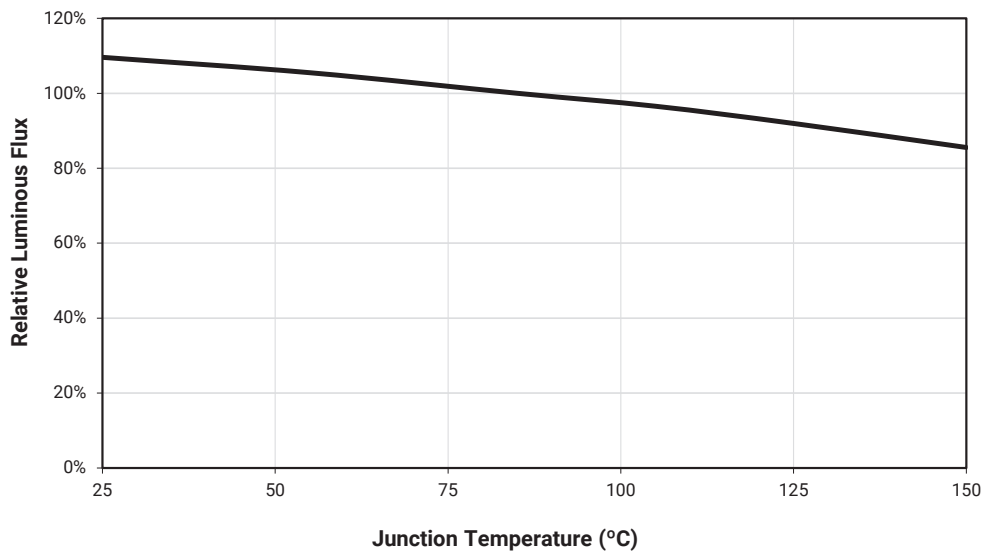
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.
- * Flux values @ 25 °C are calculated and for reference only.

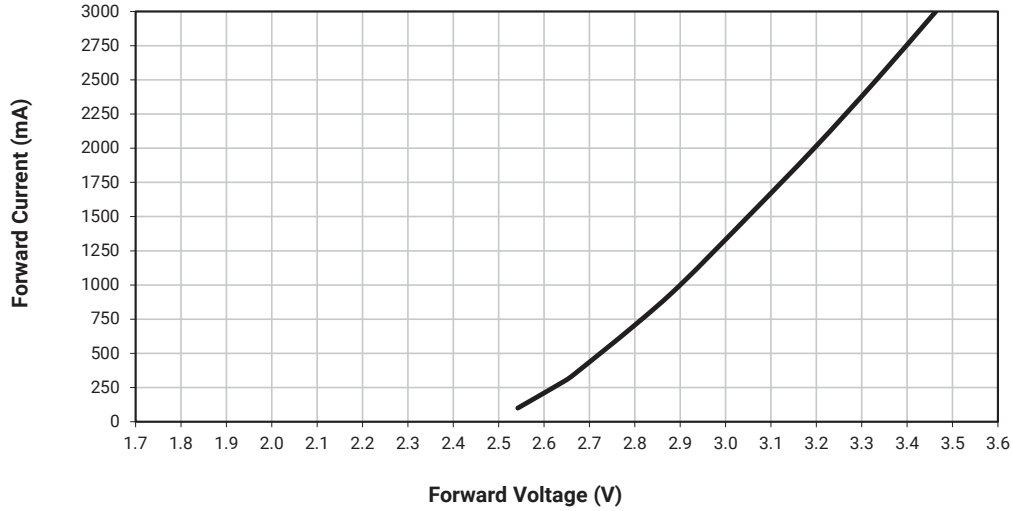
RELATIVE SPECTRAL POWER DISTRIBUTION - WHITE



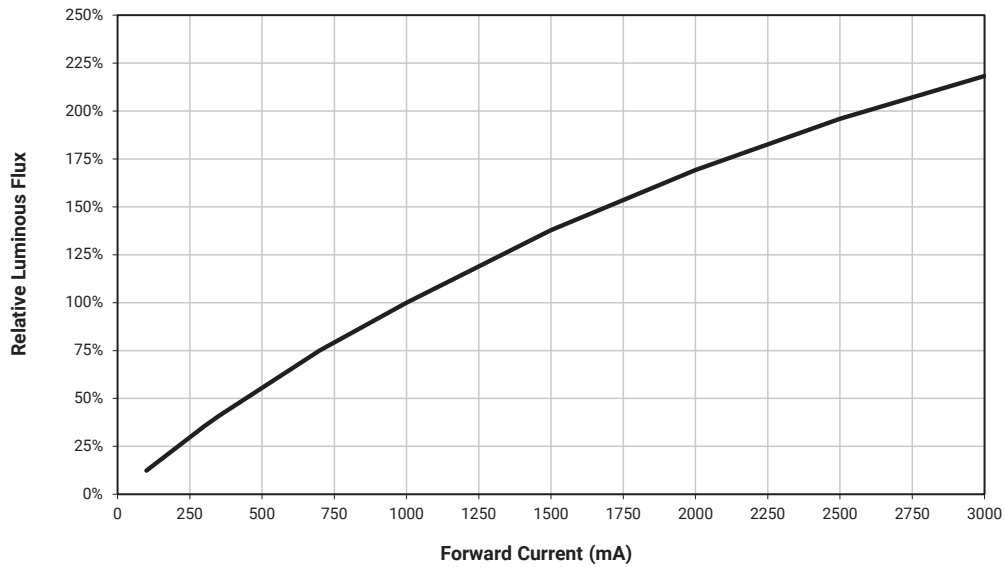
RELATIVE FLUX VS. JUNCTION TEMPERATURE - WHITE ($I_f = 1000$ mA)



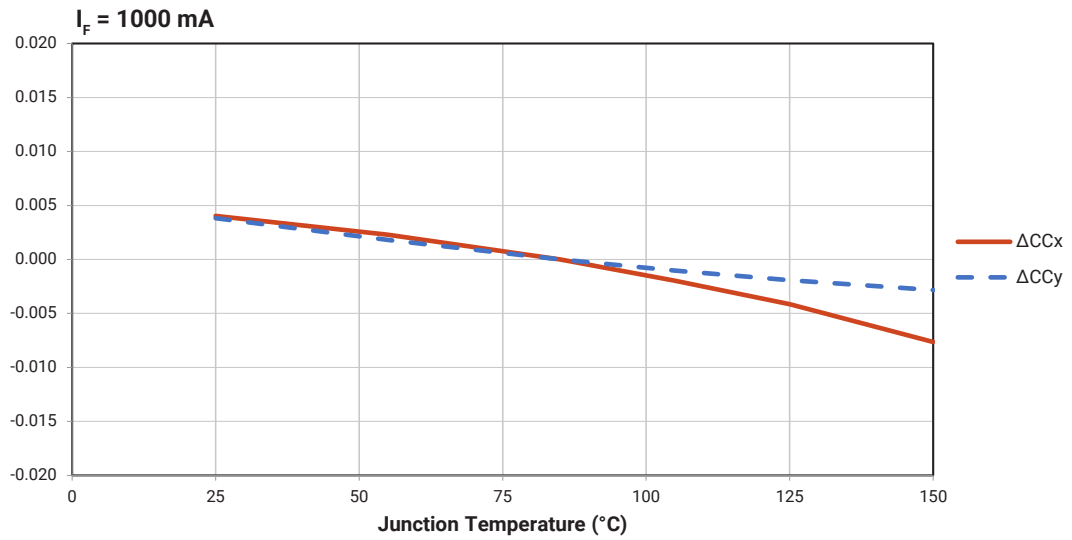
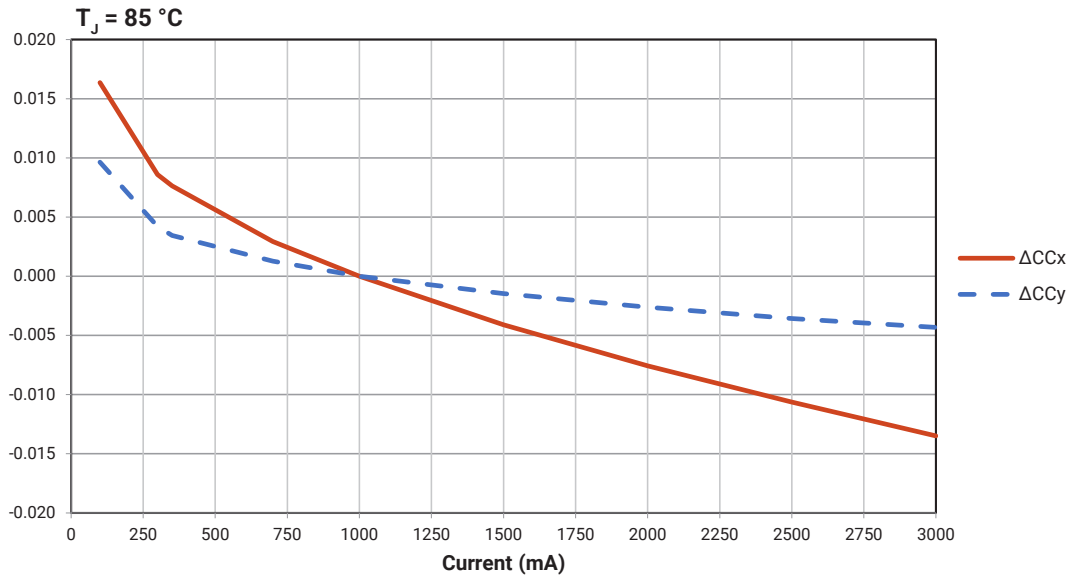
ELECTRICAL CHARACTERISTICS - WHITE ($T_j = 85\text{ }^\circ\text{C}$)



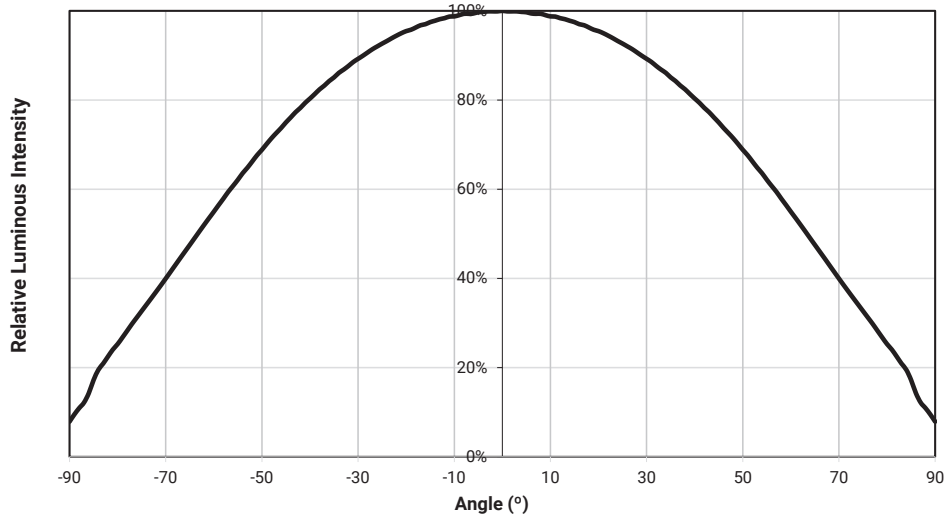
RELATIVE FLUX VS. CURRENT - WHITE ($T_j = 85\text{ }^\circ\text{C}$)



RELATIVE CHROMATICITY VS. CURRENT AND TEMPERATURE - WARM WHITE

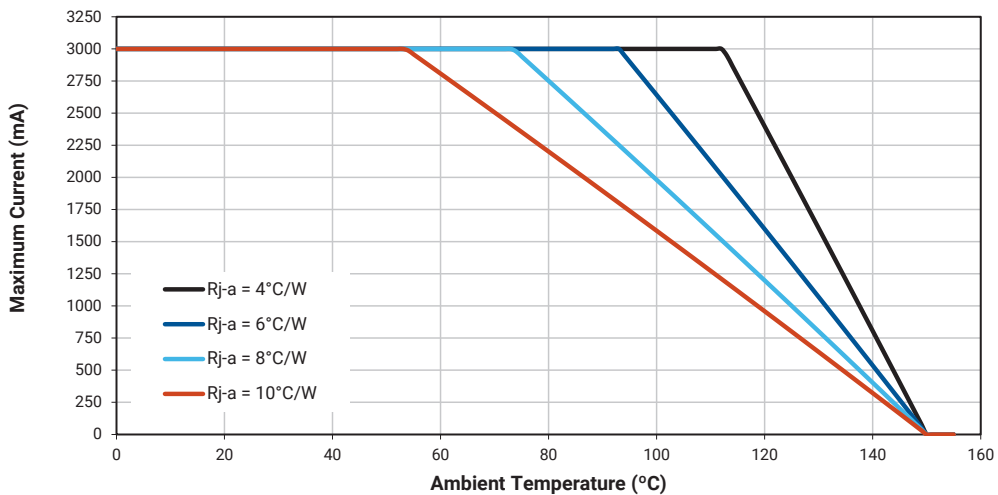


TYPICAL SPATIAL DISTRIBUTION - WHITE



THERMAL DESIGN - WHITE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - VIOLET

CHARACTERISTICS - VIOLET

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 2.1 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.58 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 3.2 | 3.5 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.6 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - VIOLET (T_j = 25 °C)

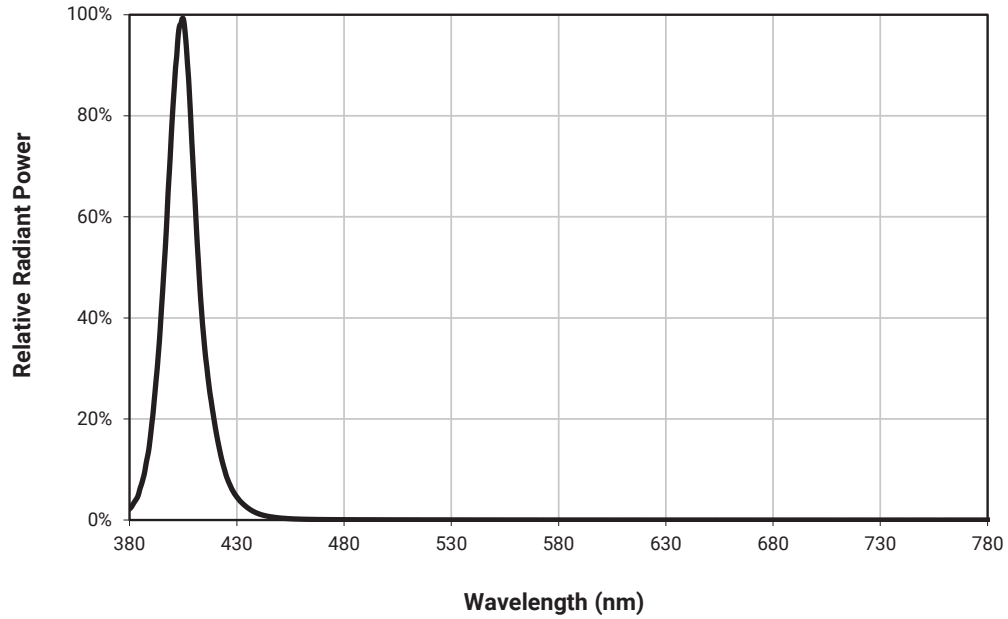
The following table provides order codes for XLamp XE-G violet LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| Violet | | Minimum Radiant Flux (mW) @ 1000 mA | | Order Codes |
|--------|----------------------|-------------------------------------|-----------|--------------------------------|
| Kit | Peak Wavelength (nm) | Code | Flux (mW) | |
| 001 | 400-420 | K6 | 1600 | XEGAVT-H0-0000-000-000000K6001 |
| | | K4 | 1500 | XEGAVT-H0-0000-000-000000K4001 |

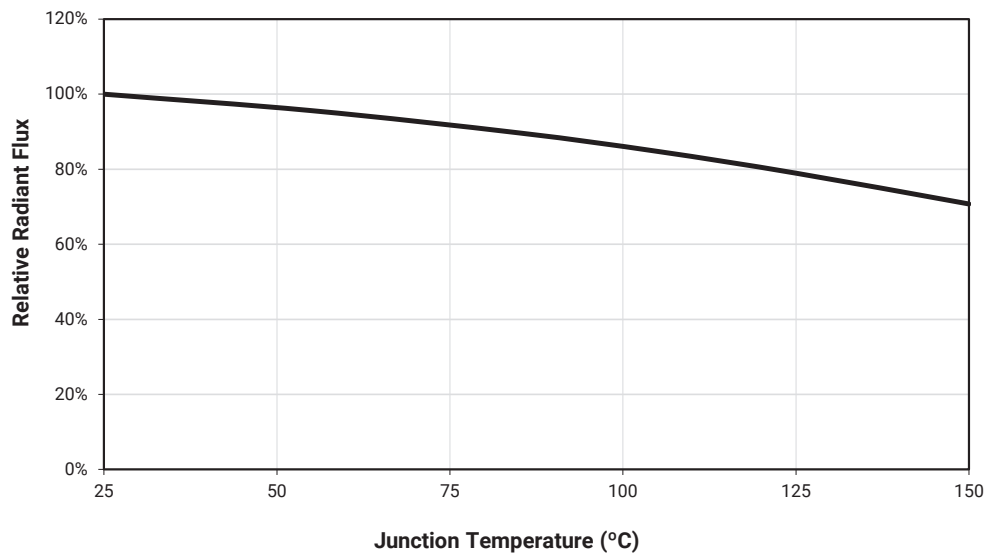
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED 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. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

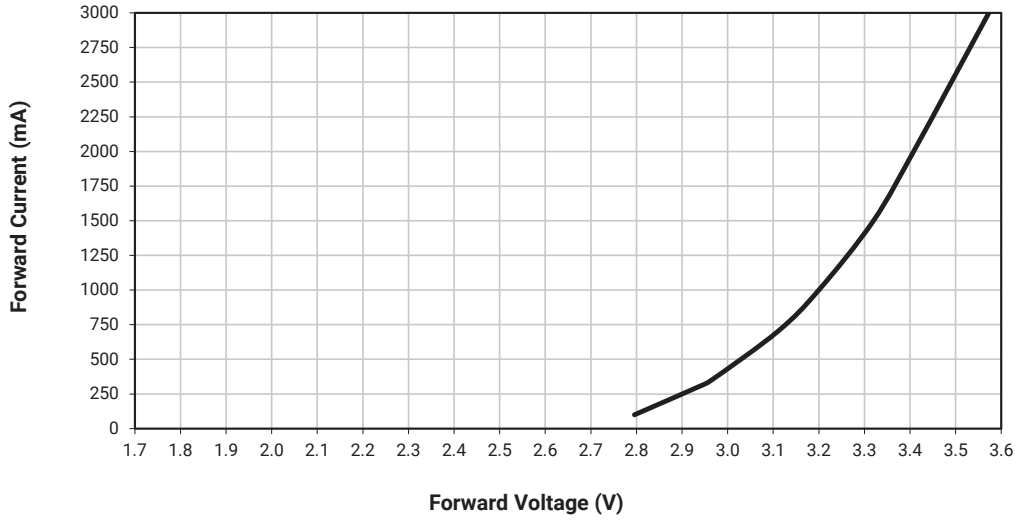
RELATIVE SPECTRAL POWER DISTRIBUTION - VIOLET



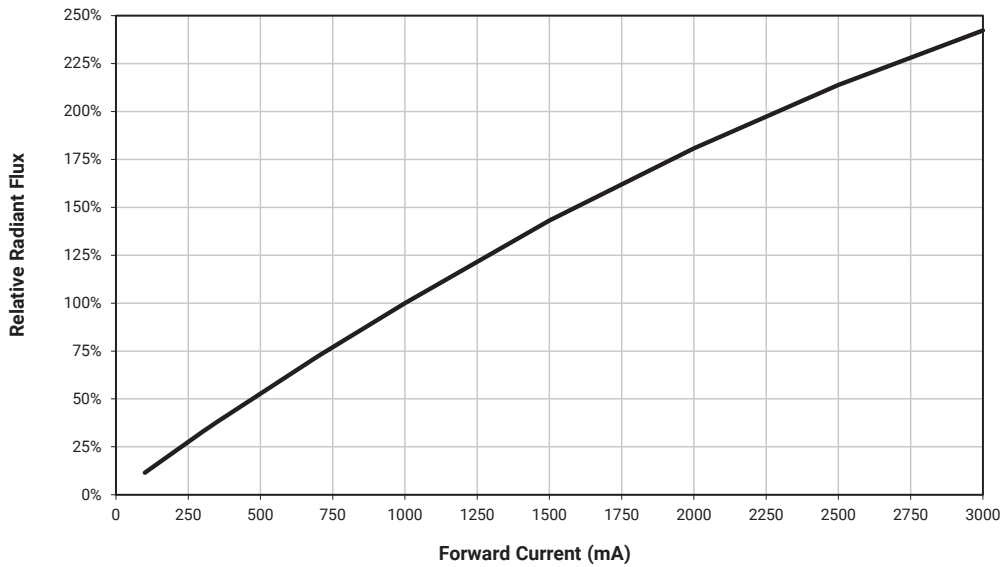
RELATIVE FLUX VS. JUNCTION TEMPERATURE - VIOLET ($I_f = 1000$ mA)



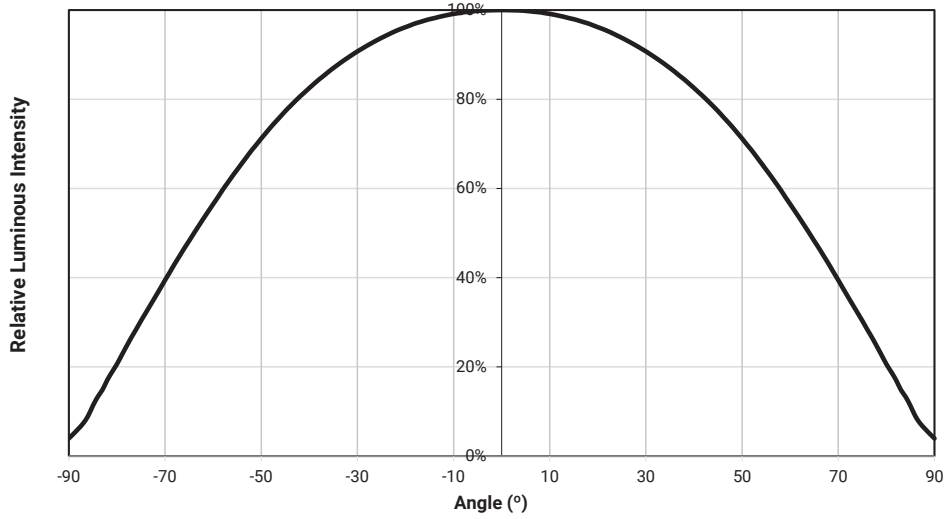
ELECTRICAL CHARACTERISTICS - VIOLET ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - VIOLET ($T_j = 25\text{ }^\circ\text{C}$)

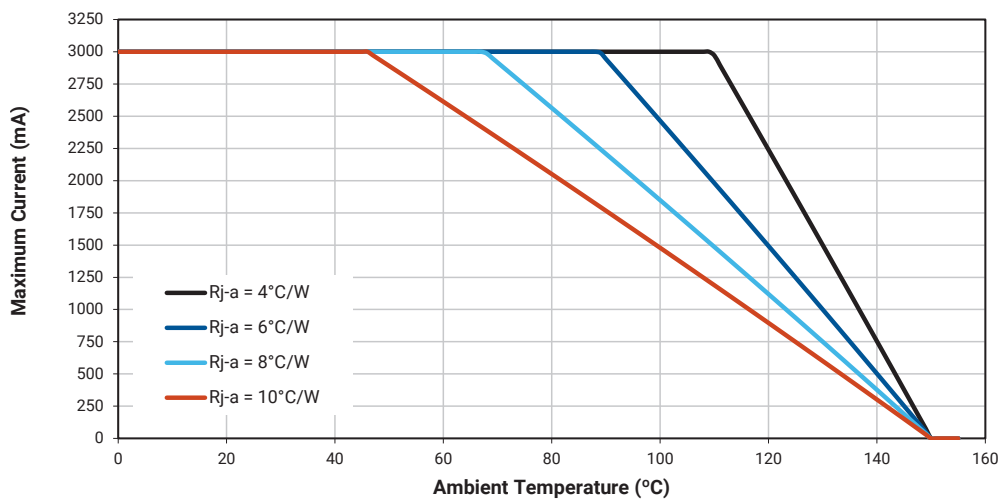


TYPICAL SPATIAL DISTRIBUTION - VIOLET



THERMAL DESIGN - VIOLET

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - ROYAL BLUE

CHARACTERISTICS - ROYAL BLUE

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.27 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 3 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.6 | |
| LED junction temperature | °C | | | 150 |

Note:

- Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - ROYAL BLUE (T_j = 25 °C)

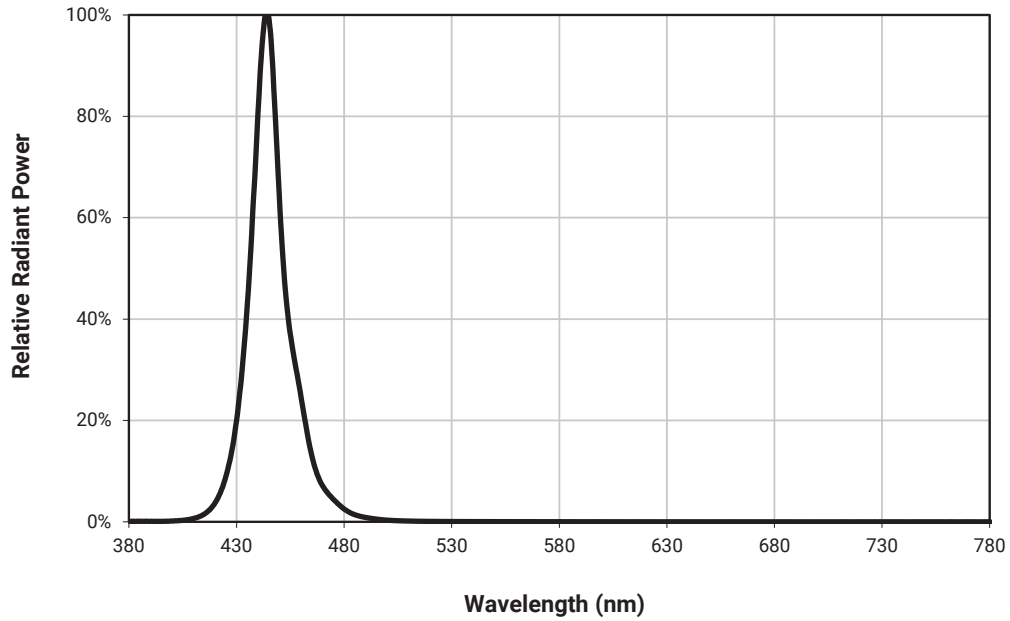
The following table provides order codes for XLamp XE-G royal blue LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| Royal Blue | | Minimum Radiant Flux (mW) @ 1000 mA | | Order Codes |
|------------|--------------------------|-------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (mW) | |
| 001 | 450 - 465 | K6 | 1600 | XEGARY-H0-0000-000-000000K6001 |
| | | K4 | 1500 | XEGARY-H0-0000-000-000000K4001 |
| 002 | 450 - 460 | K6 | 1600 | XEGARY-H0-0000-000-000000K6002 |
| | | K4 | 1500 | XEGARY-H0-0000-000-000000K4002 |
| 003 | 455 - 465 | K6 | 1600 | XEGARY-H0-0000-000-000000K6003 |
| | | K4 | 1500 | XEGARY-H0-0000-000-000000K4003 |

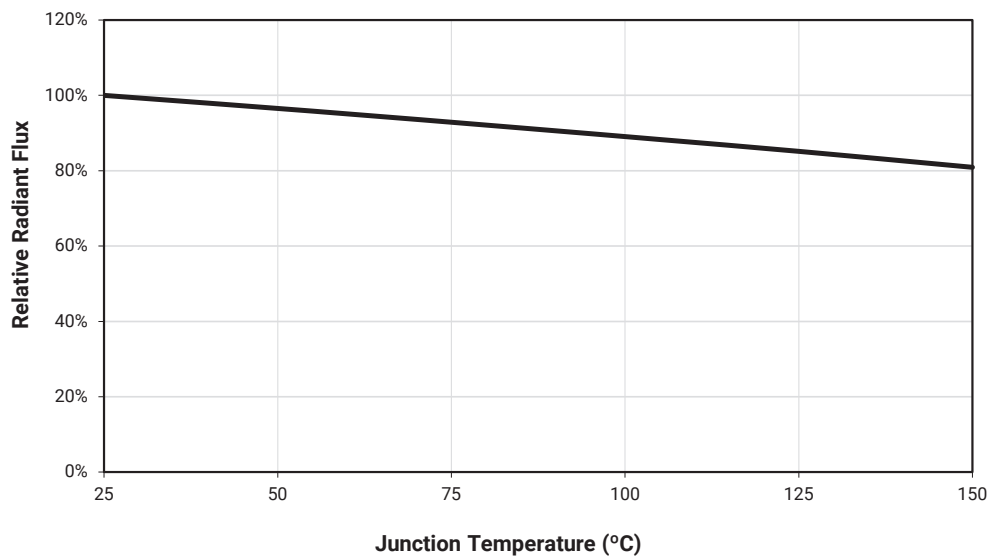
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED 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. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

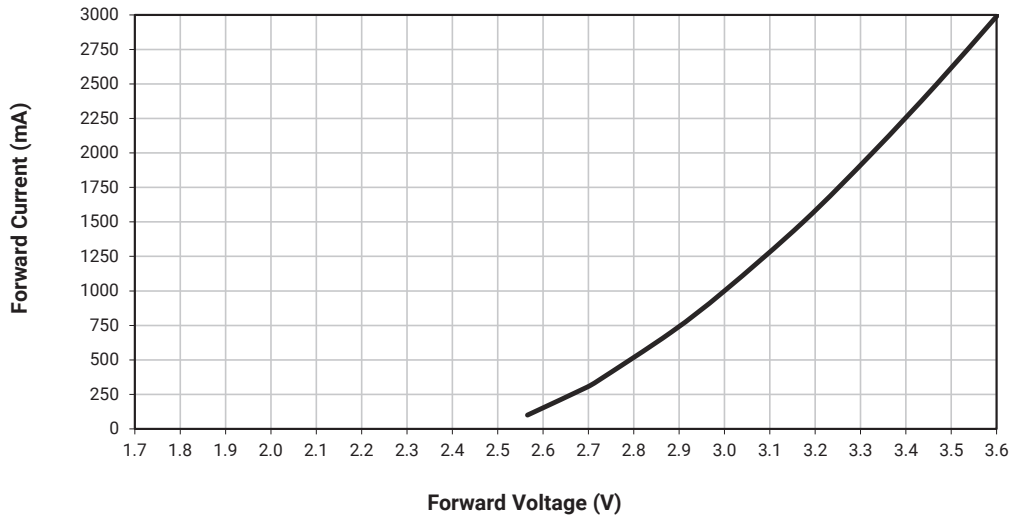
RELATIVE SPECTRAL POWER DISTRIBUTION - ROYAL BLUE



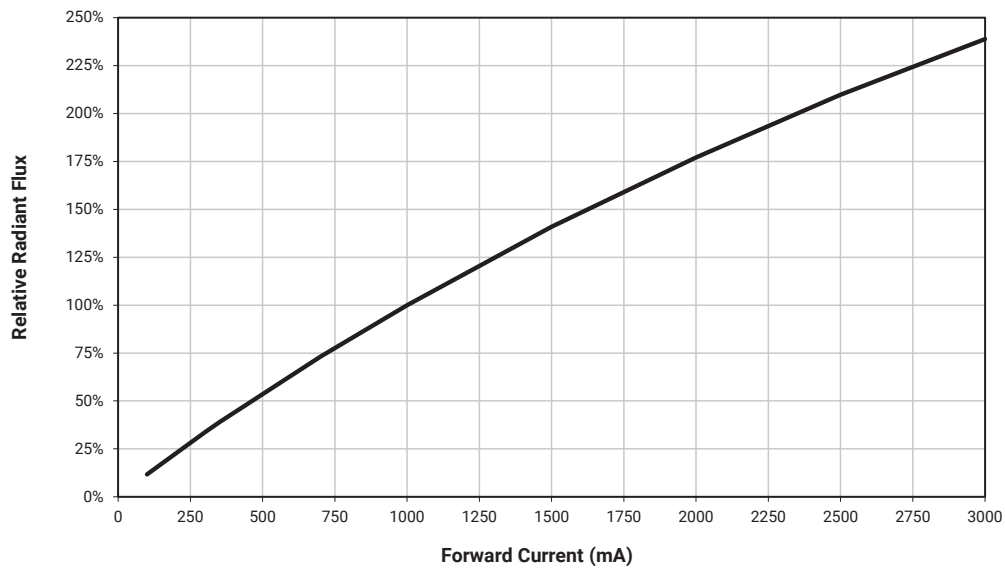
RELATIVE FLUX VS. JUNCTION TEMPERATURE - ROYAL BLUE ($I_f = 1000$ mA)



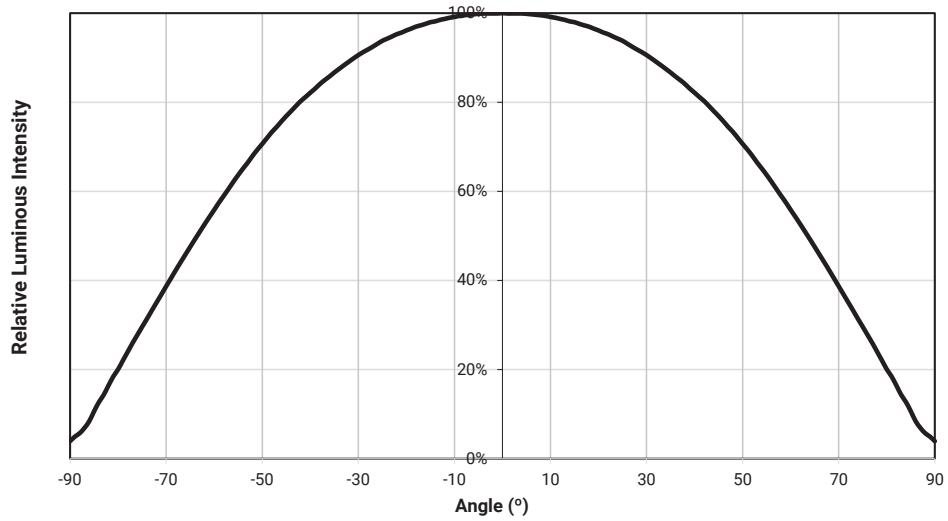
ELECTRICAL CHARACTERISTICS - ROYAL BLUE ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - ROYAL BLUE ($T_j = 25\text{ }^\circ\text{C}$)

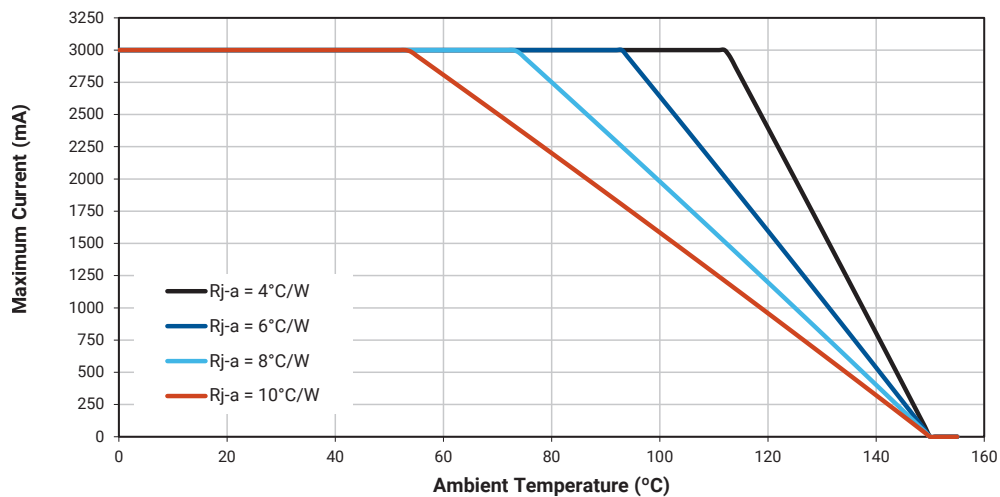


TYPICAL SPATIAL DISTRIBUTION - ROYAL BLUE



THERMAL DESIGN - ROYAL BLUE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - BLUE

CHARACTERISTICS - BLUE

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.23 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.9 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.5 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - BLUE ($T_j = 25\text{ °C}$)

The following table provides order codes for XLamp XE-G blue LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| Blue | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 465-485 | R3 | 122 | XEGABL-H0-0000-000-000000R3001 |
| | | R2 | 114 | XEGABL-H0-0000-000-000000R2001 |
| | | Q5 | 107 | XEGABL-H0-0000-000-000000Q5001 |
| | | Q4 | 100 | XEGABL-H0-0000-000-000000Q4001 |
| | | Q3 | 93.9 | XEGABL-H0-0000-000-000000Q3001 |
| | | Q2 | 87.4 | XEGABL-H0-0000-000-000000Q2001 |

Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

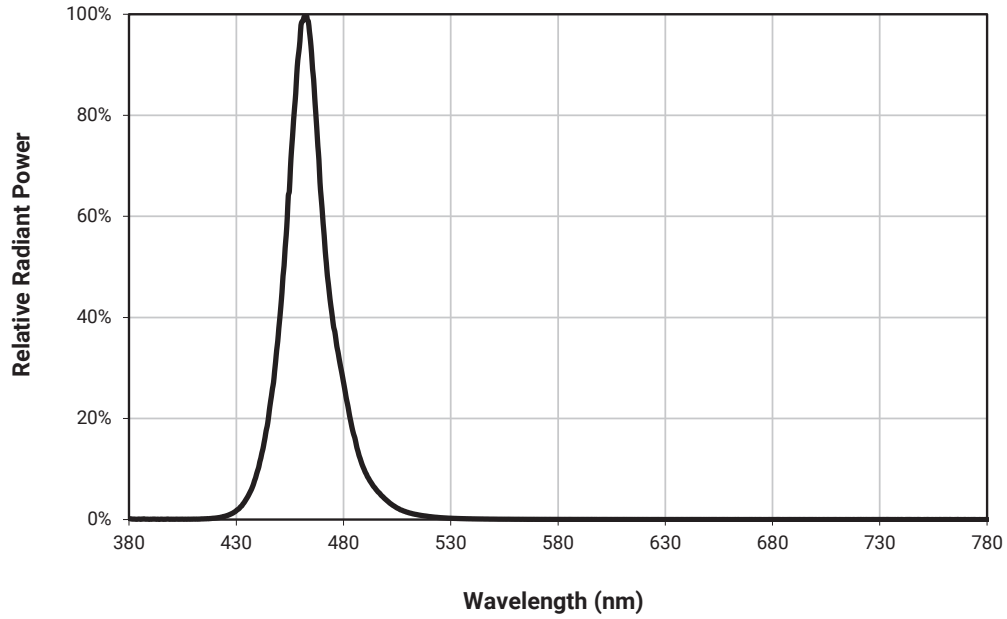
ORDER CODES SUGGESTED FOR NEW DESIGNS - BLUE ($T_j = 25\text{ }^\circ\text{C}$) - CONTINUED

| Blue | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 002 | 465-480 | R3 | 122 | XEGABL-H0-0000-000-000000R3002 |
| | | R2 | 114 | XEGABL-H0-0000-000-000000R2002 |
| | | Q5 | 107 | XEGABL-H0-0000-000-000000Q5002 |
| | | Q4 | 100 | XEGABL-H0-0000-000-000000Q4002 |
| | | Q3 | 93.9 | XEGABL-H0-0000-000-000000Q3002 |
| | | Q2 | 87.4 | XEGABL-H0-0000-000-000000Q2002 |
| 003 | 470-485 | R4 | 130 | XEGABL-H0-0000-000-000000R4003 |
| | | R3 | 122 | XEGABL-H0-0000-000-000000R3003 |
| | | R2 | 114 | XEGABL-H0-0000-000-000000R2003 |
| | | Q5 | 107 | XEGABL-H0-0000-000-000000Q5003 |
| 004 | 465-475 | R3 | 122 | XEGABL-H0-0000-000-000000R3004 |
| | | R2 | 114 | XEGABL-H0-0000-000-000000R2004 |
| | | Q5 | 107 | XEGABL-H0-0000-000-000000Q5004 |
| | | Q4 | 100 | XEGABL-H0-0000-000-000000Q4004 |
| | | Q3 | 93.9 | XEGABL-H0-0000-000-000000Q3004 |
| | | Q2 | 87.4 | XEGABL-H0-0000-000-000000Q2004 |
| 005 | 470-480 | R3 | 122 | XEGABL-H0-0000-000-000000R3005 |
| | | R2 | 114 | XEGABL-H0-0000-000-000000R2005 |
| | | Q5 | 107 | XEGABL-H0-0000-000-000000Q5005 |
| 006 | 475-485 | R4 | 130 | XEGABL-H0-0000-000-000000R4006 |
| | | R3 | 122 | XEGABL-H0-0000-000-000000R3006 |

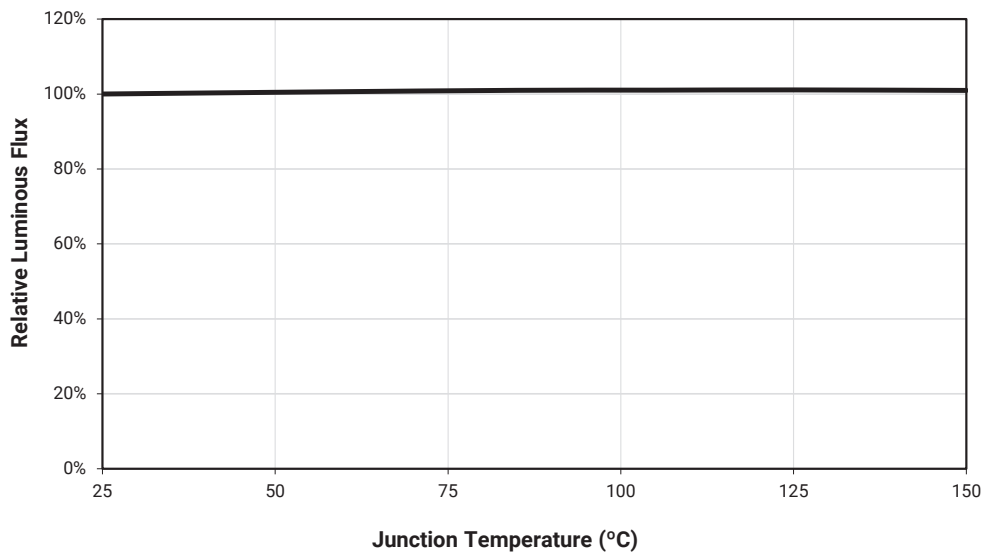
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

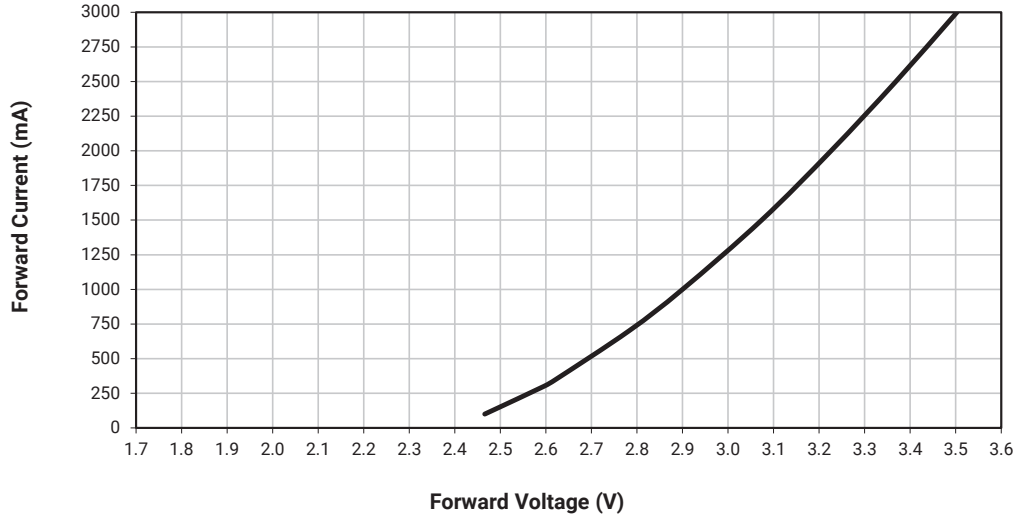
RELATIVE SPECTRAL POWER DISTRIBUTION - BLUE



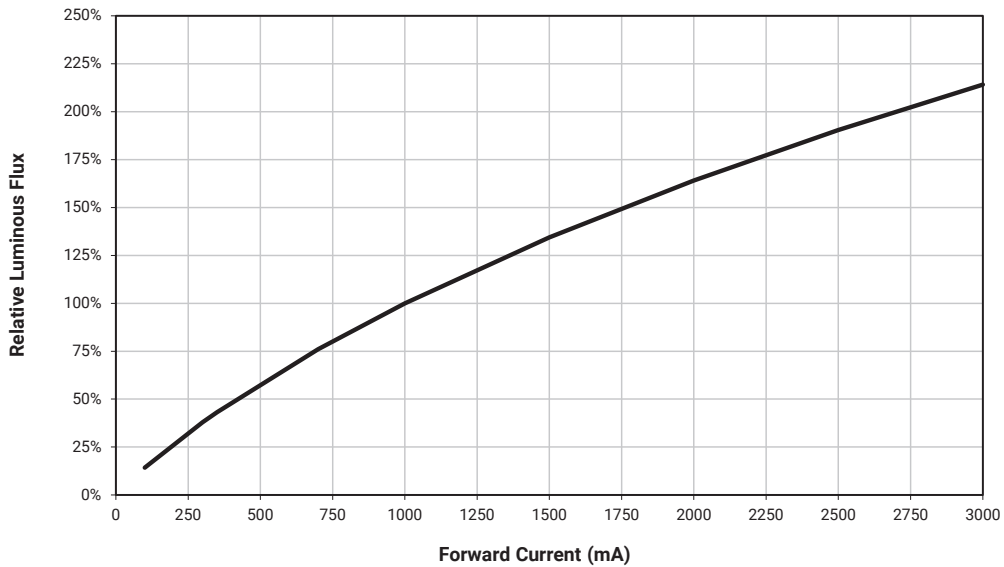
RELATIVE FLUX VS. JUNCTION TEMPERATURE - BLUE ($I_f = 1000$ mA)



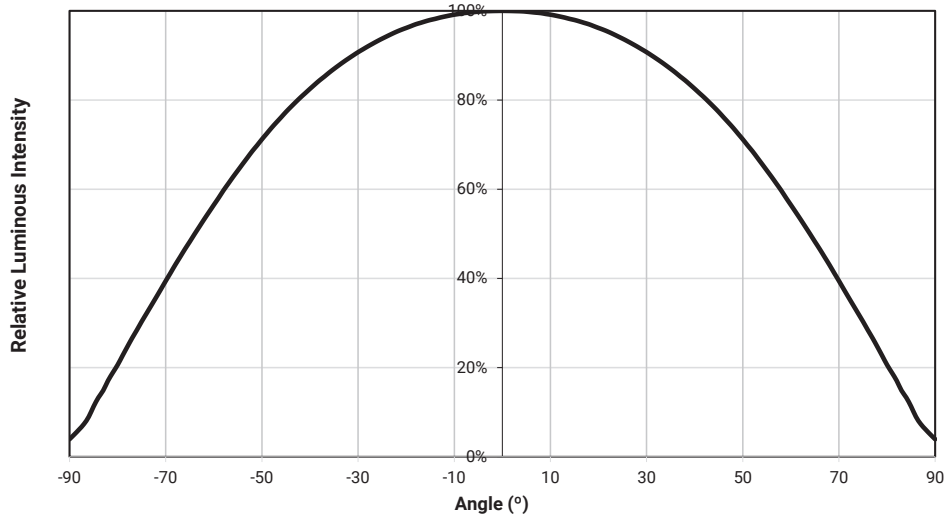
ELECTRICAL CHARACTERISTICS - BLUE ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - BLUE ($T_j = 25\text{ }^\circ\text{C}$)

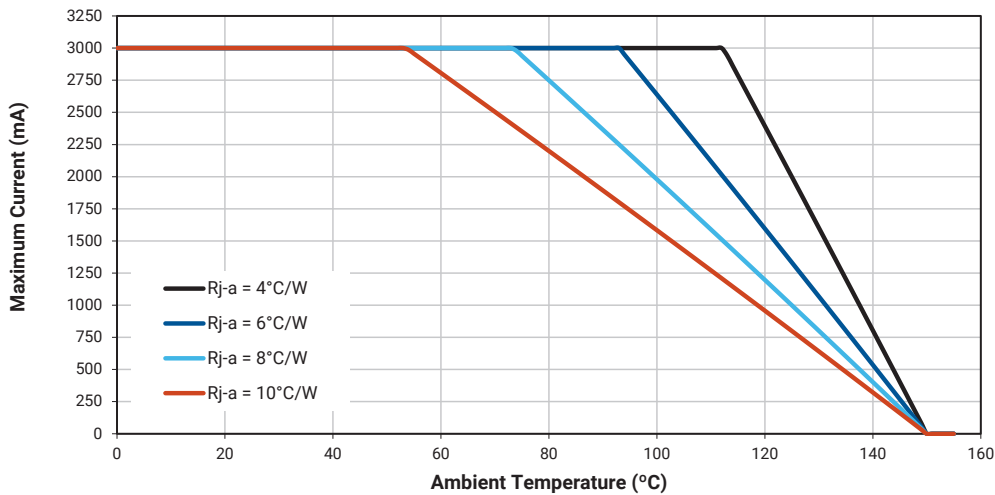


TYPICAL SPATIAL DISTRIBUTION - BLUE



THERMAL DESIGN - BLUE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - PC BLUE

CHARACTERISTICS - PC BLUE

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.27 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.9 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.5 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - PC BLUE (T_j = 25 °C)

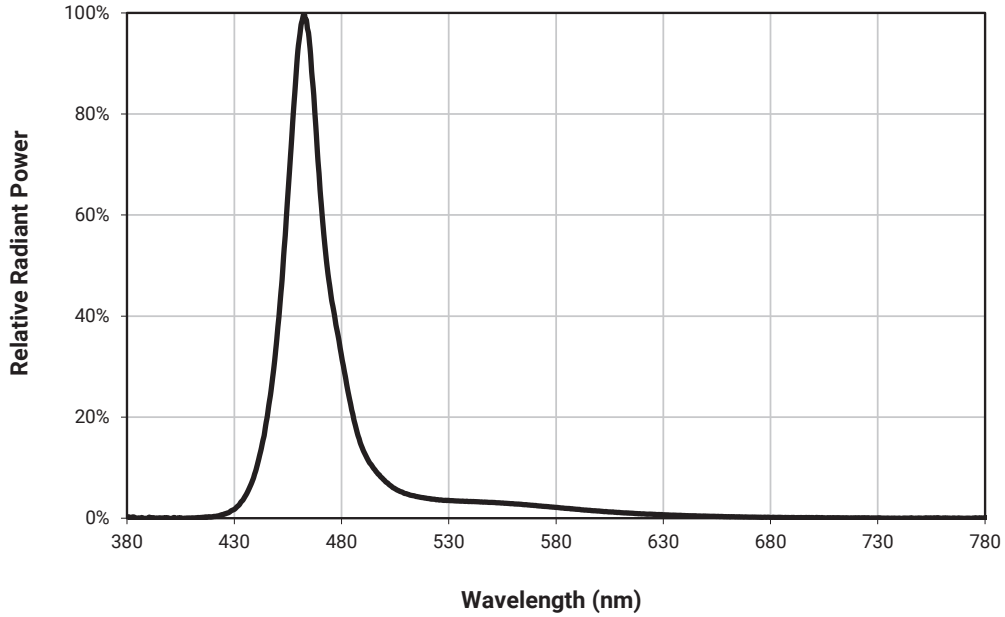
The following table provides order codes for XLamp XE-G PC blue LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| PC Blue | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|---------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | N4B & N5B | S5 | 172 | XEGAPB-H0-0000-000-000000S5001 |
| | | S4 | 164 | XEGAPB-H0-0000-000-000000S4001 |
| | | S3 | 156 | XEGAPB-H0-0000-000-000000S3001 |

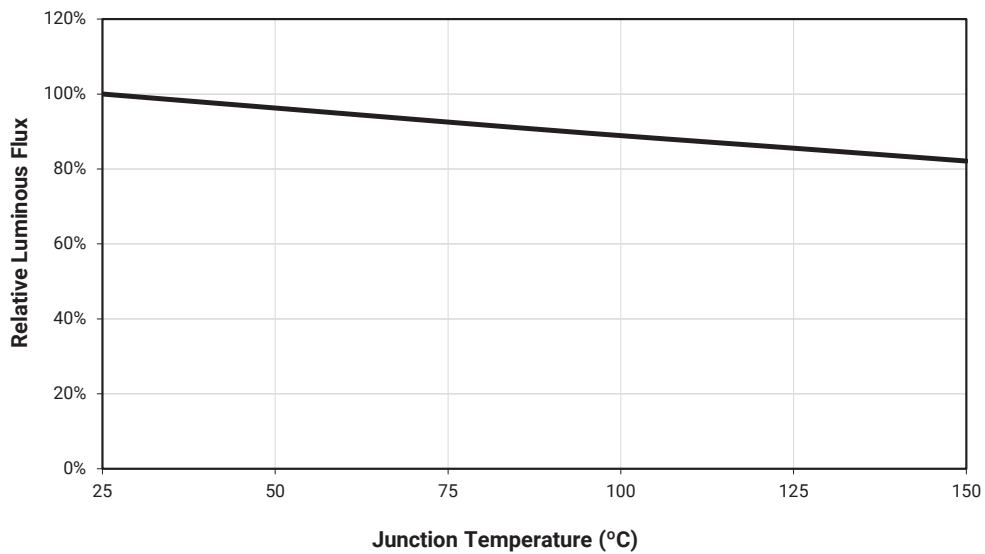
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED 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. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

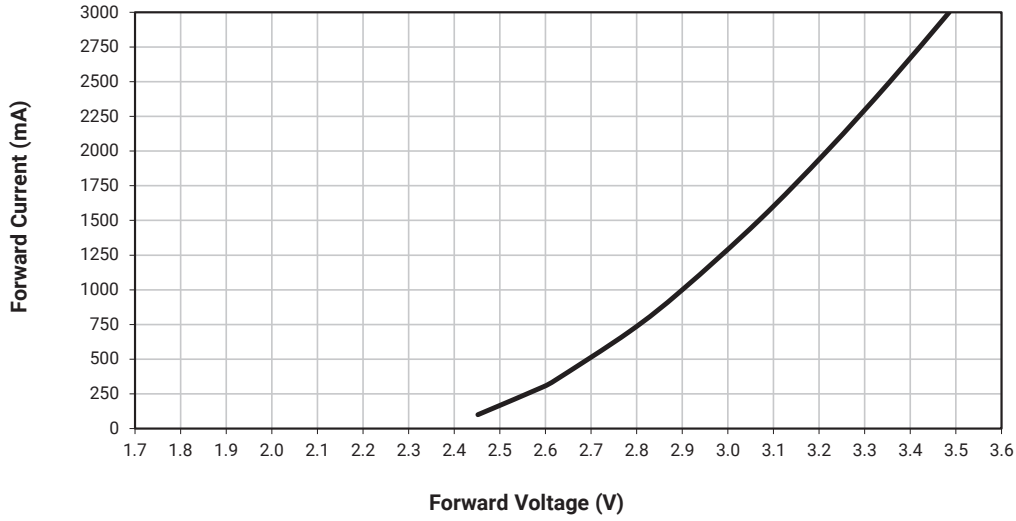
RELATIVE SPECTRAL POWER DISTRIBUTION - PC BLUE



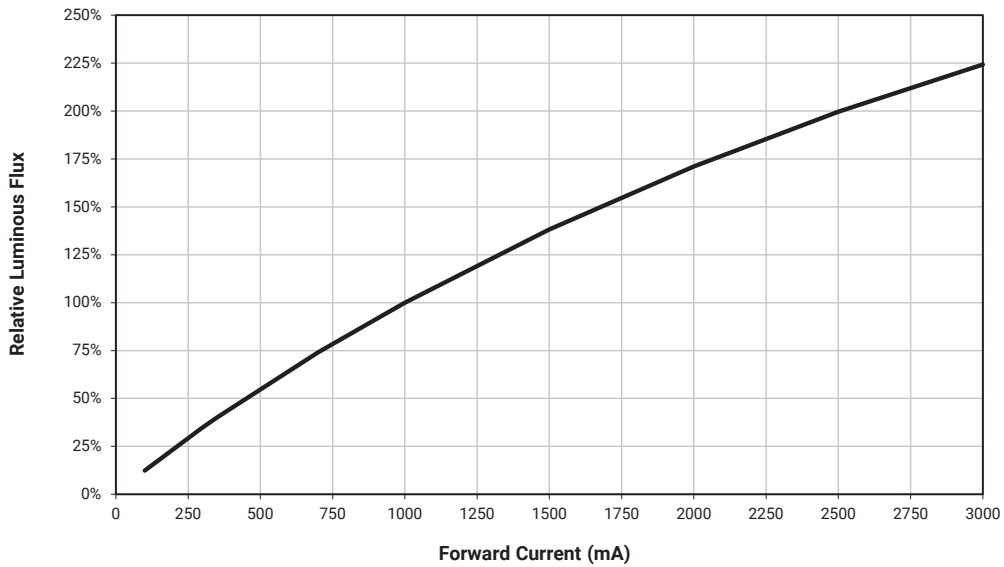
RELATIVE FLUX VS. JUNCTION TEMPERATURE - PC BLUE ($I_f = 1000$ mA)



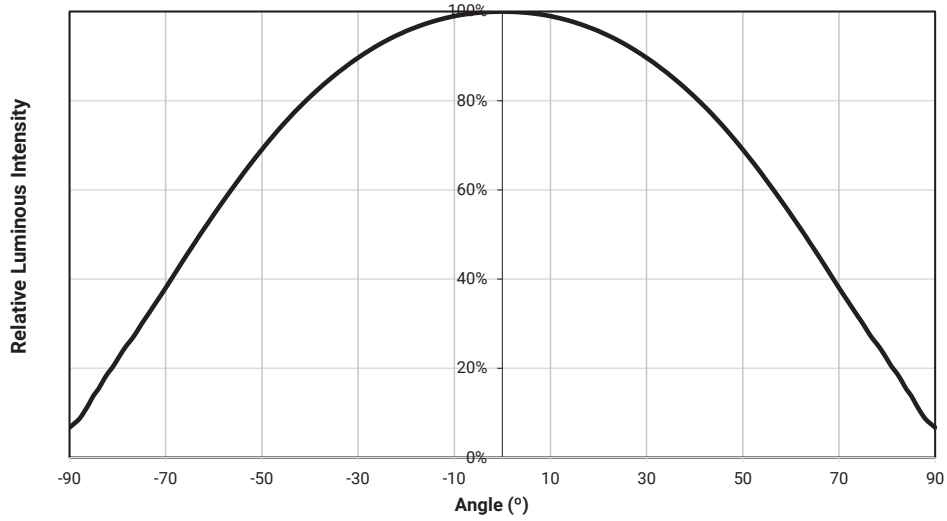
ELECTRICAL CHARACTERISTICS - PC BLUE ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - PC BLUE ($T_j = 25\text{ }^\circ\text{C}$)

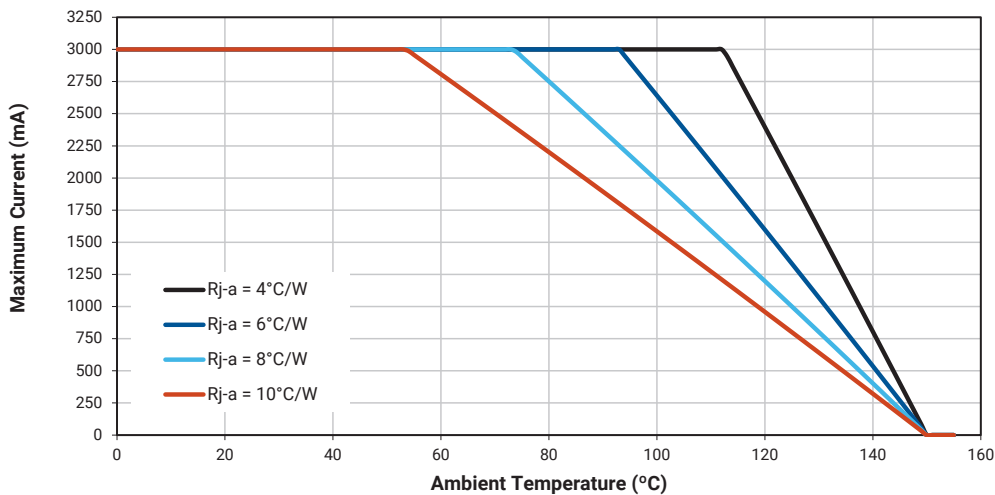


TYPICAL SPATIAL DISTRIBUTION - PC BLUE



THERMAL DESIGN - PC BLUE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - CYAN

CHARACTERISTICS - CYAN

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 140 | |
| Temperature coefficient of voltage | mV/°C | | -1.22 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.8 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.4 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - CYAN (T_J = 25 °C)

The following table provides order codes for XLamp XE-G cyan LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| Cyan | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 490-510 | T4 | 240 | XEGACY-H0-0000-000-000000T4001 |
| | | T3 | 220 | XEGACY-H0-0000-000-000000T3001 |
| | | T2 | 200 | XEGACY-H0-0000-000-000000T2001 |
| | | T1 | 180 | XEGACY-H0-0000-000-000000T1001 |
| | | S5 | 172 | XEGACY-H0-0000-000-000000S5001 |
| | | S4 | 164 | XEGACY-H0-0000-000-000000S4001 |

Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED 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. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

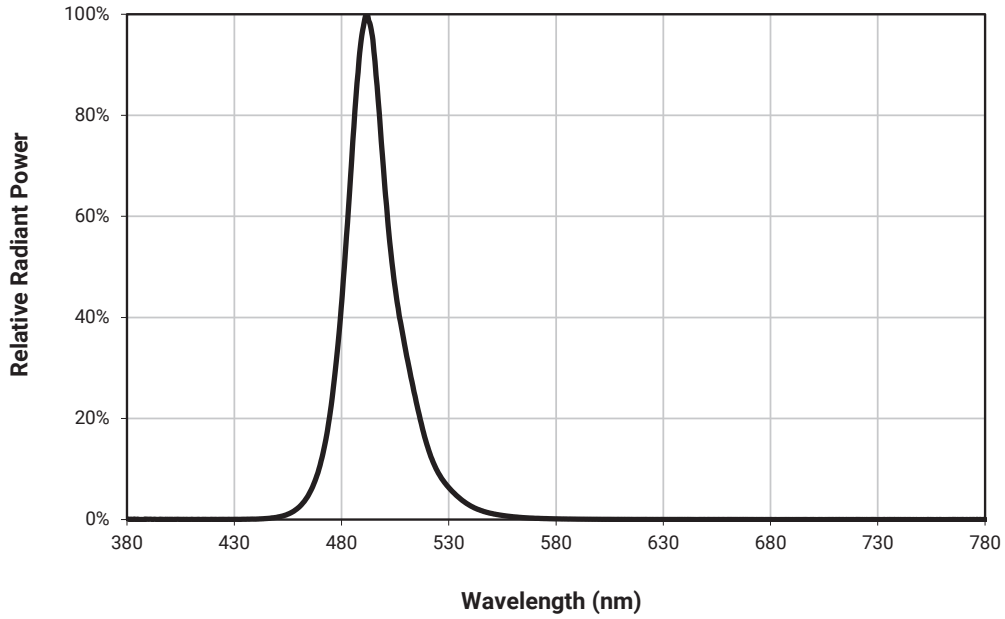
ORDER CODES SUGGESTED FOR NEW DESIGNS - CYAN ($T_j = 25\text{ }^\circ\text{C}$) - CONTINUED

| Cyan | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 002 | 490-505 | T3 | 220 | XEGACY-H0-0000-000-000000T3002 |
| | | T2 | 200 | XEGACY-H0-0000-000-000000T2002 |
| | | T1 | 180 | XEGACY-H0-0000-000-000000T1002 |
| | | S5 | 172 | XEGACY-H0-0000-000-000000S5002 |
| | | S4 | 164 | XEGACY-H0-0000-000-000000S4002 |
| 003 | 495-510 | T5 | 260 | XEGACY-H0-0000-000-000000T5003 |
| | | T4 | 240 | XEGACY-H0-0000-000-000000T4003 |
| | | T3 | 220 | XEGACY-H0-0000-000-000000T3003 |
| | | T2 | 200 | XEGACY-H0-0000-000-000000T2003 |

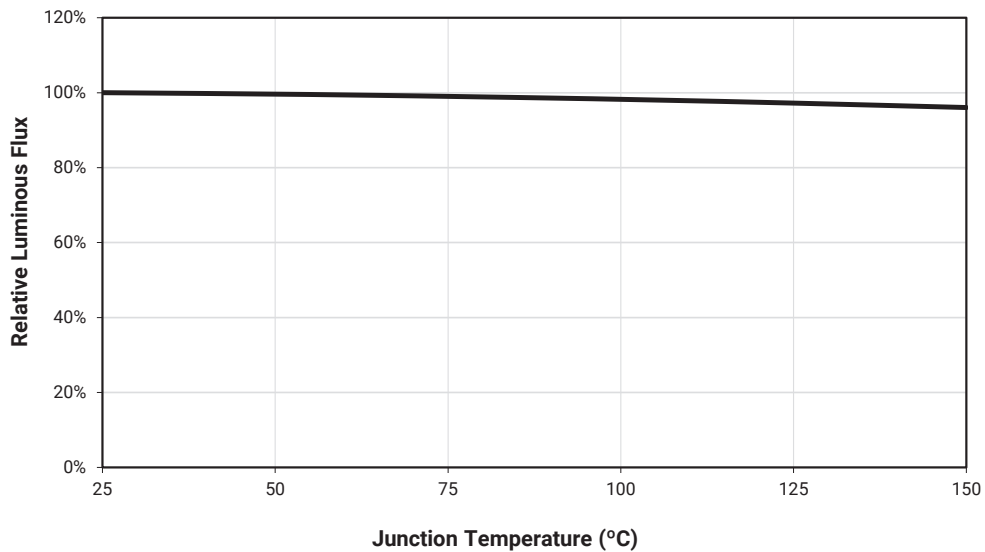
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

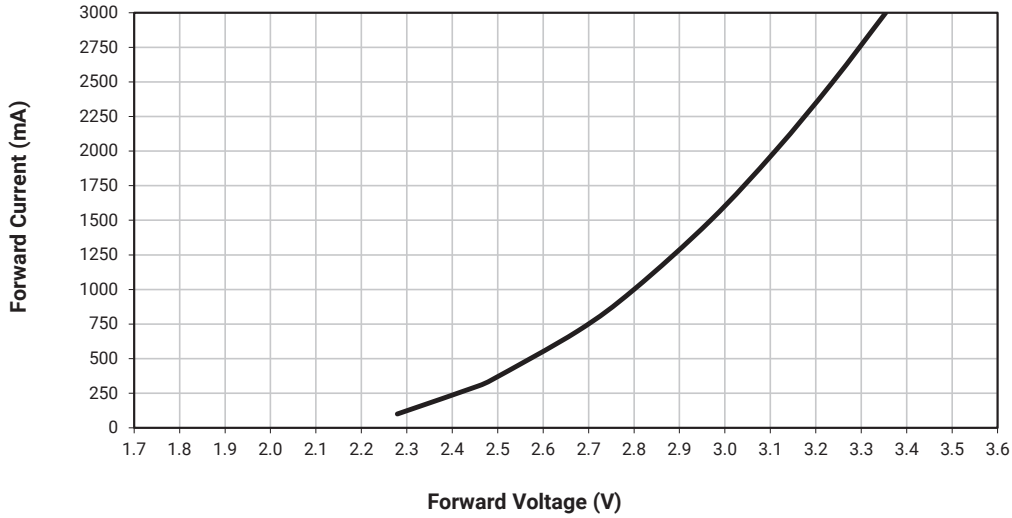
RELATIVE SPECTRAL POWER DISTRIBUTION - CYAN



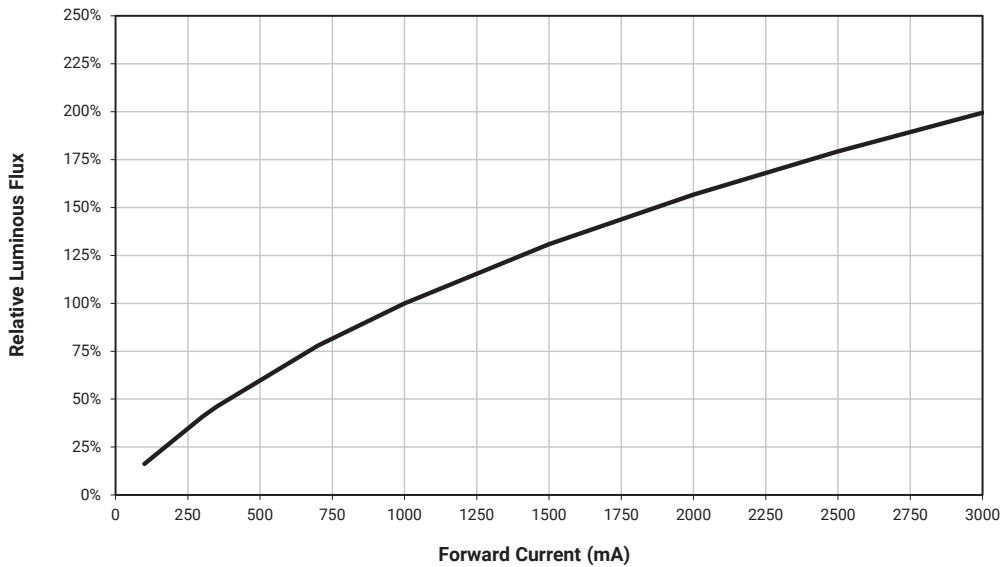
RELATIVE FLUX VS. JUNCTION TEMPERATURE - CYAN ($I_f = 1000$ mA)



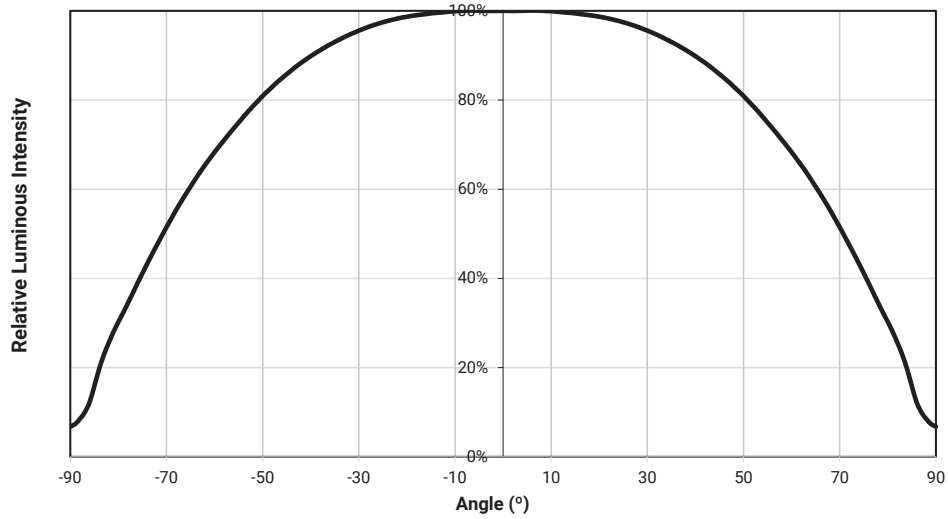
ELECTRICAL CHARACTERISTICS - CYAN ($T_J = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - CYAN ($T_J = 25\text{ }^\circ\text{C}$)

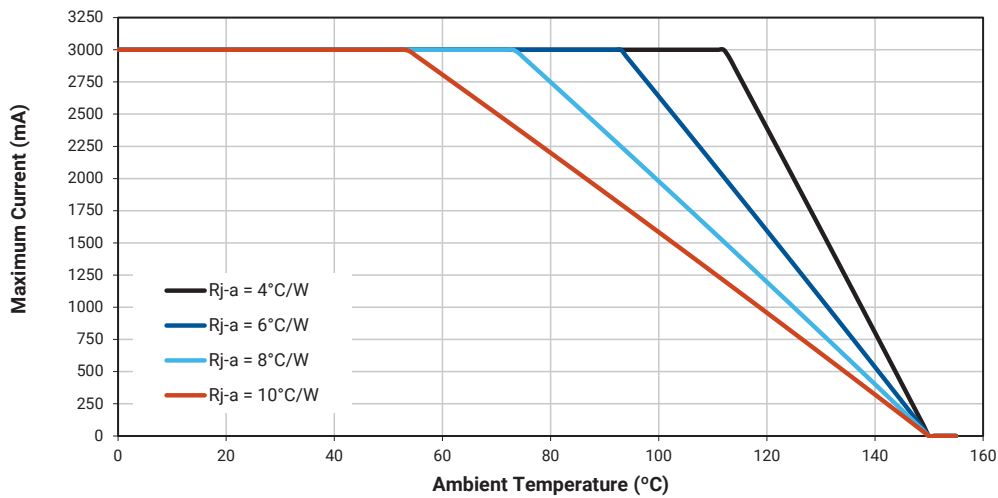


TYPICAL SPATIAL DISTRIBUTION - CYAN



THERMAL DESIGN - CYAN

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - PC CYAN

CHARACTERISTICS - PC CYAN

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.27 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.9 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.5 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - PC CYAN ($T_j = 25\text{ °C}$)

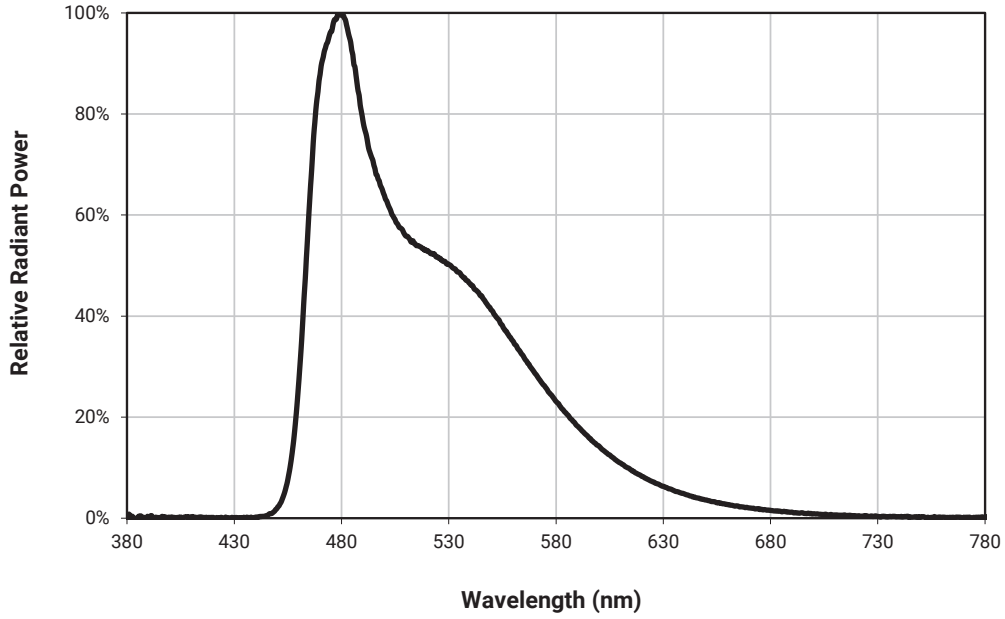
The following table provides order codes for XLamp XE-G PC cyan LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| PC Cyan | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|---------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PC0 | U3 | 320 | XEGAPC-H0-0000-000-000000U3001 |
| | | U2 | 300 | XEGAPC-H0-0000-000-000000U2001 |

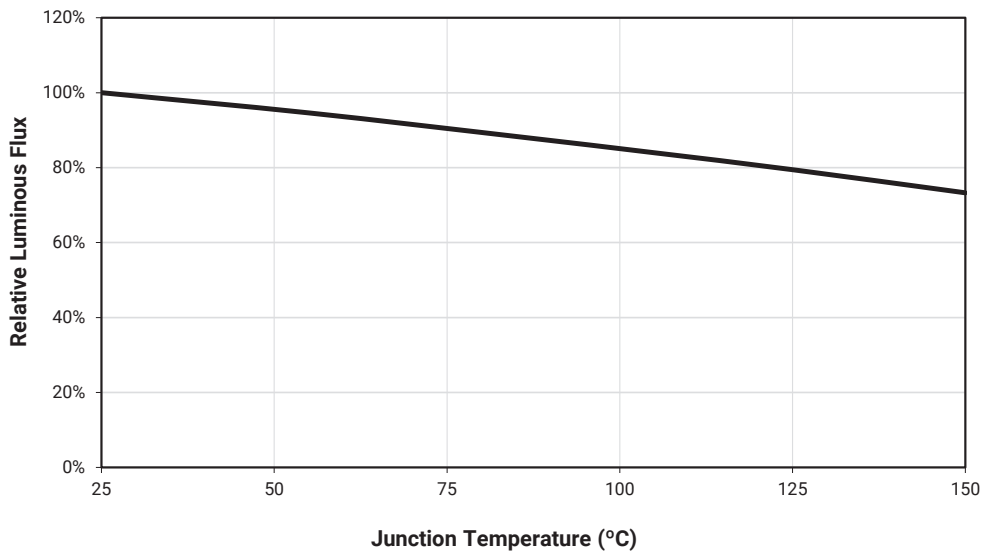
Notes

- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

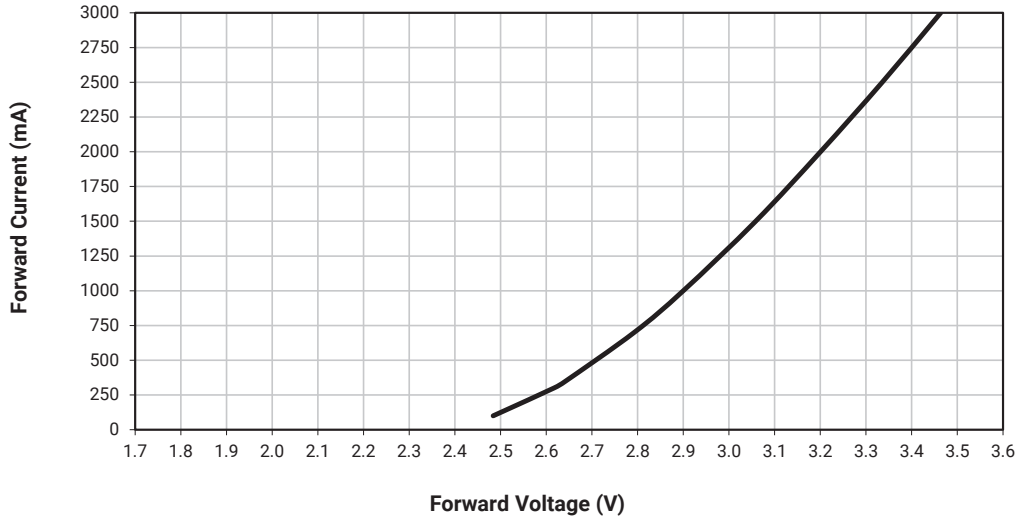
RELATIVE SPECTRAL POWER DISTRIBUTION - PC CYAN



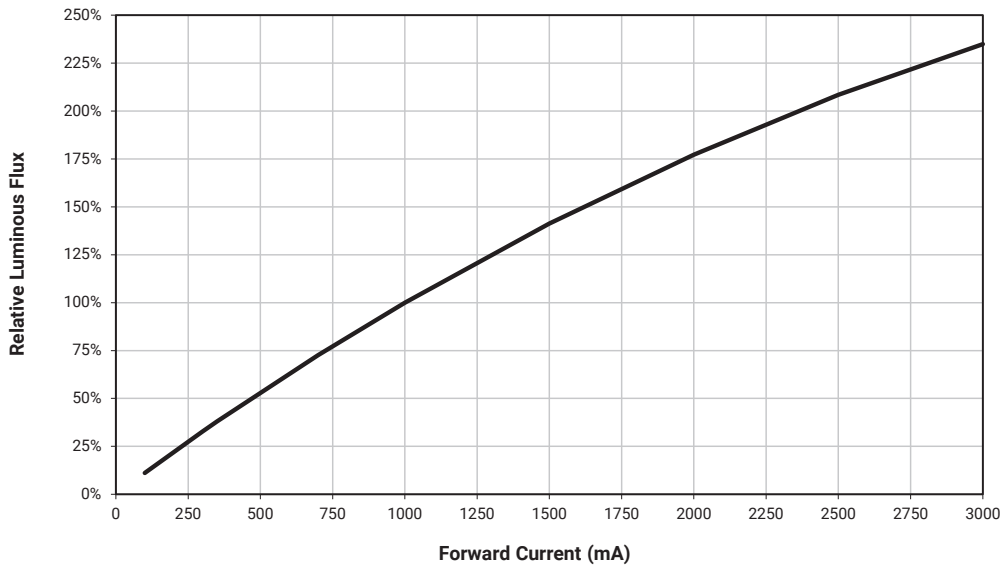
RELATIVE FLUX VS. JUNCTION TEMPERATURE - PC CYAN ($I_f = 1000\text{ mA}$)



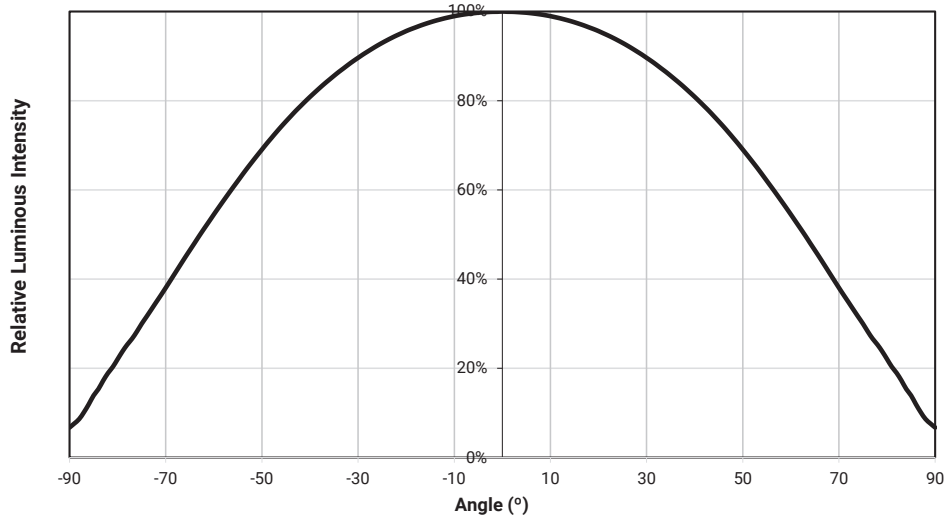
ELECTRICAL CHARACTERISTICS - PC CYAN ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - PC CYAN ($T_j = 25\text{ }^\circ\text{C}$)

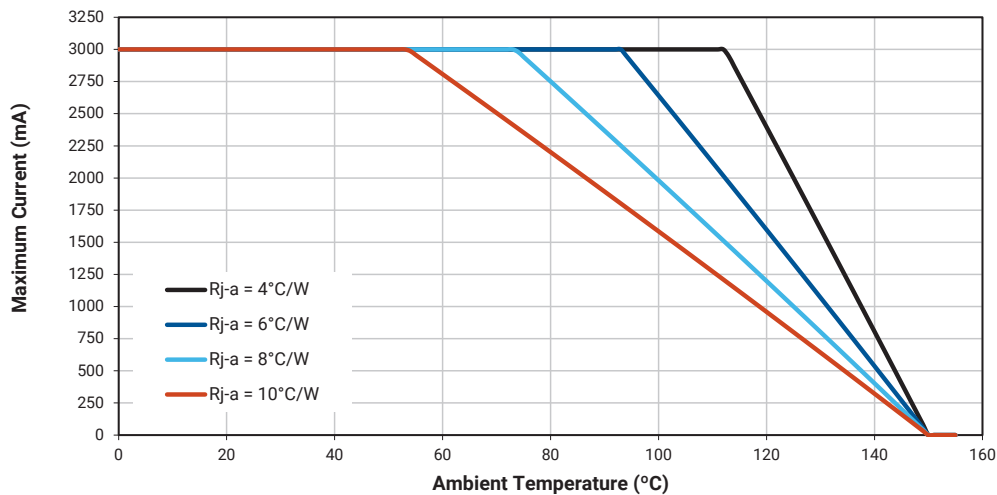


TYPICAL SPATIAL DISTRIBUTION - PC CYAN



THERMAL DESIGN - PC CYAN

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - GREEN

CHARACTERISTICS - GREEN

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 2.6 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.21 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.75 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.3 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - GREEN (T_j = 25 °C)

The following table provides order codes for XLamp XE-G green LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| Green | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|-------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 520 - 535 | V2 | 400 | XEGAGR-H0-0000-000-000000V2001 |
| | | U6 | 380 | XEGAGR-H0-0000-000-000000U6001 |
| | | U5 | 360 | XEGAGR-H0-0000-000-000000U5001 |
| | | U4 | 340 | XEGAGR-H0-0000-000-000000U4001 |
| 002 | 520 - 530 | V2 | 400 | XEGAGR-H0-0000-000-000000V2002 |
| | | U6 | 380 | XEGAGR-H0-0000-000-000000U6002 |
| | | U5 | 360 | XEGAGR-H0-0000-000-000000U5002 |
| | | U4 | 340 | XEGAGR-H0-0000-000-000000U4002 |

Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED 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. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

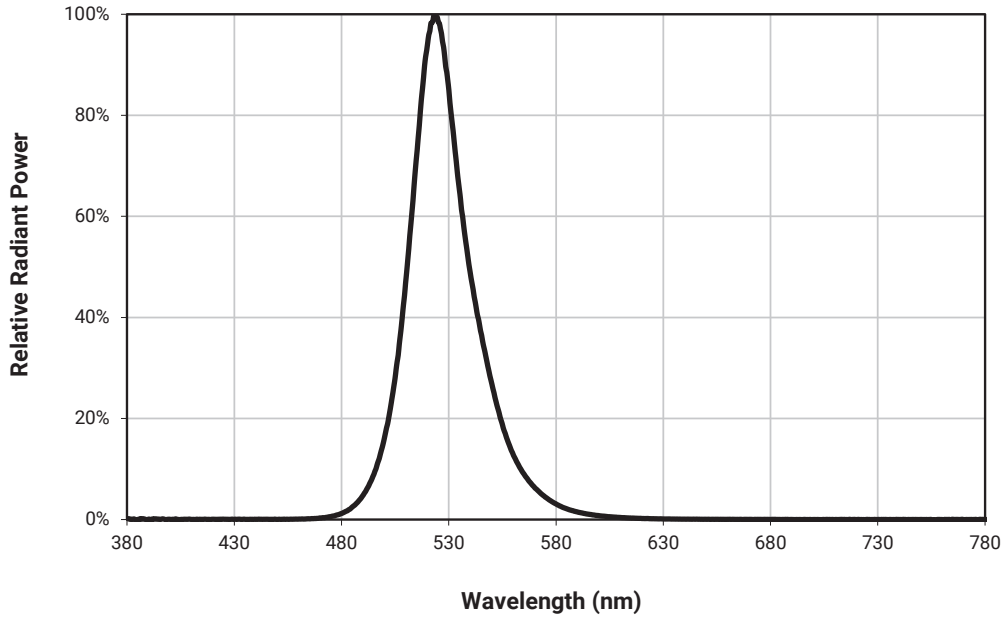
ORDER CODES SUGGESTED FOR NEW DESIGNS - GREEN ($T_j = 25\text{ }^\circ\text{C}$) - CONTINUED

| Green | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|-------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 003 | 525 - 535 | V2 | 400 | XEGAGR-H0-0000-000-000000V2003 |
| | | U6 | 380 | XEGAGR-H0-0000-000-000000U6003 |
| | | U5 | 360 | XEGAGR-H0-0000-000-000000U5003 |
| | | U4 | 340 | XEGAGR-H0-0000-000-000000U4003 |

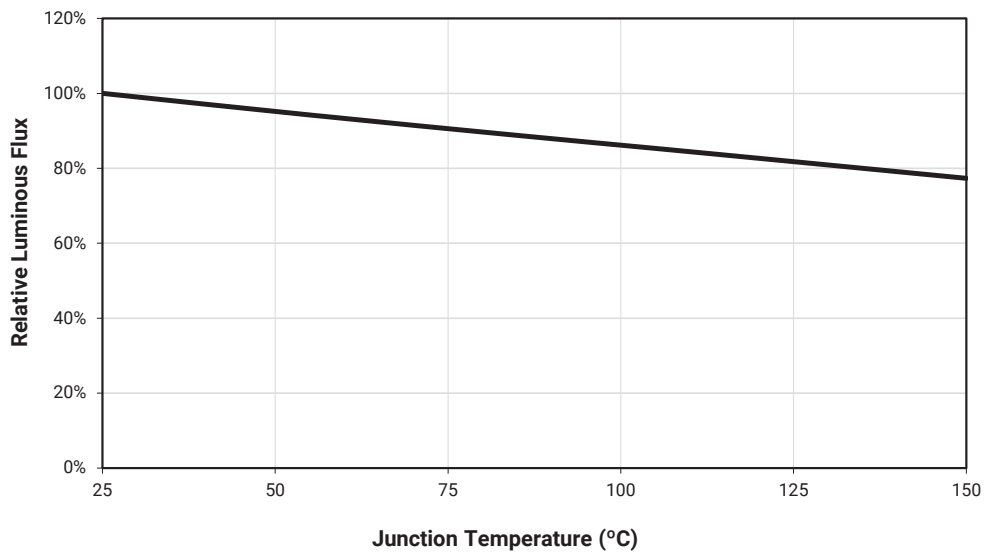
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

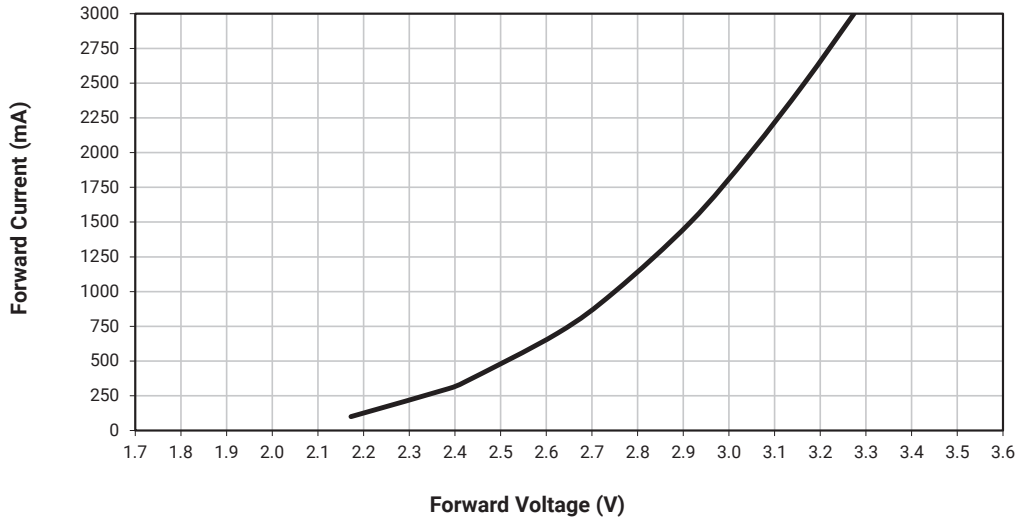
RELATIVE SPECTRAL POWER DISTRIBUTION - GREEN



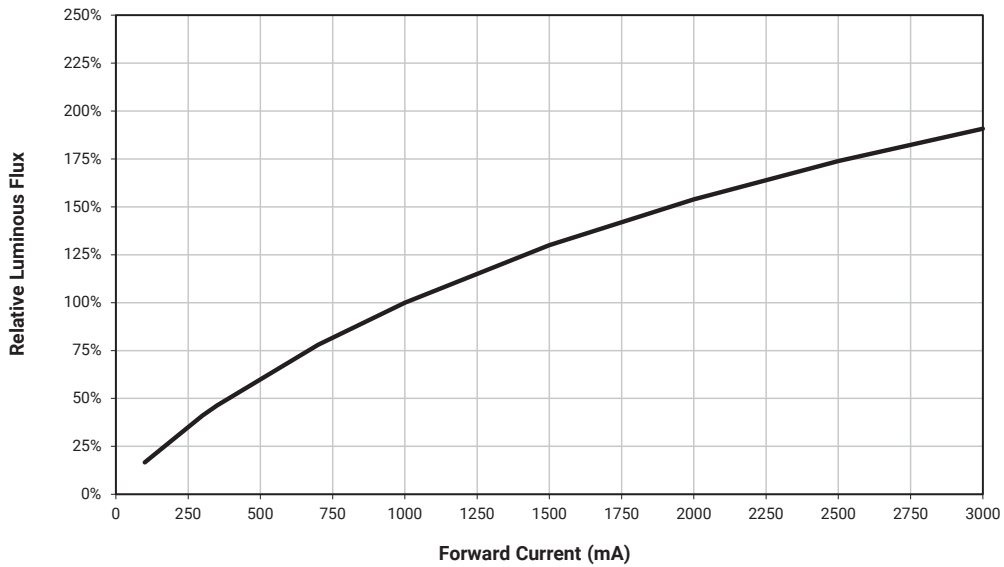
RELATIVE FLUX VS. JUNCTION TEMPERATURE - GREEN ($I_f = 1000$ mA)



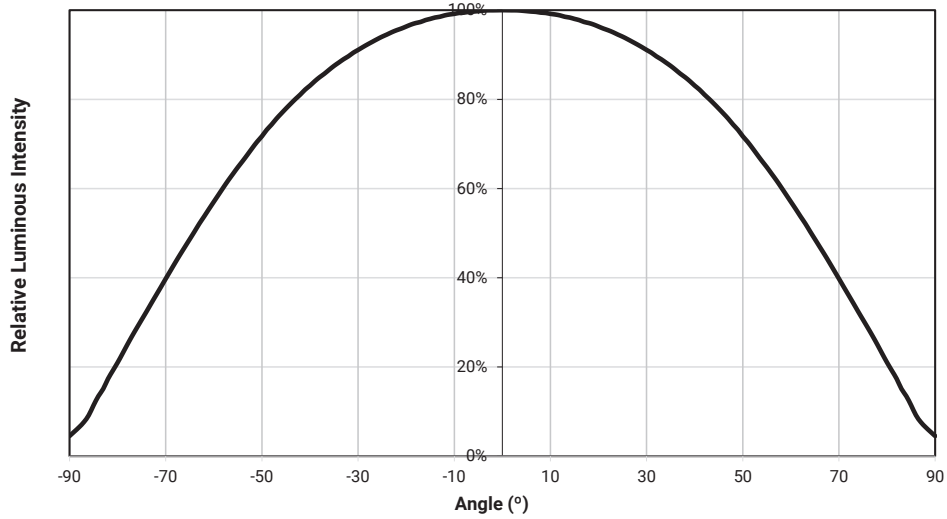
ELECTRICAL CHARACTERISTICS - GREEN ($T_J = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - GREEN ($T_J = 25\text{ }^\circ\text{C}$)

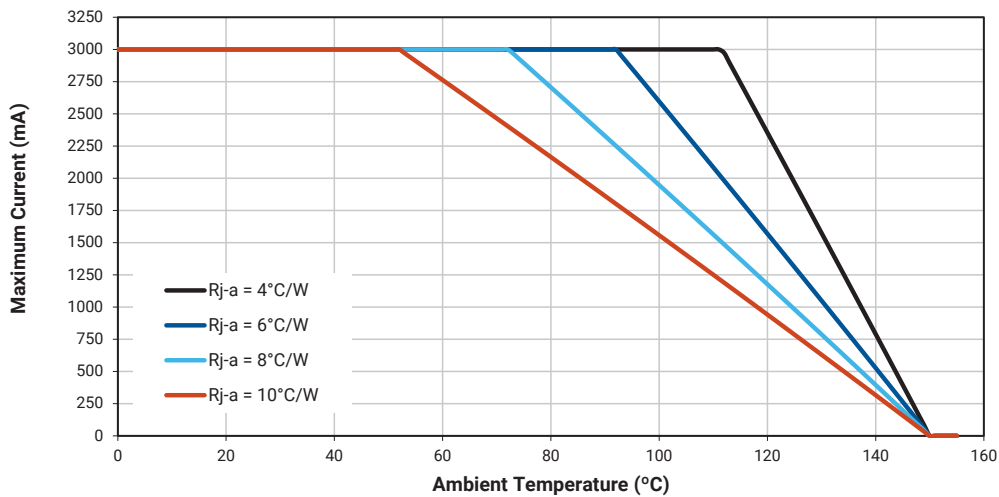


TYPICAL SPATIAL DISTRIBUTION - GREEN



THERMAL DESIGN - GREEN

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - PC MINT

CHARACTERISTICS - PC MINT

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.27 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.9 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.5 | |
| LED junction temperature | °C | | | 150 |

Note:

- Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - PC MINT (T_j = 25 °C)

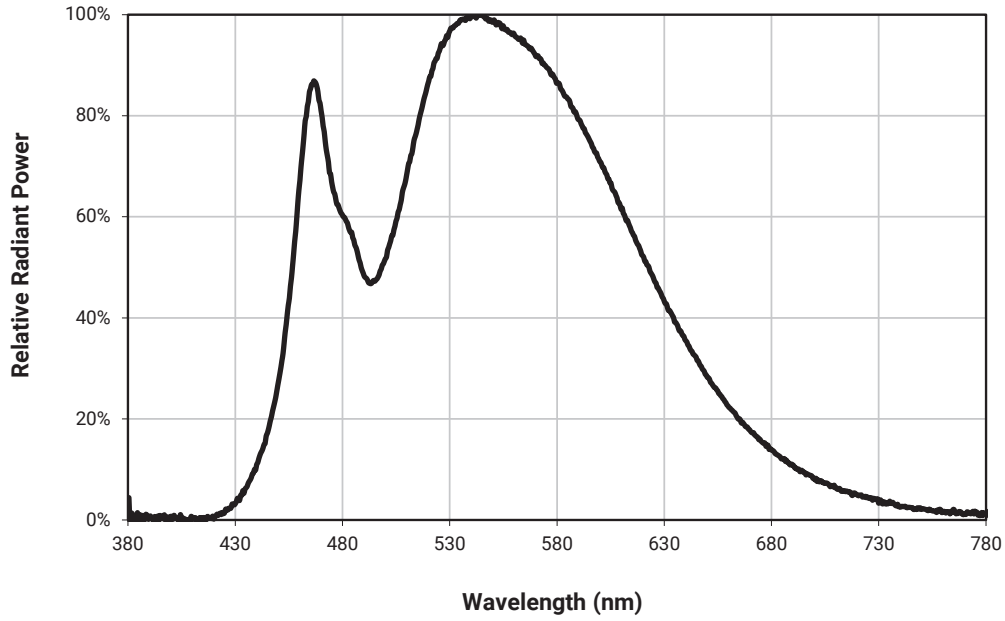
The following table provides order codes for XLamp XE-G PC mint LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| PC Mint | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|---------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PM3 & PM4 | V6 | 480 | XEGAPM-H0-0000-000-000000V6001 |
| | | V5 | 460 | XEGAPM-H0-0000-000-000000V5001 |
| | | V4 | 440 | XEGAPM-H0-0000-000-000000V4001 |
| 002 | PM3 | V4 | 440 | XEGAPM-H0-0000-000-000000V4002 |
| | | V5 | 460 | XEGAPM-H0-0000-000-000000V5002 |
| 003 | PM4 | V6 | 480 | XEGAPM-H0-0000-000-000000V6003 |
| | | V5 | 460 | XEGAPM-H0-0000-000-000000V5003 |
| | | V4 | 440 | XEGAPM-H0-0000-000-000000V4003 |

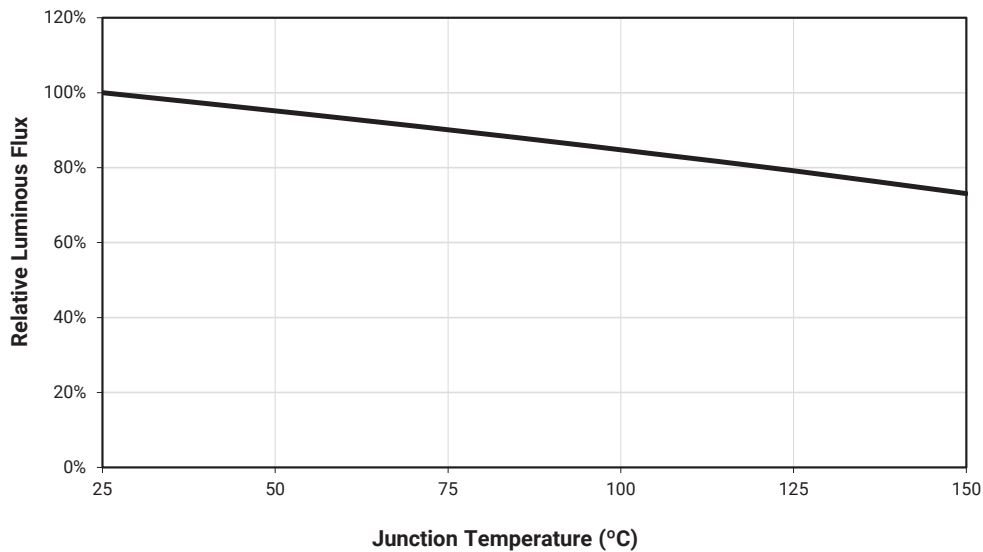
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED 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. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

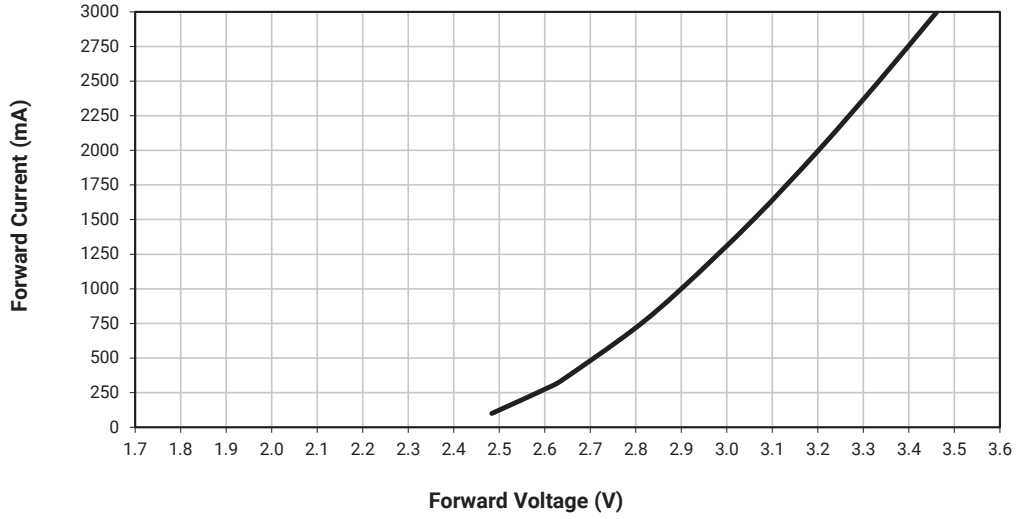
RELATIVE SPECTRAL POWER DISTRIBUTION - PC MINT



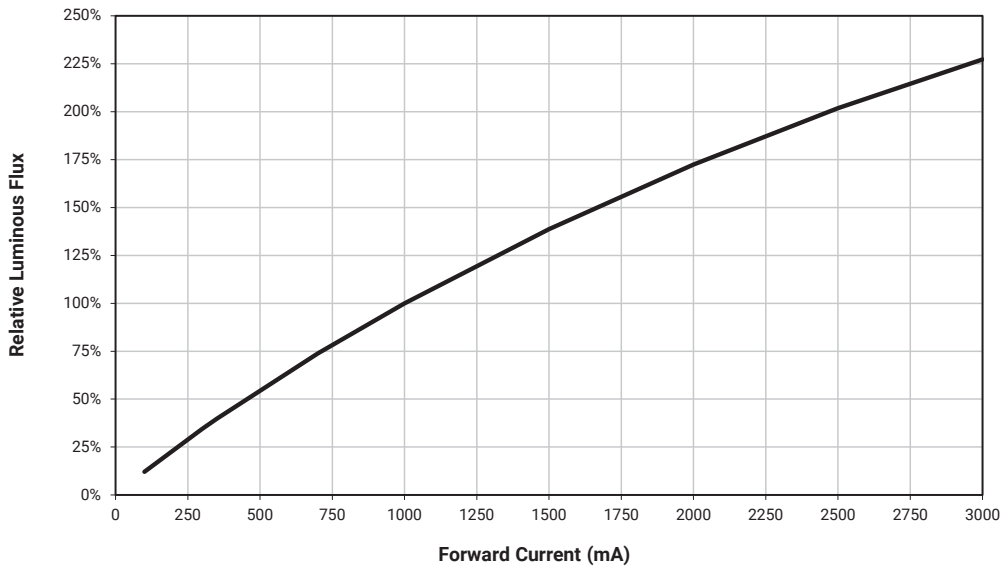
RELATIVE FLUX VS. JUNCTION TEMPERATURE - PC MINT ($I_f = 1000\text{ mA}$)



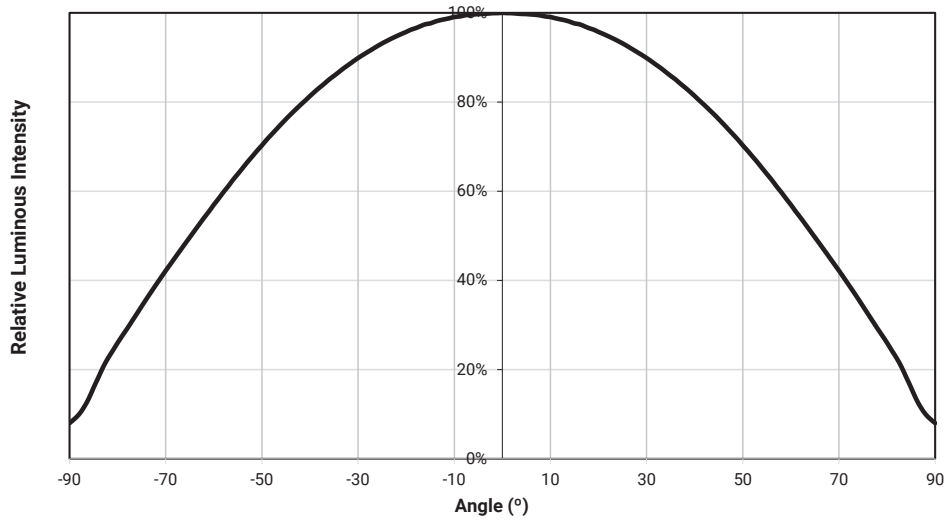
ELECTRICAL CHARACTERISTICS - PC MINT ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - PC MINT ($T_j = 25\text{ }^\circ\text{C}$)

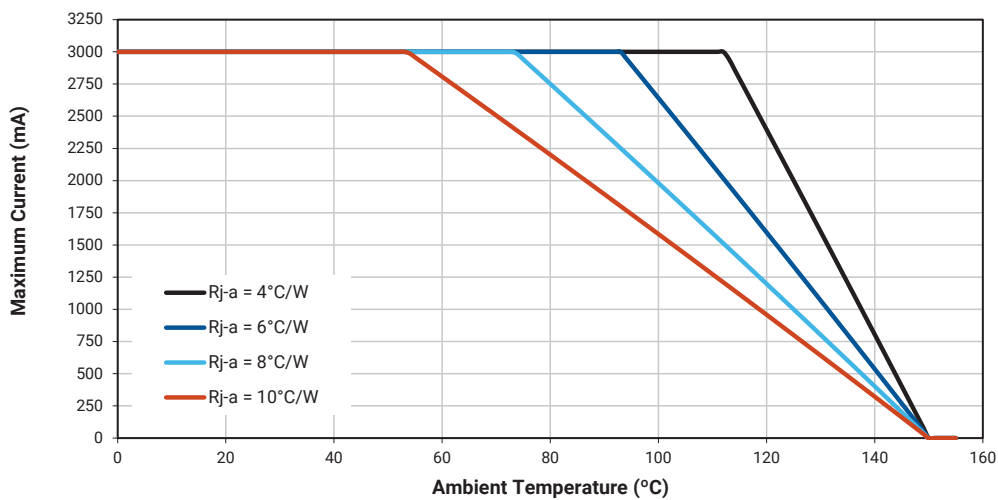


TYPICAL SPATIAL DISTRIBUTION - PC MINT



THERMAL DESIGN - PC MINT

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - PC LIME

CHARACTERISTICS - PC LIME

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.27 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.9 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.5 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - PC LIME (T_j = 25 °C)

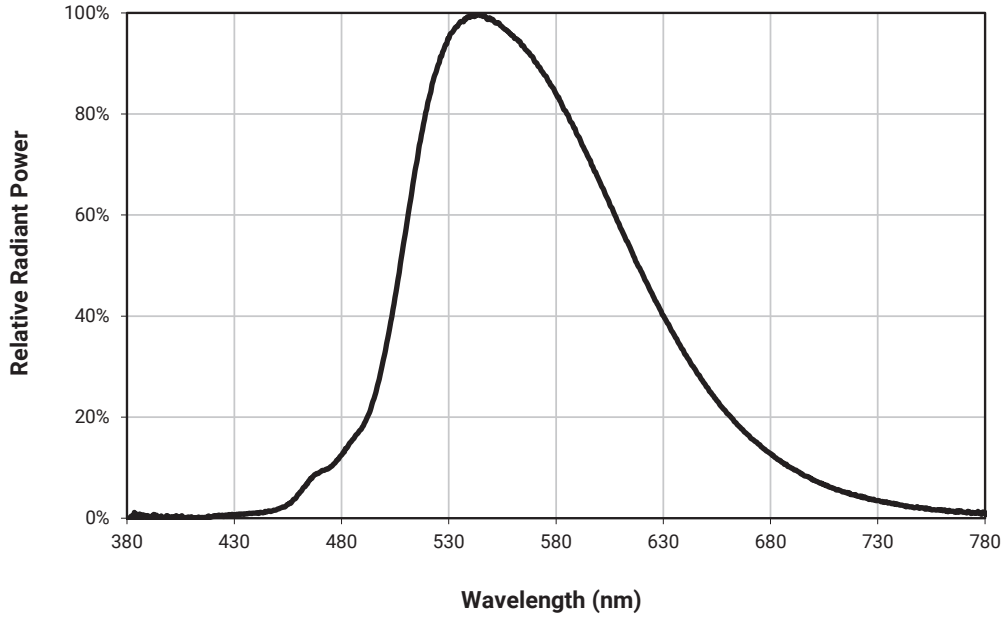
The following table provides order codes for XLamp XE-G PC lime LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| PC Lime | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|---------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PL3 & PL4 | V6 | 480 | XEGAPL-H0-0000-000-000000V6001 |
| | | V5 | 460 | XEGAPL-H0-0000-000-000000V5001 |
| | | V4 | 440 | XEGAPL-H0-0000-000-000000V4001 |
| 002 | PL3 | W2 | 500 | XEGAPL-H0-0000-000-000000W2002 |
| | | V6 | 480 | XEGAPL-H0-0000-000-000000V6002 |
| | | V5 | 460 | XEGAPL-H0-0000-000-000000V5002 |
| 003 | PL4 | V6 | 480 | XEGAPL-H0-0000-000-000000V6003 |
| | | V5 | 460 | XEGAPL-H0-0000-000-000000V5003 |
| | | V4 | 440 | XEGAPL-H0-0000-000-000000V4003 |

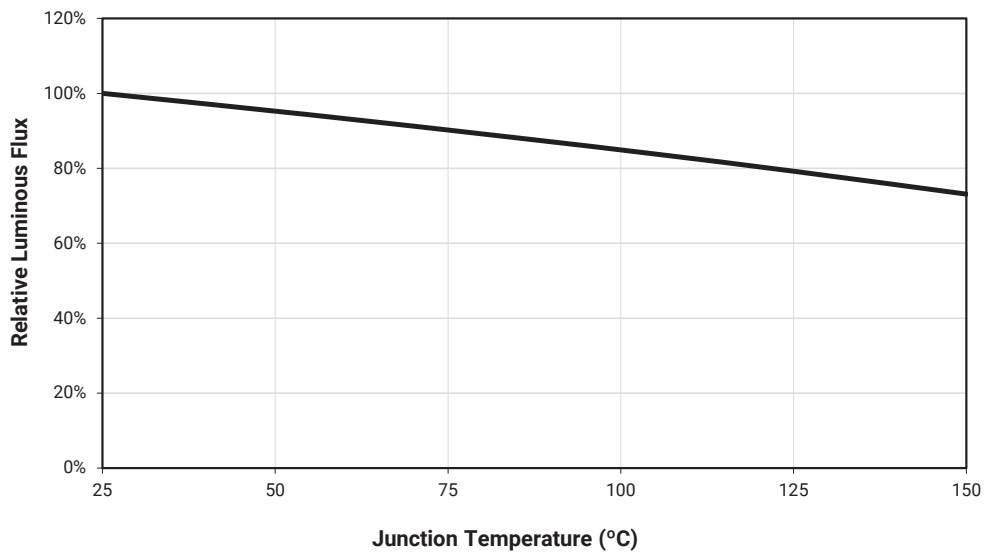
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED 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. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

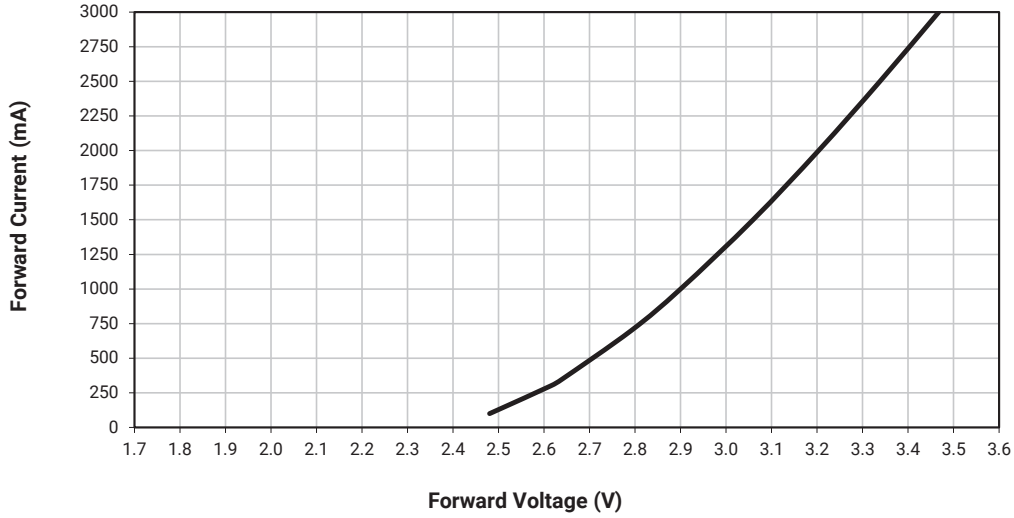
RELATIVE SPECTRAL POWER DISTRIBUTION - PC LIME



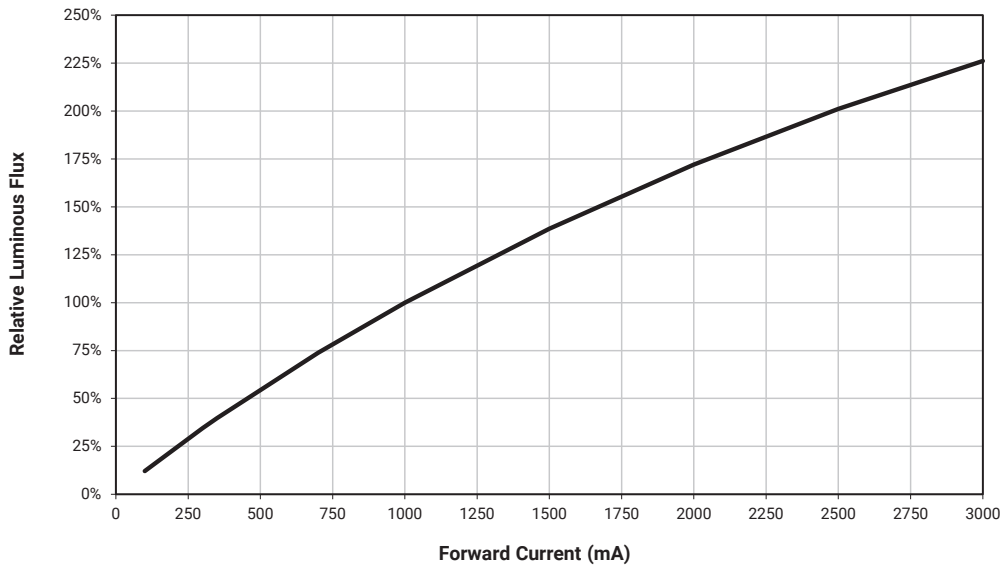
RELATIVE FLUX VS. JUNCTION TEMPERATURE - PC LIME ($I_f = 1000$ mA)



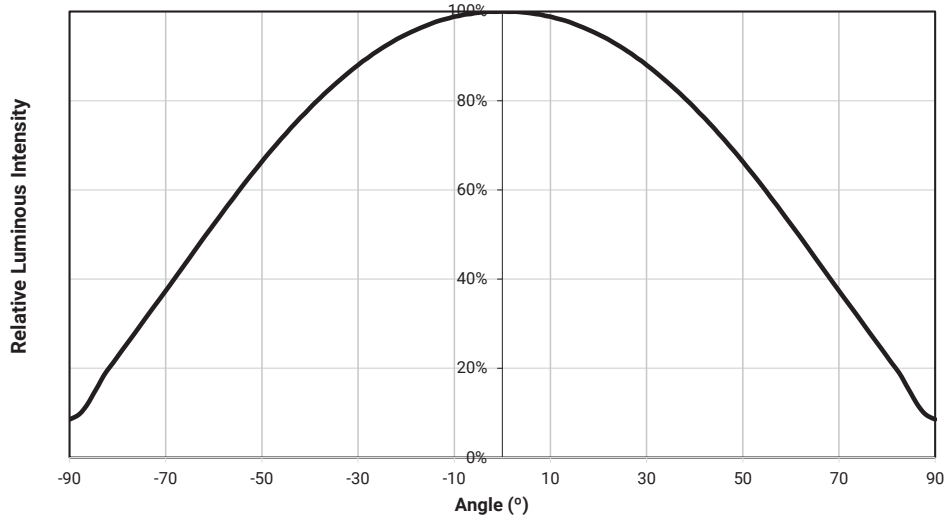
ELECTRICAL CHARACTERISTICS - PC LIME ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - PC LIME ($T_j = 25\text{ }^\circ\text{C}$)

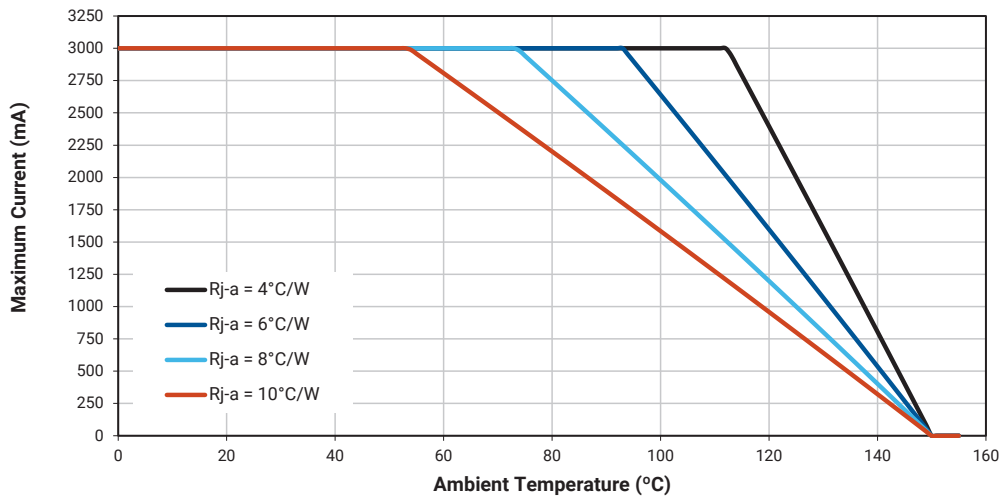


TYPICAL SPATIAL DISTRIBUTION - PC LIME



THERMAL DESIGN - PC LIME

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - PC YELLOW

CHARACTERISTICS - PC YELLOW

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.27 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 3 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.6 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - PC YELLOW ($T_j = 25\text{ °C}$)

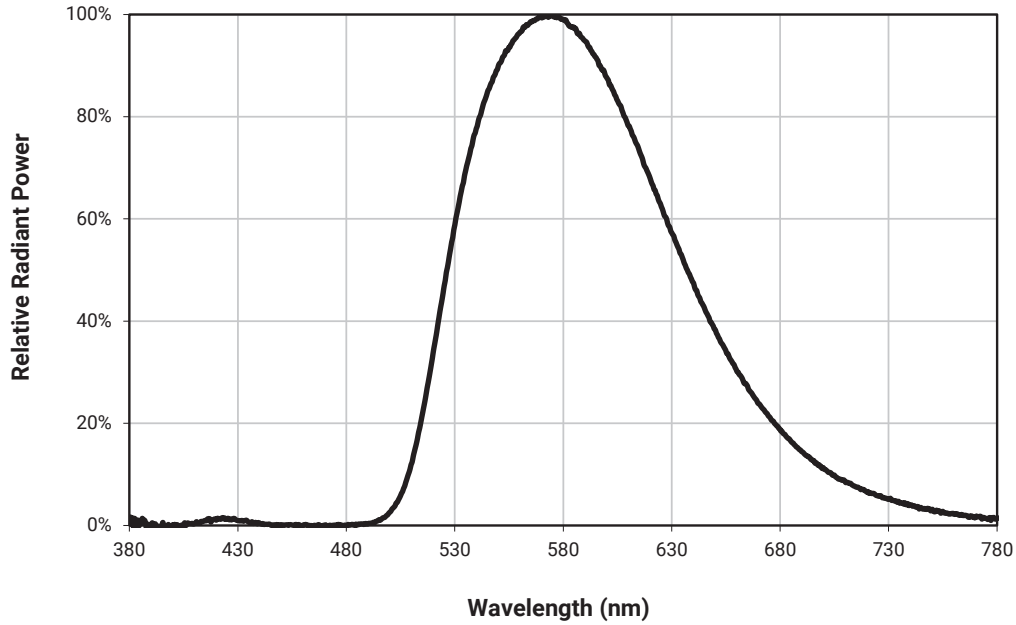
The following table provides order codes for XLamp XE-G PC yellow LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| PC Yellow | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|-----------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PY0 | V3 | 420 | XEGAPY-H0-0000-000-000000V3001 |
| | | V2 | 400 | XEGAPY-H0-0000-000-000000V2001 |

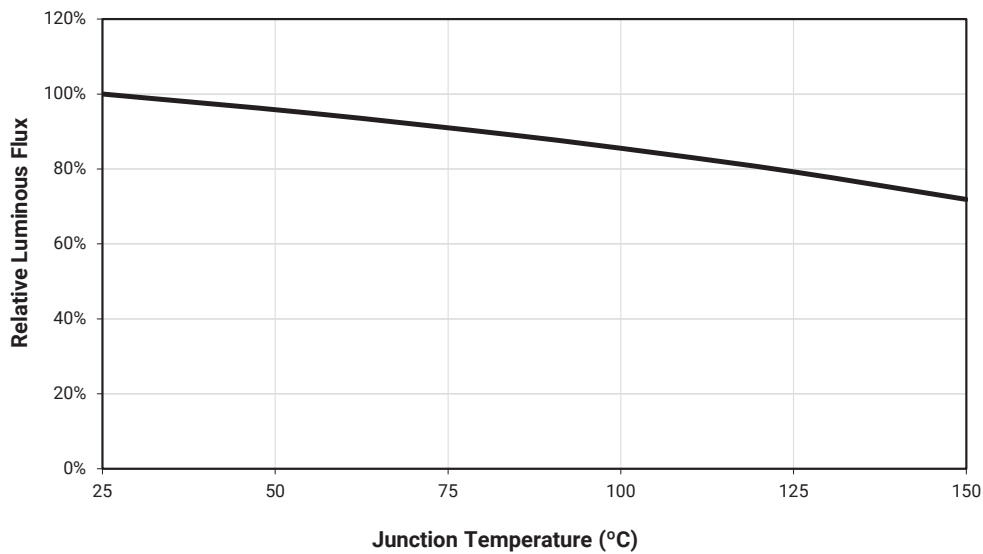
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

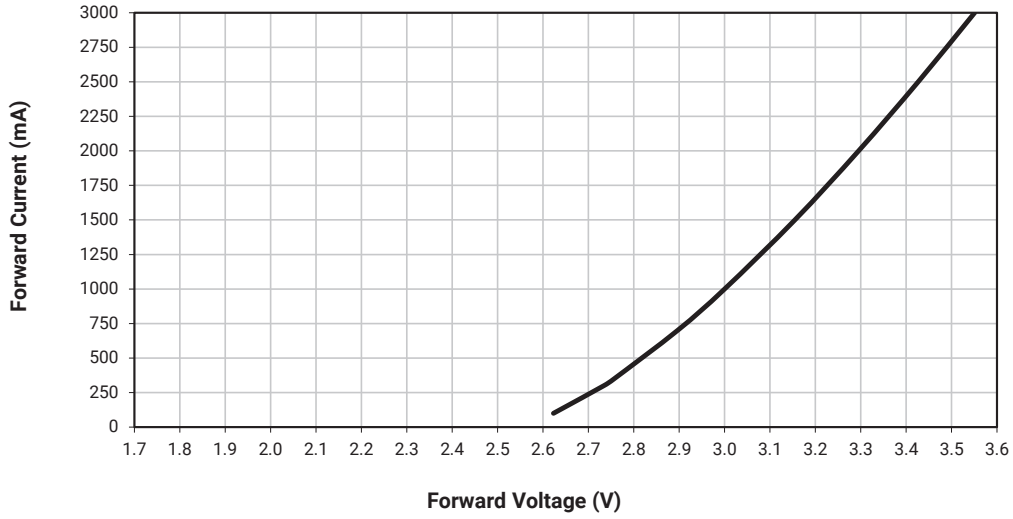
RELATIVE SPECTRAL POWER DISTRIBUTION - PC YELLOW



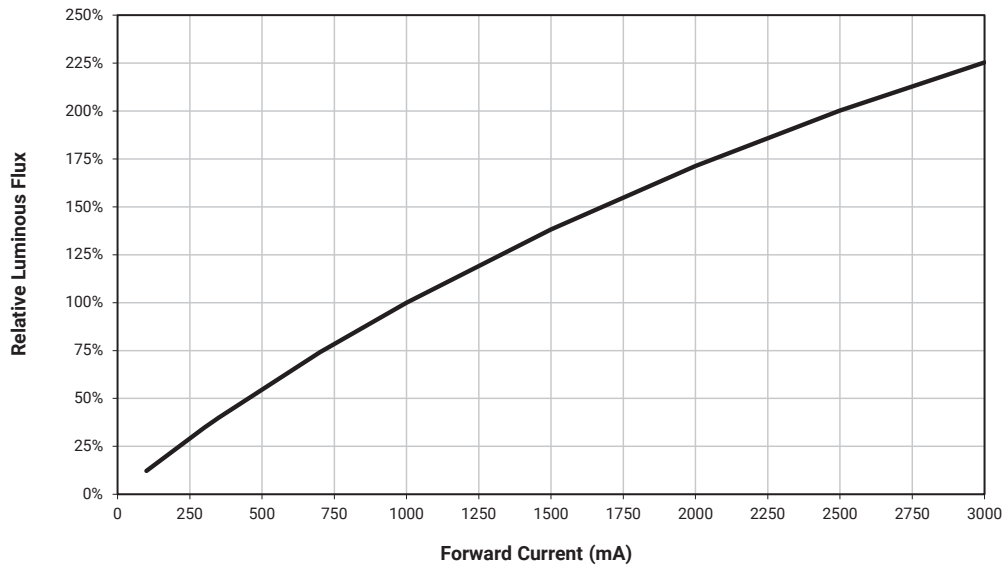
RELATIVE FLUX VS. JUNCTION TEMPERATURE - PC YELLOW ($I_f = 1000$ mA)



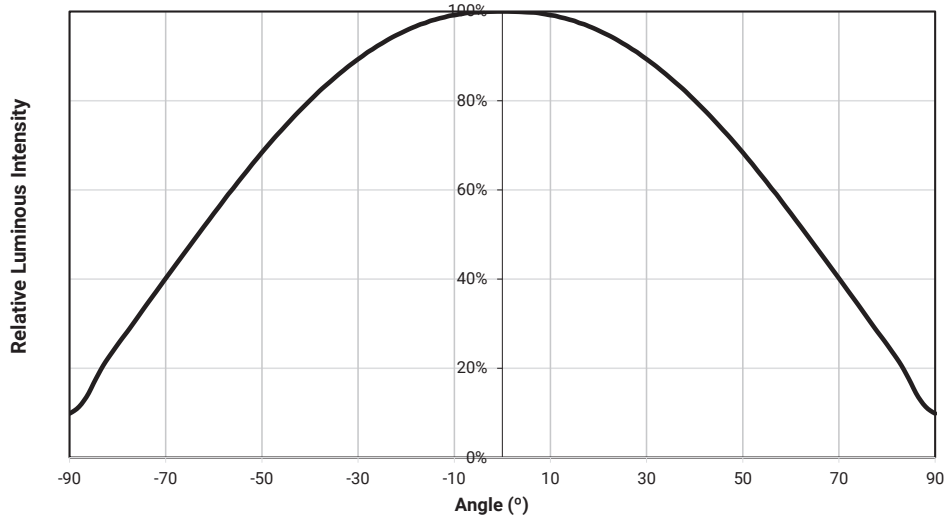
ELECTRICAL CHARACTERISTICS - PC YELLOW ($T_J = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT -PC YELLOW ($T_J = 25\text{ }^\circ\text{C}$)

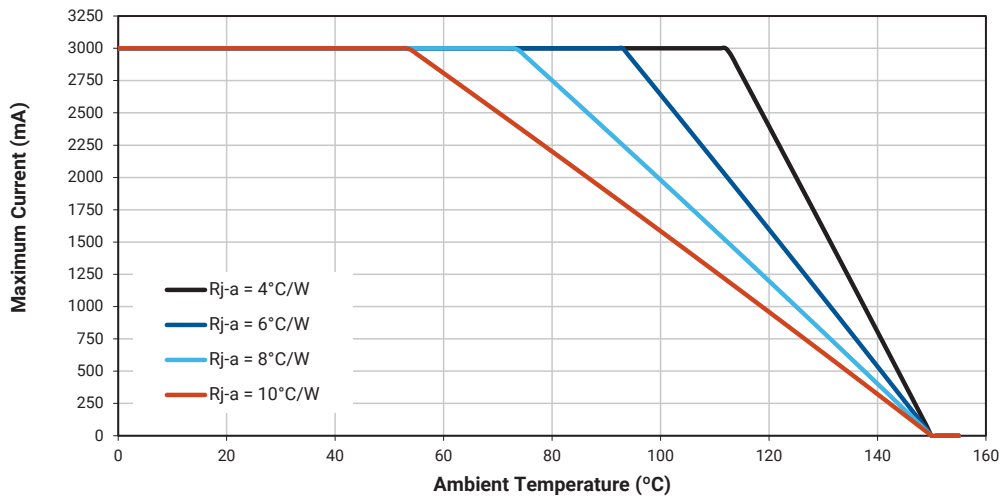


TYPICAL SPATIAL DISTRIBUTION - PC YELLOW



THERMAL DESIGN - PC YELLOW

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - AMBER

CHARACTERISTICS - AMBER

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 2.1 | |
| Viewing angle (FWHM) | degrees | | 120 | |
| Temperature coefficient of voltage | mV/°C | | -1.74 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.4 | 2.75 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.4 | |
| LED junction temperature | °C | | | 150 |

Note:
 ♦ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - AMBER (T_j = 25 °C)

The following table provides order codes for XLamp XE-G amber LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| Amber | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|-------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 585 - 595 | S2 | 148 | XEGAAM-H0-0000-000-000000S2001 |
| | | R5 | 139 | XEGAAM-H0-0000-000-000000R5001 |
| | | R4 | 130 | XEGAAM-H0-0000-000-000000R4001 |
| | | R3 | 122 | XEGAAM-H0-0000-000-000000R3001 |
| | | R2 | 114 | XEGAAM-H0-0000-000-000000R2001 |
| 002 | 585-590 | R4 | 130 | XEGAAM-H0-0000-000-000000R4002 |
| | | R3 | 122 | XEGAAM-H0-0000-000-000000R3002 |
| | | R2 | 114 | XEGAAM-H0-0000-000-000000R2002 |

- Notes
- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
 - Cree LED 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. See the Measurements section (page 104).
 - XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

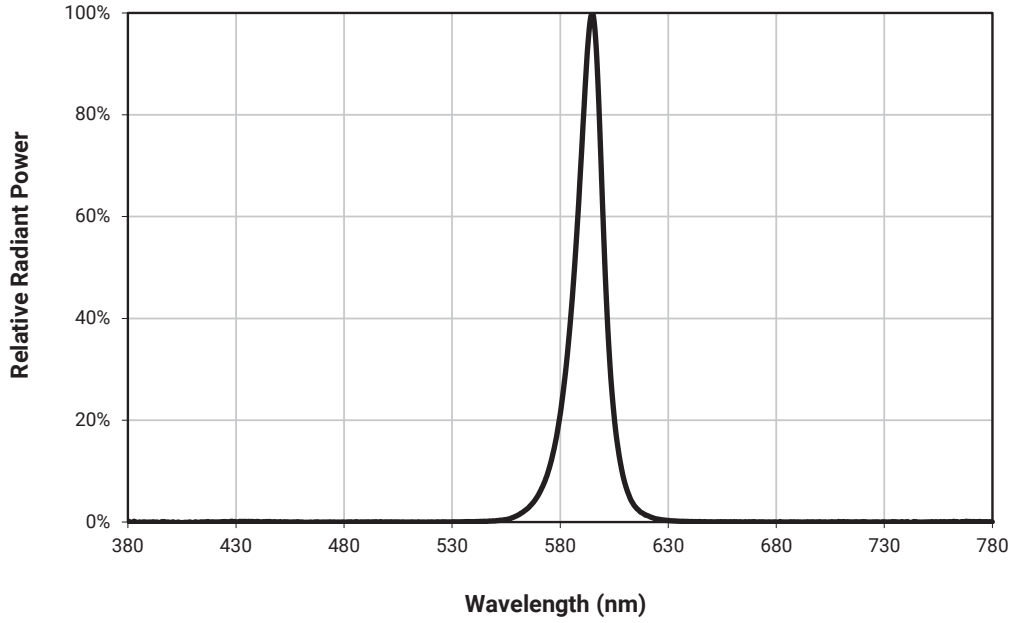
ORDER CODES SUGGESTED FOR NEW DESIGNS - AMBER ($T_j = 25\text{ }^\circ\text{C}$)

| Amber | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|-------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 003 | 590-595 | S2 | 148 | XEGAAM-H0-0000-000-000000S2003 |
| | | R5 | 139 | XEGAAM-H0-0000-000-000000R5003 |
| | | R4 | 130 | XEGAAM-H0-0000-000-000000R4003 |
| | | R3 | 122 | XEGAAM-H0-0000-000-000000R3003 |

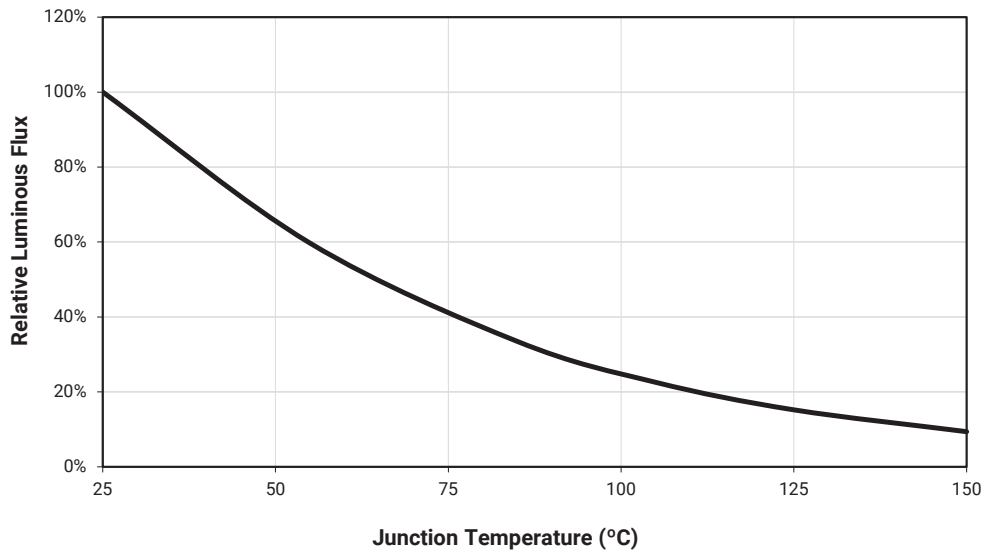
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

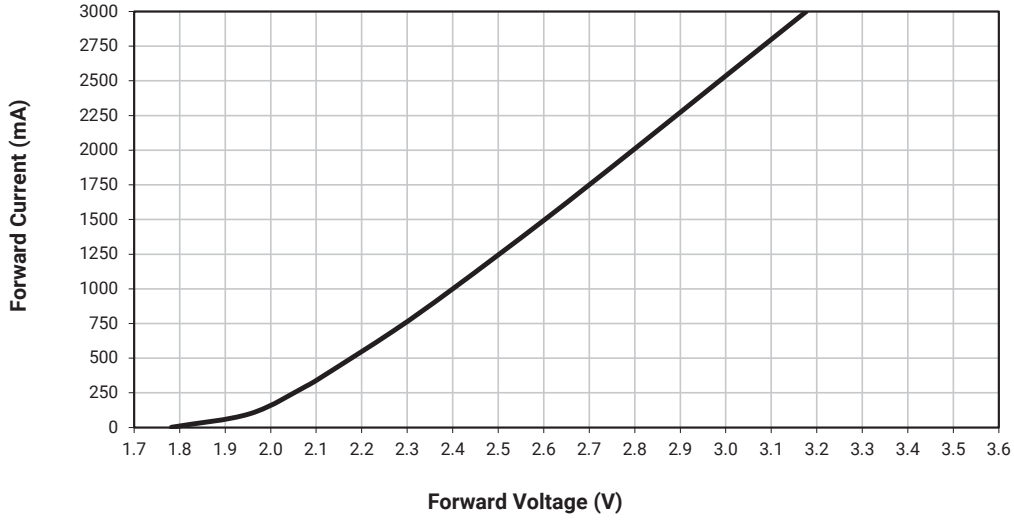
RELATIVE SPECTRAL POWER DISTRIBUTION - AMBER



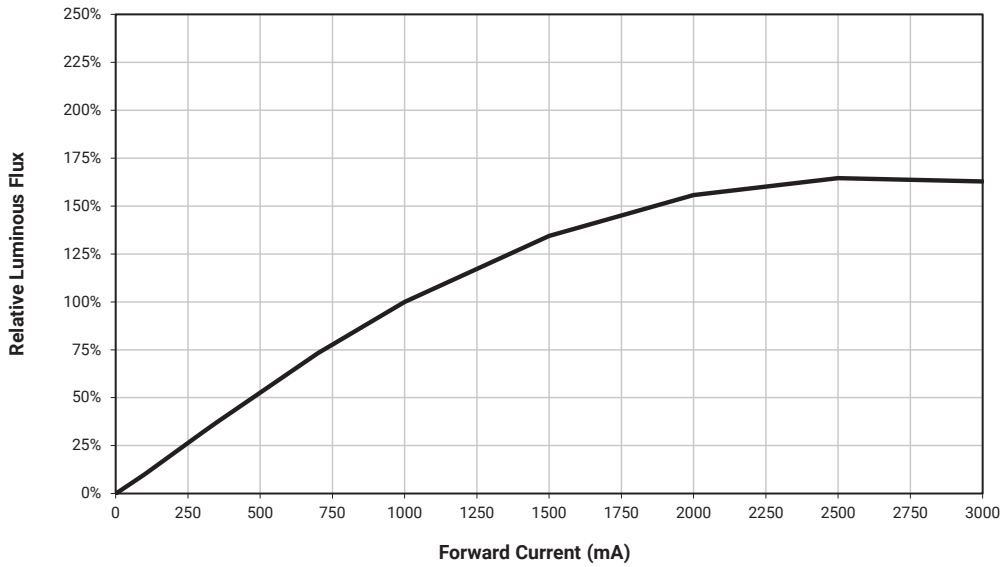
RELATIVE FLUX VS. JUNCTION TEMPERATURE - AMBER ($I_F = 1000 \text{ mA}$)



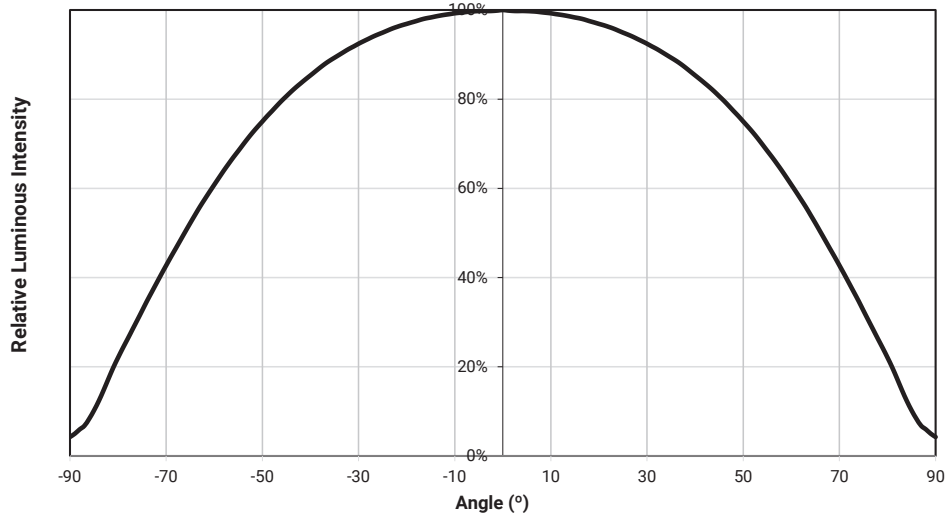
ELECTRICAL CHARACTERISTICS - AMBER ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - AMBER ($T_j = 25\text{ }^\circ\text{C}$)

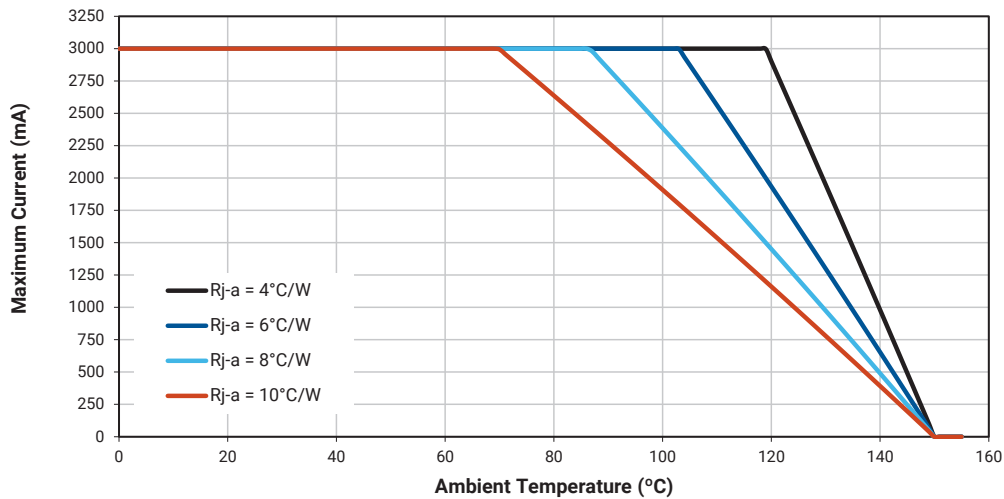


TYPICAL SPATIAL DISTRIBUTION - AMBER



THERMAL DESIGN - AMBER

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - PC AMBER

CHARACTERISTICS - PC AMBER

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.27 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 3 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.6 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - PC AMBER (T_j = 25 °C)

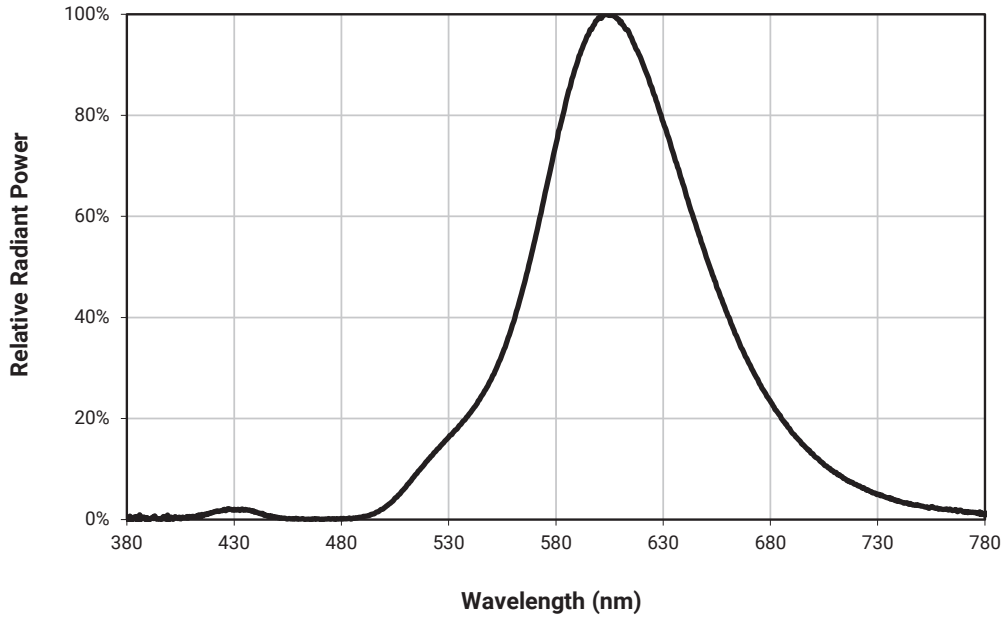
The following table provides order codes for XLamp XE-G PC amber LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| PC Amber | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|----------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | Y20 | T6 | 280 | XEGAPA-H0-0000-000-000000T6001 |
| | | T5 | 260 | XEGAPA-H0-0000-000-000000T5001 |
| | | T4 | 240 | XEGAPA-H0-0000-000-000000T4001 |

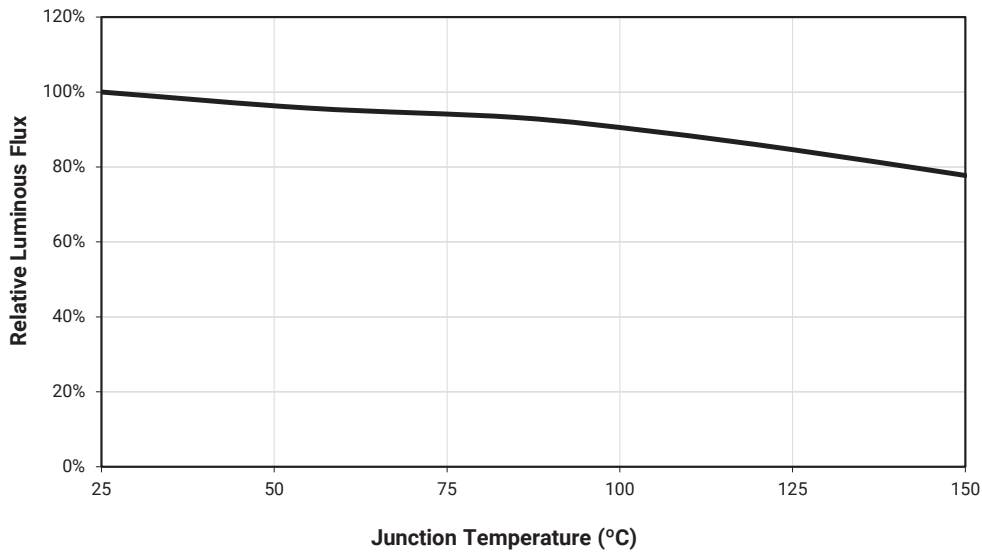
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED 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. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

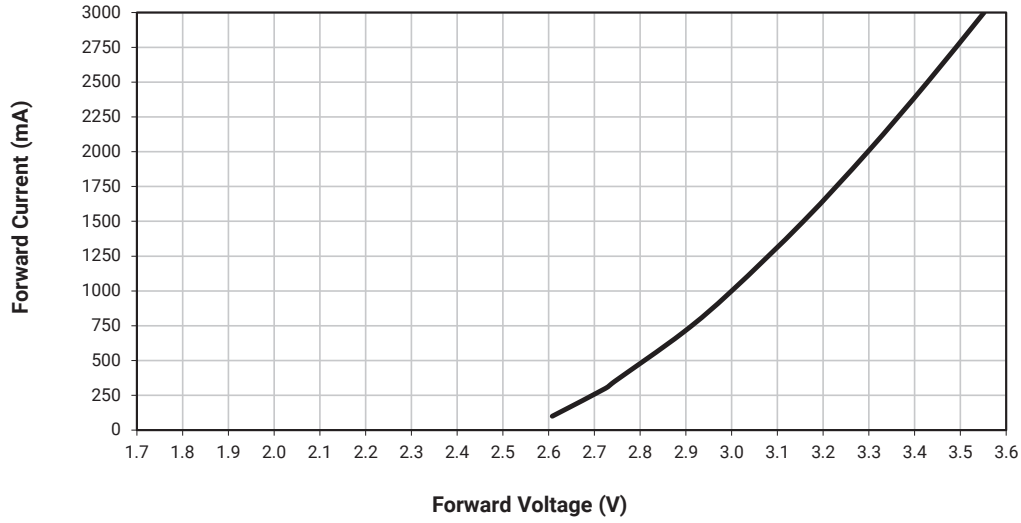
RELATIVE SPECTRAL POWER DISTRIBUTION - PC AMBER



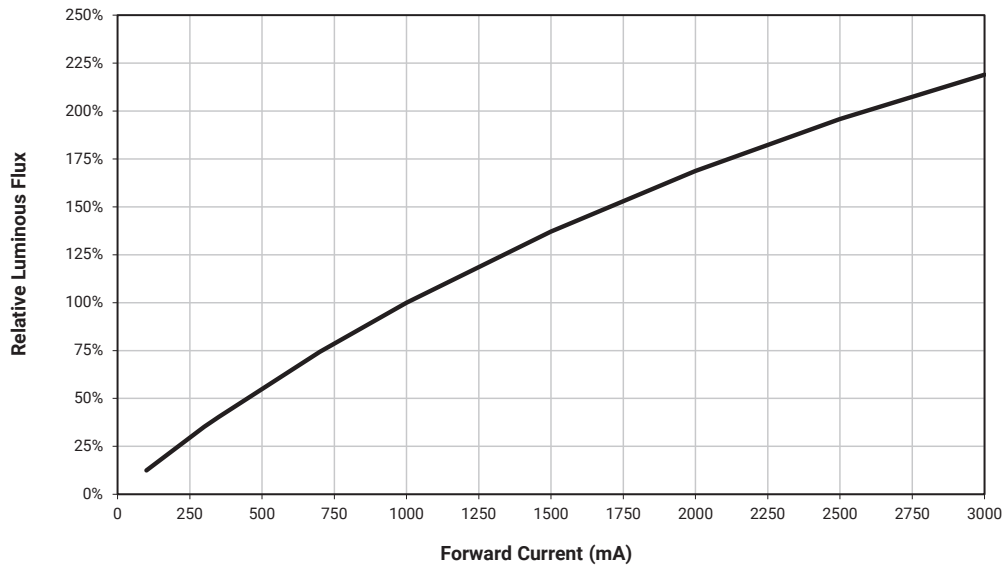
RELATIVE FLUX VS. JUNCTION TEMPERATURE - PC AMBER ($I_f = 1000$ mA)



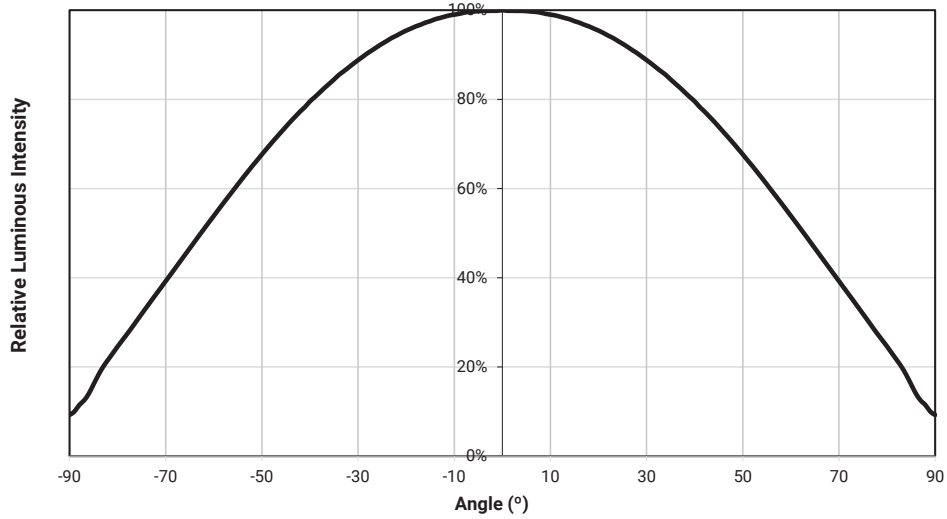
ELECTRICAL CHARACTERISTICS - PC AMBER ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT -PC AMBER ($T_j = 25\text{ }^\circ\text{C}$)

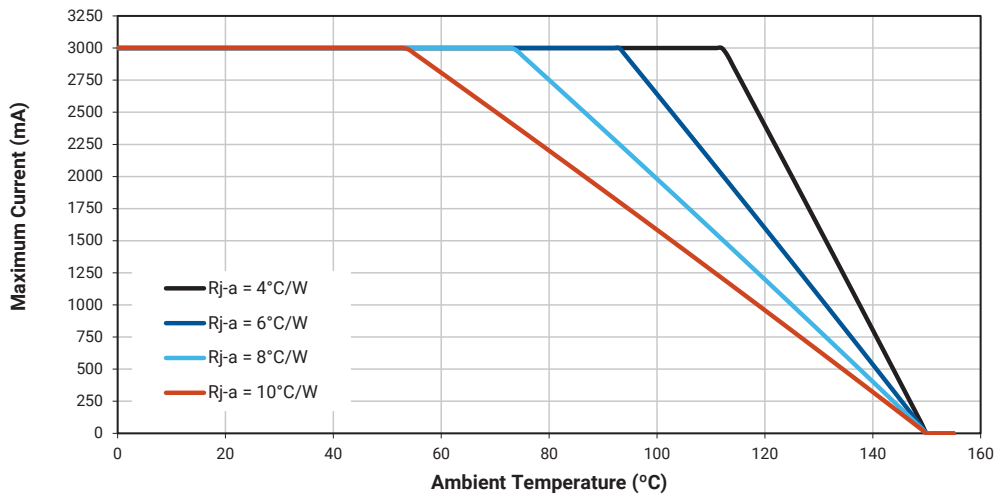


TYPICAL SPATIAL DISTRIBUTION - PC AMBER



THERMAL DESIGN - PC AMBER

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - RED-ORANGE

CHARACTERISTICS - RED-ORANGE

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 2.1 | |
| Viewing angle (FWHM) | degrees | | 120 | |
| Temperature coefficient of voltage | mV/°C | | -1.74 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.4 | 2.75 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.2 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - RED-ORANGE ($T_j = 25\text{ °C}$)

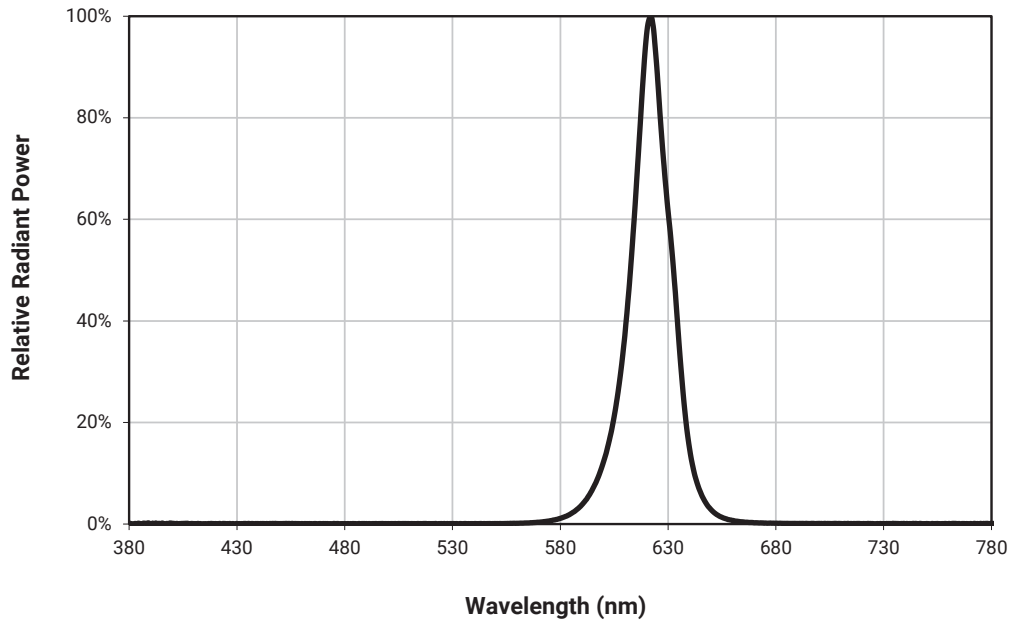
The following table provides order codes for XLamp XE-G red-orange LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| Red-Orange | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|------------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 610 - 620 | T2 | 200 | XEGARO-H0-0000-000-000000T2001 |
| | | T1 | 180 | XEGARO-H0-0000-000-000000T1001 |

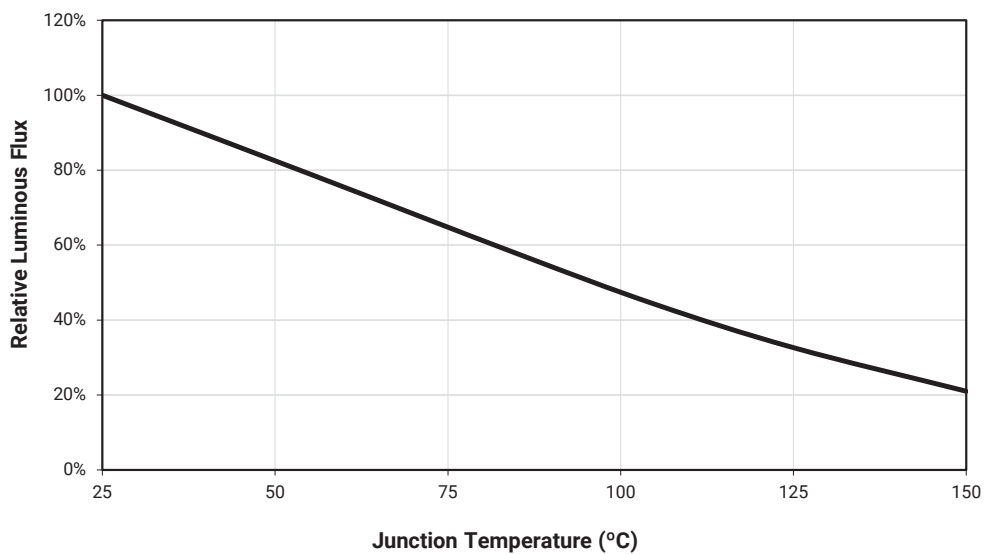
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

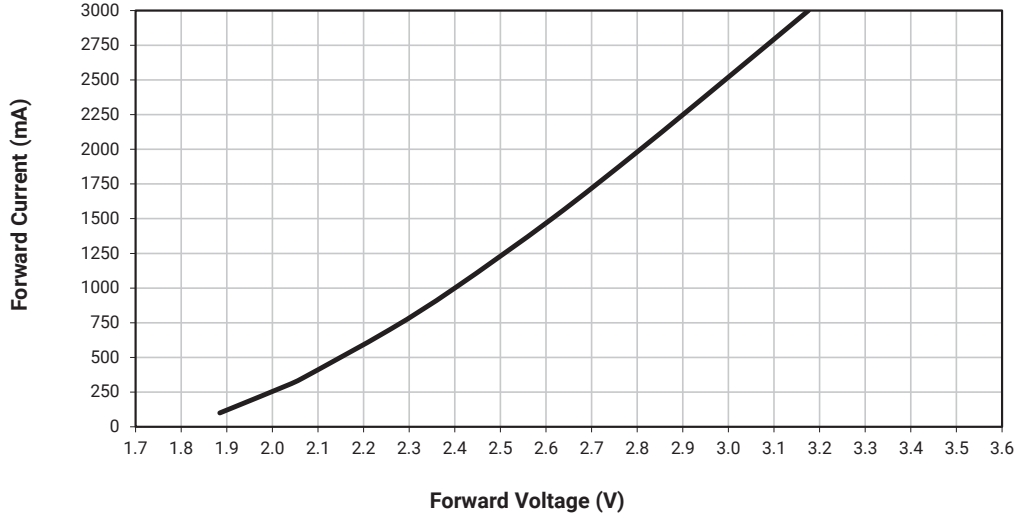
RELATIVE SPECTRAL POWER DISTRIBUTION - RED-ORANGE



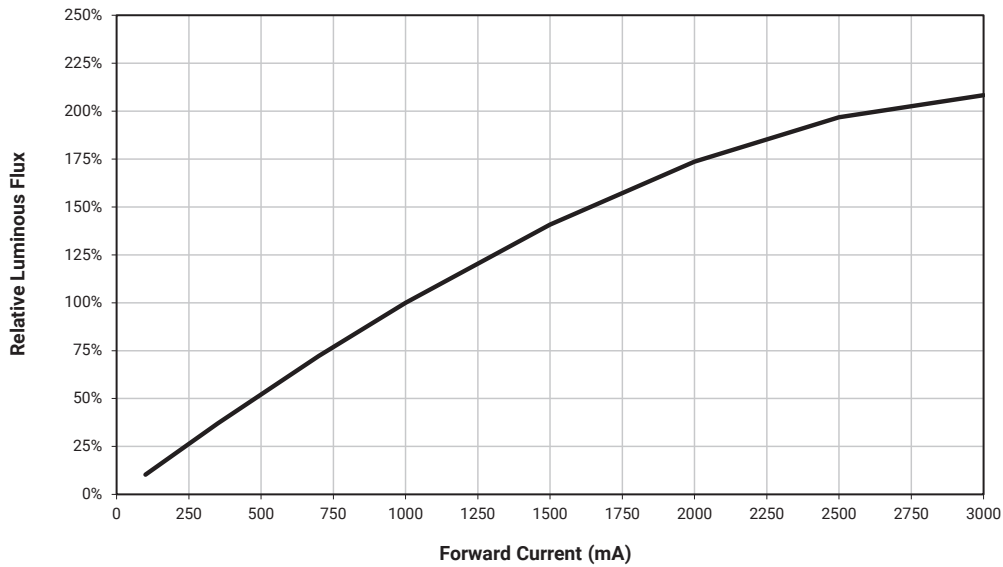
RELATIVE FLUX VS. JUNCTION TEMPERATURE - RED-ORANGE ($I_f = 1000$ mA)



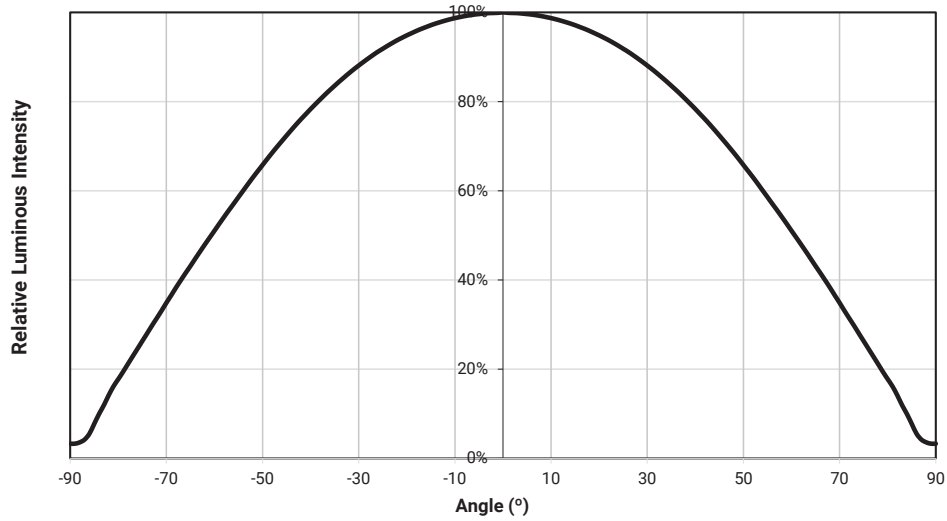
ELECTRICAL CHARACTERISTICS - RED-ORANGE ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - RED-ORANGE ($T_j = 25\text{ }^\circ\text{C}$)

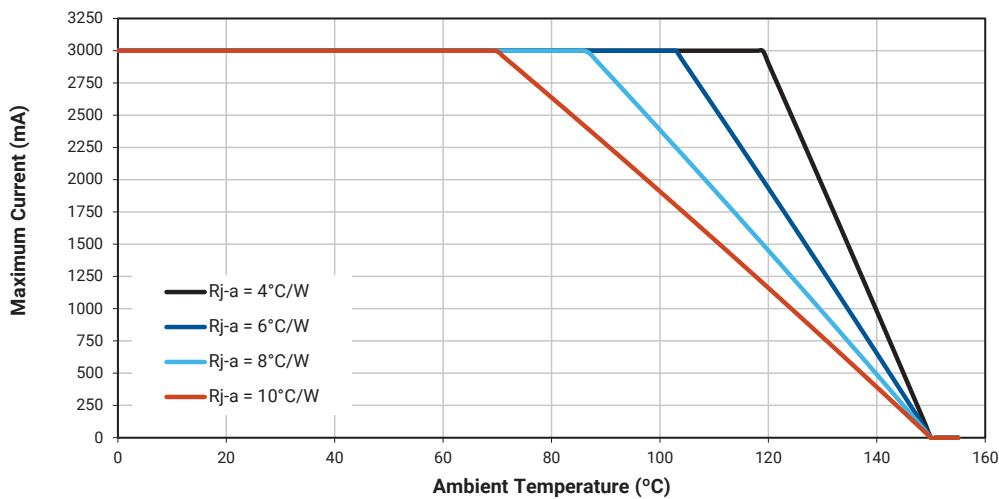


TYPICAL SPATIAL DISTRIBUTION - RED-ORANGE



THERMAL DESIGN - RED-ORANGE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - PC RED-ORANGE

CHARACTERISTICS - PC RED-ORANGE

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.27 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 3 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.5 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - PC RED-ORANGE ($T_j = 25\text{ °C}$)

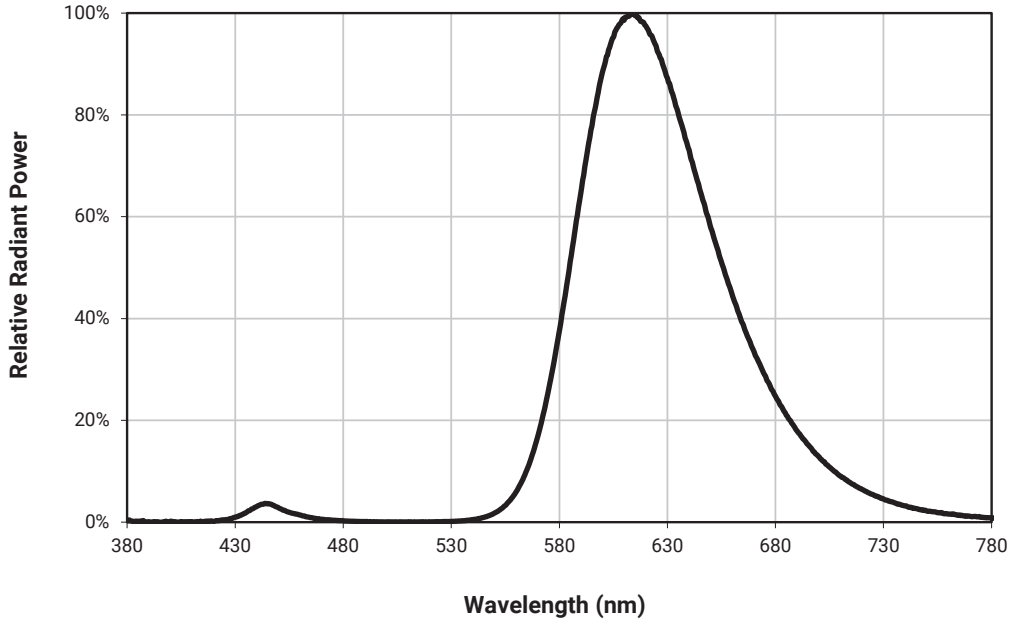
The following table provides order codes for XLamp XE-G PC red-orange LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| PC Red-Orange | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|---------------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PD0 | T2 | 200 | XEGAPO-H0-0000-000-000000T2001 |
| | | T1 | 180 | XEGAPO-H0-0000-000-000000T1001 |
| | | S5 | 172 | XEGAPO-H0-0000-000-000000S5001 |

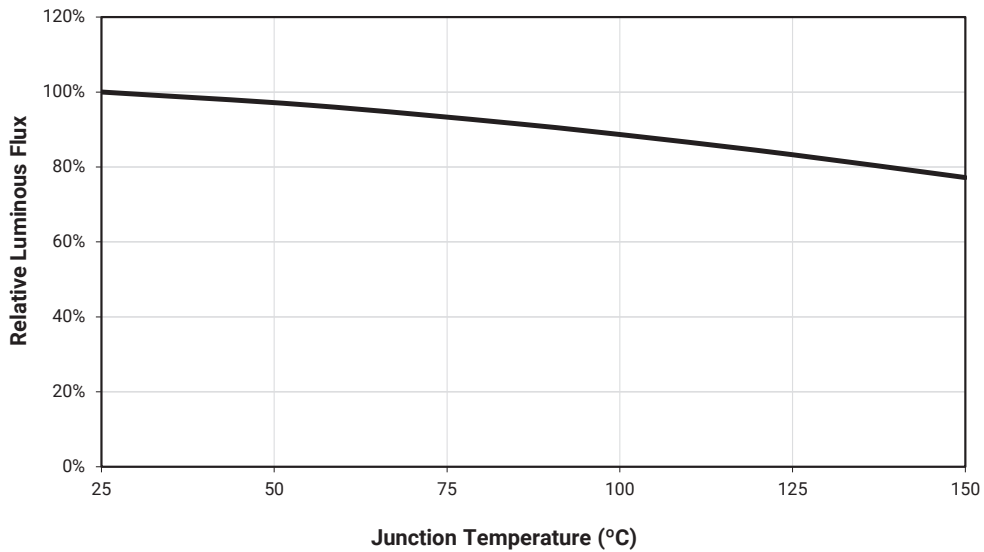
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

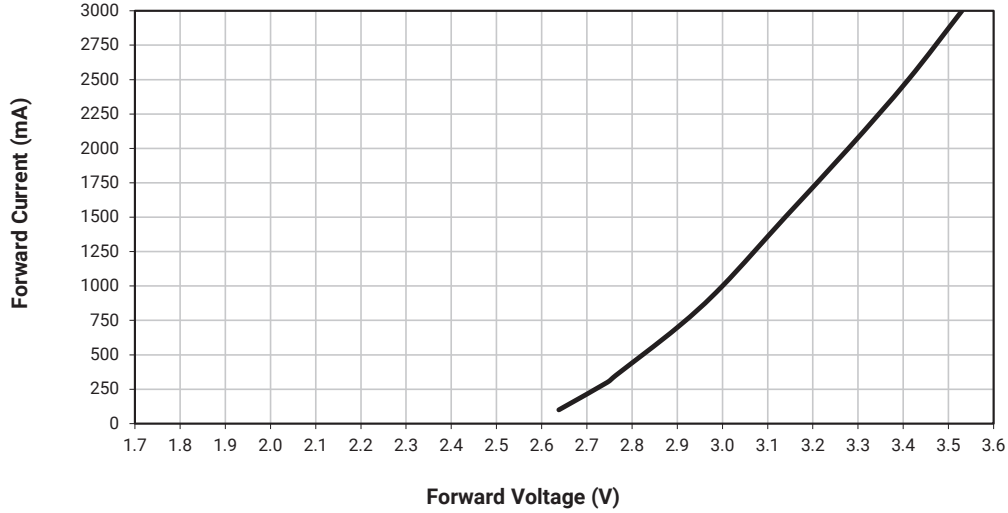
RELATIVE SPECTRAL POWER DISTRIBUTION - PC RED-ORANGE



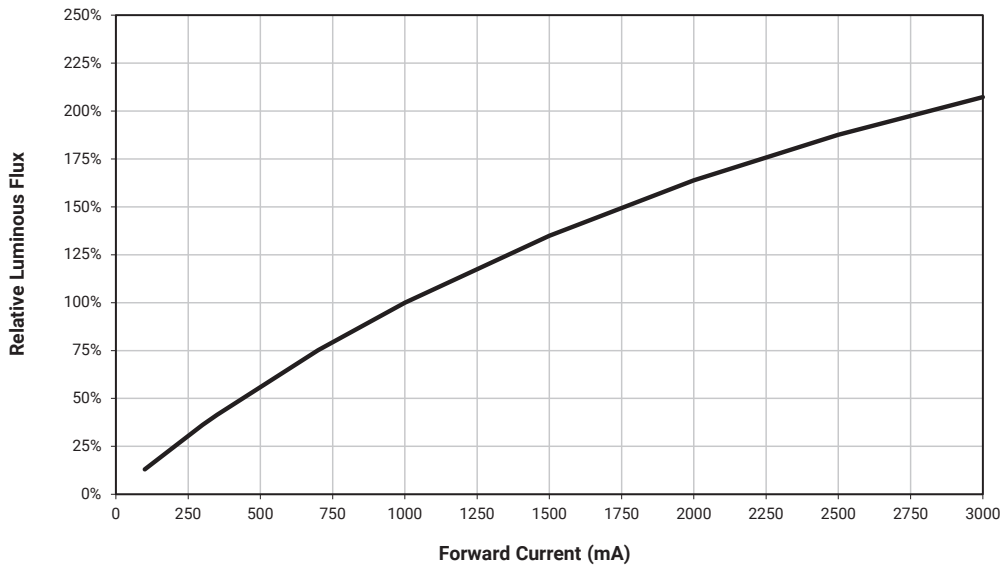
RELATIVE FLUX VS. JUNCTION TEMPERATURE - PC RED-ORANGE ($I_f = 1000$ mA)



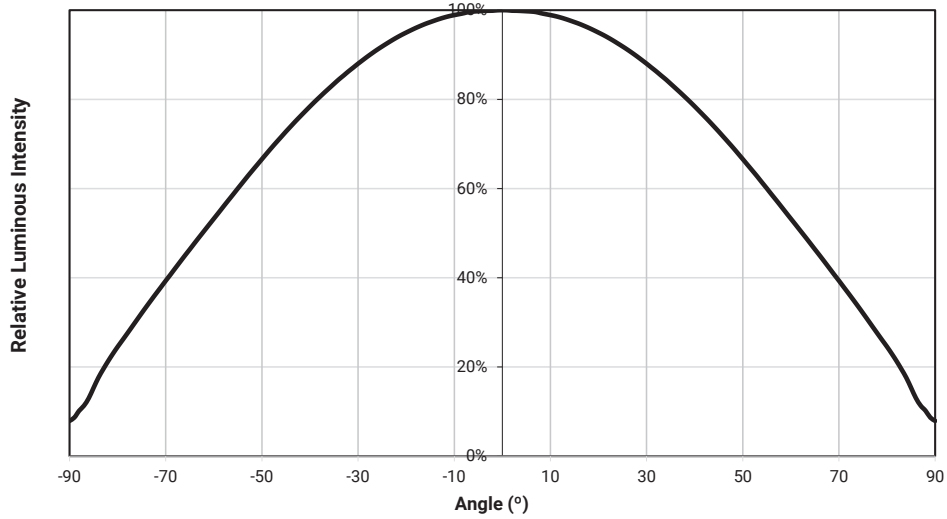
ELECTRICAL CHARACTERISTICS - PC RED-ORANGE ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - PC RED-ORANGE ($T_j = 25\text{ }^\circ\text{C}$)

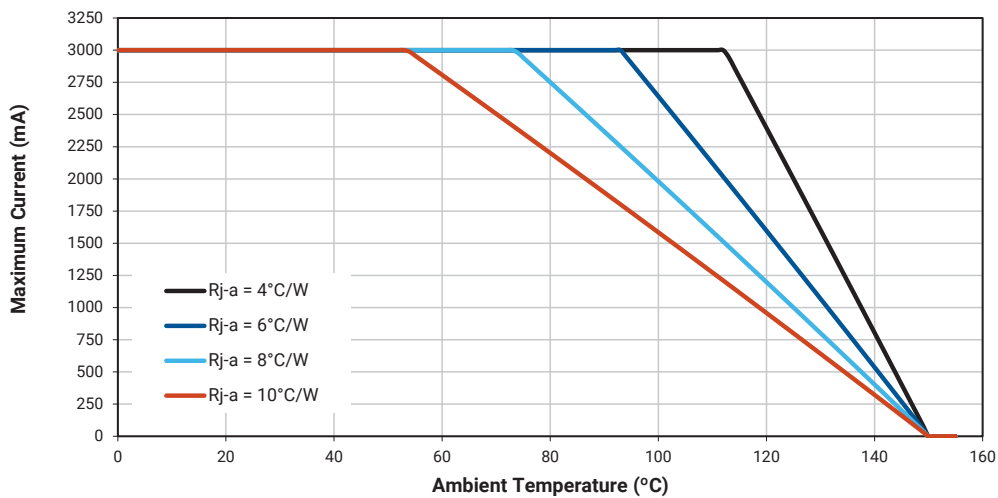


TYPICAL SPATIAL DISTRIBUTION - PC RED-ORANGE



THERMAL DESIGN - PC RED-ORANGE

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - RED

CHARACTERISTICS - RED

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 2.1 | |
| Viewing angle (FWHM) | degrees | | 120 | |
| Temperature coefficient of voltage | mV/°C | | -1.74 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.4 | 2.75 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.1 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - RED (T_J = 25 °C)

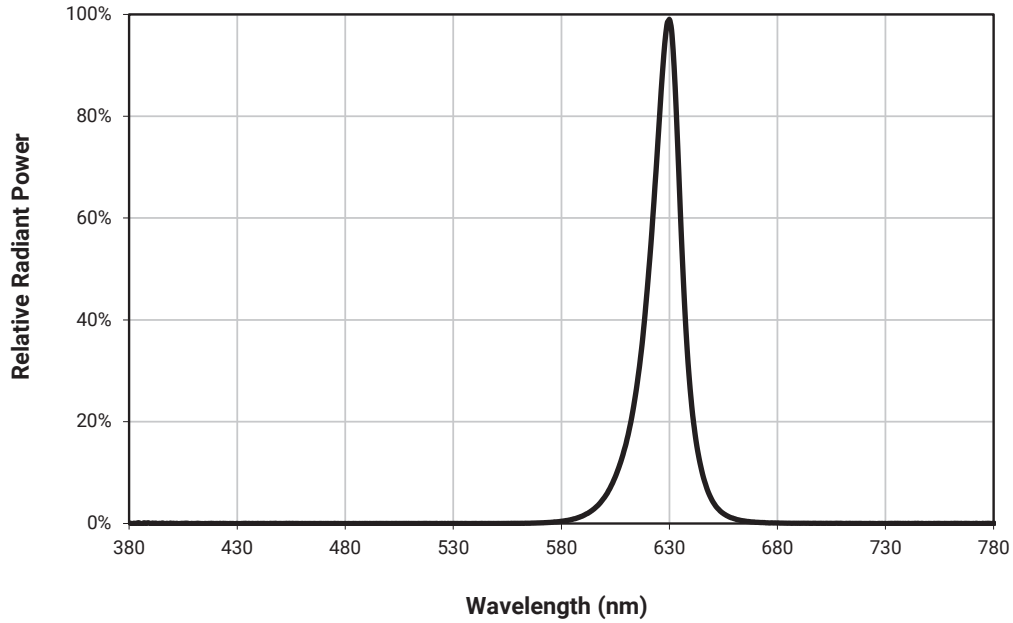
The following table provides order codes for XLamp XE-G red LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| Red | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|-----|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 620 - 630 | S5 | 172 | XEGARD-H0-0000-000-000000S5001 |
| | | S4 | 164 | XEGARD-H0-0000-000-000000S4001 |
| | | S3 | 156 | XEGARD-H0-0000-000-000000S3001 |

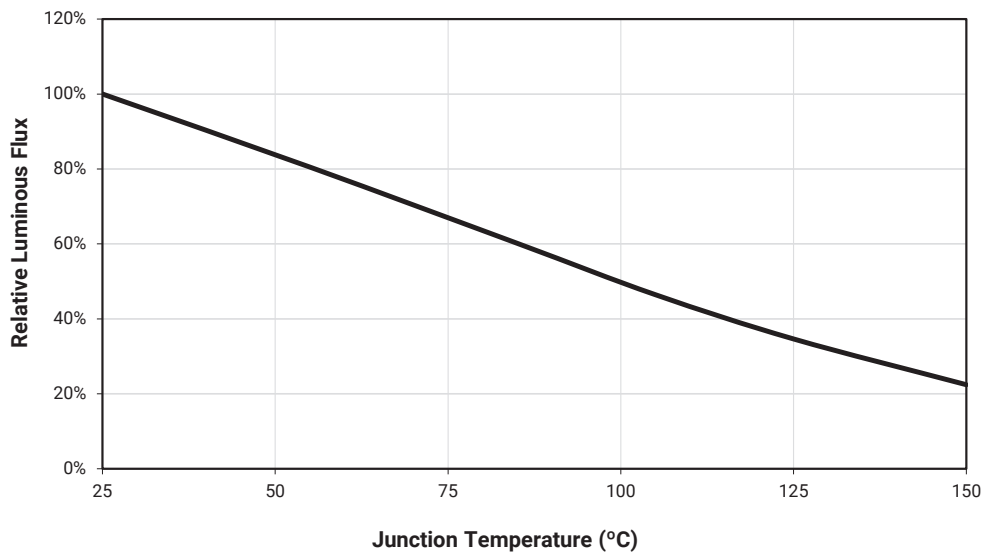
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CC_x, CC_y) measurements and a tolerance of ±2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

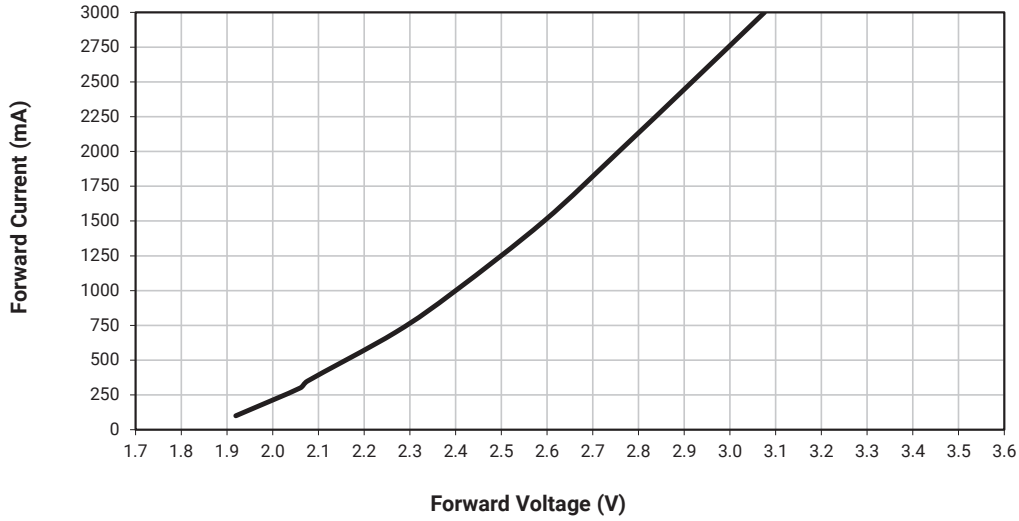
RELATIVE SPECTRAL POWER DISTRIBUTION - RED



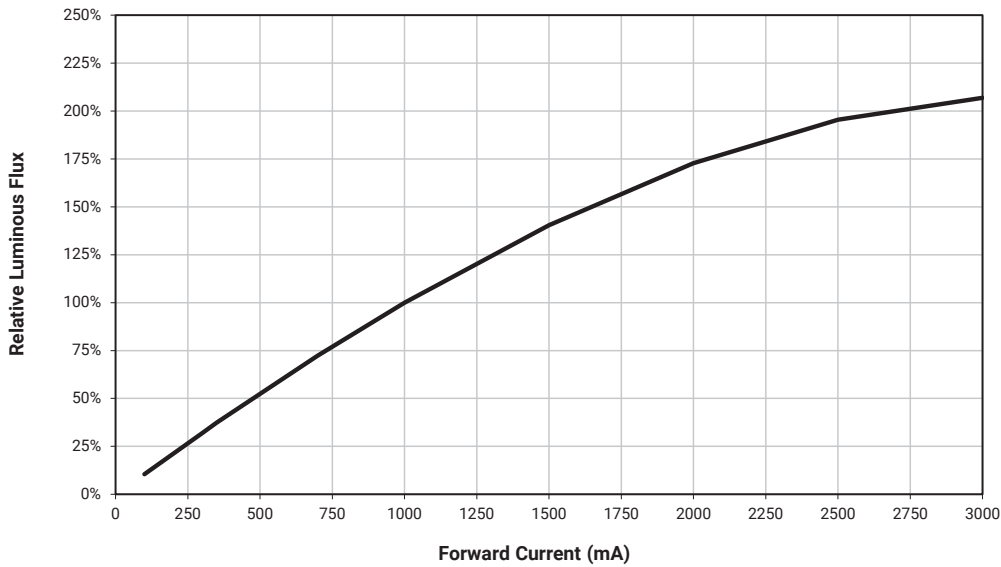
RELATIVE FLUX VS. JUNCTION TEMPERATURE - RED ($I_f = 1000$ mA)



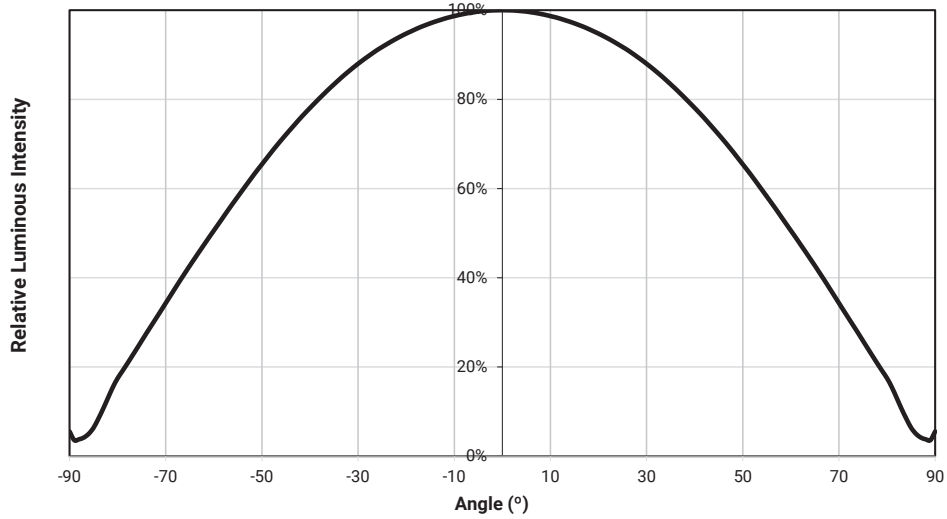
ELECTRICAL CHARACTERISTICS - RED ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - RED ($T_j = 25\text{ }^\circ\text{C}$)

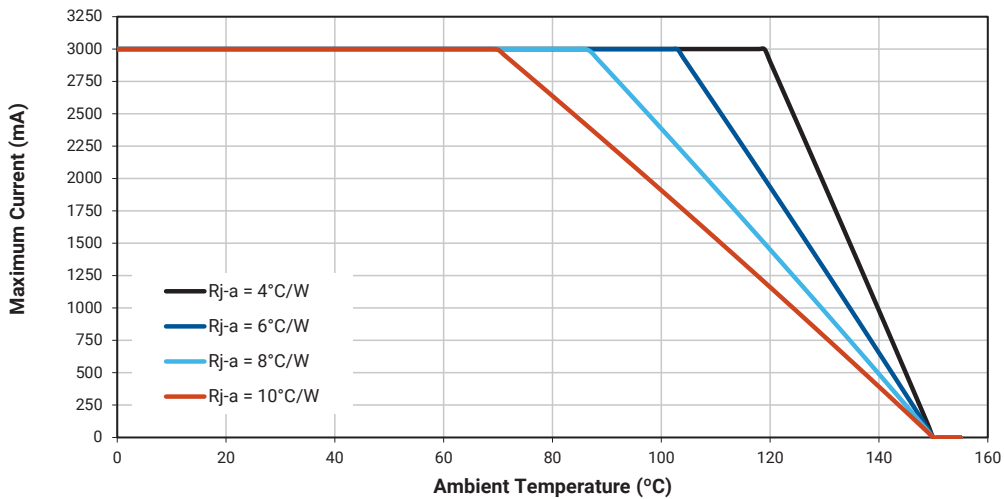


TYPICAL SPATIAL DISTRIBUTION - RED



THERMAL DESIGN - RED

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - PC RED

CHARACTERISTICS - PC RED

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 1.9 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.27 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 3 | 3.25 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.5 | |
| LED junction temperature | °C | | | 150 |

Note:

- ◇ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

ORDER CODES SUGGESTED FOR NEW DESIGNS - PC RED ($T_j = 25\text{ °C}$)

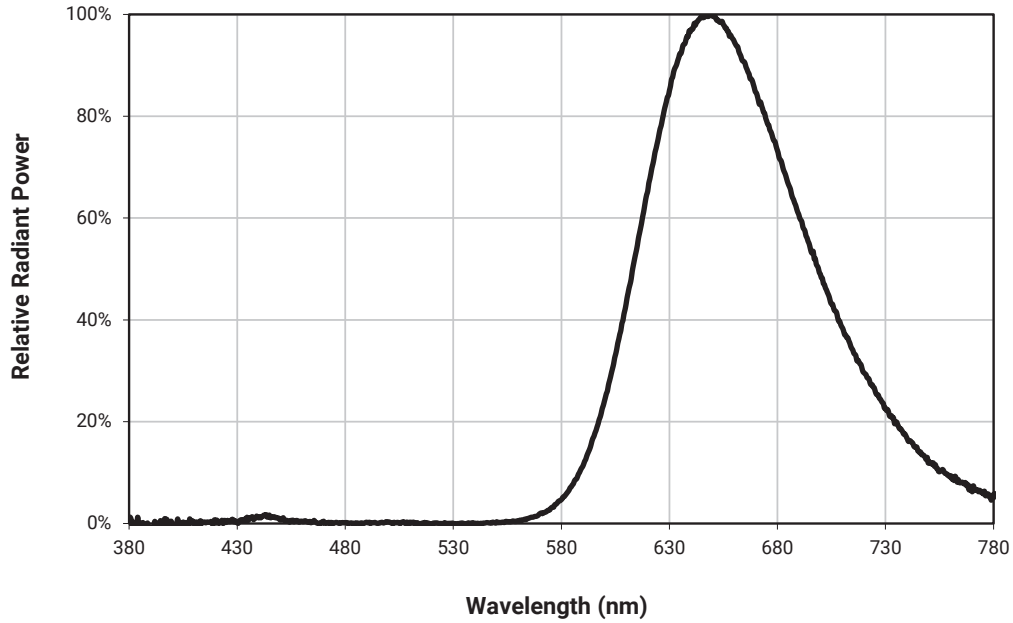
The following table provides order codes for XLamp XE-G PC red LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

| PC Red | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|--------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PR0 | N2 | 51.7 | XEGAPR-H0-0000-000-000000N2001 |
| | | M3 | 45.7 | XEGAPR-H0-0000-000-000000M3001 |

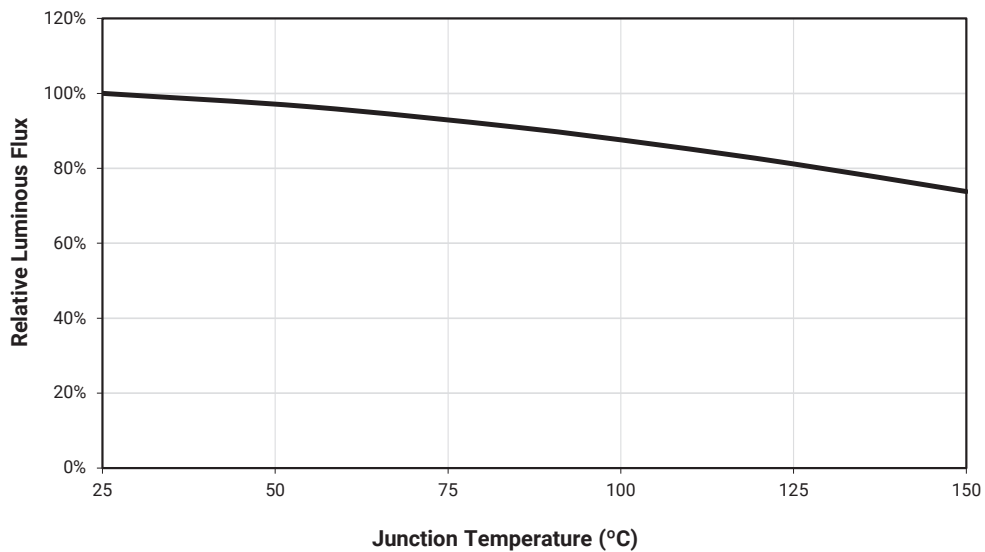
Notes

- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).
- XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

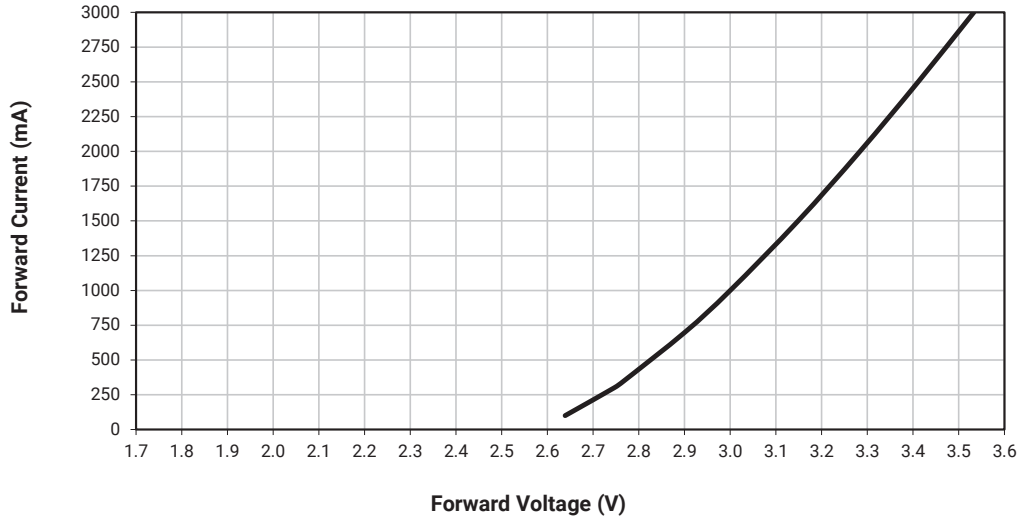
RELATIVE SPECTRAL POWER DISTRIBUTION - PC RED



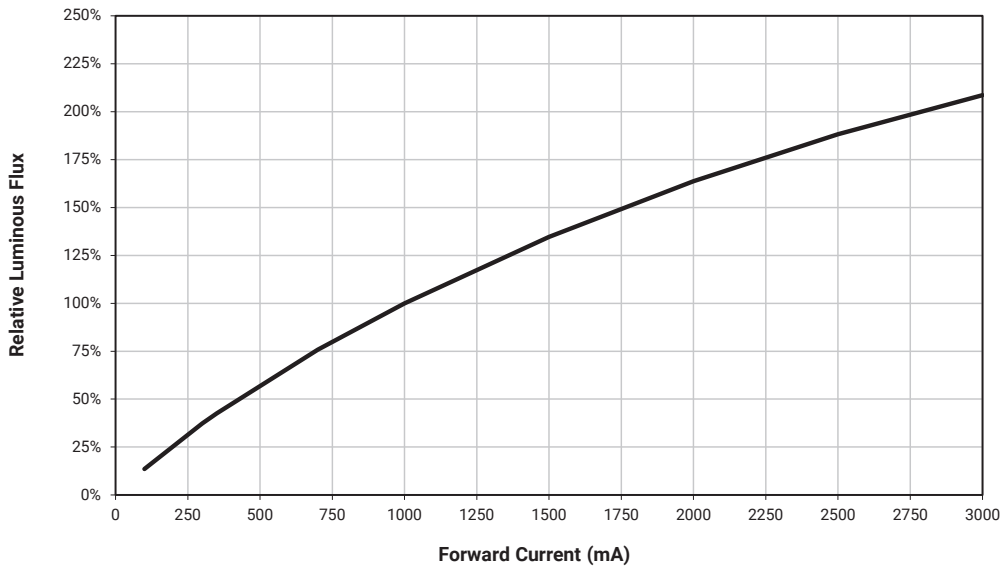
RELATIVE FLUX VS. JUNCTION TEMPERATURE - PC RED ($I_f = 1000$ mA)



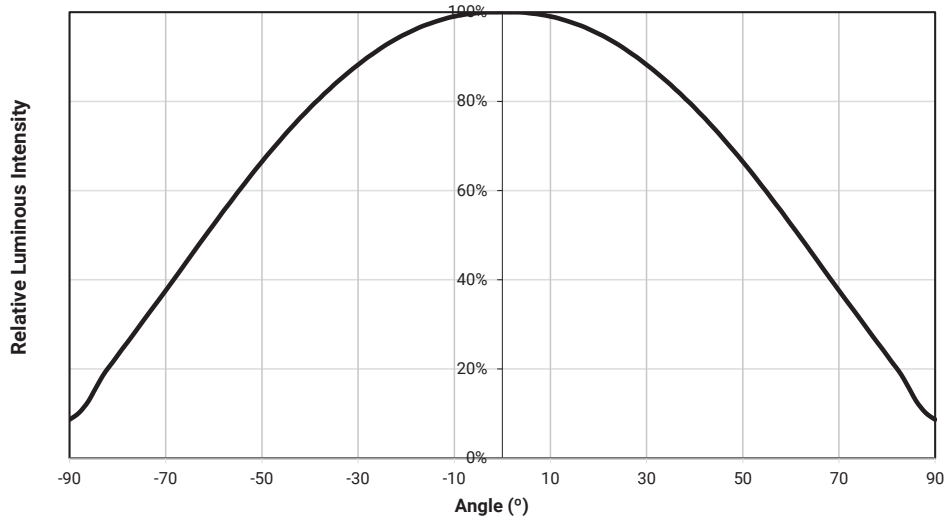
ELECTRICAL CHARACTERISTICS - PC RED ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - PC RED ($T_j = 25\text{ }^\circ\text{C}$)

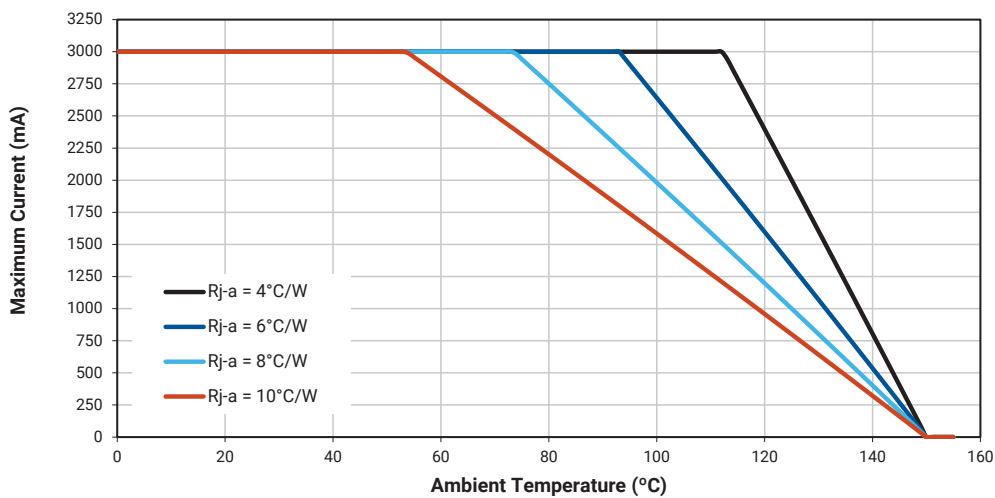


TYPICAL SPATIAL DISTRIBUTION - PC RED



THERMAL DESIGN - PC RED

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



XLAMP XE-G LEDs - PHOTO RED

CHARACTERISTICS - PHOTO RED

| Characteristics | Unit | Minimum | Typical | Maximum |
|---|---------|---------|----------|---------|
| Thermal resistance, junction to solder point ^o | °C/W | | 2 | |
| Viewing angle (FWHM) | degrees | | 125 | |
| Temperature coefficient of voltage | mV/°C | | -1.31 | |
| ESD classification (HBM per Mil-Std-883D) | | | Class 3B | |
| DC forward current | mA | | | 3000 |
| Reverse voltage | V | | | -5 |
| Forward voltage (@ 1000 mA, 25 °C) | V | | 2.25 | 2.75 |
| Forward voltage (@ 3000 mA, 25 °C) | V | | 3.1 | |
| LED junction temperature | °C | | | 150 |

Note:
 ♦ Thermal resistance measurement was performed per the JEDEC JESD51-14 standard. See the [Thermal Resistance Measurement application note](#) for more details.

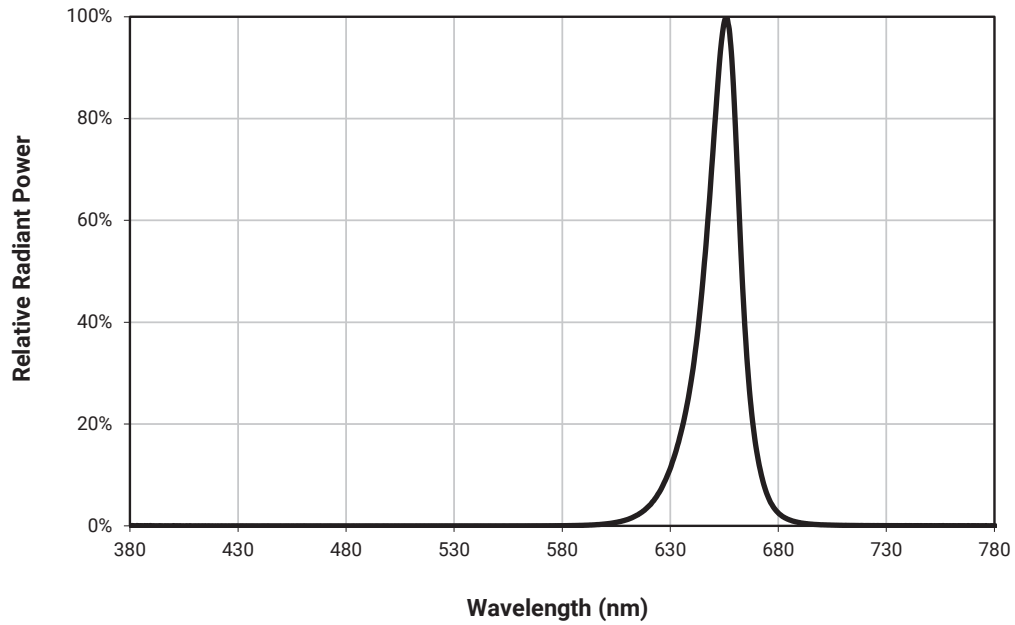
ORDER CODES SUGGESTED FOR NEW DESIGNS - PHOTO RED (T_j = 25 °C)

The following table provides order codes for XLamp XE-G photo red LEDs. For a complete description of the order-code nomenclature, please consult the Bin and Order Code Formats section (page 102).

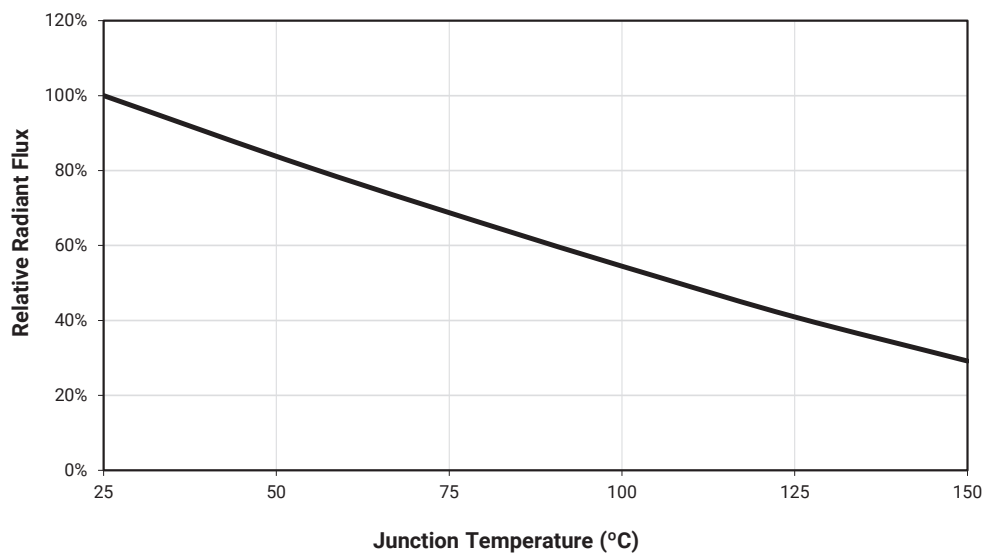
| Photo Red | | Minimum Radiant Flux (mW) @ 1000 mA | | Order Codes |
|-----------|----------------------|---------------------------------------|-----------|--------------------------------|
| Kit | Peak Wavelength (nm) | Code | Flux (mW) | |
| 001 | 650 - 670 | J6 | 1200 | XEGAHR-H0-0000-000-000000J6001 |
| | | J4 | 1100 | XEGAHR-H0-0000-000-000000J4001 |

- Notes
- For additional order codes NOT recommended for new designs please see the Appendix section starting on page 110.
 - Cree LED 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. See the Measurements section (page 104).
 - XLamp XE-G LED order codes specify only a minimum flux bin and not a maximum. Cree LED may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

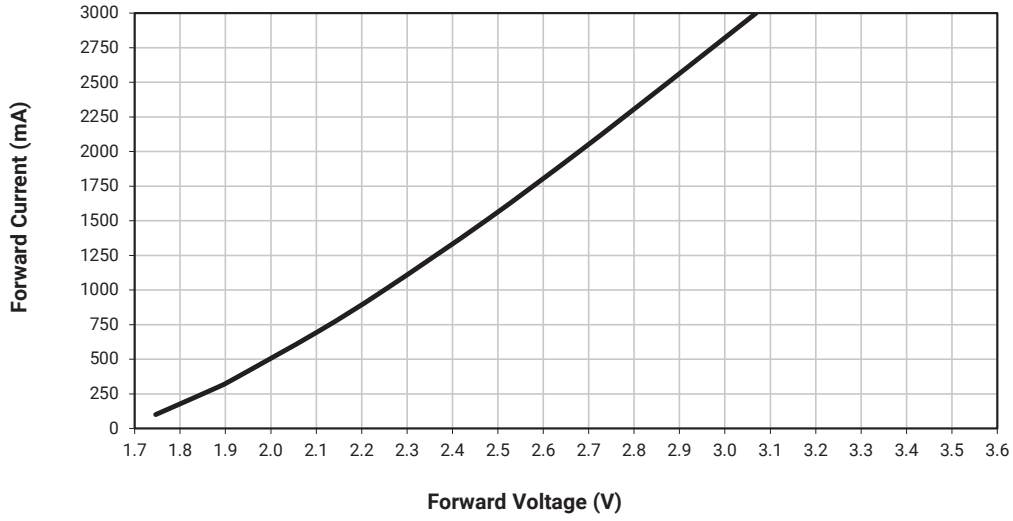
RELATIVE SPECTRAL POWER DISTRIBUTION - PHOTO RED



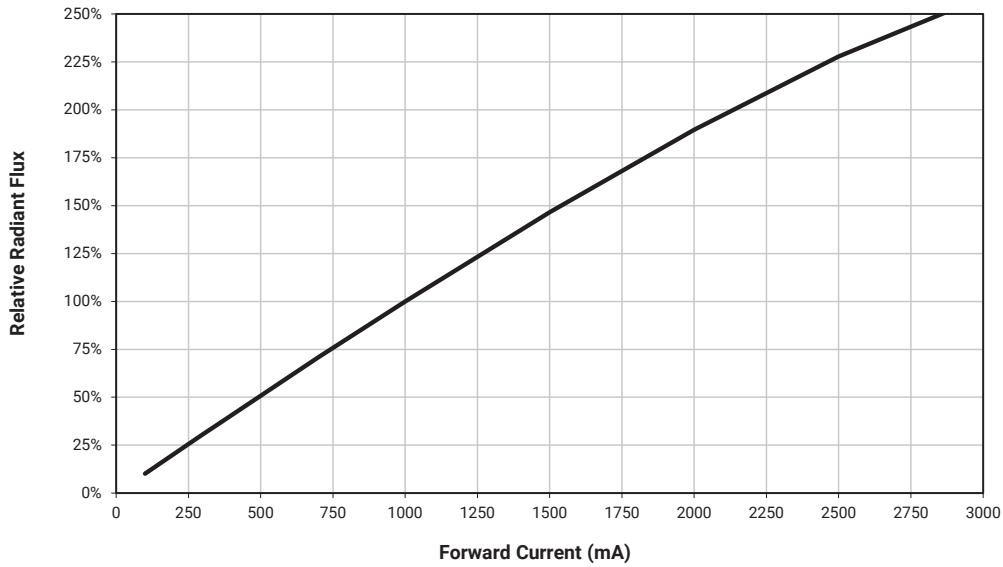
RELATIVE FLUX VS. JUNCTION TEMPERATURE - PHOTO RED ($I_f = 1000$ mA)



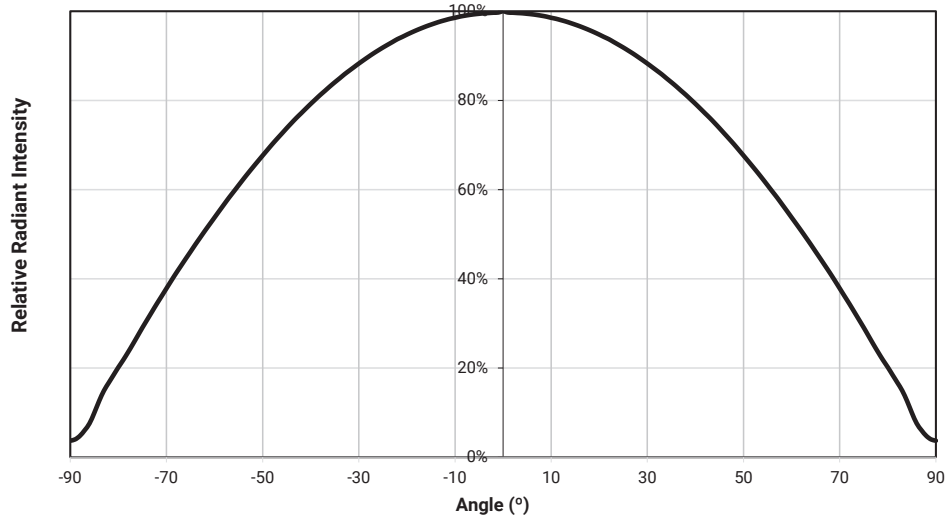
ELECTRICAL CHARACTERISTICS - PHOTO RED ($T_j = 25\text{ }^\circ\text{C}$)



RELATIVE FLUX VS. CURRENT - PHOTO RED ($T_j = 25\text{ }^\circ\text{C}$)

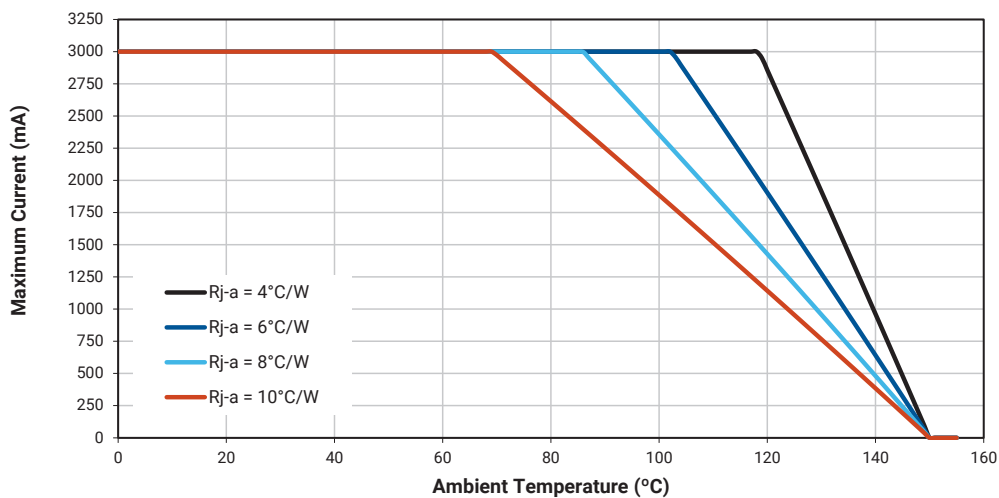


TYPICAL SPATIAL DISTRIBUTION - PHOTO RED



THERMAL DESIGN - PHOTO RED

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



PERFORMANCE GROUPS – LUMINOUS FLUX

XLamp XE-G LEDs tested for luminous flux are placed into one of the following luminous-flux groups. These group codes, with a 0 appended, are used in the Bin Code “Luminous flux group.”

| Group Code | Minimum Luminous Flux (lm) @ 1000 mA | Maximum Luminous Flux (lm) @ 1000 mA |
|------------|---|---|
| M2 | 39.8 | 45.7 |
| M3 | 45.7 | 51.7 |
| N2 | 51.7 | 56.8 |
| N3 | 56.8 | 62.0 |
| N4 | 62.0 | 67.2 |
| P2 | 67.2 | 73.9 |
| P3 | 73.9 | 80.6 |
| P4 | 80.6 | 87.4 |
| Q2 | 87.4 | 93.9 |
| Q3 | 93.9 | 100 |
| Q4 | 100 | 107 |
| Q5 | 107 | 114 |
| R2 | 114 | 122 |
| R3 | 122 | 130 |
| R4 | 130 | 139 |
| R5 | 139 | 148 |
| S2 | 148 | 156 |
| S3 | 156 | 164 |
| S4 | 164 | 172 |
| S5 | 172 | 180 |
| T1 | 180 | 200 |
| T2 | 200 | 220 |
| T3 | 220 | 240 |
| T4 | 240 | 260 |
| T5 | 260 | 280 |
| T6 | 280 | 300 |
| U2 | 300 | 320 |
| U3 | 320 | 340 |
| U4 | 340 | 360 |
| U5 | 360 | 380 |
| U6 | 380 | 400 |
| V2 | 400 | 420 |
| V3 | 420 | 440 |
| V4 | 440 | 460 |
| V5 | 460 | 480 |
| V6 | 480 | 500 |

PERFORMANCE GROUPS – RADIANT FLUX

XLamp XE-G LEDs tested for radiant flux are placed into one of the following radiant-flux groups. These group codes, with a 0 appended, are used in the Bin Code “Radiant flux group.”

| Group | Minimum Radiant Flux (mW) @ 1000 mA | Maximum Radiant Flux (mW) @ 1000 mA |
|-------|--|--|
| H6 | 800 | 900 |
| H8 | 900 | 1000 |
| J2 | 1000 | 1100 |
| J4 | 1100 | 1200 |
| J6 | 1200 | 1300 |
| J8 | 1300 | 1400 |
| K2 | 1400 | 1500 |
| K4 | 1500 | 1600 |
| K6 | 1600 | 1700 |

PERFORMANCE GROUPS – DOMINANT WAVELENGTH

XLamp XE-G LEDs tested for dominant wavelength (DWL) are sorted into one of the bins defined below.

| Color | DWL Group | Minimum DWL (nm) @ 1000 mA | Maximum DWL (nm) @ 1000 mA |
|------------|-----------|-------------------------------|-------------------------------|
| Royal Blue | D36 | 450 | 452.5 |
| | D37 | 452.5 | 455 |
| | D46 | 455 | 457.5 |
| | D47 | 457.5 | 460 |
| | D56 | 460 | 462.5 |
| | D57 | 462.5 | 465 |
| Blue | B3 | 465 | 470 |
| | B4 | 470 | 475 |
| | B5 | 475 | 480 |
| | B6 | 480 | 485 |
| Cyan | C2 | 490 | 495 |
| | C3 | 495 | 500 |
| | C4 | 500 | 505 |
| | C5 | 505 | 510 |
| Green | G2 | 520 | 525 |
| | G3 | 525 | 530 |
| | G4 | 530 | 535 |
| Amber | A2 | 585 | 590 |
| | A3 | 590 | 595 |
| Red-Orange | O3 | 610 | 615 |
| | O4 | 615 | 620 |
| Red | R2 | 620 | 625 |
| | R3 | 625 | 630 |

PERFORMANCE GROUPS – PEAK WAVELENGTH

XLamp XE-G LEDs tested for peak wavelength (PWL) are sorted into one of the bins defined below.

| Color | PWL Group | Minimum Peak Wavelength (nm) @ 1000 mA | Maximum Peak Wavelength (nm) @ 1000 mA |
|-----------|-----------|--|--|
| Violet | V2 | 400 | 405 |
| | V3 | 405 | 410 |
| | V4 | 410 | 415 |
| | V5 | 415 | 420 |
| Photo Red | P2 | 650 | 655 |
| | P3 | 655 | 660 |
| | P4 | 660 | 665 |
| | P5 | 665 | 670 |

PERFORMANCE GROUPS – FORWARD VOLTAGE

XLamp XE-G amber, red-orange, red, and photo red LEDs are tested for forward voltage and sorted into one of the forward voltage bins defined below.

| Forward Voltage Group | Minimum Forward Voltage @ 1000 mA | Maximum Forward Voltage @ 1000 mA |
|-----------------------|-----------------------------------|-----------------------------------|
| B | 1.75 | 2.0 |
| C | 2.0 | 2.25 |
| D | 2.25 | 2.5 |
| E | 2.5 | 2.75 |

PERFORMANCE GROUPS – CHROMATICITY

XLamp XE-G white LEDs are tested for luminous flux and placed into one of the following chromaticity groups. These group codes are used in the Bin Code “Chromaticity bin.” Two-digit group codes are appended with a 0.

| Region | x | y | Region | x | y | Region | x | y | Region | x | y |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0A | 0.2950 | 0.2970 | 0B | 0.2920 | 0.3060 | 0C | 0.2984 | 0.3133 | 0D | 0.2984 | 0.3133 |
| | 0.2920 | 0.3060 | | 0.2895 | 0.3135 | | 0.2962 | 0.3220 | | 0.3048 | 0.3207 |
| | 0.2984 | 0.3133 | | 0.2962 | 0.3220 | | 0.3028 | 0.3304 | | 0.3068 | 0.3113 |
| | 0.3009 | 0.3042 | | 0.2984 | 0.3133 | | 0.3048 | 0.3207 | | 0.3009 | 0.3042 |
| 0R | 0.2980 | 0.2880 | 0S | 0.2895 | 0.3135 | 0T | 0.2962 | 0.3220 | 0U | 0.3037 | 0.2937 |
| | 0.2950 | 0.2970 | | 0.2870 | 0.3210 | | 0.2937 | 0.3312 | | 0.3009 | 0.3042 |
| | 0.3009 | 0.3042 | | 0.2937 | 0.3312 | | 0.3005 | 0.3415 | | 0.3068 | 0.3113 |
| | 0.3037 | 0.2937 | | 0.2962 | 0.3220 | | 0.3028 | 0.3304 | | 0.3093 | 0.2993 |

PERFORMANCE GROUPS – CHROMATICITY (CONTINUED)

| Region | x | y | Region | x | y | Region | x | y | Region | x | y |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1A | 0.3048 | 0.3207 | 1B | 0.3028 | 0.3304 | 1C | 0.3115 | 0.3391 | 1D | 0.3130 | 0.3290 |
| | 0.3130 | 0.3290 | | 0.3115 | 0.3391 | | 0.3205 | 0.3481 | | 0.3213 | 0.3373 |
| | 0.3144 | 0.3186 | | 0.3130 | 0.3290 | | 0.3213 | 0.3373 | | 0.3221 | 0.3261 |
| | 0.3068 | 0.3113 | | 0.3048 | 0.3207 | | 0.3130 | 0.3290 | | 0.3144 | 0.3186 |
| 1R | 0.3068 | 0.3113 | 1S | 0.3005 | 0.3415 | 1T | 0.3099 | 0.3509 | 1U | 0.3144 | 0.3186 |
| | 0.3144 | 0.3186 | | 0.3099 | 0.3509 | | 0.3196 | 0.3602 | | 0.3221 | 0.3261 |
| | 0.3161 | 0.3059 | | 0.3115 | 0.3391 | | 0.3205 | 0.3481 | | 0.3231 | 0.3120 |
| | 0.3093 | 0.2993 | | 0.3028 | 0.3304 | | 0.3115 | 0.3391 | | 0.3161 | 0.3059 |
| 2A | 0.3215 | 0.3350 | 2B | 0.3207 | 0.3462 | 2C | 0.3290 | 0.3538 | 2D | 0.3290 | 0.3417 |
| | 0.3290 | 0.3417 | | 0.3290 | 0.3538 | | 0.3376 | 0.3616 | | 0.3371 | 0.3490 |
| | 0.3290 | 0.3300 | | 0.3290 | 0.3417 | | 0.3371 | 0.3490 | | 0.3366 | 0.3369 |
| | 0.3222 | 0.3243 | | 0.3215 | 0.3350 | | 0.3290 | 0.3417 | | 0.3290 | 0.3300 |
| 2R | 0.3222 | 0.3243 | 2S | 0.3196 | 0.3602 | 2T | 0.3290 | 0.3690 | 2U | 0.3290 | 0.3300 |
| | 0.3290 | 0.3300 | | 0.3290 | 0.3690 | | 0.3381 | 0.3762 | | 0.3366 | 0.3369 |
| | 0.3290 | 0.3180 | | 0.3290 | 0.3538 | | 0.3376 | 0.3616 | | 0.3361 | 0.3245 |
| | 0.3231 | 0.3120 | | 0.3207 | 0.3462 | | 0.3290 | 0.3538 | | 0.3290 | 0.3180 |
| 3A | 0.3371 | 0.3490 | 3B | 0.3376 | 0.3616 | 3C | 0.3463 | 0.3687 | 3D | 0.3451 | 0.3554 |
| | 0.3451 | 0.3554 | | 0.3463 | 0.3687 | | 0.3551 | 0.3760 | | 0.3533 | 0.3620 |
| | 0.3440 | 0.3427 | | 0.3451 | 0.3554 | | 0.3533 | 0.3620 | | 0.3515 | 0.3487 |
| | 0.3366 | 0.3369 | | 0.3371 | 0.3490 | | 0.3451 | 0.3554 | | 0.3440 | 0.3427 |
| 4A | 0.3530 | 0.3597 | 4B | 0.3548 | 0.3736 | 4C | 0.3641 | 0.3804 | 4D | 0.3615 | 0.3659 |
| | 0.3615 | 0.3659 | | 0.3641 | 0.3804 | | 0.3736 | 0.3874 | | 0.3702 | 0.3722 |
| | 0.3590 | 0.3521 | | 0.3615 | 0.3659 | | 0.3702 | 0.3722 | | 0.3670 | 0.3578 |
| | 0.3512 | 0.3465 | | 0.3530 | 0.3597 | | 0.3615 | 0.3659 | | 0.3590 | 0.3521 |
| 5A1 | 0.3670 | 0.3578 | 5A2 | 0.3686 | 0.3649 | 5A3 | 0.3744 | 0.3685 | 5A4 | 0.3726 | 0.3612 |
| | 0.3686 | 0.3649 | | 0.3702 | 0.3722 | | 0.3763 | 0.3760 | | 0.3744 | 0.3685 |
| | 0.3744 | 0.3685 | | 0.3763 | 0.3760 | | 0.3825 | 0.3798 | | 0.3804 | 0.3721 |
| | 0.3726 | 0.3612 | | 0.3744 | 0.3685 | | 0.3804 | 0.3721 | | 0.3783 | 0.3646 |
| 5B1 | 0.3702 | 0.3722 | 5B2 | 0.3719 | 0.3797 | 5B3 | 0.3782 | 0.3837 | 5B4 | 0.3763 | 0.3760 |
| | 0.3719 | 0.3797 | | 0.3736 | 0.3874 | | 0.3802 | 0.3916 | | 0.3782 | 0.3837 |
| | 0.3782 | 0.3837 | | 0.3802 | 0.3916 | | 0.3869 | 0.3958 | | 0.3847 | 0.3877 |
| | 0.3763 | 0.3760 | | 0.3782 | 0.3837 | | 0.3847 | 0.3877 | | 0.3825 | 0.3798 |
| 5C1 | 0.3825 | 0.3798 | 5C2 | 0.3847 | 0.3877 | 5C3 | 0.3912 | 0.3917 | 5C4 | 0.3887 | 0.3836 |
| | 0.3847 | 0.3877 | | 0.3869 | 0.3958 | | 0.3937 | 0.4001 | | 0.3912 | 0.3917 |
| | 0.3912 | 0.3917 | | 0.3937 | 0.4001 | | 0.4006 | 0.4044 | | 0.3978 | 0.3958 |
| | 0.3887 | 0.3836 | | 0.3912 | 0.3917 | | 0.3978 | 0.3958 | | 0.3950 | 0.3875 |
| 5D1 | 0.3783 | 0.3646 | 5D2 | 0.3804 | 0.3721 | 5D3 | 0.3863 | 0.3758 | 5D4 | 0.3840 | 0.3681 |
| | 0.3804 | 0.3721 | | 0.3825 | 0.3798 | | 0.3887 | 0.3836 | | 0.3863 | 0.3758 |
| | 0.3863 | 0.3758 | | 0.3887 | 0.3836 | | 0.3950 | 0.3875 | | 0.3924 | 0.3794 |
| | 0.3840 | 0.3681 | | 0.3863 | 0.3758 | | 0.3924 | 0.3794 | | 0.3898 | 0.3716 |

PERFORMANCE GROUPS – CHROMATICITY (CONTINUED)

| Region | x | y | Region | x | y | Region | x | y | Region | x | y |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 6A1 | 0.3889 | 0.3690 | 6A2 | 0.3915 | 0.3768 | 6A3 | 0.3981 | 0.3800 | 6A4 | 0.3953 | 0.3720 |
| | 0.3915 | 0.3768 | | 0.3941 | 0.3848 | | 0.4010 | 0.3882 | | 0.3981 | 0.3800 |
| | 0.3981 | 0.3800 | | 0.4010 | 0.3882 | | 0.4080 | 0.3916 | | 0.4048 | 0.3832 |
| | 0.3953 | 0.3720 | | 0.3981 | 0.3800 | | 0.4048 | 0.3832 | | 0.4017 | 0.3751 |
| 6B1 | 0.3941 | 0.3848 | 6B2 | 0.3968 | 0.3930 | 6B3 | 0.4040 | 0.3966 | 6B4 | 0.4010 | 0.3882 |
| | 0.3968 | 0.3930 | | 0.3996 | 0.4015 | | 0.4071 | 0.4052 | | 0.4040 | 0.3966 |
| | 0.4040 | 0.3966 | | 0.4071 | 0.4052 | | 0.4146 | 0.4089 | | 0.4113 | 0.4001 |
| | 0.4010 | 0.3882 | | 0.4040 | 0.3966 | | 0.4113 | 0.4001 | | 0.4080 | 0.3916 |
| 6C1 | 0.4080 | 0.3916 | 6C2 | 0.4113 | 0.4001 | 6C3 | 0.4186 | 0.4037 | 6C4 | 0.4150 | 0.3950 |
| | 0.4113 | 0.4001 | | 0.4146 | 0.4089 | | 0.4222 | 0.4127 | | 0.4186 | 0.4037 |
| | 0.4186 | 0.4037 | | 0.4222 | 0.4127 | | 0.4299 | 0.4165 | | 0.4259 | 0.4073 |
| | 0.4150 | 0.3950 | | 0.4186 | 0.4037 | | 0.4259 | 0.4073 | | 0.4221 | 0.3984 |
| 6D1 | 0.4017 | 0.3751 | 6D2 | 0.4048 | 0.3832 | 6D3 | 0.4116 | 0.3865 | 6D4 | 0.4082 | 0.3782 |
| | 0.4048 | 0.3832 | | 0.4080 | 0.3916 | | 0.4150 | 0.3950 | | 0.4116 | 0.3865 |
| | 0.4116 | 0.3865 | | 0.4150 | 0.3950 | | 0.4221 | 0.3984 | | 0.4183 | 0.3898 |
| | 0.4082 | 0.3782 | | 0.4116 | 0.3865 | | 0.4183 | 0.3898 | | 0.4147 | 0.3814 |
| 7A1 | 0.4147 | 0.3814 | 7A2 | 0.4183 | 0.3898 | 7A3 | 0.4242 | 0.3919 | 7A4 | 0.4203 | 0.3833 |
| | 0.4183 | 0.3898 | | 0.4221 | 0.3984 | | 0.4281 | 0.4006 | | 0.4242 | 0.3919 |
| | 0.4242 | 0.3919 | | 0.4281 | 0.4006 | | 0.4342 | 0.4028 | | 0.4300 | 0.3939 |
| | 0.4203 | 0.3833 | | 0.4242 | 0.3919 | | 0.4300 | 0.3939 | | 0.4259 | 0.3853 |
| 7B1 | 0.4221 | 0.3984 | 7B2 | 0.4259 | 0.4073 | 7B3 | 0.4322 | 0.4096 | 7B4 | 0.4281 | 0.4006 |
| | 0.4259 | 0.4073 | | 0.4299 | 0.4165 | | 0.4364 | 0.4188 | | 0.4322 | 0.4096 |
| | 0.4322 | 0.4096 | | 0.4364 | 0.4188 | | 0.4430 | 0.4212 | | 0.4385 | 0.4119 |
| | 0.4281 | 0.4006 | | 0.4322 | 0.4096 | | 0.4385 | 0.4119 | | 0.4342 | 0.4028 |
| 7C1 | 0.4342 | 0.4028 | 7C2 | 0.4385 | 0.4119 | 7C3 | 0.4449 | 0.4141 | 7C4 | 0.4403 | 0.4049 |
| | 0.4385 | 0.4119 | | 0.4430 | 0.4212 | | 0.4496 | 0.4236 | | 0.4449 | 0.4141 |
| | 0.4449 | 0.4141 | | 0.4496 | 0.4236 | | 0.4562 | 0.4260 | | 0.4513 | 0.4164 |
| | 0.4403 | 0.4049 | | 0.4449 | 0.4141 | | 0.4513 | 0.4164 | | 0.4465 | 0.4071 |
| 7D1 | 0.4259 | 0.3853 | 7D2 | 0.4300 | 0.3939 | 7D3 | 0.4359 | 0.3960 | 7D4 | 0.4316 | 0.3873 |
| | 0.4300 | 0.3939 | | 0.4342 | 0.4028 | | 0.4403 | 0.4049 | | 0.4359 | 0.3960 |
| | 0.4359 | 0.3960 | | 0.4403 | 0.4049 | | 0.4465 | 0.4071 | | 0.4418 | 0.3981 |
| | 0.4316 | 0.3873 | | 0.4359 | 0.3960 | | 0.4418 | 0.3981 | | 0.4373 | 0.3893 |
| 8A1 | 0.4373 | 0.3893 | 8A2 | 0.4418 | 0.3981 | 8A3 | 0.4475 | 0.3994 | 8A4 | 0.4428 | 0.3906 |
| | 0.4418 | 0.3981 | | 0.4465 | 0.4071 | | 0.4523 | 0.4085 | | 0.4475 | 0.3994 |
| | 0.4475 | 0.3994 | | 0.4523 | 0.4085 | | 0.4582 | 0.4099 | | 0.4532 | 0.4008 |
| | 0.4428 | 0.3906 | | 0.4475 | 0.3994 | | 0.4532 | 0.4008 | | 0.4483 | 0.3919 |
| 8B1 | 0.4465 | 0.4071 | 8B2 | 0.4513 | 0.4164 | 8B3 | 0.4573 | 0.4178 | 8B4 | 0.4523 | 0.4085 |
| | 0.4513 | 0.4164 | | 0.4562 | 0.4260 | | 0.4624 | 0.4274 | | 0.4573 | 0.4178 |
| | 0.4573 | 0.4178 | | 0.4624 | 0.4274 | | 0.4687 | 0.4289 | | 0.4634 | 0.4193 |
| | 0.4523 | 0.4085 | | 0.4573 | 0.4178 | | 0.4634 | 0.4193 | | 0.4582 | 0.4099 |

PERFORMANCE GROUPS – CHROMATICITY (CONTINUED)

| Region | x | y | Region | x | y | Region | x | y | Region | x | y |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 8C1 | 0.4582 | 0.4099 | 8C2 | 0.4634 | 0.4193 | 8C3 | 0.4695 | 0.4207 | 8C4 | 0.4641 | 0.4112 |
| | 0.4634 | 0.4193 | | 0.4687 | 0.4289 | | 0.4750 | 0.4304 | | 0.4695 | 0.4207 |
| | 0.4695 | 0.4207 | | 0.4750 | 0.4304 | | 0.4813 | 0.4319 | | 0.4756 | 0.4221 |
| | 0.4641 | 0.4112 | | 0.4695 | 0.4207 | | 0.4756 | 0.4221 | | 0.4700 | 0.4126 |
| 8D1 | 0.4483 | 0.3919 | 8D2 | 0.4532 | 0.4008 | 8D3 | 0.4589 | 0.4021 | 8D4 | 0.4538 | 0.3931 |
| | 0.4532 | 0.4008 | | 0.4582 | 0.4099 | | 0.4641 | 0.4112 | | 0.4589 | 0.4021 |
| | 0.4589 | 0.4021 | | 0.4641 | 0.4112 | | 0.4700 | 0.4126 | | 0.4646 | 0.4034 |
| | 0.4532 | 0.3931 | | 0.4589 | 0.4021 | | 0.4646 | 0.4034 | | 0.4593 | 0.3944 |
| AA1 | 0.4822 | 0.3973 | AA2 | 0.4884 | 0.4067 | AA3 | 0.4942 | 0.4066 | AA4 | 0.4879 | 0.3972 |
| | 0.4884 | 0.4067 | | 0.4946 | 0.4162 | | 0.5006 | 0.4160 | | 0.4942 | 0.4066 |
| | 0.4942 | 0.4066 | | 0.5006 | 0.4160 | | 0.5066 | 0.4158 | | 0.5001 | 0.4064 |
| | 0.4879 | 0.3972 | | 0.4942 | 0.4066 | | 0.5001 | 0.4064 | | 0.4936 | 0.3970 |
| AB1 | 0.4946 | 0.4162 | AB2 | 0.5008 | 0.4256 | AB3 | 0.5069 | 0.4254 | AB4 | 0.5006 | 0.4160 |
| | 0.5008 | 0.4256 | | 0.5070 | 0.4350 | | 0.5133 | 0.4348 | | 0.5069 | 0.4254 |
| | 0.5069 | 0.4254 | | 0.5133 | 0.4348 | | 0.5196 | 0.4346 | | 0.5131 | 0.4252 |
| | 0.5006 | 0.4160 | | 0.5069 | 0.4254 | | 0.5131 | 0.4252 | | 0.5066 | 0.4158 |
| AC1 | 0.5066 | 0.4158 | AC2 | 0.5131 | 0.4252 | AC3 | 0.5192 | 0.4250 | AC4 | 0.5126 | 0.4156 |
| | 0.5131 | 0.4252 | | 0.5196 | 0.4346 | | 0.5258 | 0.4343 | | 0.5192 | 0.4250 |
| | 0.5192 | 0.4250 | | 0.5258 | 0.4343 | | 0.5321 | 0.4341 | | 0.5253 | 0.4248 |
| | 0.5126 | 0.4156 | | 0.5192 | 0.4250 | | 0.5253 | 0.4248 | | 0.5186 | 0.4154 |
| AD1 | 0.4936 | 0.3970 | AD2 | 0.5001 | 0.4064 | AD3 | 0.5059 | 0.4062 | AD4 | 0.4993 | 0.3969 |
| | 0.5001 | 0.4064 | | 0.5066 | 0.4158 | | 0.5126 | 0.4156 | | 0.5059 | 0.4062 |
| | 0.5059 | 0.4062 | | 0.5126 | 0.4156 | | 0.5186 | 0.4154 | | 0.5118 | 0.4061 |
| | 0.4993 | 0.3969 | | 0.5059 | 0.4062 | | 0.5118 | 0.4061 | | 0.5050 | 0.3967 |

PERFORMANCE GROUPS – CHROMATICITY (CONTINUED)

XLamp XE-G white LEDs are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates.

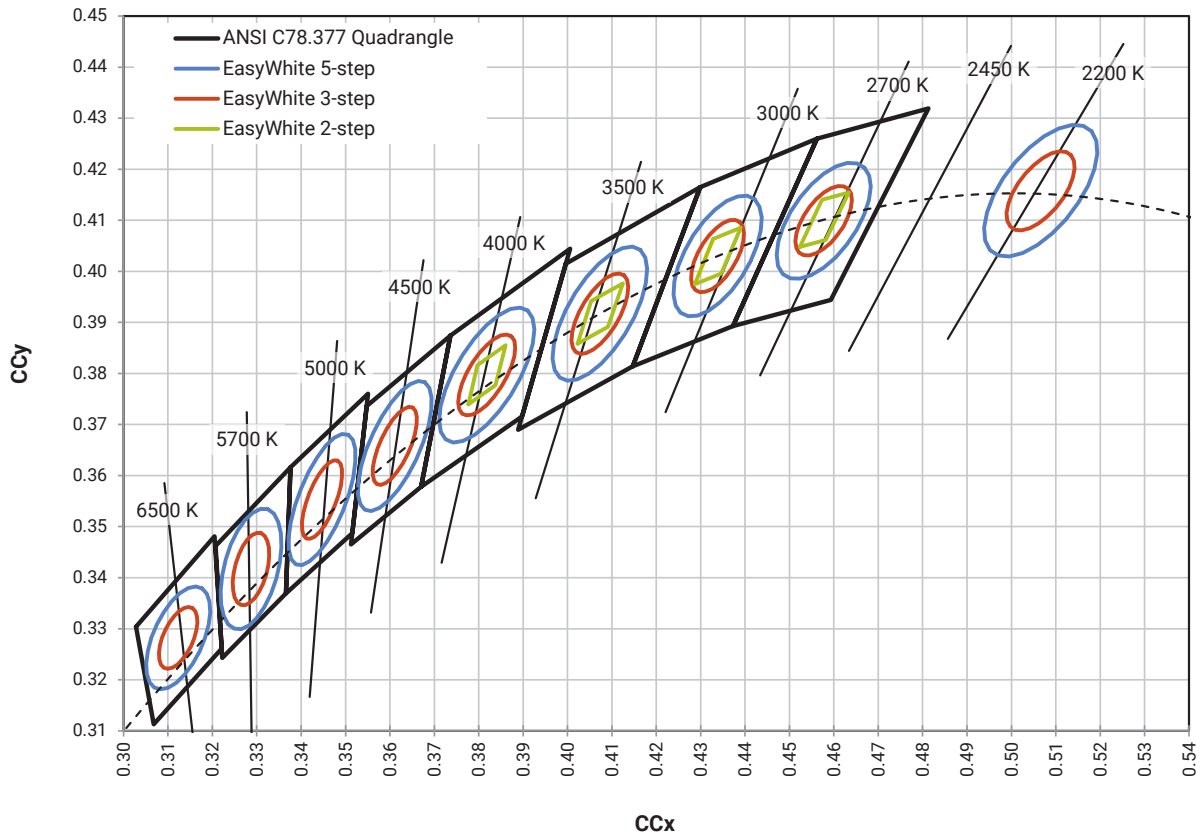
| EasyWhite Color Temperatures – 2-Step | | | |
|---------------------------------------|--------|--------|--------|
| Code | CCT | x | y |
| 40H | 4000 K | 0.3777 | 0.3739 |
| | | 0.3797 | 0.3816 |
| | | 0.3861 | 0.3855 |
| | | 0.3838 | 0.3777 |
| 35H | 3500 K | 0.4022 | 0.3858 |
| | | 0.4053 | 0.3942 |
| | | 0.4125 | 0.3977 |
| | | 0.4091 | 0.3891 |
| 30H | 3000 K | 0.4287 | 0.3975 |
| | | 0.4328 | 0.4064 |
| | | 0.4390 | 0.4086 |
| | | 0.4347 | 0.3996 |
| 27H | 2700 K | 0.4524 | 0.4048 |
| | | 0.4574 | 0.4140 |
| | | 0.4633 | 0.4154 |
| | | 0.4581 | 0.4062 |

| EasyWhite Color Temperatures – 3-Step Ellipse | | | | | | |
|---|--------|--------------|--------|------------|------------|--------------------|
| Bin Code | CCT | Center Point | | Major Axis | Minor Axis | Rotation Angle (°) |
| | | x | y | a | b | |
| 65G | 6500 K | 0.3123 | 0.3282 | 0.00666 | 0.00330 | 61.0 |
| 57G | 5700 K | 0.3287 | 0.3417 | 0.00738 | 0.00360 | 72.0 |
| 50G | 5000 K | 0.3447 | 0.3553 | 0.00840 | 0.00312 | 65.0 |
| 45G | 4500 K | 0.3611 | 0.3658 | 0.00852 | 0.00330 | 61.5 |
| 40G | 4000 K | 0.3818 | 0.3797 | 0.00939 | 0.00402 | 53.7 |
| 35G | 3500 K | 0.4073 | 0.3917 | 0.00927 | 0.00414 | 54.0 |
| 30G | 3000 K | 0.4338 | 0.4030 | 0.00834 | 0.00408 | 53.2 |
| 27G | 2700 K | 0.4577 | 0.4099 | 0.00834 | 0.00420 | 48.5 |
| 22G | 2200 K | 0.5066 | 0.4158 | 0.00980 | 0.00480 | 45.5 |

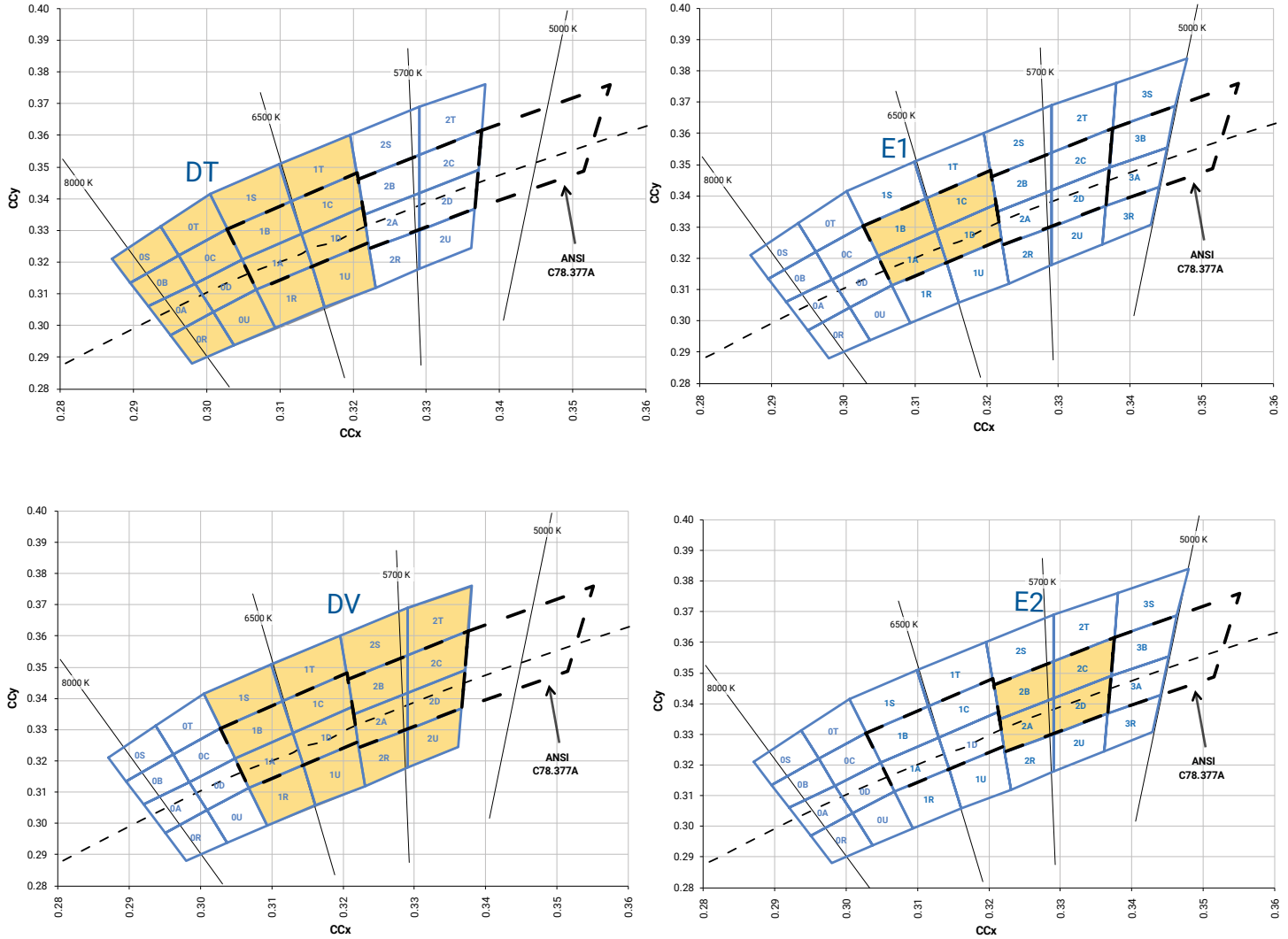
PERFORMANCE GROUPS – CHROMATICITY (CONTINUED)

| EasyWhite Color Temperatures – 5-Step Ellipse | | | | | | |
|---|--------|--------------|--------|------------|------------|--------------------|
| Bin Code | CCT | Center Point | | Major Axis | Minor Axis | Rotation Angle (°) |
| | | x | y | a | b | |
| 65E | 6500 K | 0.3123 | 0.3282 | 0.01110 | 0.00550 | 61.0 |
| 57E | 5700 K | 0.3287 | 0.3417 | 0.01230 | 0.00600 | 72.0 |
| 50E | 5000 K | 0.3447 | 0.3553 | 0.01400 | 0.00520 | 65.0 |
| 45E | 4500 K | 0.3611 | 0.3658 | 0.01420 | 0.00550 | 61.5 |
| 40E | 4000 K | 0.3818 | 0.3797 | 0.01565 | 0.00670 | 53.7 |
| 35E | 3500 K | 0.4073 | 0.3917 | 0.01545 | 0.00690 | 54.0 |
| 30E | 3000 K | 0.4338 | 0.4030 | 0.01390 | 0.00680 | 53.2 |
| 27E | 2700 K | 0.4577 | 0.4099 | 0.01390 | 0.00700 | 48.5 |
| 22E | 2200 K | 0.5066 | 0.4158 | 0.01630 | 0.00800 | 45.5 |

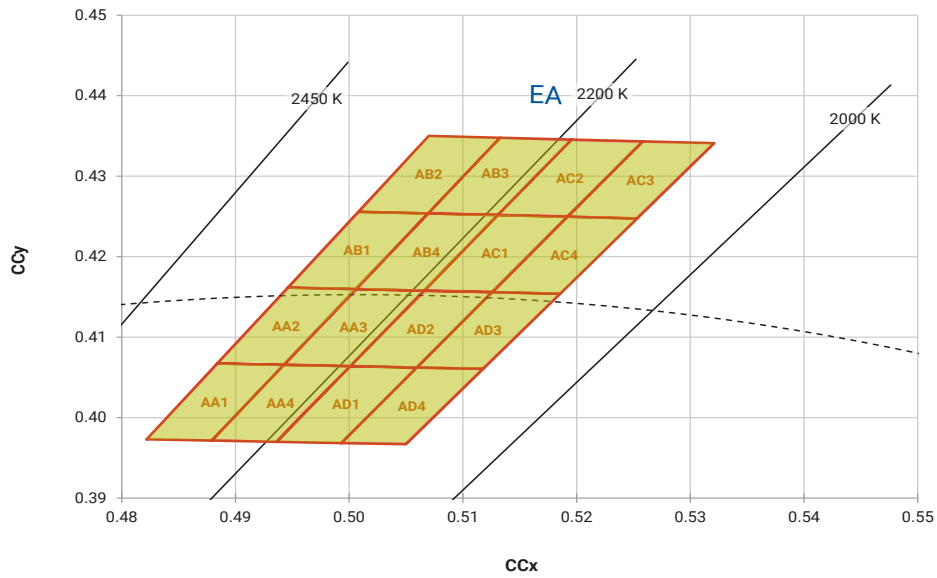
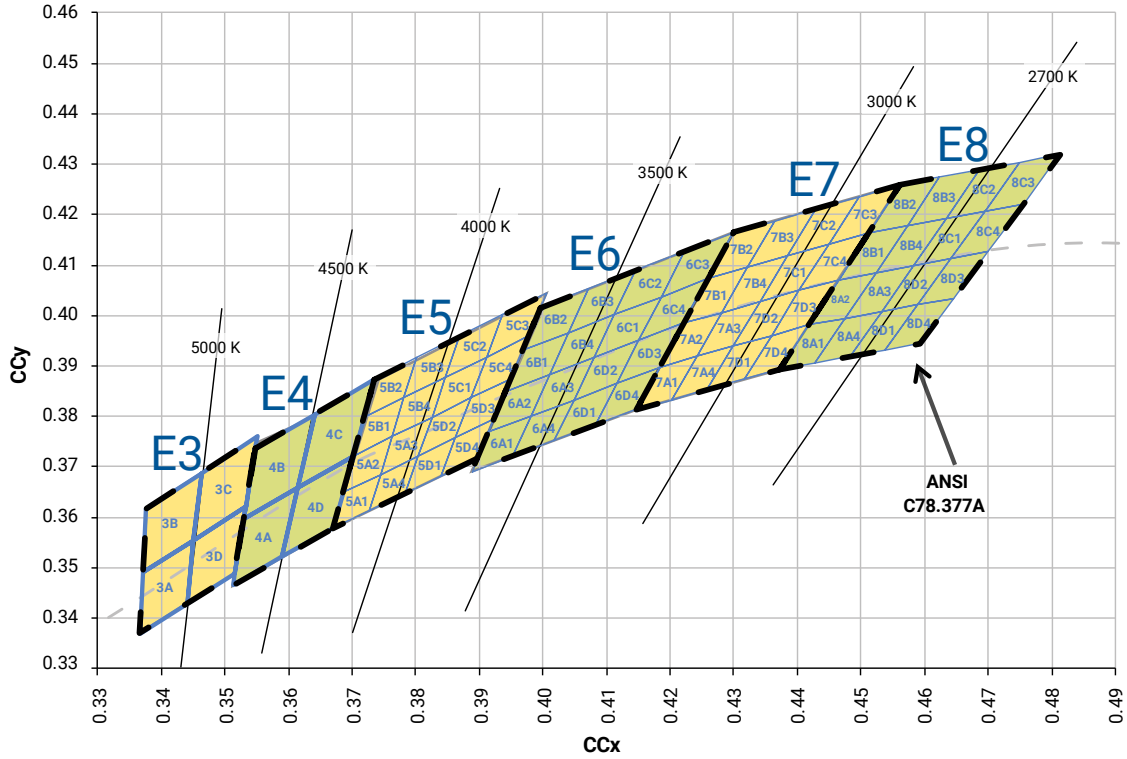
EASYWHITE® CHROMATICITY REGIONS PLOTTED IN CIE 1931 COLOR SPACE



STANDARD COOL WHITE KITS PLOTTED ON ANSI STANDARD CHROMATICITY REGIONS

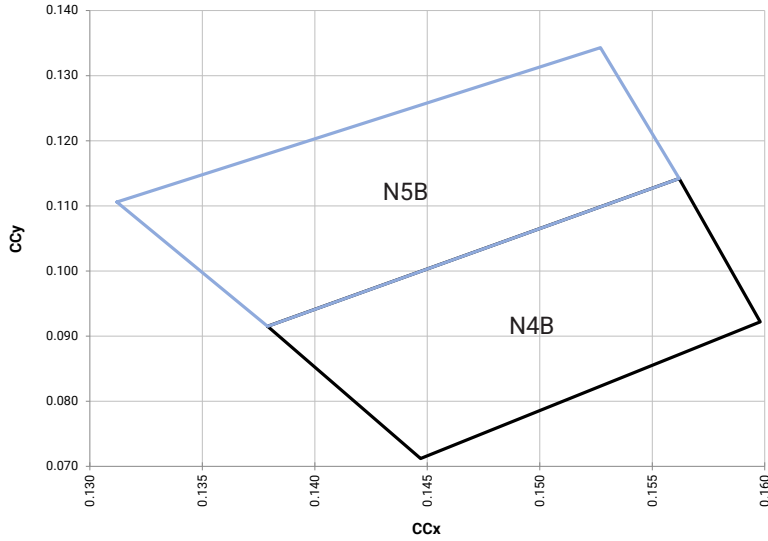


STANDARD WARM AND NEUTRAL WHITE KITS PLOTTED ON ANSI STANDARD CHROMATICITY REGIONS



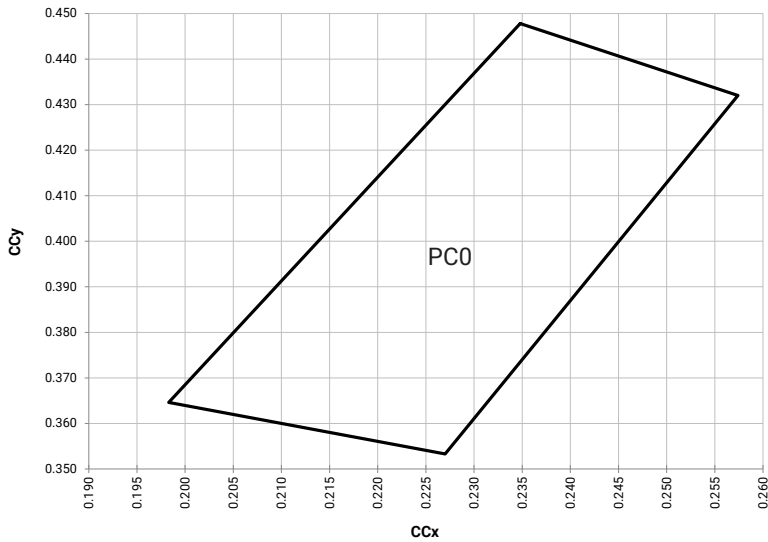
PC COLOR KITS PLOTTED IN CIE 1931 COLOR SPACE

PC Blue



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| N4B | 0.1379 | 0.0915 |
| | 0.1562 | 0.1142 |
| | 0.1598 | 0.0922 |
| N5B | 0.1447 | 0.0712 |
| | 0.1312 | 0.1106 |
| | 0.1527 | 0.1343 |
| | 0.1562 | 0.1142 |
| | 0.1379 | 0.0915 |

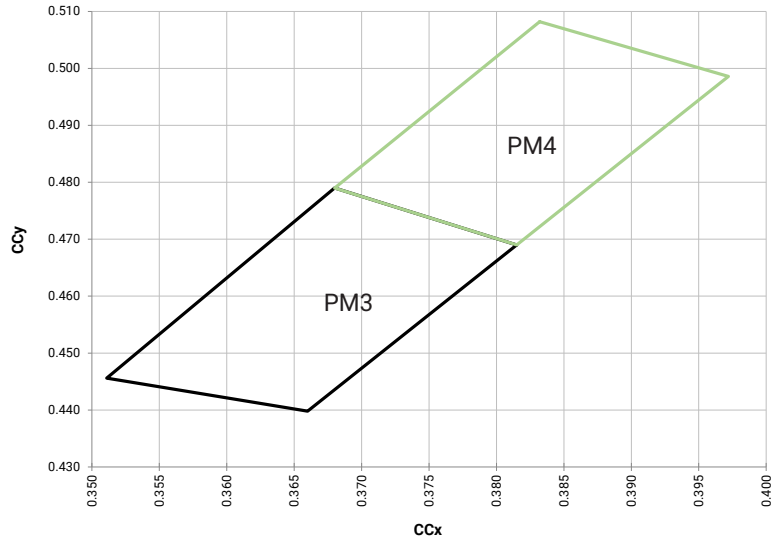
PC Cyan



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| PC0 | 0.2348 | 0.4478 |
| | 0.2574 | 0.4320 |
| | 0.2270 | 0.3533 |
| | 0.1983 | 0.3646 |

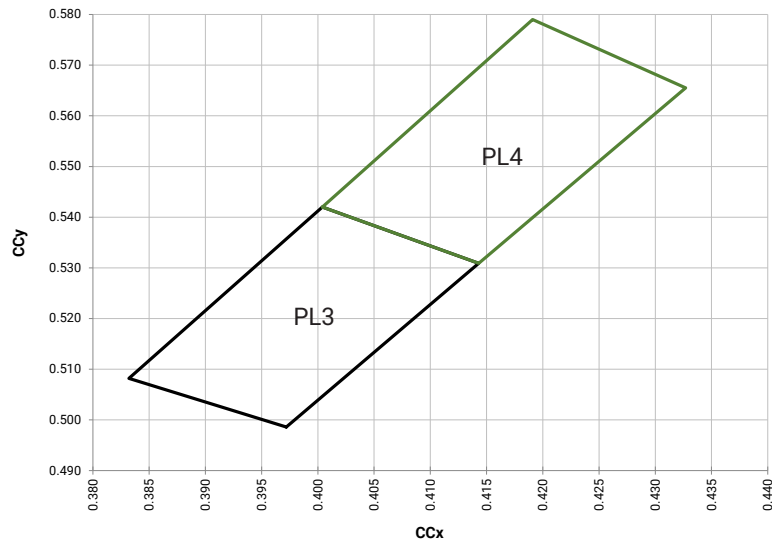
PC COLOR KITS PLOTTED IN CIE 1931 COLOR SPACE - CONTINUED

PC Mint



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| PM3 | 0.3815 | 0.4690 |
| | 0.3680 | 0.4790 |
| | 0.3511 | 0.4456 |
| PM4 | 0.3660 | 0.4398 |
| | 0.3832 | 0.5082 |
| | 0.3972 | 0.4986 |
| | 0.3815 | 0.4690 |
| | 0.3680 | 0.4790 |

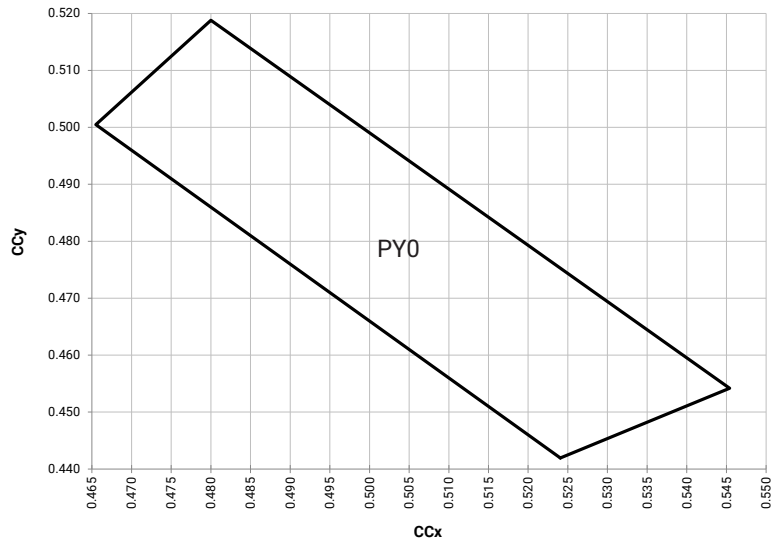
PC Lime



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| PL3 | 0.3972 | 0.4986 |
| | 0.3832 | 0.5082 |
| | 0.4004 | 0.5420 |
| | 0.4143 | 0.5309 |
| PL4 | 0.4004 | 0.5420 |
| | 0.4143 | 0.5309 |
| | 0.4327 | 0.5655 |
| | 0.4191 | 0.5790 |

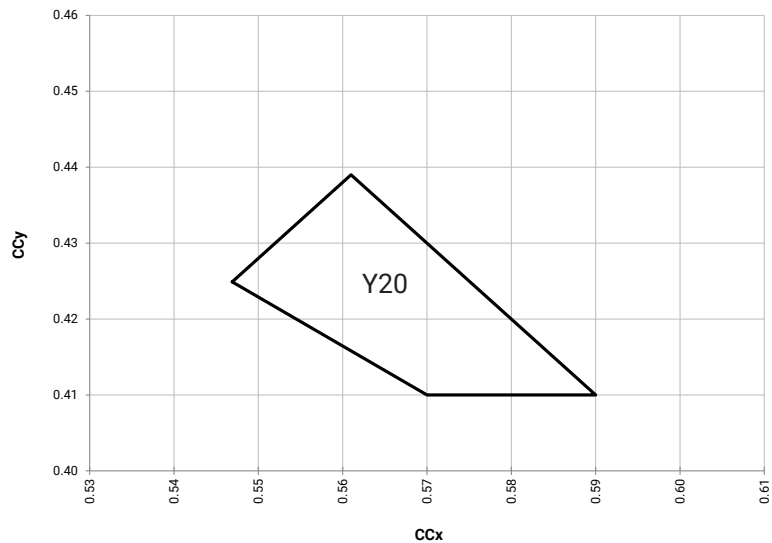
PC COLOR KITS PLOTTED IN CIE 1931 COLOR SPACE - CONTINUED

PC Yellow



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| PY0 | 0.5241 | 0.4419 |
| | 0.5454 | 0.4542 |
| | 0.4800 | 0.5188 |
| | 0.4655 | 0.5005 |

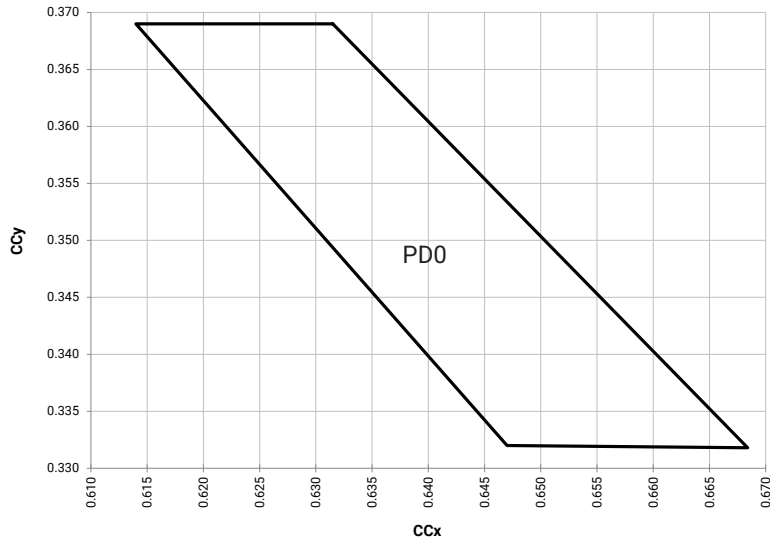
PC Amber



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| Y20 | 0.5469 | 0.4249 |
| | 0.5700 | 0.4100 |
| | 0.5900 | 0.4100 |
| | 0.5610 | 0.4390 |

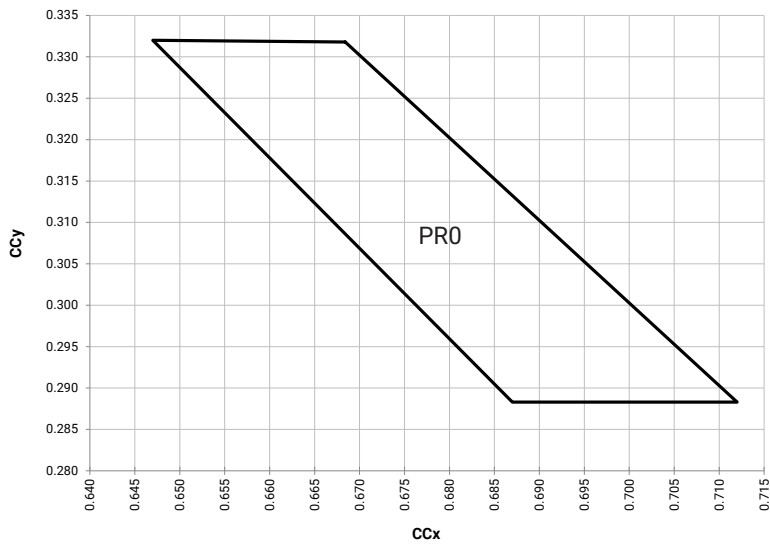
PC COLOR KITS PLOTTED IN CIE 1931 COLOR SPACE - CONTINUED

PC Red-Orange



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| PDO | 0.6315 | 0.3690 |
| | 0.6140 | 0.3690 |
| | 0.6470 | 0.3320 |
| | 0.6684 | 0.3318 |

PC Red



| Chromaticity Bin | x | y |
|------------------|--------|--------|
| PRO | 0.6684 | 0.3318 |
| | 0.6470 | 0.3320 |
| | 0.6870 | 0.2883 |
| | 0.7120 | 0.2883 |

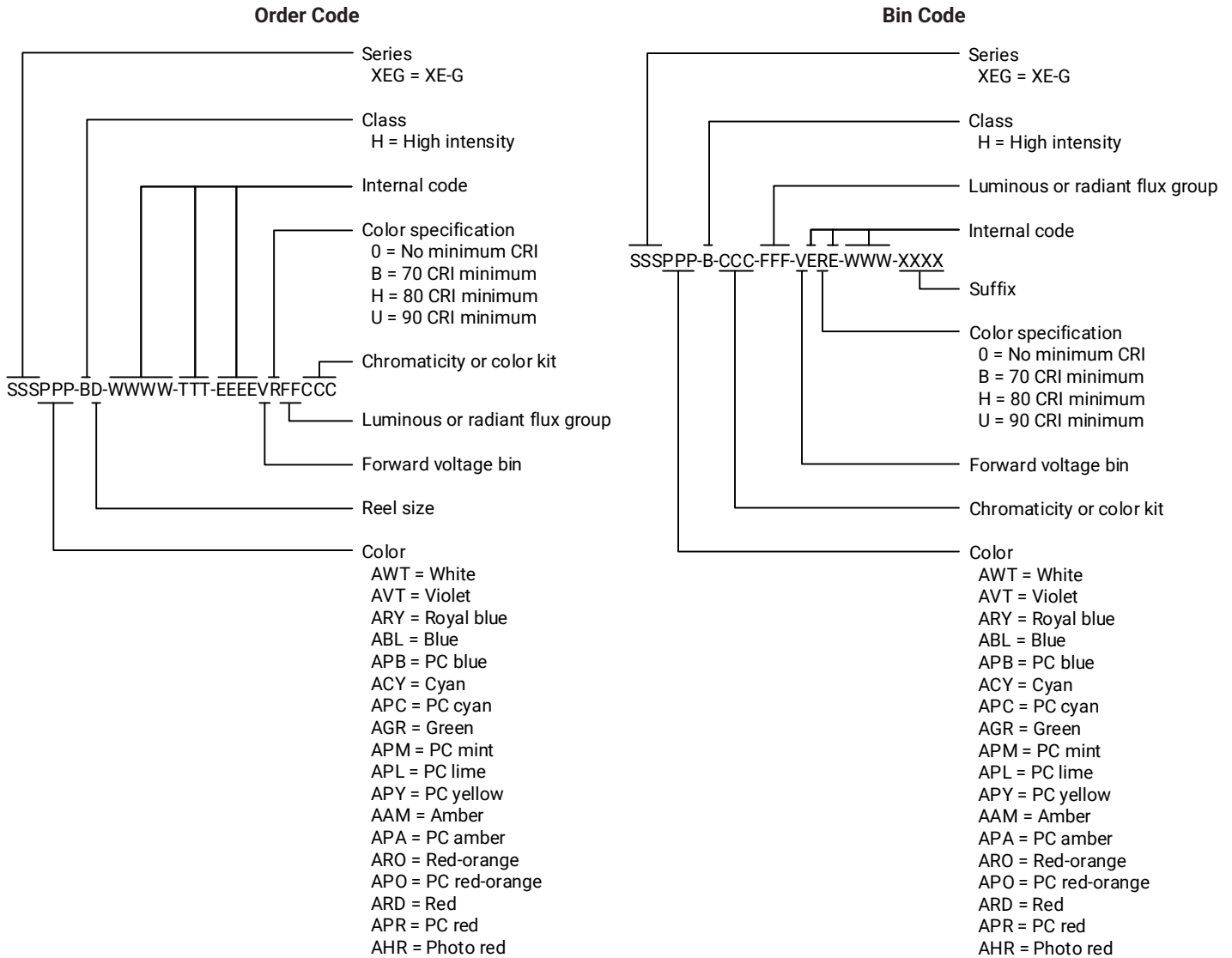
STANDARD CHROMATICITY KITS

The following table provides the chromaticity bins associated with chromaticity kits.

| Color | CCT | Kit | Chromaticity Bins |
|---------------|--------|-----|--|
| Cool White | 7000 K | DT | 0A, 0B, 0C, 0D, 0R, 0S, 0T, 0U, 1A, 1B, 1C, 1D, 1R, 1S, 1T, 1U |
| | 6500 K | E1 | 1A, 1B, 1C, 1D |
| | 5700 K | DV | 1A, 1B, 1C, 1D, 1R, 1S, 1T, 1U, 2A, 2B, 2C, 2D, 2R, 2S, 2T, 2U |
| | 6500 K | E1 | 1A, 1B, 1C, 1D |
| | 5700 K | E2 | 2A, 2B, 2C, 2D |
| Neutral White | 5000 K | E3 | 3A, 3B, 3C, 3D |
| | 4500 K | E4 | 4A, 4B, 4C, 4D |
| | 4000 K | E5 | 5A1, 5A2, 5A3, 5A4, 5B1, 5B2, 5B3, 5B4, 5C1, 5C2, 5C3, 5C4, 5D1, 5D2, 5D3, 5D4 |
| Warm White | 3500 K | E6 | 6A1, 6A2, 6A3, 6A4, 6B1, 6B2, 6B3, 6B4, 6C1, 6C2, 6C3, 6C4, 6D1, 6D2, 6D3, 6D4 |
| | 3000 K | E7 | 7A1, 7A2, 7A3, 7A4, 7B1, 7B2, 7B3, 7B4, 7C1, 7C2, 7C3, 7C4, 7D1, 7D2, 7D3, 7D4 |
| | 2700 K | E8 | 8A1, 8A2, 8A3, 8A4, 8B1, 8B2, 8B3, 8B4, 8C1, 8C2, 8C3, 8C4, 8D1, 8D2, 8D3, 8D4 |
| | 2200 K | EA | AA1, AA2, AA3, AA4, AB1, AB2, AB3, AB4, AC1, AC2, AC3, AC4, AD1, AD2, AD3, AD4 |

BIN AND ORDER CODE FORMATS

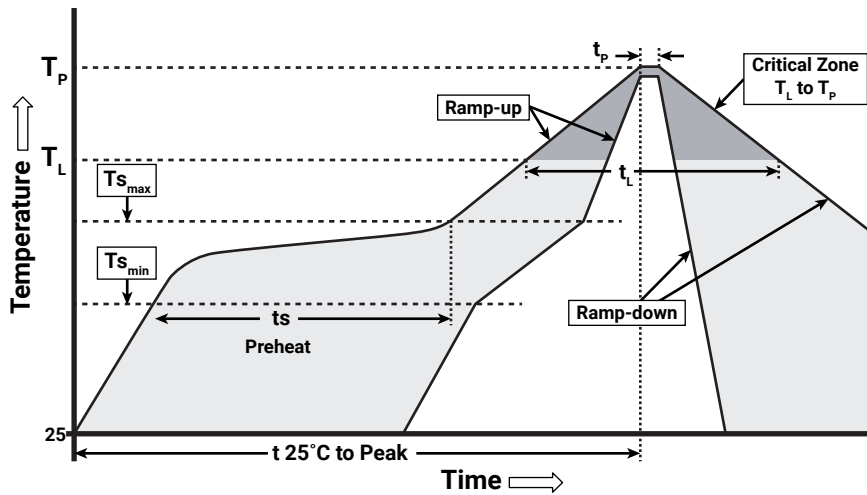
Bin codes and order codes for XE-G LEDs are configured in the following manner:



REFLOW SOLDERING CHARACTERISTICS

In testing, Cree LED has found XLamp XE-G LEDs to be compatible with JEDEC J-STD-020C, using the parameters listed below. As a general guideline, Cree LED recommends that users follow the recommended soldering profile provided by the manufacturer of the solder paste used, and therefore it is the lamp or luminaire manufacturer’s responsibility to determine applicable soldering requirements.

Note that this general guideline may not apply to all PCB designs and configurations of reflow soldering equipment.



IPC/JEDEC J-STD-020C

| Profile Feature | Lead-Free Solder |
|---|------------------|
| Average Ramp-Up Rate ($T_{s_{max}}$ to T_P) | 1.2 °C/second |
| Preheat: Temperature Min ($T_{s_{min}}$) | 120 °C |
| Preheat: Temperature Max ($T_{s_{max}}$) | 170 °C |
| Preheat: Time ($t_{s_{min}}$ to $t_{s_{max}}$) | 65-150 seconds |
| Time Maintained Above: Temperature (T_L) | 217 °C |
| Time Maintained Above: Time (t_L) | 45-90 seconds |
| Peak/Classification Temperature (T_P) | 235 - 245 °C |
| Time Within 5 °C of Actual Peak Temperature (t_P) | 20-40 seconds |
| Ramp-Down Rate | 1 - 6 °C/second |
| Time 25 °C to Peak Temperature | 4 minutes max. |

Note: All temperatures refer to topside of the package, measured on the package body surface.

NOTES

Measurements

The luminous flux, radiant power, chromaticity, forward voltage and CRI measurements in this document are binning specifications only and solely represent product measurements as of the date of shipment. These measurements will change over time based on a number of factors that are not within Cree LED's control and are not intended or provided as operational specifications for the products. Calculated values are provided for informational purposes only and are not intended or provided as specifications.

Pre-Release Qualification Testing

Please read the [LED Reliability Overview](#) for details of the qualification process Cree LED applies to ensure long-term reliability for XLamp LEDs and details of Cree LED's pre-release qualification testing for XLamp LEDs.

Lumen Maintenance

Cree LED 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](#).

Please read the [Long-Term Lumen Maintenance application note](#) for more details on Cree LED's lumen maintenance testing and forecasting. Please read the [Thermal Management application note](#) for details on how thermal design, ambient temperature, and drive current affect the LED junction temperature.

Moisture Sensitivity

Cree LED recommends keeping XLamp LEDs in the provided, resealable moisture-barrier packaging (MBP) until immediately prior to soldering. Unopened MBPs that contain XLamp LEDs do not need special storage for moisture sensitivity.

Once the MBP is opened, XLamp XE-G LEDs may be stored as MSL 1 per JEDEC J-STD-033, meaning they have unlimited floor life in conditions of ≤ 30 °C/85% relative humidity (RH). Regardless of storage condition, Cree LED recommends sealing any unsoldered LEDs in the original MBP.

RoHS Compliance

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented January 2, 2013. RoHS Declarations for this product can be obtained from your Cree LED representative or from the [Product Ecology](#) section of the Cree LED website.

REACH Compliance

REACH substances of very high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact a Cree LED representative to insure you get the most up-to-date REACH SVHC Declaration. REACH banned substance information (REACH Article 67) is also available upon request.

NOTES - CONTINUED

UL® Recognized Component

This product meets the requirements to be considered a UL Recognized Component with Level 1 enclosure consideration. The LED package or a portion thereof has not been investigated as a fire enclosure or a fire and electrical enclosure per ANSI/UL 8750.

Vision Advisory

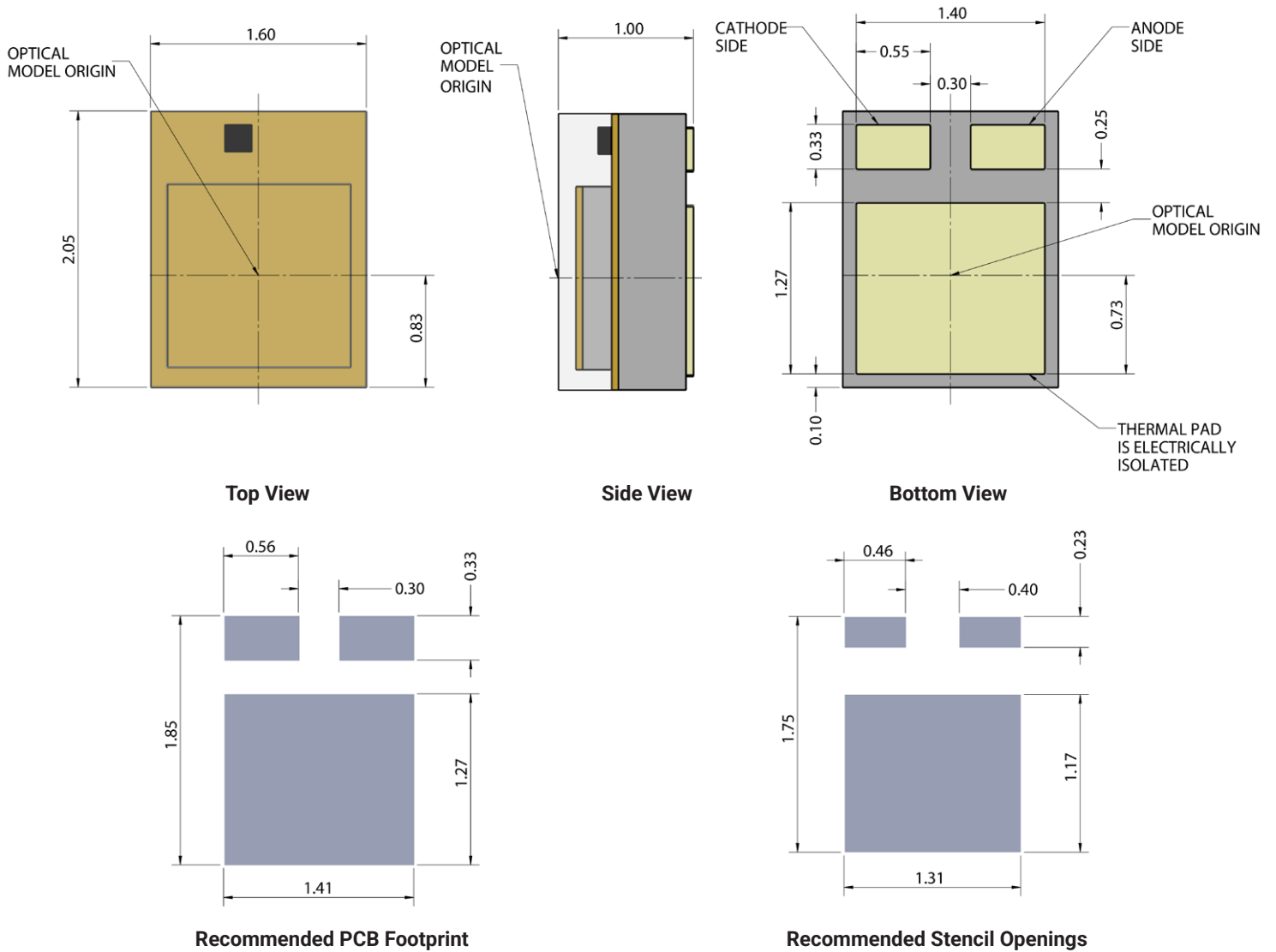
WARNING: Do not look at an exposed lamp in operation. Eye injury can result. For more information about LEDs and eye safety, please refer to the [LED Eye Safety application note](#).

MECHANICAL DIMENSIONS

Thermal vias, if present, are not shown on these drawings.

All dimensions in mm.

Measurement tolerances unless indicated otherwise: ± 0.13 mm

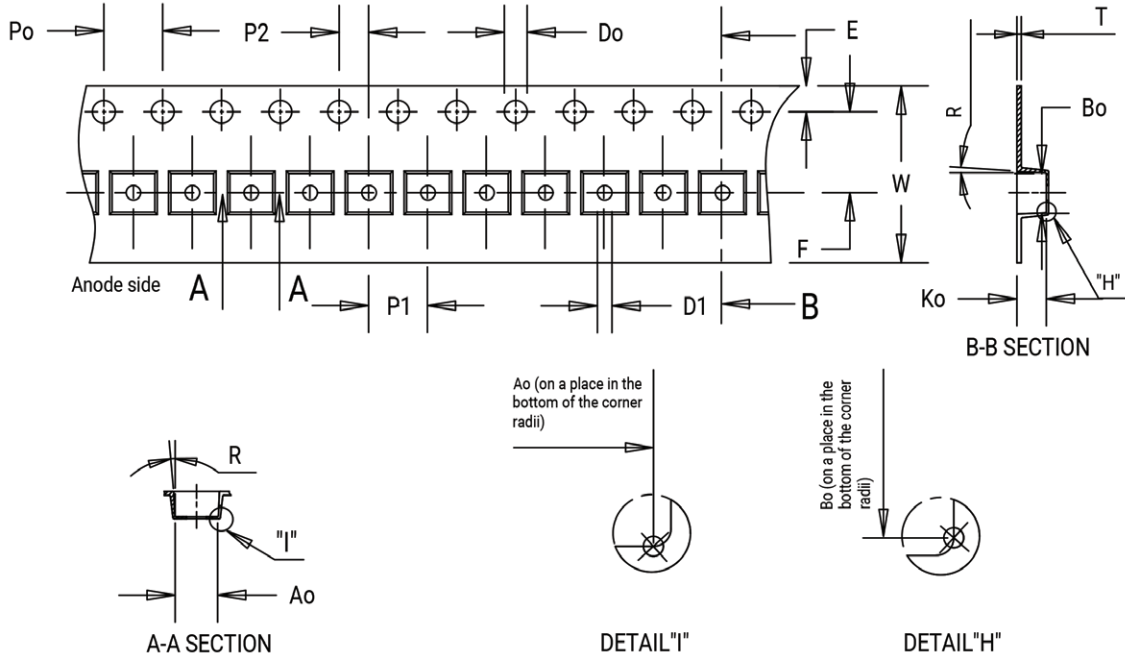


TAPE AND REEL

All Cree LED carrier tapes conform to EIA-481D, Automated Component Handling Systems Standard.

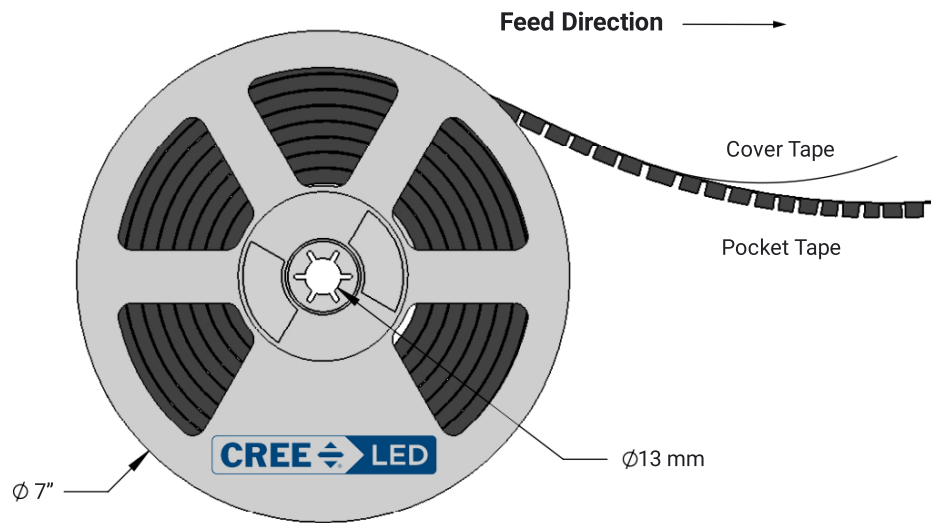
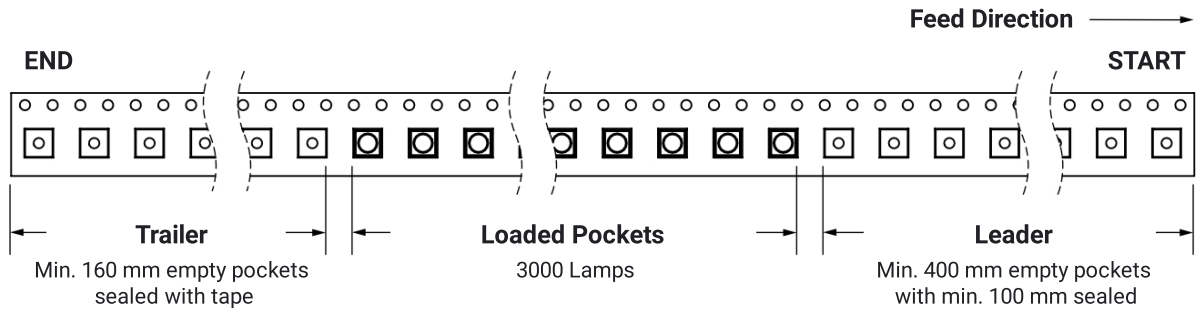
Except as noted, all dimensions in mm [in].

Measurement tolerances unless indicated otherwise: .xx = ±.15 mm



| Item | Ao | Bo | Ko | Po | P1 | P2 | T | E | F | Do | D1 | W | R |
|------|------|------|------|------|------|------|------|------|------|------|------|------|----|
| Dim. | 1.85 | 2.30 | 1.30 | 4.00 | 4.00 | 2.00 | 0.30 | 1.75 | 3.50 | 1.50 | 1.00 | 8.00 | 3° |

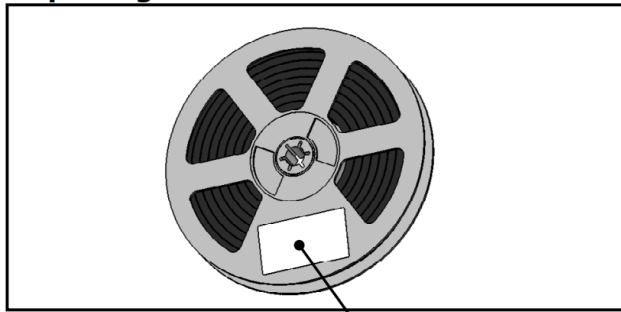
TAPE AND REEL - CONTINUED



PACKAGING

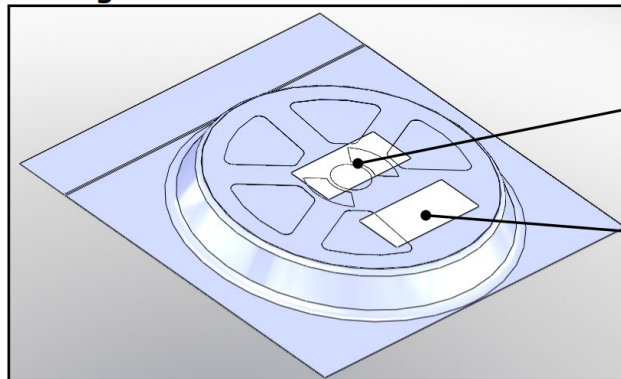
The diagrams below show the packaging and labels Cree LED uses to ship XLamp XE-G LEDs. XLamp XE-G LEDs are shipped in tape loaded on a reel. Each box contains only one reel in a moisture barrier bag.

Unpackaged Reel



Label with Cree LED Bin Code, Quantity, Reel ID

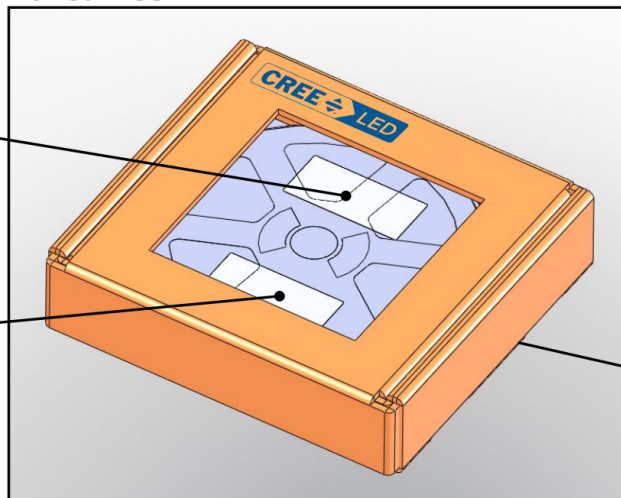
Packaged Reel



Label with Cree LED Order Code, Quantity, Reel ID, PO#

Label with Cree LED Bin Code, Quantity, Reel ID

Boxed Reel



Label with Cree LED Order Code, Quantity, Reel ID, PO#

Label with Cree LED Bin Code, Quantity, Reel ID

Patent Label (on bottom of box)

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS

The following order codes are active and valid order codes, but higher performance options are also available. Please see page 41 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

Please see page 4 - page 8 for order codes of XLamp EasyWhite XE-G LEDs that could serve as alternatives for the order codes set forth below.

| Nominal CCT | CRI | Minimum Luminous Flux @1000 mA | | | 2-Step | | 3-Step | | 5-Step | |
|-------------|-----|--------------------------------|----------|-------------------|--------------------|--------------------------------|------------|--------------------------------|------------|--------------------------------|
| | | Min. | Flux Bin | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Group | Order Code | Group | Order Code | Group |
| 6500 K | 70 | U3 | 320 | 351 | | | | | 65E | XEGAWT-H0-0000-000-00000BU365E |
| | | U2 | 300 | 329 | | | | | | XEGAWT-H0-0000-000-00000BU265E |
| | 80 | U2 | 300 | 329 | | | 65G | XEGAWT-H0-0000-000-00000HU265G | | |
| 5700 K | 70 | U3 | 320 | 351 | | | | | 57E | XEGAWT-H0-0000-000-00000BU357E |
| | | U2 | 300 | 329 | | | | | | XEGAWT-H0-0000-000-00000BU257E |
| | 80 | U2 | 300 | 329 | | | 57G | XEGAWT-H0-0000-000-00000HU257G | | |
| 5000 K | 70 | U3 | 320 | 351 | | | | | 50E | XEGAWT-H0-0000-000-00000BU350E |
| | | U2 | 300 | 329 | | | | | | XEGAWT-H0-0000-000-00000BU250E |
| | 80 | U2 | 300 | 329 | | | 50G | XEGAWT-H0-0000-000-00000HU250G | | |
| 4500 K | 70 | U3 | 320 | 351 | | | | | 45E | XEGAWT-H0-0000-000-00000BU345E |
| | | U2 | 300 | 329 | | | | | | XEGAWT-H0-0000-000-00000BU245E |
| | 80 | U2 | 300 | 329 | | | 45G | XEGAWT-H0-0000-000-00000HU245G | | |
| | | T6 | 280 | 307 | | | | XEGAWT-H0-0000-000-00000HT645G | | |
| | 90 | T4 | 240 | 263 | | | 45G | XEGAWT-H0-0000-000-00000UT445G | | |
| 4000 K | 70 | U3 | 320 | 351 | | | | | 40E | XEGAWT-H0-0000-000-00000BU340E |
| | | U2 | 300 | 329 | | | | | | XEGAWT-H0-0000-000-00000BU240E |
| | 80 | U2 | 300 | 329 | 40H | XEGAWT-H0-0000-000-00000HU240H | 40G | XEGAWT-H0-0000-000-00000HU240G | | |
| | | T6 | 280 | 307 | | XEGAWT-H0-0000-000-00000HT640H | | XEGAWT-H0-0000-000-00000HT640G | | |
| | | T5 | 260 | 285 | | XEGAWT-H0-0000-000-00000HT540H | | XEGAWT-H0-0000-000-00000HT540G | | |
| | 90 | T4 | 240 | 263 | 40H | XEGAWT-H0-0000-000-00000UT440H | 40G | XEGAWT-H0-0000-000-00000UT440G | | |

- Note**
- Cree LED 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. See the Measurements section (page 104).

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS - CONTINUED

| Nominal CCT | CRI | Minimum Luminous Flux @1000 mA | | | 2-Step | | 3-Step | | 5-Step | |
|-------------|------|--------------------------------|-------------------|--------------------|--------|--------------------------------|--------|--------------------------------|--------|--------------------------------|
| | Min. | Flux Bin | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Group | Order Code | Group | Order Code | Group | Order Code |
| 3500 K | 70 | U2 | 300 | 329 | | | | | 35E | XEGAWT-H0-0000-000-00000BU235E |
| | | T6 | 280 | 307 | | | | | | XEGAWT-H0-0000-000-00000BT635E |
| | 80 | T5 | 260 | 285 | 35H | XEGAWT-H0-0000-000-00000HT535H | 35G | XEGAWT-H0-0000-000-00000HT535G | | |
| 3000 K | 70 | U2 | 300 | 329 | | | | | 35E | XEGAWT-H0-0000-000-00000BU230E |
| | | T6 | 280 | 307 | | | | | | XEGAWT-H0-0000-000-00000BT630E |
| | 80 | T5 | 260 | 285 | 30H | XEGAWT-H0-0000-000-00000HT530H | 30G | XEGAWT-H0-0000-000-00000HT530G | | |
| | | T4 | 240 | 263 | | XEGAWT-H0-0000-000-00000HT430H | | XEGAWT-H0-0000-000-00000HT430G | | |
| | 90 | T3 | 220 | 241 | 30H | XEGAWT-H0-0000-000-00000UT330H | 30G | XEGAWT-H0-0000-000-00000UT330G | | |
| 2700 K | 70 | T6 | 280 | 307 | | | | | 27E | XEGAWT-H0-0000-000-00000BT627E |
| | | T5 | 260 | 285 | | | | | | XEGAWT-H0-0000-000-00000BT527E |
| | 80 | T4 | 240 | 263 | 27H | XEGAWT-H0-0000-000-00000HT427H | 27G | XEGAWT-H0-0000-000-00000HT427G | | |
| | | T3 | 220 | 241 | | XEGAWT-H0-0000-000-00000HT327H | | XEGAWT-H0-0000-000-00000HT327G | | |
| | 90 | T2 | 200 | 219 | 27H | XEGAWT-H0-0000-000-00000UT227H | 27G | XEGAWT-H0-0000-000-00000UT227G | | |
| 2200 K | 70 | T4 | 240 | 263 | | | | | 27E | XEGAWT-H0-0000-000-00000BT422E |
| | | T3 | 220 | 241 | | | | | | XEGAWT-H0-0000-000-00000BT322E |

Please see page 9 - page 10 for order codes of XLamp XE-G ANSI white LEDs that could serve as alternatives for the order codes set forth below.

| Chromaticity | | Minimum Luminous Flux (lm) @ 1000 mA | | | Order Codes | |
|--------------|--------|--------------------------------------|-------------------|--------------------|--------------------------------|--------------------------------|
| Kit | CCT | Code | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | No Minimum CRI | 70 CRI Minimum |
| DT | 7000 K | U4 | 340 | 373 | XEGAWT-H0-0000-000-000000U40DT | |
| | | U3 | 320 | 351 | XEGAWT-H0-0000-000-000000U30DT | XEGAWT-H0-0000-000-00000BU30DT |
| | | U2 | 300 | 329 | XEGAWT-H0-0000-000-000000U20DT | XEGAWT-H0-0000-000-00000BU20DT |
| E1 | 6500 K | U4 | 340 | 373 | XEGAWT-H0-0000-000-000000U40E1 | |
| | | U3 | 320 | 351 | XEGAWT-H0-0000-000-000000U30E1 | XEGAWT-H0-0000-000-00000BU30E1 |
| | | U2 | 300 | 329 | XEGAWT-H0-0000-000-000000U20E1 | XEGAWT-H0-0000-000-00000BU20E1 |

- Note
- Cree LED 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. See the Measurements section (page 104).

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS - CONTINUED

| Chromaticity | | Minimum Luminous Flux (lm) @ 1000 mA | | | Order Codes | |
|--------------|--------|--------------------------------------|-------------------|--------------------|--------------------------------|---------------------------------|
| Kit | CCT | Code | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | No Minimum CRI | 70 CRI Minimum |
| DV | 5700 K | U4 | 340 | 373 | XEGAWT-H0-0000-000-000000U40DV | |
| | | U3 | 320 | 351 | XEGAWT-H0-0000-000-000000U30DV | XEGAWT-H0-0000-000-000000BU30DV |
| | | U2 | 300 | 329 | XEGAWT-H0-0000-000-000000U20DV | XEGAWT-H0-0000-000-000000BU20DV |
| E2 | 5700 K | U4 | 340 | 373 | XEGAWT-H0-0000-000-000000U40E2 | |
| | | U3 | 320 | 351 | XEGAWT-H0-0000-000-000000U30E2 | XEGAWT-H0-0000-000-000000BU30E2 |
| | | U2 | 300 | 329 | XEGAWT-H0-0000-000-000000U20E2 | XEGAWT-H0-0000-000-000000BU20E2 |
| E3 | 5000 K | U4 | 340 | 373 | XEGAWT-H0-0000-000-000000U40E3 | |
| | | U3 | 320 | 351 | XEGAWT-H0-0000-000-000000U30E3 | XEGAWT-H0-0000-000-000000BU30E3 |
| | | U2 | 300 | 329 | XEGAWT-H0-0000-000-000000U20E3 | XEGAWT-H0-0000-000-000000BU20E3 |
| E4 | 4500 K | U3 | 320 | 351 | | XEGAWT-H0-0000-000-000000BU30E4 |
| | | U2 | 300 | 329 | | XEGAWT-H0-0000-000-000000BU20E4 |
| E5 | 4000 K | U3 | 320 | 351 | | XEGAWT-H0-0000-000-000000BU30E5 |
| | | U2 | 300 | 329 | | XEGAWT-H0-0000-000-000000BU20E5 |
| E6 | 3500 K | U2 | 300 | 329 | | XEGAWT-H0-0000-000-000000BU20E6 |
| | | T6 | 280 | 307 | | XEGAWT-H0-0000-000-000000BT60E6 |
| E7 | 3000 K | U2 | 300 | 329 | | XEGAWT-H0-0000-000-000000BU20E7 |
| | | T6 | 280 | 307 | | XEGAWT-H0-0000-000-000000BT60E7 |
| E8 | 2700 K | T6 | 280 | 307 | | XEGAWT-H0-0000-000-000000BT60E8 |
| | | T5 | 260 | 285 | | XEGAWT-H0-0000-000-000000BT50E8 |
| EA | 2200 K | T4 | 240 | 263 | | XEGAWT-H0-0000-000-000000BT40EA |
| | | T3 | 220 | 241 | | XEGAWT-H0-0000-000-000000BT30EA |

- Note
- Cree LED 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. See the Measurements section (page 104).

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS - CONTINUED

Please see page 15 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| Violet | | Minimum Radiant Flux (mW) @ 1000 mA | | Order Codes |
|--------|----------------------|-------------------------------------|-----------|---------------------------------|
| Kit | Peak Wavelength (nm) | Code | Flux (mW) | |
| 001 | 400-420 | K2 | 1400 | XEGA VT-H0-0000-000-000000K2001 |

Please see page 19 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| Royal Blue | | Minimum Radiant Flux (mW) @ 1000 mA | | Order Codes |
|------------|--------------------------|-------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (mW) | |
| 001 | 450 - 465 | K2 | 1400 | XEGARY-H0-0000-000-000000K2001 |
| 002 | 450 - 460 | K2 | 1400 | XEGARY-H0-0000-000-000000K2002 |
| 003 | 455 - 465 | K2 | 1400 | XEGARY-H0-0000-000-000000K2003 |

Please see page 23 - page 24 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| Blue | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 465-485 | P4 | 80.6 | XEGABL-H0-0000-000-000000P4001 |
| | | P3 | 73.9 | XEGABL-H0-0000-000-000000P3001 |
| 002 | 465-480 | P4 | 80.6 | XEGABL-H0-0000-000-000000P4002 |
| | | P3 | 73.9 | XEGABL-H0-0000-000-000000P3002 |
| 003 | 470-485 | Q4 | 100 | XEGABL-H0-0000-000-000000Q4003 |
| | | Q3 | 93.9 | XEGABL-H0-0000-000-000000Q3003 |
| | | Q2 | 87.4 | XEGABL-H0-0000-000-000000Q2003 |
| 004 | 465-475 | P4 | 80.6 | XEGABL-H0-0000-000-000000P4004 |
| | | P3 | 73.9 | XEGABL-H0-0000-000-000000P3004 |
| 005 | 470-480 | Q4 | 100 | XEGABL-H0-0000-000-000000Q4005 |
| | | Q3 | 93.9 | XEGABL-H0-0000-000-000000Q3005 |
| | | Q2 | 87.4 | XEGABL-H0-0000-000-000000Q2005 |
| 006 | 475-485 | R2 | 114 | XEGABL-H0-0000-000-000000R2006 |
| | | Q5 | 107 | XEGABL-H0-0000-000-000000Q5006 |

- Note**
- Cree LED 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. See the Measurements section (page 104).

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS - CONTINUED

Please see page 28 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| PC Blue | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|---------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | N4B & N5B | S2 | 148 | XEGAPB-H0-0000-000-000000S2001 |
| | | R5 | 139 | XEGAPB-H0-0000-000-000000R5001 |
| | | R4 | 130 | XEGAPB-H0-0000-000-000000R4001 |
| | | R3 | 122 | XEGAPB-H0-0000-000-000000R3001 |

Please see page 32 - page 33 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| Cyan | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 490-510 | S3 | 156 | XEGACY-H0-0000-000-000000S3001 |
| | | S2 | 148 | XEGACY-H0-0000-000-000000S2001 |
| 002 | 490-505 | S3 | 156 | XEGACY-H0-0000-000-000000S3002 |
| | | S2 | 148 | XEGACY-H0-0000-000-000000S2002 |
| 003 | 495-510 | T1 | 180 | XEGACY-H0-0000-000-000000T1003 |
| | | S5 | 172 | XEGACY-H0-0000-000-000000S5003 |

Please see page 41 - page 42 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| Green | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|-------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 520 - 535 | U3 | 320 | XEGAGR-H0-0000-000-000000U3001 |
| 002 | 520 - 530 | U3 | 320 | XEGAGR-H0-0000-000-000000U3002 |
| 003 | 525 - 535 | U3 | 320 | XEGAGR-H0-0000-000-000000U3003 |

Note

- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS - CONTINUED

Please see page 46 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| PC Mint | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|---------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PM3 & PM4 | V3 | 420 | XEGAPM-H0-0000-000-000000V3001 |
| | | V2 | 400 | XEGAPM-H0-0000-000-000000V2001 |
| 002 | PM3 | V3 | 420 | XEGAPM-H0-0000-000-000000V3002 |
| | | V2 | 400 | XEGAPM-H0-0000-000-000000V2002 |
| 003 | PM4 | V3 | 420 | XEGAPM-H0-0000-000-000000V3003 |
| | | V2 | 400 | XEGAPM-H0-0000-000-000000V2003 |

Please see page 50 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| PC Lime | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|---------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PL3 & PL4 | V3 | 430 | XEGAPL-H0-0000-000-000000V3001 |
| 002 | PL3 | V4 | 440 | XEGAPL-H0-0000-000-000000V4002 |
| 003 | PL4 | V3 | 420 | XEGAPL-H0-0000-000-000000V3003 |

Please see page 54 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| PC Yellow | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|-----------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PY0 | U6 | 380 | XEGAPY-H0-0000-000-000000U6001 |
| | | U5 | 360 | XEGAPY-H0-0000-000-000000U5001 |

Please see page 58 - page 59 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| Amber | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|-------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 585 - 595 | Q5 | 107 | XEGAAM-H0-0000-000-000000Q5001 |
| 002 | 585-590 | Q5 | 107 | XEGAAM-H0-0000-000-000000Q5002 |
| 003 | 590-595 | R2 | 114 | XEGAAM-H0-0000-000-000000R2003 |

- Note**
- Cree LED 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. See the Measurements section (page 104).

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS - CONTINUED

Please see page 63 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| PC Amber | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|----------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | Y20 | T3 | 220 | XEGAPA-H0-0000-000-000000T3001 |

Please see page 67 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| Red-Orange | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|------------|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 610 - 620 | S5 | 172 | XEGARO-H0-0000-000-000000S5001 |

Please see page 71 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| PC Red-Orange | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|---------------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PD0 | S4 | 164 | XEGAPO-H0-0000-000-000000S4001 |
| | | S3 | 156 | XEGAPO-H0-0000-000-000000S3001 |

Please see page 75 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| Red | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|-----|--------------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Dominant Wavelength (nm) | Code | Flux (lm) | |
| 001 | 620 - 630 | S2 | 148 | XEGARD-H0-0000-000-000000S2001 |
| | | R5 | 139 | XEGARD-H0-0000-000-000000R5001 |
| | | R4 | 130 | XEGARD-H0-0000-000-000000R4001 |

Please see page 79 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| PC Red | | Minimum Luminous Flux (lm) @ 1000 mA | | Order Codes |
|--------|------------------|--------------------------------------|-----------|--------------------------------|
| Kit | Chromaticity Bin | Code | Flux (lm) | |
| 001 | PR0 | M2 | 39.8 | XEGAPR-H0-0000-000-000000M2001 |

Note

- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).

APPENDIX - ORDER CODES NOT FOR NEW DESIGNS - CONTINUED

Please see page 83 for order codes of XLamp XE-G LEDs that could serve as alternatives for the order codes set forth below.

| Photo Red | | Minimum Radiant Flux (mW) @ 1000 mA | | Order Codes |
|-----------|----------------------|---------------------------------------|-----------|--------------------------------|
| Kit | Peak Wavelength (nm) | Code | Flux (mW) | |
| 001 | 650 - 670 | J2 | 1000 | XEGAHR-H0-0000-000-000000J2001 |
| | | H8 | 900 | XEGAHR-H0-0000-000-000000H8001 |
| | | H6 | 800 | XEGAHR-H0-0000-000-000000H6001 |

Note

- Cree LED maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements. See the Measurements section (page 104).