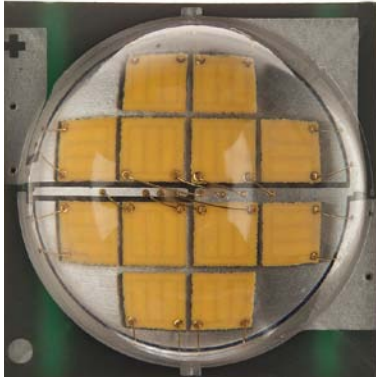


# Cree® XLamp® MT-G EasyWhite™ LEDs



## 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

## APPLICATIONS

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

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**PRODUCT CHARACTERISTICS**

| Characteristics  | Unit    | Minimum | Typical | Maximum |
|--|---------|---------|---------|---------|
| Viewing Angle (FWHM)                                   | degrees |         | 120     |         |
| ESD Classification (HBM per Mil-Std-883D)              |         |         | Class 2 |         |
| Effective Thermal Resistance, Junction to Solder-point | °C/W    |         | 1.5     |         |
| LED Junction Temperatures                              | °C      |         |         | 150     |
| DC Forward Current (6V)                                | mA      |         | 1100    | 4000    |
| DC Forward Current (36V)                               | mA      |         | 185     | 700     |
| Forward Voltage (6V, 1100 mA, 85 ° C)                  | V       |         | 5.6     | 6.7     |
| Forward Voltage (36V, 185 mA, 85 ° C)                  | V       |         | 33.5    | 40.2    |
| Temperature Coefficient of Voltage (6V)                | mV/°C   |         | -4.5    |         |
| Temperature Coefficient of Voltage (36V)               | mV/°C   |         | -27     |         |
| Reverse Voltage (6V)                                   | V       |         |         | -5      |
| Reverse Current (6V, 36V)                              | mA      |         |         | 0.1     |
| Moisture Sensitivity Level Rating (MSL)                |         |         | MSL 1   |         |

**FLUX CHARACTERISTICS, STANDARD ORDER CODES, BINS, 6 VOLT MT-G (1100 MA, T<sub>J</sub> =85 °C)**

The following table provides several base order codes for 6 Volt XLamp MT-G EasyWhite LEDs. For a complete description of the order-code nomenclature, please reference page 10 of this document.

| Color                        | CCT Range | Base Order Codes<br>Min. Luminous Flux<br>(lm) (T <sub>J</sub> =85 °C) |           | 2-Step Order Code   |                          | 4-Step Order Code   |                          |
|------------------------------|-----------|--|-----------|---------------------|--------------------------|---------------------|--------------------------|
|                              |           | Group  | Flux (lm) | Chromaticity Region |                          | Chromaticity Region |                          |
| Standard<br>CRI<br>EasyWhite | 5,000 K   | H0   | 560       | 50H                 | MTGEZW-00-0000-0B00H050H | 50F                 | MTGEZW-00-0000-0B00H050F |
|                              |           | J0   | 600       |                     | MTGEZW-00-0000-0B00J050H |                     | MTGEZW-00-0000-0B00J050F |
|                              |           | K0   | 650       |                     | MTGEZW-00-0000-0B00K050H |                     | MTGEZW-00-0000-0B00K050F |
|                              | 4,000 K   | G0   | 520       | 40H                 | MTGEZW-00-0000-0B00G040H | 40F                 | MTGEZW-00-0000-0B00G040F |
|                              |           | H0   | 560       |                     | MTGEZW-00-0000-0B00H040H |                     | MTGEZW-00-0000-0B00H040F |
|                              |           | J0   | 600       |                     | MTGEZW-00-0000-0B00J040H |                     | MTGEZW-00-0000-0B00J040F |
|                              | 3,500 K   | F0   | 480       | 35H                 | MTGEZW-00-0000-0B00F035H | 35F                 | MTGEZW-00-0000-0B00F035F |
|                              |           | G0   | 520       |                     | MTGEZW-00-0000-0B00G035H |                     | MTGEZW-00-0000-0B00G035F |
|                              |           | H0   | 560       |                     | MTGEZW-00-0000-0B00H035H |                     | MTGEZW-00-0000-0B00H035F |
|                              | 3,000 K   | F0   | 480       | 30H                 | MTGEZW-00-0000-0B00F030H | 30F                 | MTGEZW-00-0000-0B00F030F |
|                              |           | G0   | 520       |                     | MTGEZW-00-0000-0B00G030H |                     | MTGEZW-00-0000-0B00G030F |
|                              |           | H0   | 560       |                     | MTGEZW-00-0000-0B00H030H |                     | MTGEZW-00-0000-0B00H030F |
|                              | 2,700 K   | E0   | 440       | 27H                 | MTGEZW-00-0000-0B00E027H | 27F                 | MTGEZW-00-0000-0B00E027F |
|                              |           | F0   | 480       |                     | MTGEZW-00-0000-0B00F027H |                     | MTGEZW-00-0000-0B00F027F |
|                              |           | G0   | 520       |                     | MTGEZW-00-0000-0B00G027H |                     | MTGEZW-00-0000-0B00G027F |

**Notes:**

- Cree maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements.
- Minimum CRI for EasyWhite color temperatures 27F, 27H, 30F, 30H is 80.
- Minimum CRI for EasyWhite color temperatures 35F, 35H, 40F, 40H is 77.
- Typical CRI for EasyWhite color temperatures 35F, 35H, 40F, 40H is 80.
- Minimum CRI for EasyWhite color temperature 50F, 50H is 75.

**FLUX CHARACTERISTICS, STANDARD ORDER CODES, BINS, 36 VOLT MT-G (185 MA, T<sub>J</sub> = 85 °C)**

The following table provides several base order codes for 36 Volt XLamp MT-G EasyWhite LEDs. For a complete description of the order-code nomenclature, please reference page 10 of this document.

| Color                        | CCT Range | Base Order Codes<br>Min. Luminous Flux<br>(lm)<br>(T <sub>J</sub> = 85 °C) |           | 2-Step Order Code   |                          | 4-Step Order Code   |                          |
|------------------------------|-----------|--|-----------|---------------------|--------------------------|---------------------|--------------------------|
|                              |           | Group  | Flux (lm) | Chromaticity Region |                          | Chromaticity Region |                          |
| Standard<br>CRI<br>EasyWhite | 5,000 K   | H0   | 560       | 50H                 | MTGEZW-00-0000-0N00H050H | 50F                 | MTGEZW-00-0000-0N00H050F |
|                              |           | J0   | 600       |                     | MTGEZW-00-0000-0N00J050H |                     | MTGEZW-00-0000-0N00J050F |
|                              |           | K0   | 650       |                     | MTGEZW-00-0000-0N00K050H |                     | MTGEZW-00-0000-0N00K050F |
|                              | 4,000 K   | G0   | 520       | 40H                 | MTGEZW-00-0000-0N00G040H | 40F                 | MTGEZW-00-0000-0N00G040F |
|                              |           | H0   | 560       |                     | MTGEZW-00-0000-0N00H040H |                     | MTGEZW-00-0000-0N00H040F |
|                              |           | J0   | 600       |                     | MTGEZW-00-0000-0N00J040H |                     | MTGEZW-00-0000-0N00J040F |
|                              | 3,500 K   | F0   | 480       | 35H                 | MTGEZW-00-0000-0N00F035H | 35F                 | MTGEZW-00-0000-0N00F035F |
|                              |           | G0   | 520       |                     | MTGEZW-00-0000-0N00G035H |                     | MTGEZW-00-0000-0N00G035F |
|                              |           | H0   | 560       |                     | MTGEZW-00-0000-0N00H035H |                     | MTGEZW-00-0000-0N00H035F |
|                              | 3,000 K   | F0   | 480       | 30H                 | MTGEZW-00-0000-0N00F030H | 30F                 | MTGEZW-00-0000-0N00F030F |
|                              |           | G0   | 520       |                     | MTGEZW-00-0000-0N00G030H |                     | MTGEZW-00-0000-0N00G030F |
|                              |           | H0   | 560       |                     | MTGEZW-00-0000-0N00H030H |                     | MTGEZW-00-0000-0N00H030F |
|                              | 2,700 K   | E0   | 440       | 27H                 | MTGEZW-00-0000-0N00E027H | 27F                 | MTGEZW-00-0000-0N00E027F |
|                              |           | F0   | 480       |                     | MTGEZW-00-0000-0N00F027H |                     | MTGEZW-00-0000-0N00F027F |
|                              |           | G0   | 520       |                     | MTGEZW-00-0000-0N00G027H |                     | MTGEZW-00-0000-0N00G027F |

**FLUX CHARACTERISTICS, STANDARD ORDER CODES, BINS, 85 CRI, 6 VOLT MT-G (1100 MA, T<sub>J</sub> = 85 °C)**

| Color               | CCT Range | Base Order Codes<br>Min. Luminous Flux<br>(lm)<br>(T <sub>J</sub> = 85 °C) |           | 2-Step Order Code   |                          | 4-Step Order Code   |                          |
|---------------------|-----------|--|-----------|---------------------|--------------------------|---------------------|--------------------------|
|                     |           | Group  | Flux (lm) | Chromaticity Region |                          | Chromaticity Region |                          |
| 85 CRI<br>EasyWhite | 3,000 K   | D0   | 400       | 30H                 | MTGEZW-00-0000-0B0PD030H | 30F                 | MTGEZW-00-0000-0B0PD030F |
|                     |           | E0   | 440       |                     | MTGEZW-00-0000-0B0PE030H |                     | MTGEZW-00-0000-0B0PE030F |
|                     |           | F0   | 480       |                     | MTGEZW-00-0000-0B0PF030H |                     | MTGEZW-00-0000-0B0PF030F |
|                     | 2,700 K   | D0   | 400       | 27H                 | MTGEZW-00-0000-0B0PD027H | 27F                 | MTGEZW-00-0000-0B0PD027F |
|                     |           | E0   | 440       |                     | MTGEZW-00-0000-0B0PE027H |                     | MTGEZW-00-0000-0B0PE027F |

**Notes:**

- Cree maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CC<sub>x</sub>, CC<sub>y</sub>) measurements and ±2 on CRI measurements.
- Minimum CRI for EasyWhite color temperatures 27F, 27H, 30F, 30H is 80.
- Minimum CRI for EasyWhite color temperatures 35F, 35H, 40F, 40H is 77.
- Typical CRI for EasyWhite color temperatures 35F, 35H, 40F, 40H is 80.
- Minimum CRI for EasyWhite color temperature 50F, 50H is 75.

**FLUX CHARACTERISTICS, STANDARD ORDER CODES, BINS, 85 CRI, 36 VOLT MT-G  
(185 MA, T<sub>J</sub> = 85 °C)**

| Color               | CCT Range | Base Order Codes<br>Min. Luminous Flux<br>(lm)<br>(T <sub>J</sub> = 85 °C) |           | 2-Step Order Code   |                          | 4-Step Order Code   |                          |
|---------------------|-----------|--|-----------|---------------------|--------------------------|---------------------|--------------------------|
|                     |           | Group  | Flux (lm) | Chromaticity Region |                          | Chromaticity Region |                          |
| 85 CRI<br>EasyWhite | 3,000 K   | D0   | 400       | 30H                 | MTGEZW-00-0000-0N0PD030H | 30F                 | MTGEZW-00-0000-0N0PD030F |
|                     |           | E0   | 440       |                     | MTGEZW-00-0000-0N0PE030H |                     | MTGEZW-00-0000-0N0PE030F |
|                     |           | F0   | 480       |                     | MTGEZW-00-0000-0N0PF030H |                     | MTGEZW-00-0000-0N0PF030F |
|                     | 2,700 K   | D0   | 400       | 27H                 | MTGEZW-00-0000-0N0PD027H | 27F                 | MTGEZW-00-0000-0N0PD027F |
|                     |           | E0   | 440       |                     | MTGEZW-00-0000-0N0PE027H |                     | MTGEZW-00-0000-0N0PE027F |

**FLUX CHARACTERISTICS, STANDARD ORDER CODES, BINS, 90 CRI, 6 VOLT MT-G  
(1100 MA, T<sub>J</sub> = 85 °C)**

| Color               | CCT Range | Base Order Codes<br>Min. Luminous Flux<br>(lm)<br>(T <sub>J</sub> = 85 °C) |           | 2-Step Order Code   |                          | 4-Step Order Code   |                          |
|---------------------|-----------|--|-----------|---------------------|--------------------------|---------------------|--------------------------|
|                     |           | Group  | Flux (lm) | Chromaticity Region |                          | Chromaticity Region |                          |
| 90 CRI<br>EasyWhite | 3,000 K   | C0   | 370       | 30H                 | MTGEZW-00-0000-0B0UC030H | 30F                 | MTGEZW-00-0000-0B0UC030F |
|                     |           | D0   | 400       |                     | MTGEZW-00-0000-0B0UD030H |                     | MTGEZW-00-0000-0B0UD030F |
|                     |           | E0   | 440       |                     | MTGEZW-00-0000-0B0UE030H |                     | MTGEZW-00-0000-0B0UE030F |
|                     | 2,700 K   | B0   | 340       | 27H                 | MTGEZW-00-0000-0B0UB027H | 27F                 | MTGEZW-00-0000-0B0UB027F |
|                     |           | C0   | 370       |                     | MTGEZW-00-0000-0B0UC027H |                     | MTGEZW-00-0000-0B0UC027F |
|                     |           | D0   | 400       |                     | MTGEZW-00-0000-0B0UD027H |                     | MTGEZW-00-0000-0B0UD027F |

**FLUX CHARACTERISTICS, STANDARD ORDER CODES, BINS, 90 CRI, 36 VOLT MT-G  
(185 MA, T<sub>J</sub> = 85 °C)**

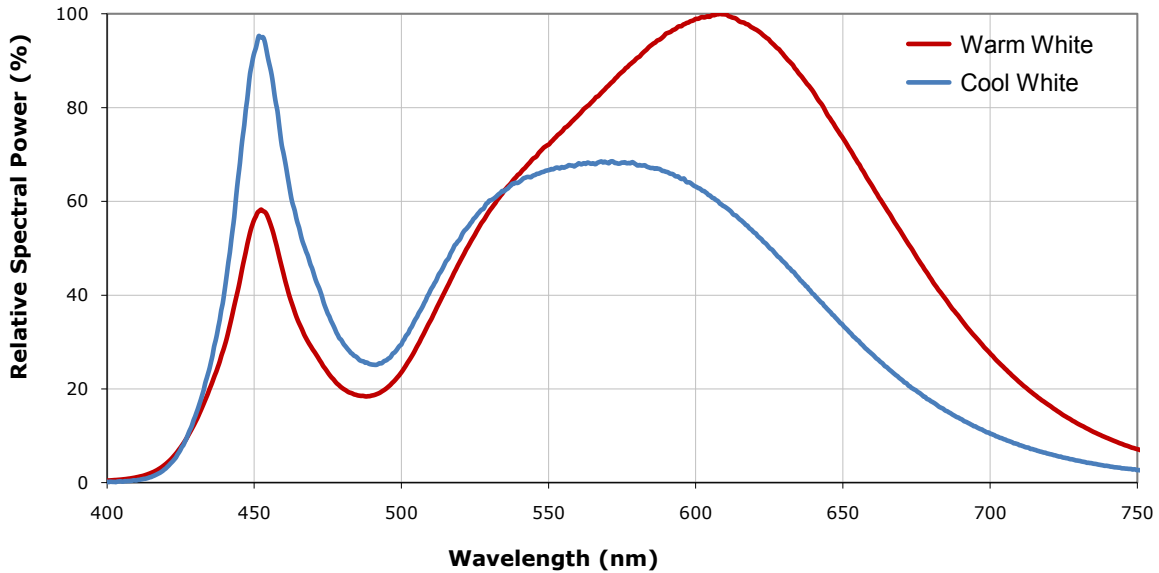
| Color               | CCT Range | Base Order Codes<br>Min. Luminous Flux<br>(lm)<br>(T <sub>J</sub> = 85 °C) |           | 2-Step Order Code   |                          | 4-Step Order Code   |                          |
|---------------------|-----------|--|-----------|---------------------|--------------------------|---------------------|--------------------------|
|                     |           | Group  | Flux (lm) | Chromaticity Region |                          | Chromaticity Region |                          |
| 90 CRI<br>EasyWhite | 3,000 K   | C0   | 370       | 30H                 | MTGEZW-00-0000-0N0UC030H | 30F                 | MTGEZW-00-0000-0N0UC030F |
|                     |           | D0   | 400       |                     | MTGEZW-00-0000-0N0UD030H |                     | MTGEZW-00-0000-0N0UD030F |
|                     |           | E0   | 440       |                     | MTGEZW-00-0000-0N0UE030H |                     | MTGEZW-00-0000-0N0UE030F |
|                     | 2,700 K   | B0   | 340       | 27H                 | MTGEZW-00-0000-0N0UB027H | 27F                 | MTGEZW-00-0000-0N0UB027F |
|                     |           | C0   | 370       |                     | MTGEZW-00-0000-0N0UC027H |                     | MTGEZW-00-0000-0N0UC027F |
|                     |           | D0   | 400       |                     | MTGEZW-00-0000-0N0UD027H |                     | MTGEZW-00-0000-0N0UD027F |

**Notes:**

- Cree maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and ±2 on CRI measurements.

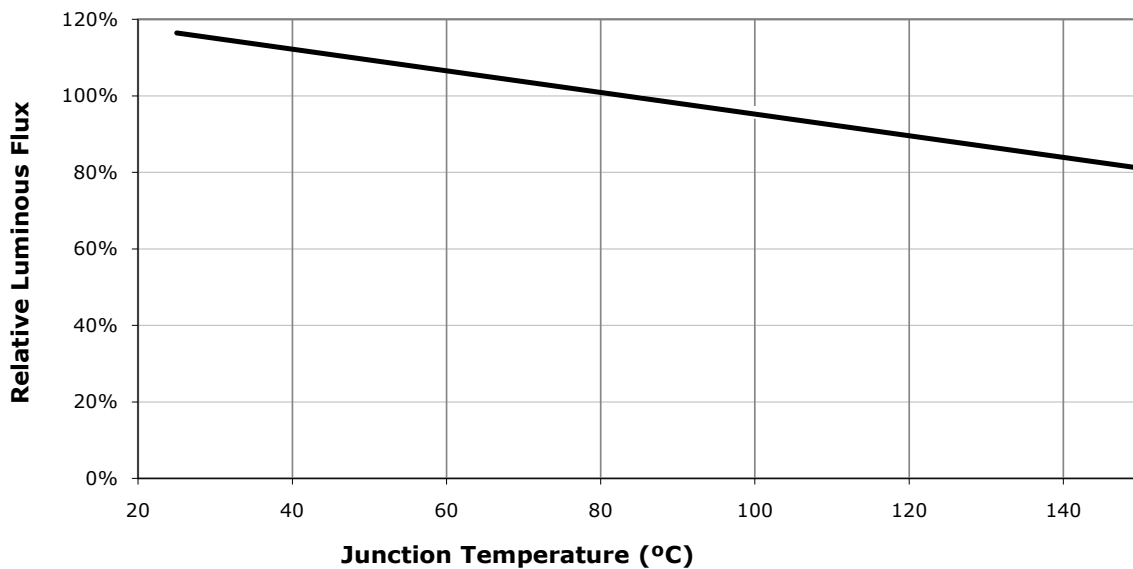
**RELATIVE SPECTRAL POWER DISTRIBUTION (6V, 1100 MA; 36V, 185 MA; T<sub>j</sub>= 85 °C)**

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

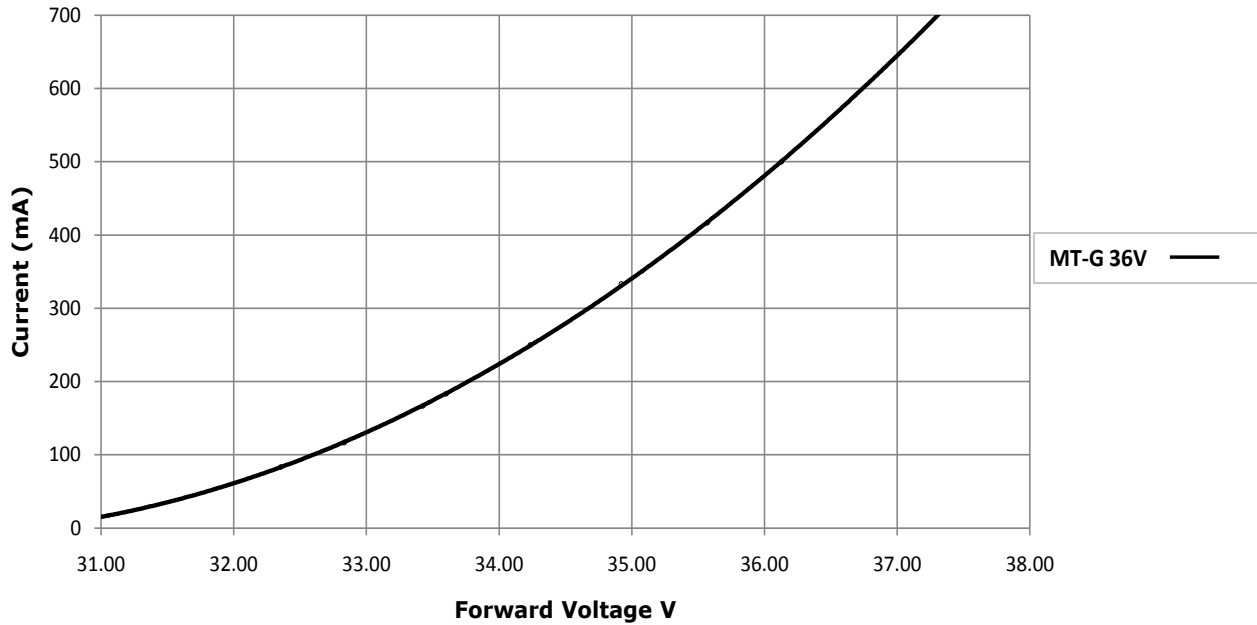
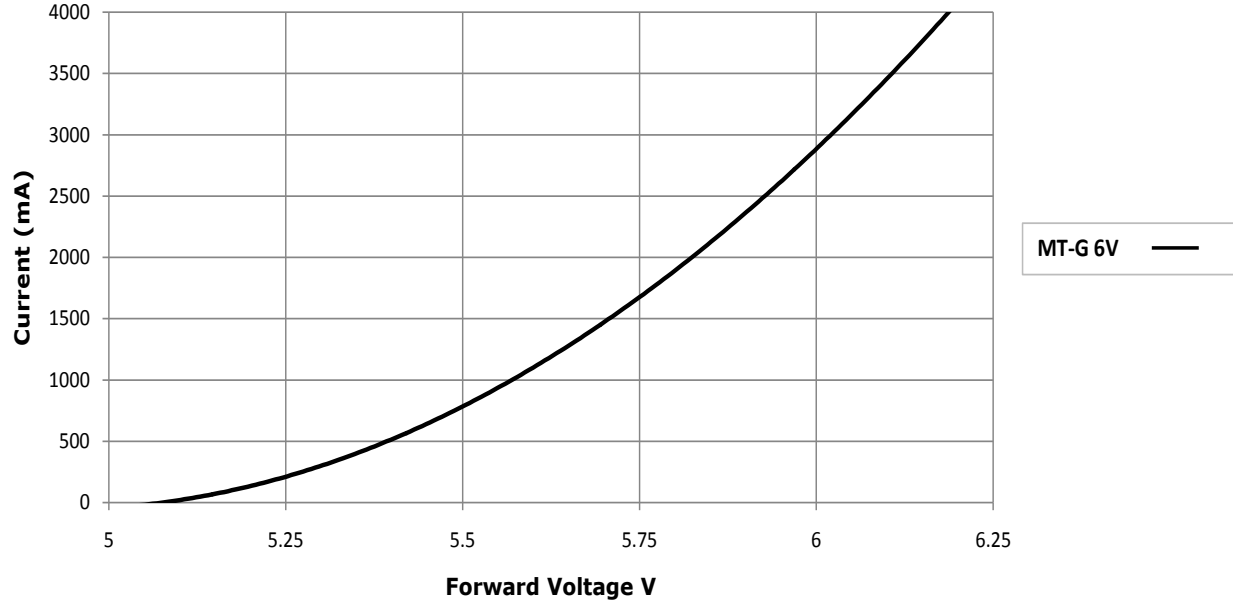


**RELATIVE LUMINOUS FLUX VS. JUNCTION TEMPERATURE (6V, 1100 MA; 36V, 185 MA)**

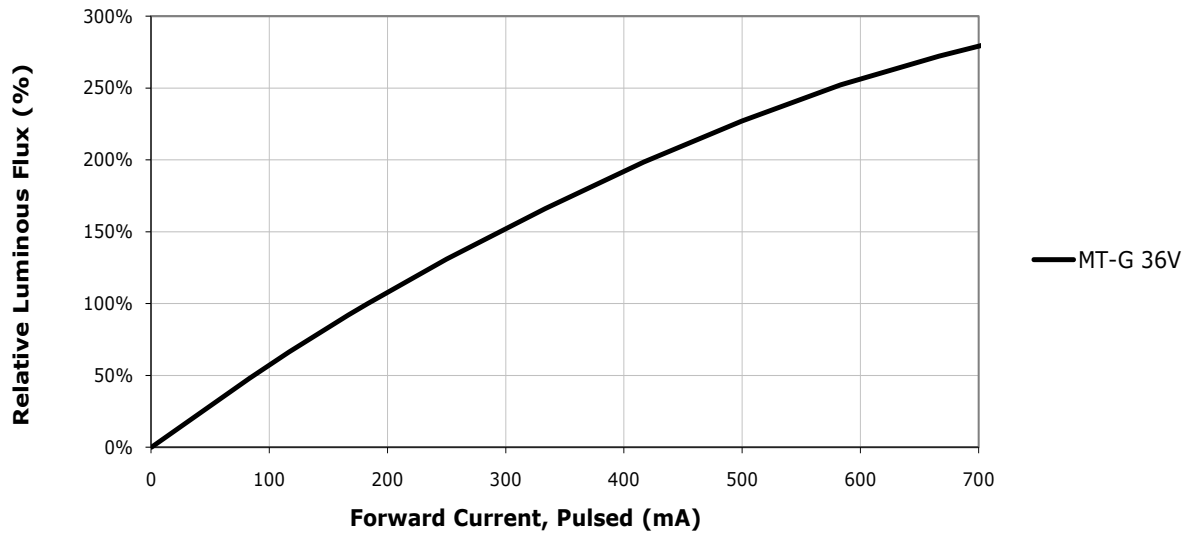
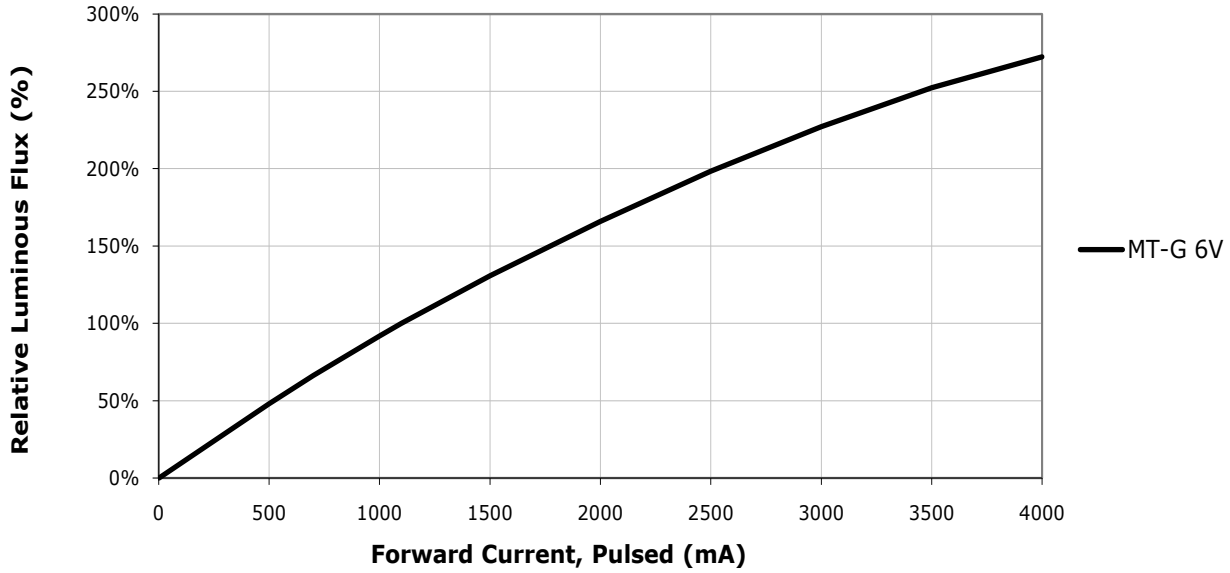
The following graph represents typical performance of the XLamp MT-G EasyWhite LED.



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

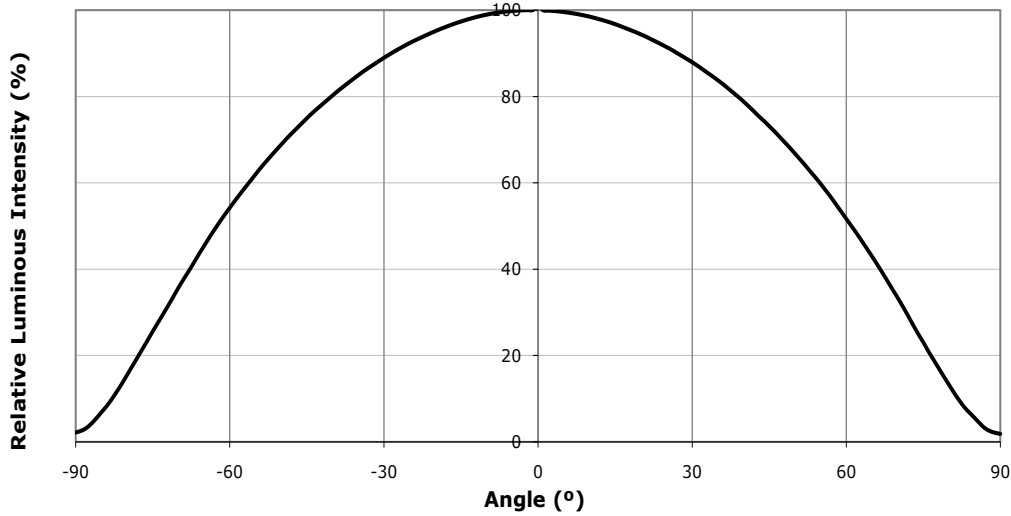


RELATIVE LUMINOUS FLUX VS CURRENT ( $T_j = 85\text{ }^\circ\text{C}$ )



### 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, 6V;<br>@185 mA, 36V | Max. Luminous Flux<br>@ 1100 mA, 6V;<br>@185 mA, 36V |
|------------|--|--|
| 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  |

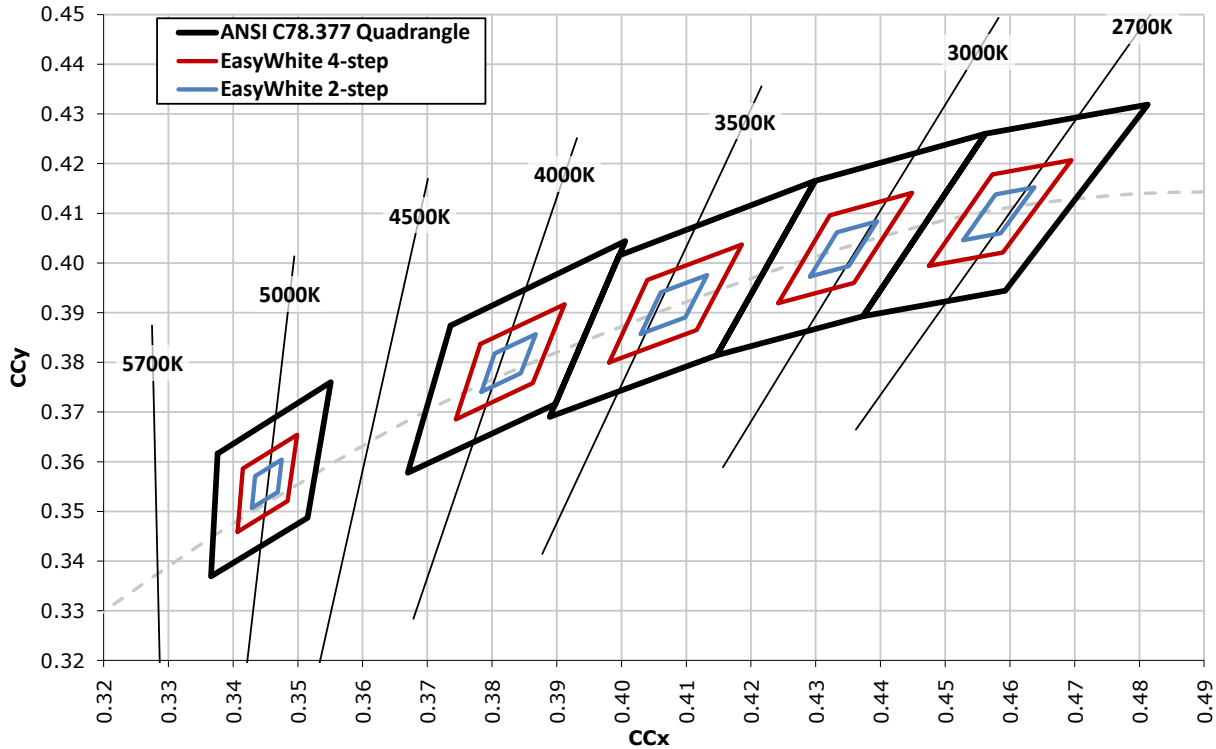
**PERFORMANCE GROUPS – CHROMATICITY ( $T_j = 85\text{ }^\circ\text{C}$ )**

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                                   | 5000K | 0.3407 | 0.3459 |
|                                       |       | 0.3415 | 0.3586 |
|                                       |       | 0.3499 | 0.3654 |
|                                       |       | 0.3484 | 0.3521 |
| 40F                                   | 4000K | 0.3744 | 0.3685 |
|                                       |       | 0.3782 | 0.3837 |
|                                       |       | 0.3912 | 0.3917 |
|                                       |       | 0.3863 | 0.3758 |
| 35F                                   | 3500K | 0.3981 | 0.3800 |
|                                       |       | 0.4040 | 0.3966 |
|                                       |       | 0.4186 | 0.4037 |
|                                       |       | 0.4116 | 0.3865 |
| 30F                                   | 3000K | 0.4242 | 0.3919 |
|                                       |       | 0.4322 | 0.4096 |
|                                       |       | 0.4449 | 0.4141 |
|                                       |       | 0.4359 | 0.3960 |
| 27F                                   | 2700K | 0.4475 | 0.3994 |
|                                       |       | 0.4573 | 0.4178 |
|                                       |       | 0.4695 | 0.4207 |
|                                       |       | 0.4586 | 0.4060 |

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

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

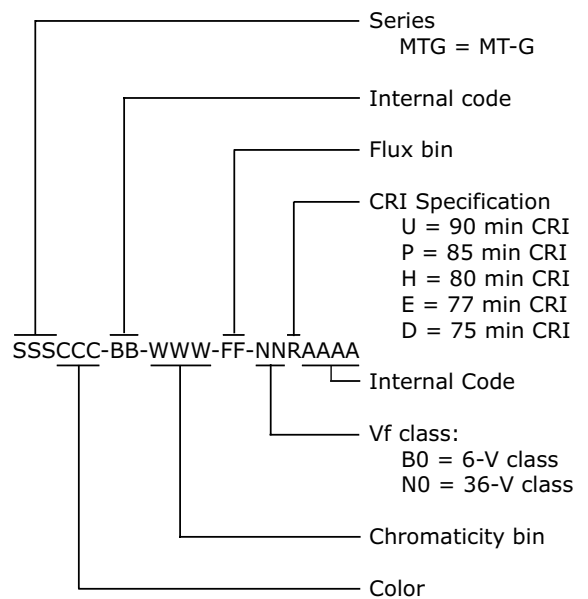
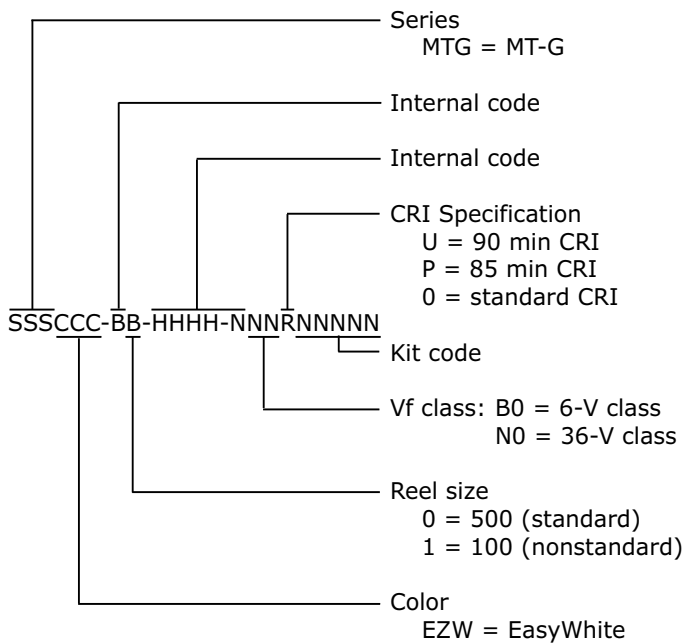


**BIN AND ORDER CODE FORMAT**

Bin codes and order codes are configured as follows:

**Order Code**

**Bin Code**



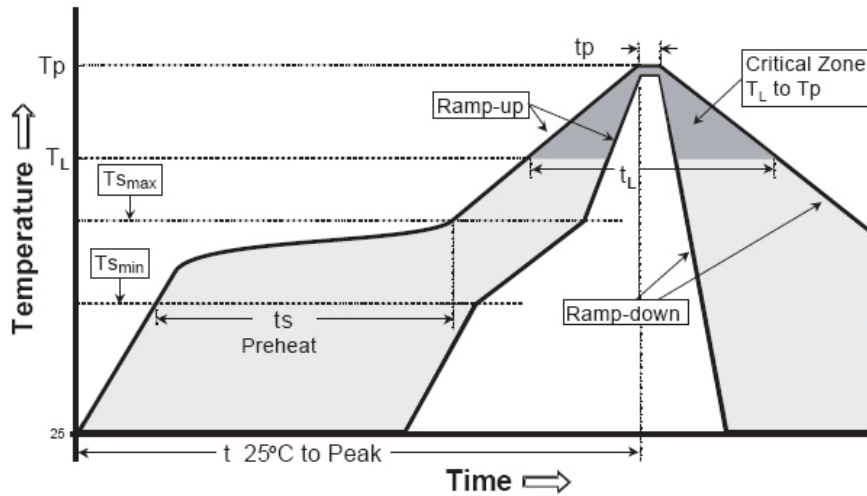
**STANDARD ORDER CODES AND BINS (XLAMP MT-G EASYWHITE)**

| XLamp MT-G EasyWhite LED Standard Order Codes                                 |           |                         |                          |                          |
|---|-----------|-------------------------|--------------------------|--------------------------|
| Min. Luminous Flux (lm)<br>@ Tj=85 °C, 6V, 1100 mA<br>@ Tj=85 °C, 36V, 185 mA |           | Chromaticity<br>Regions | 6V Order Code            | 36V Order Code           |
| Group   | Flux (lm) |                         |                          |                          |
| EasyWhite   |           |                         |                          |                          |
| D0  | 400       | 27F                     | MTGEZW-00-0000-0B00D027F | MTGEZW-00-0000-0N00D027F |
|   |           | 27H                     | MTGEZW-00-0000-0B00D027H | MTGEZW-00-0000-0N00D027H |
| E0  | 440       | 27F                     | MTGEZW-00-0000-0B00E027F | MTGEZW-00-0000-0N00E027F |
|   |           | 27H                     | MTGEZW-00-0000-0B00E027H | MTGEZW-00-0000-0N00E027H |
|   |           | 30F                     | MTGEZW-00-0000-0B00E030F | MTGEZW-00-0000-0N00E030F |
|   |           | 30H                     | MTGEZW-00-0000-0B00E030H | MTGEZW-00-0000-0N00E030H |
|   |           | 35F                     | MTGEZW-00-0000-0B00E035F | MTGEZW-00-0000-0N00E035F |
|   |           | 35H                     | MTGEZW-00-0000-0B00E035H | MTGEZW-00-0000-0N00E035H |
| F0  | 480       | 27F                     | MTGEZW-00-0000-0B00F027F | MTGEZW-00-0000-0N00F027F |
|   |           | 27H                     | MTGEZW-00-0000-0B00F027H | MTGEZW-00-0000-0N00F027H |
|   |           | 30F                     | MTGEZW-00-0000-0B00F030F | MTGEZW-00-0000-0N00F030F |
|   |           | 30H                     | MTGEZW-00-0000-0B00F030H | MTGEZW-00-0000-0N00F030H |
|   |           | 35F                     | MTGEZW-00-0000-0B00F035F | MTGEZW-00-0000-0N00F035F |
|   |           | 35H                     | MTGEZW-00-0000-0B00F035H | MTGEZW-00-0000-0N00F035H |
|   |           | 40F                     | MTGEZW-00-0000-0B00F040F | MTGEZW-00-0000-0N00F040F |
|   |           | 40H                     | MTGEZW-00-0000-0B00F040H | MTGEZW-00-0000-0N00F040H |
| G0  | 520       | 27F                     | MTGEZW-00-0000-0B00G027F | MTGEZW-00-0000-0N00G027F |
|   |           | 27H                     | MTGEZW-00-0000-0B00G027H | MTGEZW-00-0000-0N00G027H |
|   |           | 30F                     | MTGEZW-00-0000-0B00G030F | MTGEZW-00-0000-0N00G030F |
|   |           | 30H                     | MTGEZW-00-0000-0B00G030H | MTGEZW-00-0000-0N00G030H |
|   |           | 35F                     | MTGEZW-00-0000-0B00G035F | MTGEZW-00-0000-0N00G035F |
|   |           | 35H                     | MTGEZW-00-0000-0B00G035H | MTGEZW-00-0000-0N00G035H |
|   |           | 40F                     | MTGEZW-00-0000-0B00G040F | MTGEZW-00-0000-0N00G040F |
|   |           | 40H                     | MTGEZW-00-0000-0B00G040H | MTGEZW-00-0000-0N00G040H |
| H0  | 560       | 30F                     | MTGEZW-00-0000-0B00H030F | MTGEZW-00-0000-0N00H030F |
|   |           | 30H                     | MTGEZW-00-0000-0B00H030H | MTGEZW-00-0000-0N00H030H |
|   |           | 35F                     | MTGEZW-00-0000-0B00H035F | MTGEZW-00-0000-0N00H035F |
|   |           | 35H                     | MTGEZW-00-0000-0B00H035H | MTGEZW-00-0000-0N00H035H |
|   |           | 40F                     | MTGEZW-00-0000-0B00H040F | MTGEZW-00-0000-0N00H040F |
|   |           | 40H                     | MTGEZW-00-0000-0B00H040H | MTGEZW-00-0000-0N00H040H |
|   |           | 50F                     | MTGEZW-00-0000-0B00H050F | MTGEZW-00-0000-0N00H050F |
|   |           | 50H                     | MTGEZW-00-0000-0B00H050H | MTGEZW-00-0000-0N00H050H |
| J0  | 600       | 40F                     | MTGEZW-00-0000-0B00J040F | MTGEZW-00-0000-0N00J040F |
|   |           | 40H                     | MTGEZW-00-0000-0B00J040H | MTGEZW-00-0000-0N00J040H |
|   |           | 50F                     | MTGEZW-00-0000-0B00J050F | MTGEZW-00-0000-0N00J050F |
|   |           | 50H                     | MTGEZW-00-0000-0B00J050H | MTGEZW-00-0000-0N00J050H |
| K0  | 650       | 50F                     | MTGEZW-00-0000-0B00K050F | MTGEZW-00-0000-0N00K050F |
|   |           | 50H                     | MTGEZW-00-0000-0B00K050H | MTGEZW-00-0000-0N00K040H |

## 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 solder paste used.

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



| Profile Feature                                       | Lead-Based Solder | Lead-Free Solder |
|---|-------------------|------------------|
| Average Ramp-Up Rate ( $T_{S_{max}}$ to $T_p$ )       | 3 °C/second max.  | 3 °C/second max. |
| Preheat: Temperature Min ( $T_{S_{min}}$ )            | 100 °C            | 150 °C           |
| Preheat: Temperature Max ( $T_{S_{max}}$ )            | 150 °C            | 200 °C           |
| Preheat: Time ( $t_{S_{min}}$ to $t_{S_{max}}$ )      | 60-120 seconds    | 60-180 seconds   |
| Time Maintained Above: Temperature ( $T_L$ )          | 183 °C            | 217 °C           |
| Time Maintained Above: Time ( $t_L$ )                 | 60-150 seconds    | 60-150 seconds   |
| Peak/Classification Temperature ( $T_p$ )             | 215 °C            | 260 °C           |
| Time Within 5 °C of Actual Peak Temperature ( $t_p$ ) | 10-30 seconds     | 20-40 seconds    |
| Ramp-Down Rate  | 6 °C/second max.  | 6 °C/second max. |
| Time 25 °C to Peak Temperature                        | 6 minutes max.    | 8 minutes max.   |

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

## NOTES

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### **Lumen Maintenance Projections**

Cree now uses standardized IES LM-80-08 and TM-21-11 methods for collecting long-term data and extrapolating LED lumen maintenance. For information on the specific LM-80 data sets available for this LED, refer to the public LM-80 results document at [www.cree.com/products/pdf/LM-80\\_Results.pdf](http://www.cree.com/products/pdf/LM-80_Results.pdf).

### **Moisture Sensitivity**

In testing, Cree has found XLamp MT-G EasyWhite LEDs to have unlimited floor life in conditions  $\leq 30$  °C/85% relative humidity (RH). Moisture testing included a 168-hour soak at 85 °C/85% RH followed by 3 reflow cycles, with visual and electrical inspections at each stage.

Cree recommends keeping XLamp LEDs in their sealed moisture-barrier packaging until immediately prior to use. Cree also recommends returning any unused LEDs to the resealable moisture-barrier bag and closing the bag immediately after use.

### **RoHS Compliance**

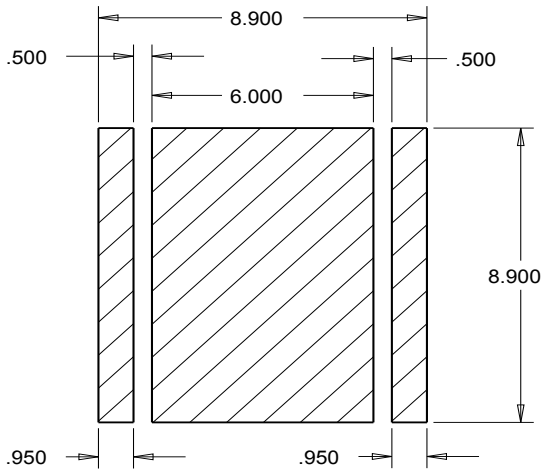
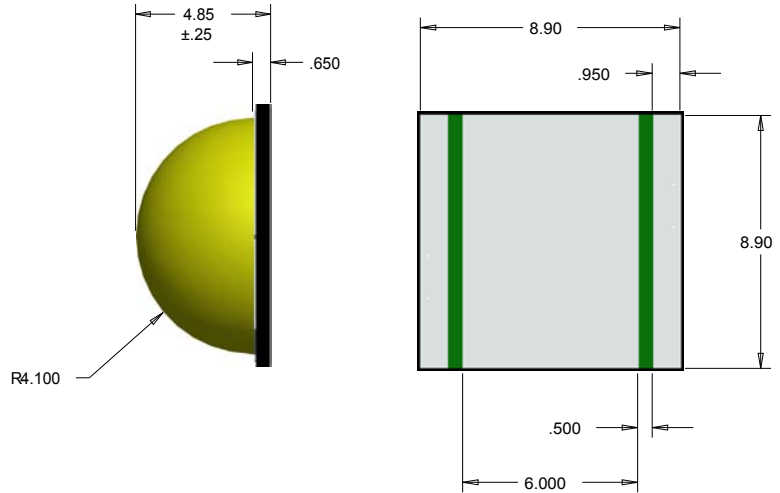
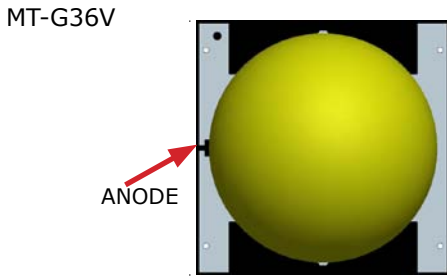
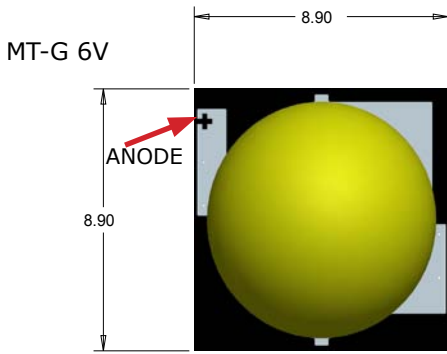
The levels of environmentally sensitive, persistent biologically toxic (PBT), persistent organic pollutants (POP), or otherwise restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended through April 21, 2006.

### **Vision Advisory Claim**

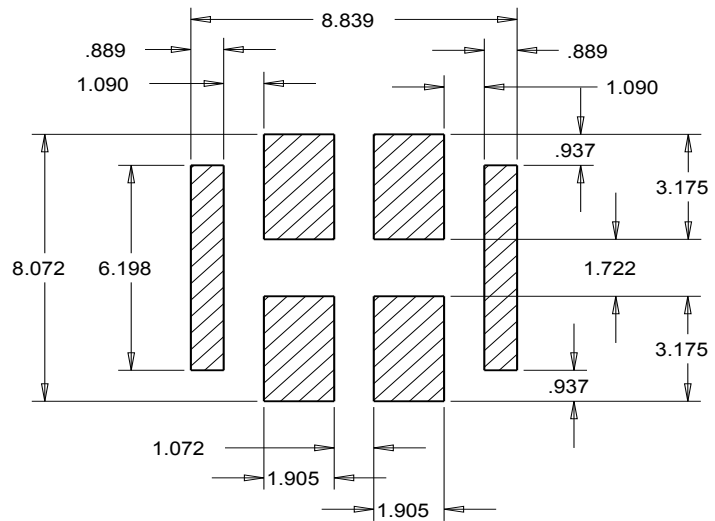
**WARNING.** Do not look at exposed LED lamps in operation. Eye injury can result. For more information about LEDs and eye safety, please refer to the Cree LED Eye Safety Application Note ([www.cree.com/products/pdf/XLamp\\_EyeSafety.pdf](http://www.cree.com/products/pdf/XLamp_EyeSafety.pdf)).

**MECHANICAL DIMENSIONS**

All measurements are  $\pm .13$  mm unless otherwise indicated.



RECOMMENDED PC BOARD SOLDER PAD

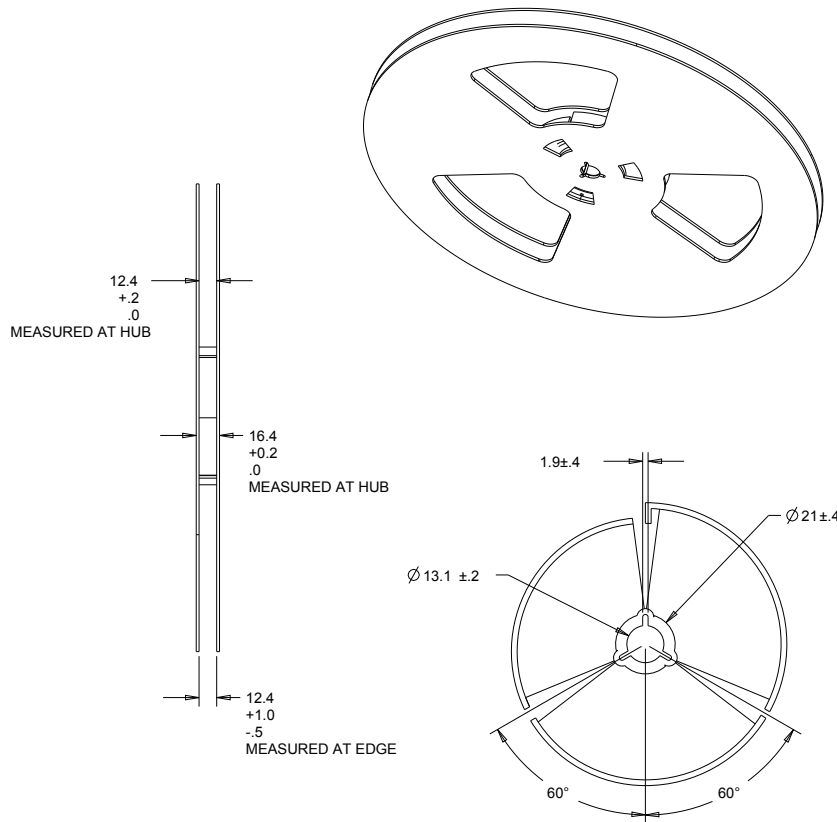
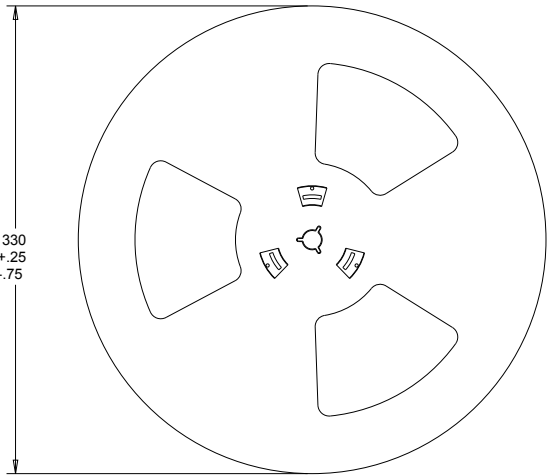
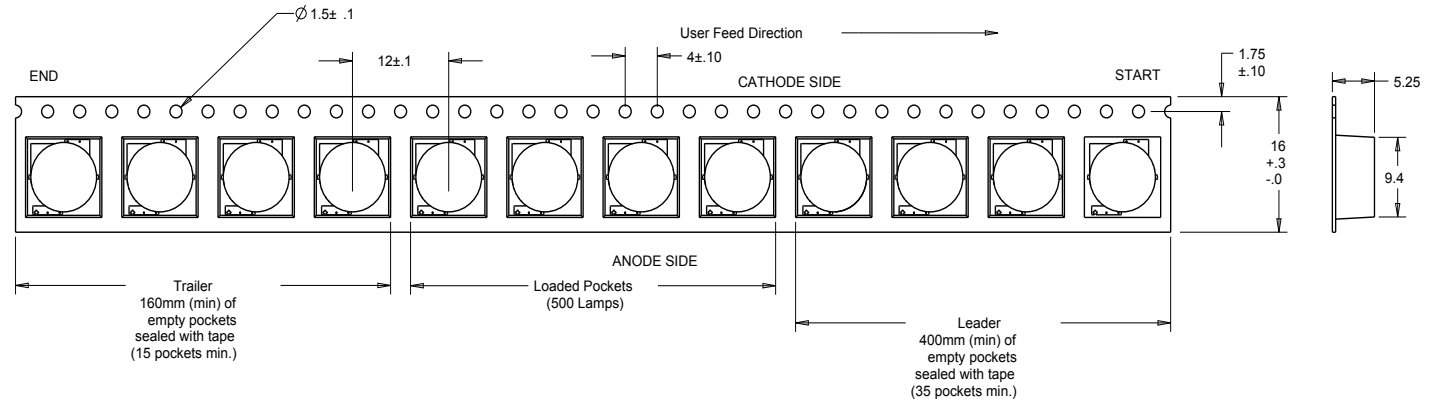


RECOMMENDED STENCIL PATTERN

**TAPE AND REEL**

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

All dimensions in mm.



**PACKAGING**

