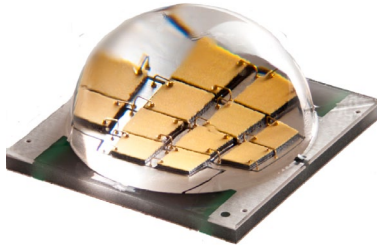


# Cree® XLamp® MT-G EasyWhite® LEDs



## PRODUCT DESCRIPTION

The XLamp® MT-G EasyWhite® LED maximizes lumen density, eliminates chromaticity binning and enables luminaire and bulb manufacturers to deliver consistent color and high-efficacy light output in a new, compact, multi-die package. XLamp MT-G EasyWhite LEDs can reduce LED-to-LED color variation to within a 2-step MacAdam ellipse, 94% smaller than the total area of the corresponding ANSI C78.377 color region.

The XLamp MT-G EasyWhite LED is the perfect choice for lighting applications where high luminous flux output is required from a single, small point source. Example applications include: LED retrofit bulbs, commercial/retail display spotlights, and other indoor general illumination applications.

## FEATURES

- Cree EasyWhite color temperatures from 2700 K to 5000 K CCT
- Wide range of operating power - up to 25 W
- 85 °C binning and characterization
- Two voltage options: 6 V, 36 V
- Low effective thermal resistance: 1.5 °C/W
- High lumen density
- Wide viewing angle: 120°
- 80-minimum CRI at 2700 K and 3000 K CCT
- 85- and 90-minimum CRI available in 2700 K and 3000 K CCT
- Electrically neutral thermal path
- RoHS and REACH compliant
- UL® recognized component (E349212)

## APPLICATIONS

- MR, PAR and other directional retrofit bulbs
- Commercial/residential directional lighting
- General illumination

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## CHARACTERISTICS

| Characteristics                                        | Unit    | Minimum | Typical | Maximum |
|--------------------------------------------------------|---------|---------|---------|---------|
| Viewing angle (FWHM)                                   | degrees |         | 120     |         |
| ESD withstand voltage (HBM per Mil-Std-883D)           | V       |         |         | 8000    |
| Effective thermal resistance, junction to solder point | °C/W    |         | 1.5     |         |
| LED junction temperature                               | °C      |         |         | 150     |
| DC forward current (6 V)                               | mA      |         | 1100    | 4000    |
| DC forward current (36 V)                              | mA      |         | 185     | 700     |
| Forward voltage (6 V, 1100 mA, 85 °C)                  | V       |         | 5.6     | 6.7     |
| Forward voltage (36 V, 185 mA, 85 °C)                  | V       |         | 33.5    | 40.2    |
| Temperature coefficient of voltage (6 V)               | mV/°C   |         | -4.5    |         |
| Temperature coefficient of voltage (36 V)              | mV/°C   |         | -27     |         |
| Reverse voltage (6 V)                                  | V       |         |         | -5      |
| Reverse current (6V, 36 V)                             | mA      |         |         | 0.1     |

## FLUX CHARACTERISTICS, EASYWHITE® ORDER CODES AND BINS - 6 V ( $I_F = 1100 \text{ mA}$ , $T_J = 85^\circ \text{C}$ )

The following tables provide order codes for 6-volt XLamp MT-G EasyWhite LEDs. For a complete description of the order code nomenclature, please reference page 12 of this document.

| Color          | CCT Range | Minimum Luminous Flux @ 1100 mA |                   |                    | 2-Step              |                          | 4-Step              |                          |
|----------------|-----------|---------------------------------|-------------------|--------------------|---------------------|--------------------------|---------------------|--------------------------|
|                |           | Group                           | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Chromaticity Region | Order Code               | Chromaticity Region | Order Code               |
| Standard CRI   | 5000 K    | H0                              | 560               | 642                | 50H                 | MTGEZW-00-0000-0B00H050H | 50F                 | MTGEZW-00-0000-0B00H050F |
|                |           | J0                              | 600               | 688                |                     | MTGEZW-00-0000-0B00J050H |                     | MTGEZW-00-0000-0B00J050F |
|                |           | K0                              | 650               | 745                |                     | MTGEZW-00-0000-0B00K050H |                     | MTGEZW-00-0000-0B00K050F |
|                | 4000 K    | F0                              | 480               | 550                | 40H                 | MTGEZW-00-0000-0B00F040H | 40F                 | MTGEZW-00-0000-0B00F040F |
|                |           | G0                              | 520               | 596                |                     | MTGEZW-00-0000-0B00G040H |                     | MTGEZW-00-0000-0B00G040F |
|                |           | H0                              | 560               | 642                |                     | MTGEZW-00-0000-0B00H040H |                     | MTGEZW-00-0000-0B00H040F |
|                |           | J0                              | 600               | 688                |                     | MTGEZW-00-0000-0B00J040H |                     | MTGEZW-00-0000-0B00J040F |
|                | 3500 K    | E0                              | 440               | 504                | 35H                 | MTGEZW-00-0000-0B00E035H | 35F                 | MTGEZW-00-0000-0B00E035F |
|                |           | F0                              | 480               | 550                |                     | MTGEZW-00-0000-0B00F035H |                     | MTGEZW-00-0000-0B00F035F |
|                |           | G0                              | 520               | 596                |                     | MTGEZW-00-0000-0B00G035H |                     | MTGEZW-00-0000-0B00G035F |
|                |           | H0                              | 560               | 642                |                     | MTGEZW-00-0000-0B00H035H |                     | MTGEZW-00-0000-0B00H035F |
|                | 3000 K    | E0                              | 440               | 504                | 30H                 | MTGEZW-00-0000-0B00E030H | 30F                 | MTGEZW-00-0000-0B00E030F |
|                |           | F0                              | 480               | 550                |                     | MTGEZW-00-0000-0B00F030H |                     | MTGEZW-00-0000-0B00F030F |
|                |           | G0                              | 520               | 596                |                     | MTGEZW-00-0000-0B00G030H |                     | MTGEZW-00-0000-0B00G030F |
|                |           | H0                              | 560               | 642                |                     | MTGEZW-00-0000-0B00H030H |                     | MTGEZW-00-0000-0B00H030F |
|                | 2700 K    | D0                              | 400               | 458                | 27H                 | MTGEZW-00-0000-0B00D027H | 27F                 | MTGEZW-00-0000-0B00D027F |
|                |           | E0                              | 440               | 504                |                     | MTGEZW-00-0000-0B00E027H |                     | MTGEZW-00-0000-0B00E027F |
|                |           | F0                              | 480               | 550                |                     | MTGEZW-00-0000-0B00F027H |                     | MTGEZW-00-0000-0B00F027F |
|                |           | G0                              | 520               | 596                |                     | MTGEZW-00-0000-0B00G027H |                     | MTGEZW-00-0000-0B00G027F |
| 85 CRI Minimum | 3000 K    | D0                              | 400               | 458                | 30H                 | MTGEZW-00-0000-0B0PD030H | 30F                 | MTGEZW-00-0000-0B0PD030F |
|                |           | E0                              | 440               | 504                |                     | MTGEZW-00-0000-0B0PE030H |                     | MTGEZW-00-0000-0B0PE030F |
|                |           | F0                              | 480               | 550                |                     | MTGEZW-00-0000-0B0PF030H |                     | MTGEZW-00-0000-0B0PF030F |
|                | 2700 K    | D0                              | 400               | 458                | 27H                 | MTGEZW-00-0000-0B0PD027H | 27F                 | MTGEZW-00-0000-0B0PD027F |
|                |           | E0                              | 440               | 504                |                     | MTGEZW-00-0000-0B0PE027H |                     | MTGEZW-00-0000-0B0PE027F |
|                |           |                                 |                   |                    |                     |                          |                     |                          |

### Notes:

- Cree maintains a tolerance of  $\pm 7\%$  on flux and power measurements,  $\pm 0.005$  on chromaticity (CCx, CCy) measurements and  $\pm 2$  on CRI measurements. See the Measurements section (page 14).
- Minimum CRI for Standard color temperatures 27F, 27H, 30F, 30H is 80.
- Minimum CRI for Standard color temperatures 35F, 35H, 40F, 40H is 77.
- Minimum CRI for Standard color temperature 50F, 50H is 75.
- Typical CRI for Standard color temperatures 35F, 35H, 40F, 40H is 80.
- Minimum CRI for 85 CRI Minimum is 85.
- Minimum CRI for 90 CRI Minimum is 90.
- \* Flux values @ 25 °C are calculated and for reference only.

# FLUX CHARACTERISTICS, EASYWHITE® ORDER CODES AND BINS - 6 V ( $I_F = 1100 \text{ mA}$ , $T_J = 85 \text{ }^\circ\text{C}$ ) - CONTINUED

| Color          | CCT Range | Minimum Luminous Flux @ 1100 mA |                   |                    | 2-Step              |                          | 4-Step              |                          |
|----------------|-----------|---------------------------------|-------------------|--------------------|---------------------|--------------------------|---------------------|--------------------------|
|                |           | Group                           | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Chromaticity Region | Order Code               | Chromaticity Region | Order Code               |
| 90 CRI Minimum | 3000 K    | C0                              | 370               | 424                | 30H                 | MTGEZW-00-0000-0B0UC030H | 30F                 | MTGEZW-00-0000-0B0UC030F |
|                |           | D0                              | 400               | 458                |                     | MTGEZW-00-0000-0B0UD030H |                     | MTGEZW-00-0000-0B0UD030F |
|                |           | E0                              | 440               | 504                |                     | MTGEZW-00-0000-0B0UE030H |                     | MTGEZW-00-0000-0B0UE030F |
|                | 2700 K    | B0                              | 340               | 390                | 27H                 | MTGEZW-00-0000-0B0UB027H | 27F                 | MTGEZW-00-0000-0B0UB027F |
|                |           | C0                              | 370               | 424                |                     | MTGEZW-00-0000-0B0UC027H |                     | MTGEZW-00-0000-0B0UC027F |
|                |           | D0                              | 400               | 458                |                     | MTGEZW-00-0000-0B0UD027H |                     | MTGEZW-00-0000-0B0UD027F |

## Notes:

- Cree maintains a tolerance of  $\pm 7\%$  on flux and power measurements,  $\pm 0.005$  on chromaticity (CCx, CCy) measurements and  $\pm 2$  on CRI measurements. See the Measurements section (page 14).
- Minimum CRI for Standard color temperatures 27F, 27H, 30F, 30H is 80.
- Minimum CRI for Standard color temperatures 35F, 35H, 40F, 40H is 77.
- Minimum CRI for Standard color temperature 50F, 50H is 75.
- Typical CRI for Standard color temperatures 35F, 35H, 40F, 40H is 80.
- Minimum CRI for 85 CRI Minimum is 85.
- Minimum CRI for 90 CRI Minimum is 90.
- \* Flux values @ 25 °C are calculated and for reference only.

**FLUX CHARACTERISTICS, EASYWHITE® ORDER CODES AND BINS - 36 V ( $I_F = 185 \text{ mA}$ ,  $T_J = 85^\circ \text{C}$ )**

The following table provide order codes for 36-volt XLamp MT-G EasyWhite LEDs. For a complete description of the order code nomenclature, please reference page 12 of this document.

| Color          | CCT Range | Minimum Luminous Flux @ 185 mA |                   |                    | 2-Step              |                          | 4-Step              |                          |
|----------------|-----------|--------------------------------|-------------------|--------------------|---------------------|--------------------------|---------------------|--------------------------|
|                |           | Group                          | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Chromaticity Region | Order Code               | Chromaticity Region | Order Code               |
| Standard CRI   | 5000 K    | H0                             | 560               | 642                | 50H                 | MTGEZW-00-0000-0N00H050H | 50F                 | MTGEZW-00-0000-0N00H050F |
|                |           | J0                             | 600               | 688                |                     | MTGEZW-00-0000-0N00J050H |                     | MTGEZW-00-0000-0N00J050F |
|                |           | K0                             | 650               | 745                |                     | MTGEZW-00-0000-0N00K050H |                     | MTGEZW-00-0000-0N00K050F |
|                | 4000 K    | F0                             | 480               | 550                | 40H                 | MTGEZW-00-0000-0N00F040H | 40F                 | MTGEZW-00-0000-0N00F040F |
|                |           | G0                             | 520               | 596                |                     | MTGEZW-00-0000-0N00G040H |                     | MTGEZW-00-0000-0N00G040F |
|                |           | H0                             | 560               | 642                |                     | MTGEZW-00-0000-0N00H040H |                     | MTGEZW-00-0000-0N00H040F |
|                |           | J0                             | 600               | 688                |                     | MTGEZW-00-0000-0N00J040H |                     | MTGEZW-00-0000-0N00J040F |
|                | 3500 K    | E0                             | 440               | 504                | 35H                 | MTGEZW-00-0000-0N00E035H | 35F                 | MTGEZW-00-0000-0N00E035F |
|                |           | F0                             | 480               | 550                |                     | MTGEZW-00-0000-0N00F035H |                     | MTGEZW-00-0000-0N00F035F |
|                |           | G0                             | 520               | 596                |                     | MTGEZW-00-0000-0N00G035H |                     | MTGEZW-00-0000-0N00G035F |
|                |           | H0                             | 560               | 642                |                     | MTGEZW-00-0000-0N00H035H |                     | MTGEZW-00-0000-0N00H035F |
|                | 3000 K    | E0                             | 440               | 504                | 30H                 | MTGEZW-00-0000-0N00E030H | 30F                 | MTGEZW-00-0000-0N00E030F |
|                |           | F0                             | 480               | 550                |                     | MTGEZW-00-0000-0N00F030H |                     | MTGEZW-00-0000-0N00F030F |
|                |           | G0                             | 520               | 596                |                     | MTGEZW-00-0000-0N00G030H |                     | MTGEZW-00-0000-0N00G030F |
|                |           | H0                             | 560               | 642                |                     | MTGEZW-00-0000-0N00H030H |                     | MTGEZW-00-0000-0N00H030F |
|                | 2700 K    | D0                             | 400               | 458                | 27H                 | MTGEZW-00-0000-0N00D027H | 27F                 | MTGEZW-00-0000-0N00D027F |
|                |           | E0                             | 440               | 504                |                     | MTGEZW-00-0000-0N00E027H |                     | MTGEZW-00-0000-0N00E027F |
|                |           | F0                             | 480               | 550                |                     | MTGEZW-00-0000-0N00F027H |                     | MTGEZW-00-0000-0N00F027F |
|                |           | G0                             | 520               | 596                |                     | MTGEZW-00-0000-0N00G027H |                     | MTGEZW-00-0000-0N00G027F |
| 85 CRI Minimum | 3000 K    | D0                             | 400               | 458                | 30H                 | MTGEZW-00-0000-0B0PD030H | 30F                 | MTGEZW-00-0000-0B0PD030F |
|                |           | E0                             | 440               | 504                |                     | MTGEZW-00-0000-0B0PE030H |                     | MTGEZW-00-0000-0B0PE030F |
|                |           | F0                             | 480               | 550                |                     | MTGEZW-00-0000-0B0PF030H |                     | MTGEZW-00-0000-0B0PF030F |
|                | 2700 K    | D0                             | 400               | 458                | 27H                 | MTGEZW-00-0000-0B0PD027H | 27F                 | MTGEZW-00-0000-0B0PD027F |
|                |           | E0                             | 440               | 504                |                     | MTGEZW-00-0000-0B0PE027H |                     | MTGEZW-00-0000-0B0PE027F |
|                |           |                                |                   |                    |                     |                          |                     |                          |

**Notes:**

- Cree maintains a tolerance of  $\pm 7\%$  on flux and power measurements,  $\pm 0.005$  on chromaticity (CCx, CCy) measurements and  $\pm 2$  on CRI measurements. See the Measurements section (page 14).
- Minimum CRI for Standard color temperatures 27F, 27H, 30F, 30H is 80.
- Minimum CRI for Standard color temperatures 35F, 35H, 40F, 40H is 77.
- Minimum CRI for Standard color temperature 50F, 50H is 75.
- Typical CRI for Standard color temperatures 35F, 35H, 40F, 40H is 80.
- Minimum CRI for 85 CRI Minimum is 85.
- Minimum CRI for 90 CRI Minimum is 90.
- \* Flux values @ 25 °C are calculated and for reference only.

# FLUX CHARACTERISTICS, EASYWHITE® ORDER CODES AND BINS - 36 V ( $I_F = 185 \text{ mA}$ , $T_J = 85 \text{ °C}$ ) - CONTINUED

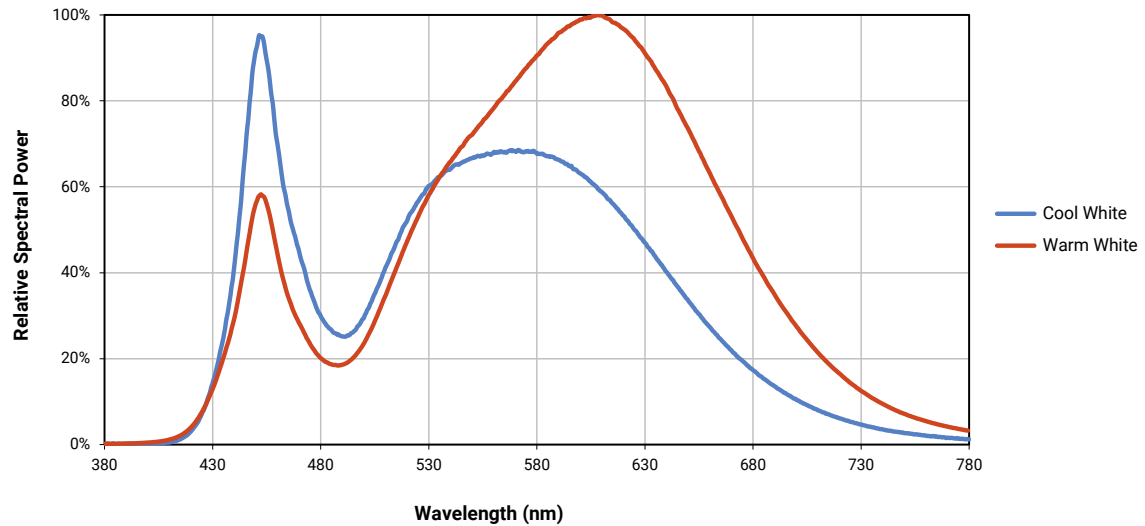
| Color          | CCT Range | Minimum Luminous Flux @ 185 mA |                   |                    | 2-Step              |                          | 4-Step              |                          |
|----------------|-----------|--------------------------------|-------------------|--------------------|---------------------|--------------------------|---------------------|--------------------------|
|                |           | Group                          | Flux (lm) @ 85 °C | Flux (lm) @ 25 °C* | Chromaticity Region | Order Code               | Chromaticity Region | Order Code               |
| 90 CRI Minimum | 3000 K    | C0                             | 370               | 424                | 30H                 | MTGEZW-00-0000-0B0UC030H | 30F                 | MTGEZW-00-0000-0B0UC030F |
|                |           | D0                             | 400               | 458                |                     | MTGEZW-00-0000-0B0UD030H |                     | MTGEZW-00-0000-0B0UD030F |
|                |           | E0                             | 440               | 504                |                     | MTGEZW-00-0000-0B0UE030H |                     | MTGEZW-00-0000-0B0UE030F |
|                | 2700 K    | B0                             | 340               | 390                | 27H                 | MTGEZW-00-0000-0B0UB027H | 27F                 | MTGEZW-00-0000-0B0UB027F |
|                |           | C0                             | 370               | 424                |                     | MTGEZW-00-0000-0B0UC027H |                     | MTGEZW-00-0000-0B0UC027F |
|                |           | D0                             | 400               | 458                |                     | MTGEZW-00-0000-0B0UD027H |                     | MTGEZW-00-0000-0B0UD027F |

## Notes:

- Cree maintains a tolerance of  $\pm 7\%$  on flux and power measurements,  $\pm 0.005$  on chromaticity (CCx, CCy) measurements and  $\pm 2$  on CRI measurements. See the Measurements section (page 14).
- Minimum CRI for Standard color temperatures 27F, 27H, 30F, 30H is 80.
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- Typical CRI for Standard color temperatures 35F, 35H, 40F, 40H is 80.
- Minimum CRI for 85 CRI Minimum is 85.
- Minimum CRI for 90 CRI Minimum is 90.
- \* Flux values @ 25 °C are calculated and for reference only.

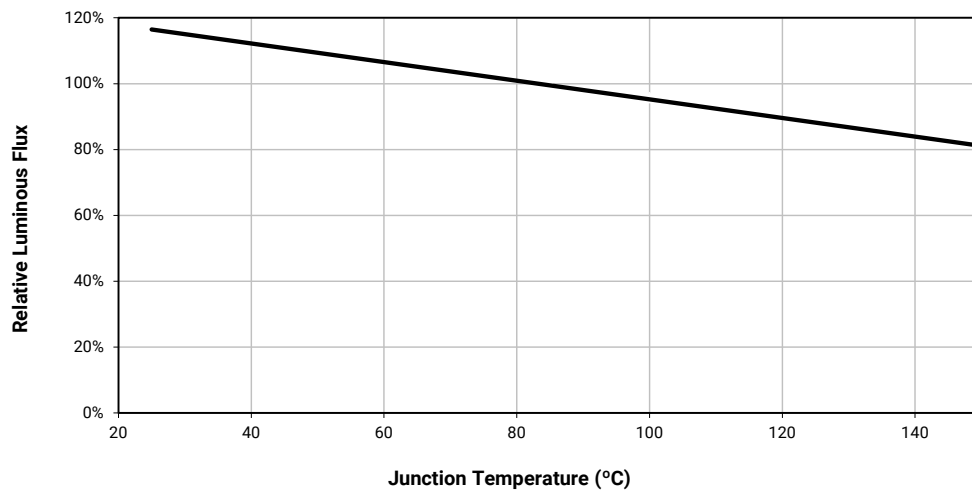
### RELATIVE SPECTRAL POWER DISTRIBUTION (6 V, 1100 mA; 36 V, 185 mA; $T_j = 85^\circ\text{C}$ )

The following graph represents typical spectral output of the XLamp MT-G EasyWhite LED.

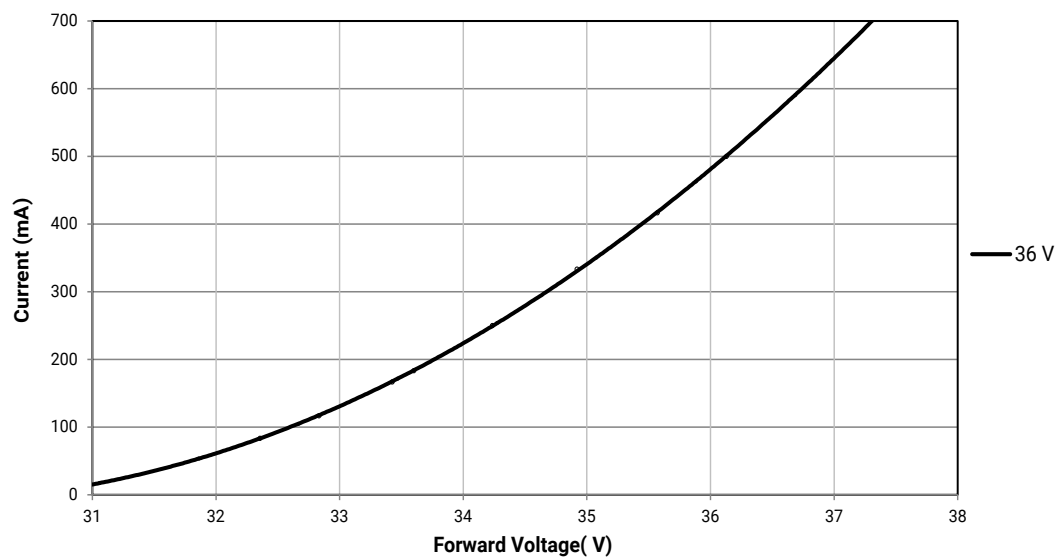
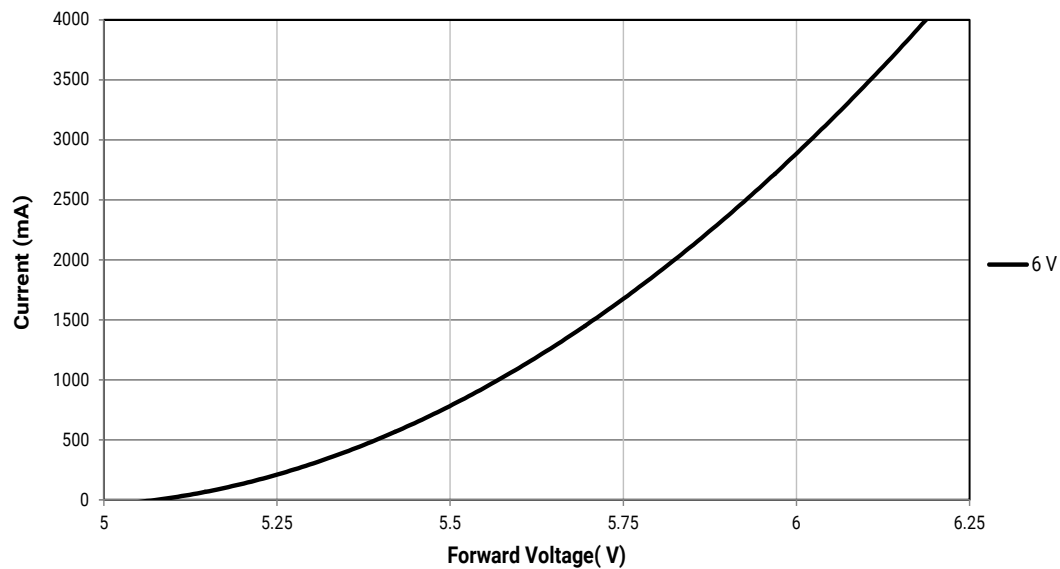


### RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE (6 V, 1100 mA; 36 V, 185 mA)

The following graph represents typical performance of the XLamp MT-G EasyWhite LED.

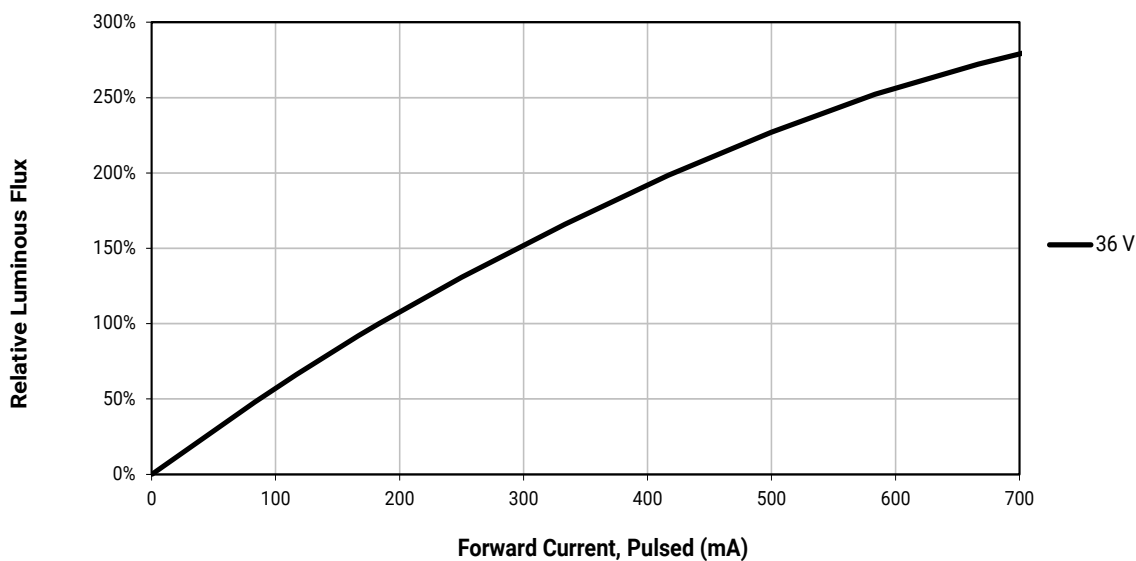
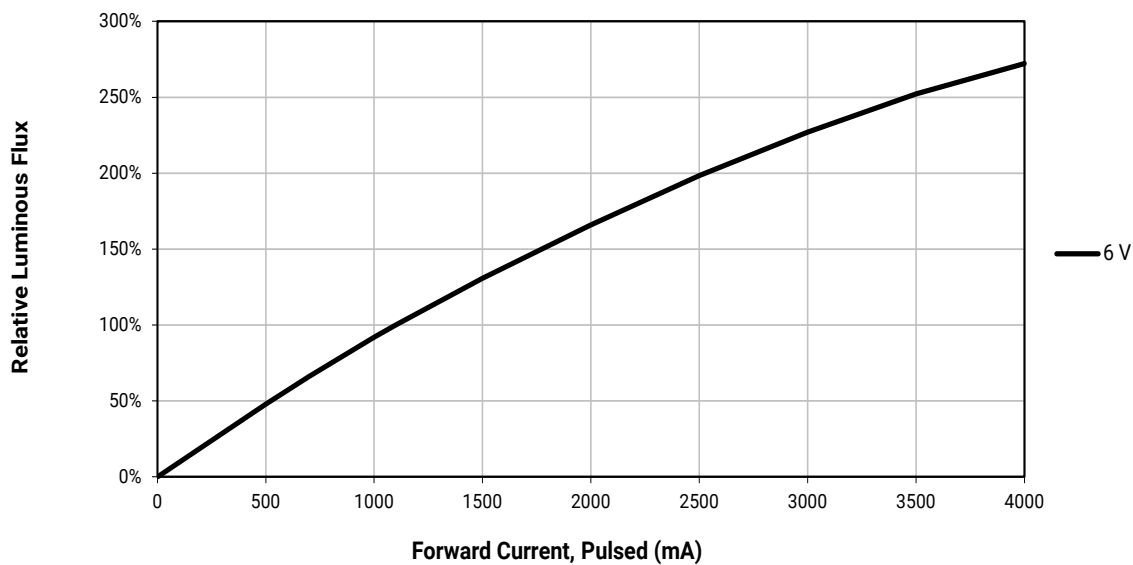


**ELECTRICAL CHARACTERISTICS ( $T_j = 85^\circ\text{C}$ )**



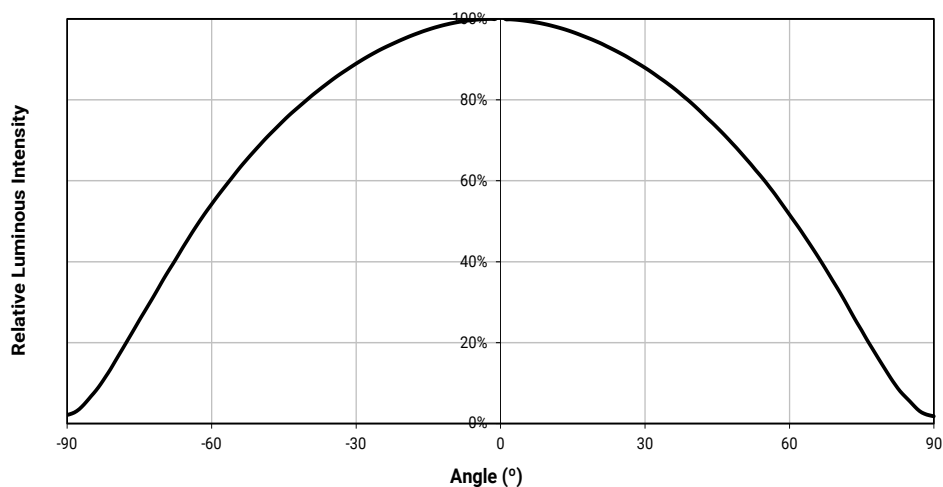


RELATIVE LUMINOUS FLUX VS. CURRENT ( $T_j = 85^\circ\text{C}$ )



## TYPICAL SPATIAL DISTRIBUTION

The following graph represents typical performance of the XLamp MT-G EasyWhite LED.



## PERFORMANCE GROUPS – BRIGHTNESS ( $T_J = 85\text{ }^{\circ}\text{C}$ )

XLamp MT-G EasyWhite LEDs are tested for luminosity and placed into one of the following bins.

| Group Code | Min. Luminous Flux<br>@ 1100 mA, 6 V;<br>@185 mA, 36 V | Max. Luminous Flux<br>@ 1100 mA, 6 V;<br>@185 mA, 36 V |
|------------|--------------------------------------------------------|--------------------------------------------------------|
| A0         | 310                                                    | 340                                                    |
| B0         | 340                                                    | 370                                                    |
| C0         | 370                                                    | 400                                                    |
| D0         | 400                                                    | 440                                                    |
| E0         | 440                                                    | 480                                                    |
| F0         | 480                                                    | 520                                                    |
| G0         | 520                                                    | 560                                                    |
| H0         | 560                                                    | 600                                                    |
| J0         | 600                                                    | 650                                                    |
| K0         | 650                                                    | 700                                                    |

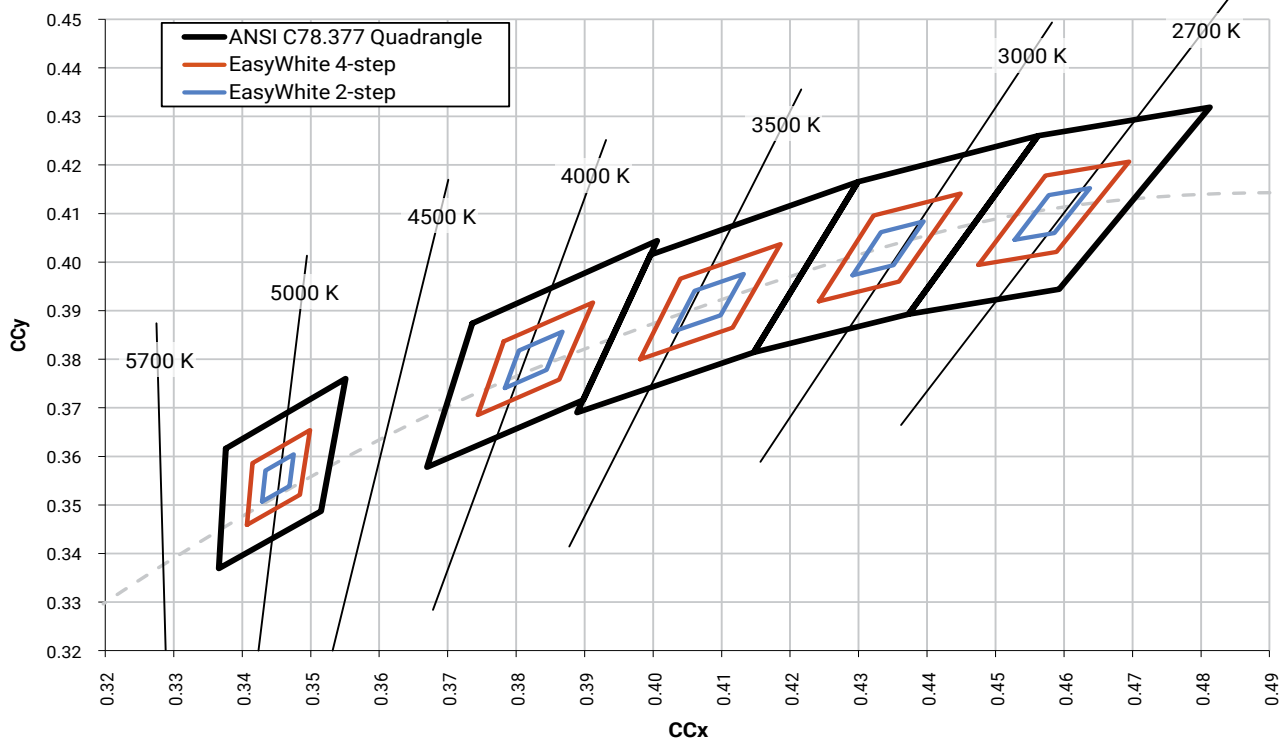
## PERFORMANCE GROUPS – CHROMATICITY ( $T_j = 85\text{ }^{\circ}\text{C}$ )

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

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

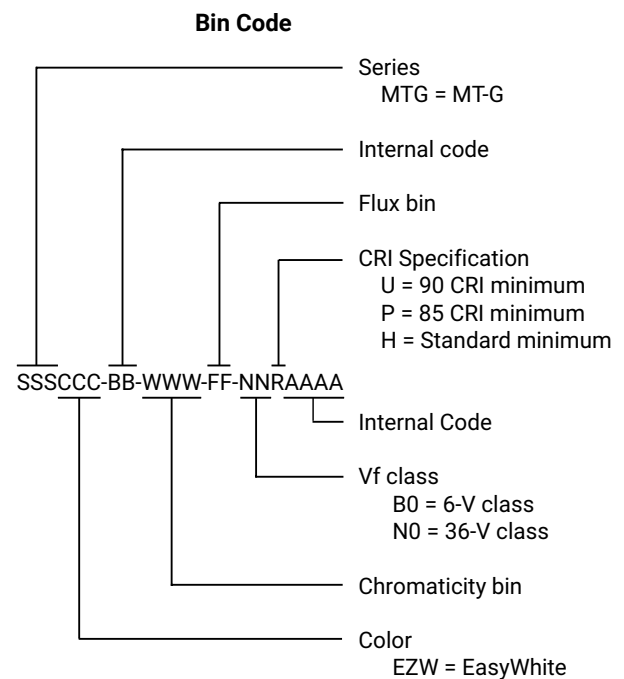
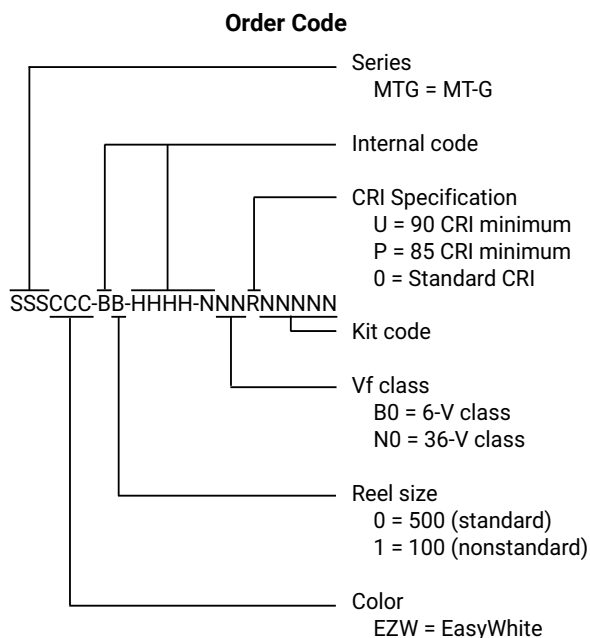
| EasyWhite® Color Temperatures – 4-Step |        |        |        |
|----------------------------------------|--------|--------|--------|
| Code                                   | CCT    | x      | y      |
| 50H                                    | 5000 K | 0.3429 | 0.3507 |
|                                        |        | 0.3434 | 0.3571 |
|                                        |        | 0.3475 | 0.3604 |
|                                        |        | 0.3469 | 0.3539 |
| 40H                                    | 4000 K | 0.3784 | 0.3741 |
|                                        |        | 0.3804 | 0.3818 |
|                                        |        | 0.3867 | 0.3857 |
|                                        |        | 0.3844 | 0.3778 |
| 35H                                    | 3500 K | 0.4030 | 0.3857 |
|                                        |        | 0.4061 | 0.3941 |
|                                        |        | 0.4132 | 0.3976 |
|                                        |        | 0.4099 | 0.3890 |
| 30H                                    | 3000 K | 0.4291 | 0.3973 |
|                                        |        | 0.4333 | 0.4062 |
|                                        |        | 0.4395 | 0.4084 |
|                                        |        | 0.4351 | 0.3994 |
| 27H                                    | 2700 K | 0.4528 | 0.4046 |
|                                        |        | 0.4578 | 0.4138 |
|                                        |        | 0.4638 | 0.4152 |
|                                        |        | 0.4586 | 0.4060 |

## CREE EASYWHITE® COLOR TEMPERATURES PLOTTED ON THE 1931 CIE CURVE ( $T_j = 85^\circ\text{C}$ )



## BIN AND ORDER CODE FORMATS

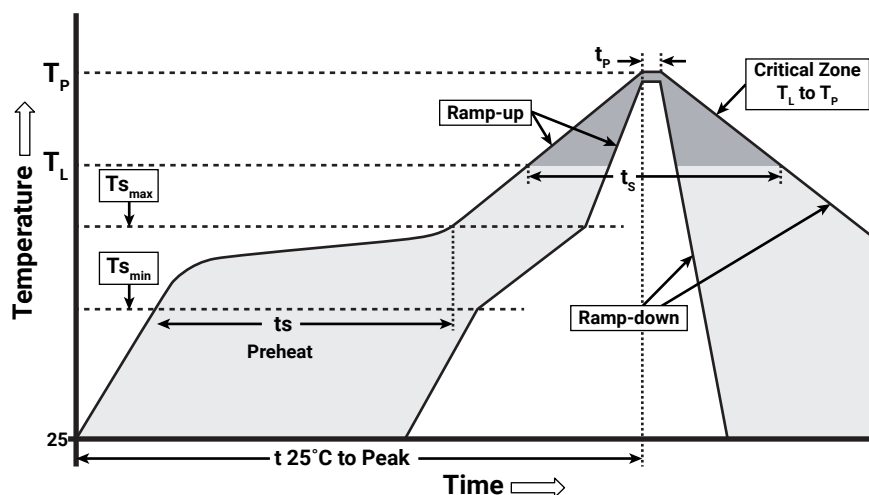
Bin codes and order codes are configured as follows:



## REFLOW SOLDERING CHARACTERISTICS

In testing, Cree has found XLamp MT-G EasyWhite LEDs to be compatible with JEDEC J-STD-020C, using the parameters listed below. As a general guideline, Cree recommends that users follow the recommended soldering profile provided by the manufacturer of the solder paste used.

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 the topside of the package, measured on the package body surface.

## NOTES

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### 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'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 as specifications.

### Pre-Release Qualification Testing

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

### Lumen Maintenance

Cree now uses standardized IES LM-80-08 and TM-21-11 methods for collecting long-term data and extrapolating LED lumen maintenance. For information on the specific LM-80 data sets available for this LED, refer to the public [LM-80 results document](#).

### Moisture Sensitivity

Cree 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 MT-G EasyWhite LEDs may be stored as MSL 1 per JEDEC J-STD-033, meaning they have unlimited floor life in conditions of  $\leq 30^{\circ}\text{C}/85\%$  relative humidity (RH). Regardless of storage condition, Cree 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 representative or from the Product Documentation sections of [www.cree.com](http://www.cree.com).

### 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 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.

### UL® Recognized Component

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

**NOTES - CONTINUED**

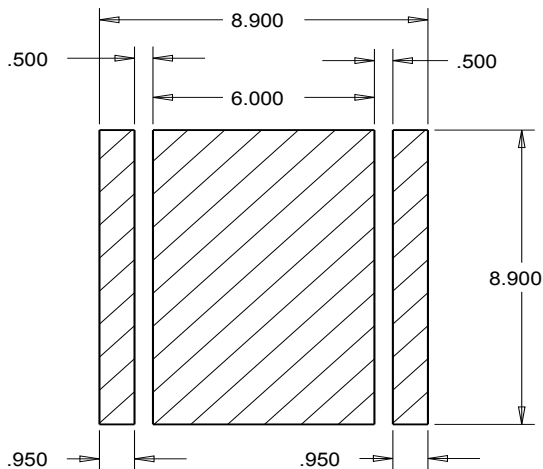
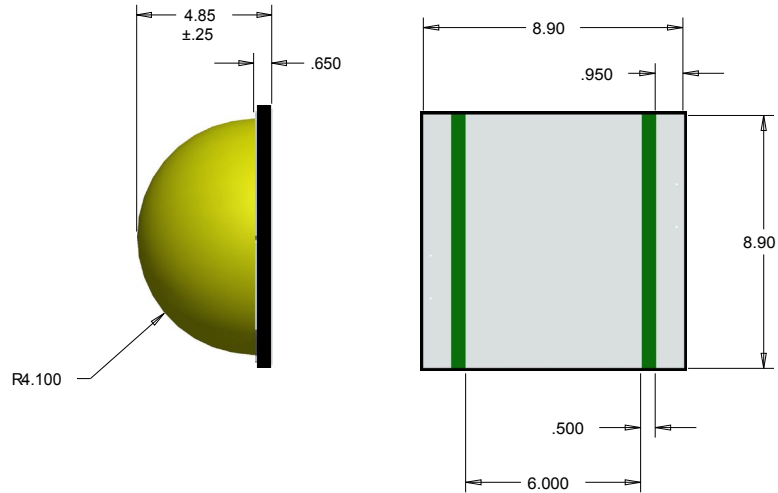
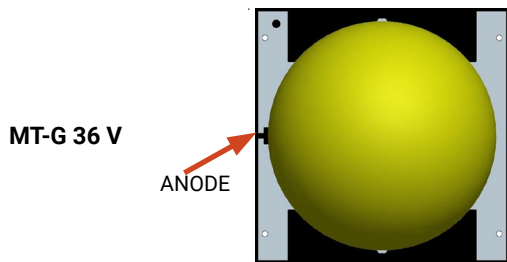
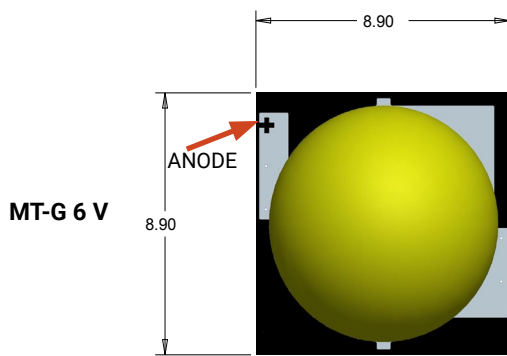
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**Vision Advisory**

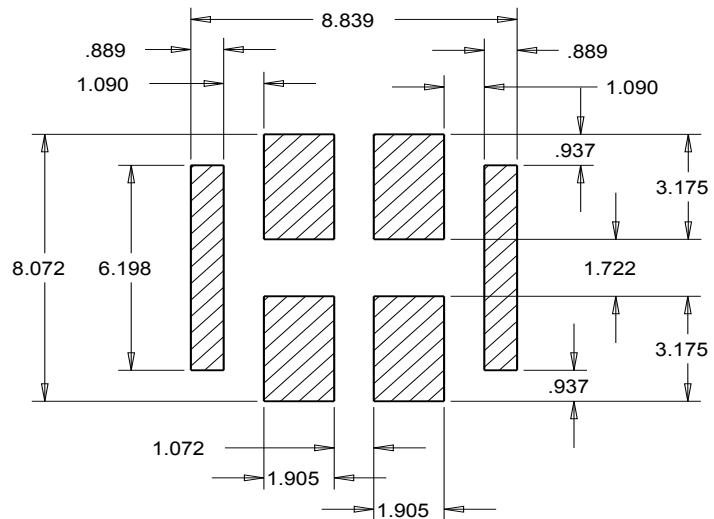
WARNING. Do not look at exposed LED lamps in operation. Eye injury can result. For more information about LEDs and eye safety, please refer to the [LED Eye Safety application note](#).

## MECHANICAL DIMENSIONS

All measurements are  $\pm 0.25$  mm unless otherwise indicated.



RECOMMENDED PC BOARD SOLDER PAD



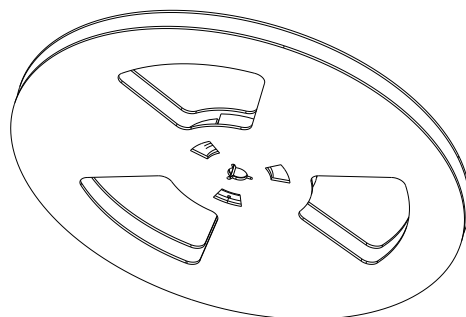
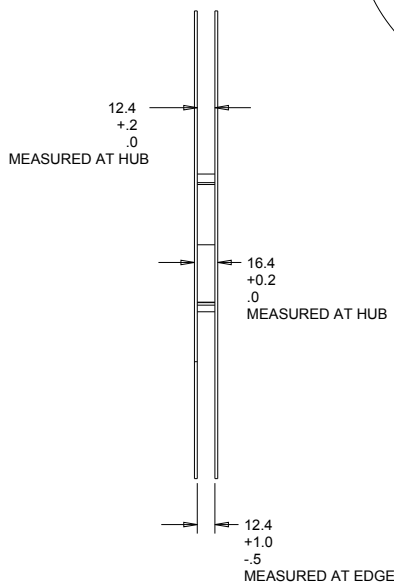
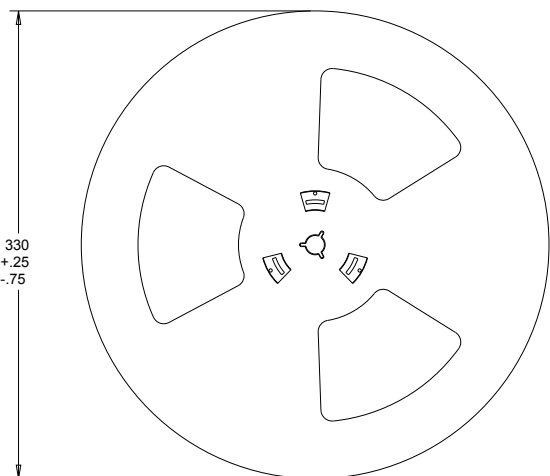
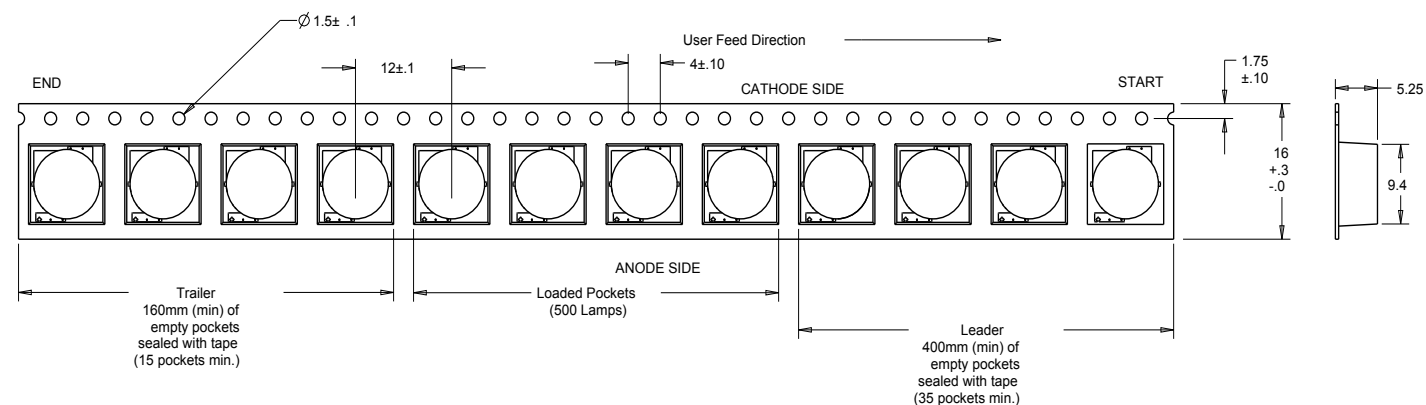
RECOMMENDED STENCIL PATTERN



## TAPE AND REEL

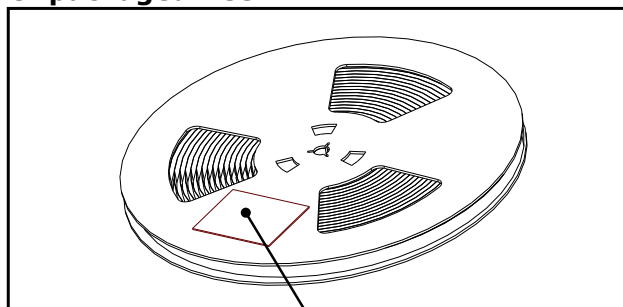
All Cree carrier tapes conform to EIA-481D, Automated Component Handling Systems Standard.

All dimensions in mm.



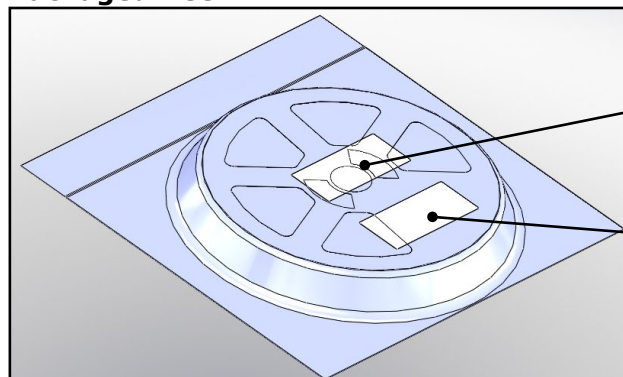
## PACKAGING

### Unpackaged Reel



Label with Cree Bin Code,  
Quantity, Reel ID

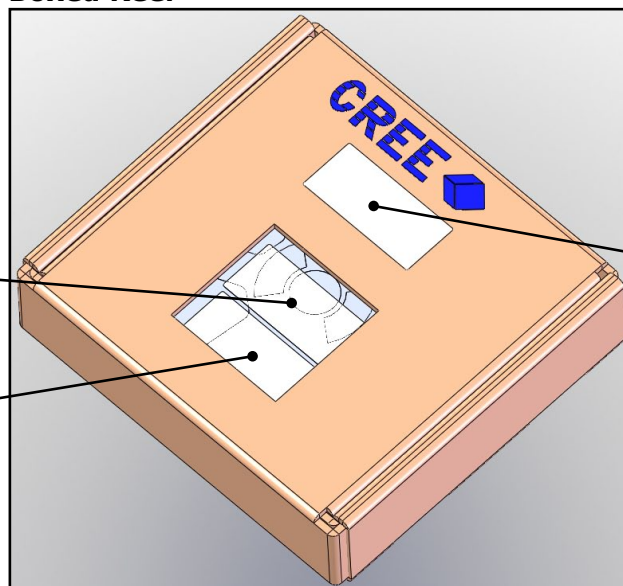
### Packaged Reel



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

Label with Cree Bin Code,  
Quantity, Reel ID

### Boxed Reel



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

Label with Cree Bin Code,  
Quantity, Reel ID

Patent Label

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Cree, Inc.:

[MTGEZW-00-0000-0B00D027F](#) [MTGEZW-00-0000-0B00D027H](#) [MTGEZW-00-0000-0B00E027F](#) [MTGEZW-00-0000-0B00E027H](#) [MTGEZW-00-0000-0B00E030F](#) [MTGEZW-00-0000-0B00E030H](#) [MTGEZW-00-0000-0B00E035F](#) [MTGEZW-00-0000-0B00E035H](#) [MTGEZW-00-0000-0B00F027F](#) [MTGEZW-00-0000-0B00F027H](#) [MTGEZW-00-0000-0B00F030F](#) [MTGEZW-00-0000-0B00F030H](#) [MTGEZW-00-0000-0B00F035F](#) [MTGEZW-00-0000-0B00F035H](#) [MTGEZW-00-0000-0B00F040F](#) [MTGEZW-00-0000-0B00F040H](#) [MTGEZW-00-0000-0B00G030F](#) [MTGEZW-00-0000-0B00G030H](#) [MTGEZW-00-0000-0B00G035F](#) [MTGEZW-00-0000-0B00G035H](#) [MTGEZW-00-0000-0B00G040F](#) [MTGEZW-00-0000-0B00G040H](#) [MTGEZW-00-0000-0B00H040F](#) [MTGEZW-00-0000-0B00H040H](#) [MTGEZW-01-0000-0B00D027F](#) [MTGEZW-01-0000-0B00D027H](#) [MTGEZW-01-0000-0B00E030F](#) [MTGEZW-01-0000-0B00E030H](#) [MTGEZW-01-0000-0B00E035F](#) [MTGEZW-01-0000-0B00E035H](#) [MTGEZW-01-0000-0B00F027F](#) [MTGEZW-01-0000-0B00F027H](#) [MTGEZW-01-0000-0B00F035H](#) [MTGEZW-01-0000-0B00F040F](#) [MTGEZW-01-0000-0B00F040H](#) [MTGEZW-01-0000-0B00G030F](#) [MTGEZW-01-0000-0B00G030H](#) [MTGEZW-01-0000-0B00G035F](#) [MTGEZW-01-0000-0B00G035H](#) [MTGEZW-01-0000-0B00G040H](#) [MTGEZW-01-0000-0B00H040F](#) [MTGEZW-01-0000-0B00H040H](#) [MTGEZW-01-0000-0B00E027F](#) [MTGEZW-01-0000-0B00E027H](#) [MTGEZW-01-0000-0B00F030F](#) [MTGEZW-01-0000-0B00F030H](#) [MTGEZW-01-0000-0B00F035F](#) [MTGEZW-01-0000-0B00G040F](#) [MTGEZW-00-0000-0B00G027H](#) [MTGEZW-00-0000-0B00H030H](#) [MTGEZW-00-0000-0B00H035F](#) [MTGEZW-00-0000-0B00H035H](#) [MTGEZW-00-0000-0B00H050H](#) [MTGEZW-00-0000-0B00J040F](#) [MTGEZW-00-0000-0B00J040H](#) [MTGEZW-00-0000-0B00J050H](#) [MTGEZW-00-0000-0B0PE027H](#) [MTGEZW-00-0000-0B0PF030H](#) [MTGEZW-00-0000-0B0UD030F](#) [MTGEZW-00-0000-0N00F027F](#) [MTGEZW-00-0000-0N00F030H](#) [MTGEZW-00-0000-0N00F035H](#) [MTGEZW-00-0000-0N00F040H](#) [MTGEZW-00-0000-0N00G030F](#) [MTGEZW-00-0000-0N00G030H](#) [MTGEZW-00-0000-0N00G040F](#) [MTGEZW-00-0000-0N00H030H](#) [MTGEZW-00-0000-0N00H035H](#) [MTGEZW-00-0000-0N00H040F](#) [MTGEZW-00-0000-0N00H050F](#) [MTGEZW-00-0000-0N00H050H](#) [MTGEZW-00-0000-0N00J040H](#) [MTGEZW-00-0000-0N00J050H](#) [MTGEZW-00-0000-0N00K050H](#) [MTGEZW-00-0000-0N0PD027F](#) [MTGEZW-00-0000-0N0PD027H](#) [MTGEZW-00-0000-0N0PE027H](#) [MTGEZW-00-0000-0N0PE030H](#) [MTGEZW-00-0000-0N0UB027F](#) [MTGEZW-00-0000-0N0UC027H](#) [MTGEZW-00-0000-0N0UC030F](#) [MTGEZW-01-0000-0B00G027F](#) [MTGEZW-01-0000-0B00H030F](#) [MTGEZW-01-0000-0B00H035F](#) [MTGEZW-01-0000-0B00J050F](#) [MTGEZW-01-0000-0B00K050F](#) [MTGEZW-01-0000-0B0PD030F](#) [MTGEZW-01-0000-0B0PD030H](#) [MTGEZW-01-0000-0B0UB027H](#) [MTGEZW-01-0000-0B0UC027H](#) [MTGEZW-01-0000-0B0UC030F](#) [MTGEZW-01-0000-0B0UD027H](#) [MTGEZW-01-0000-0B0UE030H](#) [MTGEZW-01-0000-0N00D027F](#) [MTGEZW-01-0000-0N00E030F](#) [MTGEZW-01-0000-0N00F027F](#) [MTGEZW-01-0000-0N00F035H](#) [MTGEZW-01-0000-0N00G027F](#) [MTGEZW-01-0000-0N00G027H](#) [MTGEZW-01-0000-0N00G030H](#)