

SST-70X-W

Specialty White LED

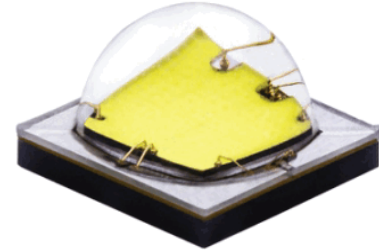


Table of Contents

| | |
|--|----|
| General Considerations | 2 |
| Binning Structure | 3 |
| Chromaticity Bin Kit Codes | 7 |
| Ordering Information | 8 |
| Optical and Electrical Characteristics | 10 |
| Soldering Profile | 13 |
| Precautions for Use | 14 |
| Mechanical Dimensions | 15 |
| Reel & Box Packaging | 16 |
| Change History | 19 |

Features:

- High Brightness Cool white LED with maximum output in excess of 3,200 lm
- Available in 6500K, 70 CRI (typical) color point
- Compact monolithic emitter ideal for directional lighting applications with high uniformity
- Rated and targeted at 85 °C
- Typical efficacy 162 lm/W at 700 mA, (6V)
- Maximum drive current: 5250 mA (6V) ,2625 mA (12V)
- High thermal conductivity package - junction thermal resistance of only 0.6° C/W
- Wide viewing angle: 120°
- 8000V HBM ESD rating per MIL STD-883D
- Electrically isolated thermal path
- RoHS and REACH compliant

Applications

- Flashlight
- Automotive accessory spotlights
- Portable lighting accessories
- Spot light
- Instrumentation
- Work light
- Battery and solar-powered applications
- Bicycle light

General Considerations

Environmental Considerations:

As a leading provider of solid-state Lighting solutions, Luminus implements strict substance control policies to ensure all of its products are environmentally friendly. As all Luminus LEDs, the SST-70X-W series are compliant with the Restriction of Hazardous Substances Directive (RoHS) and REACH directives from the European Community.

Product Testing:

Every SST-70X-W LED is fully production tested to ensure it meets the high quality standards customers have come to expect from Luminus products. Devices are binned to correlated values at 1500 mA, 6V, 20 msec pulse condition at $T_j = 85^\circ\text{C}$ current and temperature curves are provided in this document allowing users to predict the LED performance and characteristics under their own driving and thermal conditions.

Reliability:

Luminus SST-70X-W LED series are required to pass a rigorous suite of environmental and mechanical stress tests, including mechanical shock, vibration, temperature cycling and humidity. These tests ensure that the devices deliver high performance and achieve reliable long term operation in the automotive and other demanding environments. Please contact Luminus for further information.

Flux Binning Structure

SST-70X-W LEDs are binned for luminous flux based on $I_f = 1500$ mA and 85 °C junction temperature (T_j) conditions.

| Flux Bin(FF) | Min flux (lm) 1500 mA,85 °C | Max flux (lm) 1500 mA,85 °C | Calculated Min flux (lm) 700mA, 25°C | Calculated Minimum Luminous Flux (lm)@ 85 °C | | | | |
|--------------|--------------------------------|--------------------------------|--|--|---------|---------|---------|---------|
| | | | | 700 mA | 2000 mA | 3000 mA | 4000 mA | 5250 mA |
| LB | 1290 | 1380 | 741 | 659 | 1641 | 2258 | 2874 | 3327 |
| LA | 1200 | 1290 | 689 | 613 | 1526 | 2100 | 2674 | 3095 |
| KB | 1120 | 1200 | 643 | 572 | 1425 | 1960 | 2495 | 2888 |
| KA | 1042 | 1120 | 598 | 532 | 1325 | 1824 | 2322 | 2687 |
| JB | 969 | 1042 | 556 | 495 | 1232 | 1696 | 2159 | 2499 |

Note 1: Luminus maintains a +/- 6% tolerance on flux measurement.

Note 2: Correlated flux values at 700mA, 2000 mA, 3000 mA, 4000 mA and 5250 mA are for reference only.

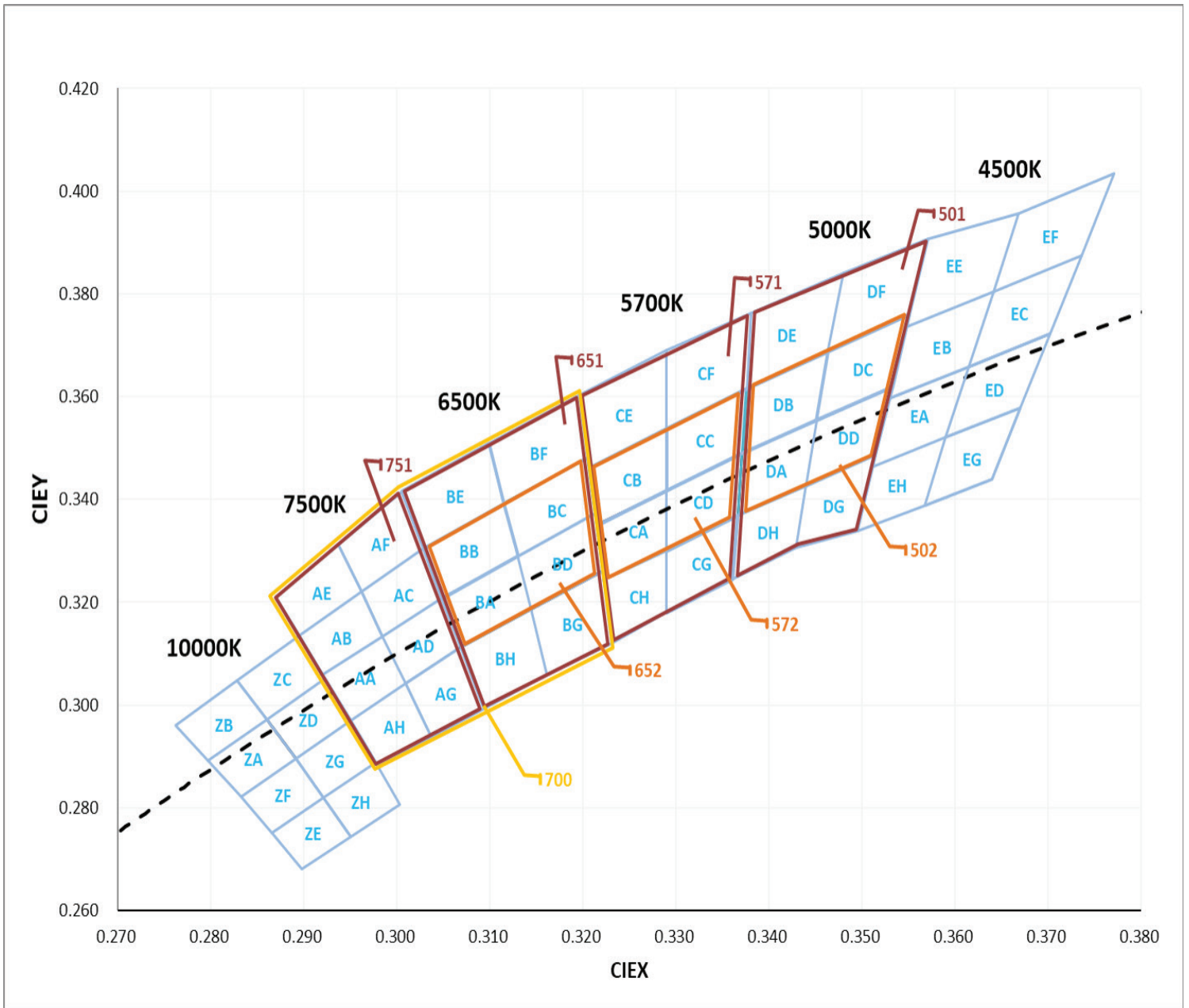
Chromaticity Bin Definitions

| CCT | Bin Code | CIE-X | CIE-Y | Bin Code | CIE-X | CIE-Y | Bin Code | CIE-X | CIE-Y | Bin Code | CIE-X | CIE-Y |
|-------|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 10000 | ZA | 0.286 | 0.2971 | ZB | 0.2828 | 0.3047 | ZC | 0.2895 | 0.3135 | ZD | 0.2923 | 0.3052 |
| | | 0.2891 | 0.2896 | | 0.286 | 0.2971 | | 0.2923 | 0.3052 | | 0.295 | 0.297 |
| | | 0.2832 | 0.2821 | | 0.2797 | 0.2891 | | 0.286 | 0.2971 | | 0.2891 | 0.2896 |
| | | 0.2797 | 0.2891 | | 0.2762 | 0.2961 | | 0.2828 | 0.3047 | | 0.286 | 0.2971 |
| | ZE | 0.2921 | 0.2819 | ZF | 0.2891 | 0.2896 | ZG | 0.2950 | 0.2970 | ZH | 0.2977 | 0.2888 |
| | | 0.295 | 0.2743 | | 0.2921 | 0.2819 | | 0.2977 | 0.2888 | | 0.3003 | 0.2807 |
| | | 0.2898 | 0.2681 | | 0.2865 | 0.2751 | | 0.2921 | 0.2819 | | 0.295 | 0.2743 |
| | | 0.2865 | 0.2751 | | 0.2832 | 0.2821 | | 0.2891 | 0.2896 | | 0.2921 | 0.2819 |
| 7500 | AA | 0.295 | 0.297 | AB | 0.292 | 0.306 | AC | 0.2984 | 0.3133 | AD | 0.2984 | 0.3133 |
| | | 0.292 | 0.306 | | 0.2895 | 0.3135 | | 0.2962 | 0.322 | | 0.3048 | 0.3207 |
| | | 0.2984 | 0.3133 | | 0.2962 | 0.322 | | 0.3028 | 0.3304 | | 0.3068 | 0.3113 |
| | | 0.3009 | 0.3042 | | 0.2984 | 0.3133 | | 0.3048 | 0.3207 | | 0.3009 | 0.3042 |
| | AH | 0.298 | 0.288 | AE | 0.2895 | 0.3135 | AF | 0.2962 | 0.322 | AG | 0.3037 | 0.2937 |
| | | 0.295 | 0.297 | | 0.287 | 0.321 | | 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 | 0.322 | | 0.3028 | 0.3304 | | 0.3093 | 0.2993 |
| 6500 | BA | 0.3048 | 0.3207 | BB | 0.3028 | 0.3304 | BC | 0.3115 | 0.3391 | BD | 0.313 | 0.329 |
| | | 0.313 | 0.329 | | 0.3115 | 0.3391 | | 0.3205 | 0.3481 | | 0.3213 | 0.3373 |
| | | 0.3144 | 0.3186 | | 0.313 | 0.329 | | 0.3213 | 0.3373 | | 0.3221 | 0.3261 |
| | | 0.3068 | 0.3113 | | 0.3048 | 0.3207 | | 0.313 | 0.329 | | 0.3144 | 0.3186 |
| | BH | 0.3068 | 0.3113 | BE | 0.3005 | 0.3415 | BF | 0.3099 | 0.3509 | BG | 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 | 0.312 |
| | | 0.3093 | 0.2993 | | 0.3028 | 0.3304 | | 0.3115 | 0.3391 | | 0.3161 | 0.3059 |

Chromaticity Bin Definitions (continued)

| CCT | Bin Code | CIE-X | CIE-Y | Bin Code | CIE-X | CIE-Y | Bin Code | CIE-X | CIE-Y | Bin Code | CIE-X | CIE-Y |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 5700 | CA | 0.3215 | 0.335 | CB | 0.3207 | 0.3462 | CC | 0.329 | 0.3538 | CD | 0.329 | 0.3417 |
| | | 0.329 | 0.3417 | | 0.329 | 0.3538 | | 0.3376 | 0.3616 | | 0.3371 | 0.349 |
| | | 0.329 | 0.33 | | 0.329 | 0.3417 | | 0.3371 | 0.349 | | 0.3366 | 0.3369 |
| | | 0.3222 | 0.3243 | | 0.3215 | 0.335 | | 0.329 | 0.3417 | | 0.3290 | 0.3300 |
| | CH | 0.3222 | 0.3243 | CE | 0.3196 | 0.3602 | CF | 0.329 | 0.369 | CG | 0.329 | 0.33 |
| | | 0.329 | 0.33 | | 0.329 | 0.369 | | 0.3381 | 0.3762 | | 0.3366 | 0.3369 |
| | | 0.329 | 0.318 | | 0.329 | 0.3538 | | 0.3376 | 0.3616 | | 0.3361 | 0.3245 |
| | | 0.3231 | 0.312 | | 0.3207 | 0.3462 | | 0.329 | 0.3538 | | 0.3290 | 0.3180 |
| 5000 | DA | 0.3371 | 0.349 | DB | 0.3376 | 0.3616 | DC | 0.3463 | 0.3687 | DD | 0.3451 | 0.3554 |
| | | 0.3451 | 0.3554 | | 0.3463 | 0.3687 | | 0.3551 | 0.376 | | 0.3533 | 0.362 |
| | | 0.344 | 0.3427 | | 0.3451 | 0.3554 | | 0.3533 | 0.362 | | 0.3515 | 0.3487 |
| | | 0.3366 | 0.3369 | | 0.3371 | 0.349 | | 0.3451 | 0.3554 | | 0.3440 | 0.3427 |
| | DH | 0.3366 | 0.3369 | DE | 0.3381 | 0.3762 | DF | 0.348 | 0.384 | DG | 0.344 | 0.3428 |
| | | 0.344 | 0.3428 | | 0.348 | 0.384 | | 0.3571 | 0.3907 | | 0.3515 | 0.3487 |
| | | 0.3429 | 0.3307 | | 0.3463 | 0.3687 | | 0.3551 | 0.376 | | 0.3495 | 0.3339 |
| | | 0.3361 | 0.3245 | | 0.3376 | 0.3616 | | 0.3463 | 0.3687 | | 0.3429 | 0.3307 |
| 4500 | EA | 0.353 | 0.3597 | EB | 0.3548 | 0.3736 | EC | 0.3641 | 0.3804 | ED | 0.3615 | 0.3659 |
| | | 0.3615 | 0.3659 | | 0.3641 | 0.3804 | | 0.3736 | 0.3874 | | 0.3702 | 0.3722 |
| | | 0.359 | 0.3521 | | 0.3615 | 0.3659 | | 0.3702 | 0.3722 | | 0.367 | 0.3578 |
| | | 0.3512 | 0.3465 | | 0.353 | 0.3597 | | 0.3615 | 0.3659 | | 0.3590 | 0.3521 |
| | EH | 0.3512 | 0.3465 | EE | 0.3571 | 0.3907 | EF | 0.3668 | 0.3957 | EG | 0.359 | 0.3521 |
| | | 0.359 | 0.3521 | | 0.3668 | 0.3957 | | 0.3771 | 0.4034 | | 0.367 | 0.3578 |
| | | 0.3567 | 0.3389 | | 0.3641 | 0.3804 | | 0.3736 | 0.3874 | | 0.364 | 0.344 |
| | | 0.3495 | 0.3339 | | 0.3548 | 0.3736 | | 0.3641 | 0.3804 | | 0.3567 | 0.3389 |

**SST-70X-W Cool White Color Space
Plotted on the ANSI 1931 Curve**



Chromaticity Bin Kit Codes

| CCT | Bin Kit | Chromaticity Bins |
|-------|---------|--------------------------------|
| 6500K | 651 | BA, BB, BC, BD, BE, BF, BG, BH |
| | 652 | BA, BB, BC, BD |

Part Numbering Nomenclature

SST — 70X — <WxS> — <H50> — <FFCCC>

| Product Family | LED Emission Area | Color | Package Configuration | Bin Kit |
|---|--|--|-----------------------|--|
| S: Surface mount S: Lensed T: Single monolithic emitter | 70=7.0 mm ² X=multi-junction | W: White x: Temperature C: Cool White D: Daylight White S: standard CRI 70 | H50 package code | See Tables FF = minimum flux bin CCC: Chromaticity bin kit |

Ordering Part Numbers

| CCT | Min. Flux Bin ¹ | Min. Flux (lm) | Chromaticity Bin Kit Code ² | Ordering Part Numbers |
|-------|----------------------------|----------------|--|-----------------------|
| 6500K | JB | 969 | 651 | SST-70X-WCS-H50-JB651 |
| | KA | 1042 | 651 | SST-70X-WCS-H50-KA651 |
| | JB | 969 | 652 | SST-70X-WCS-H50-JB652 |
| | KA | 1042 | 652 | SST-70X-WCS-H50-KA652 |

Note 1: The minimum flux of each bin kit is determined by the minimum flux bin as defined on page 3. Higher flux bins are eligible to ship against shown bin kits and part numbers.

Note 2: See page 7 for chromaticity bin kit definitions.

Example: The part number SST-70X-WCS-H50-KA651 refers to a part with flux greater than 1042 lm and chromaticity bins BA, BB, BC, BD, BE, BF, BG, BH as defined on page 3.

SST-70X-W Product Characteristics¹

| Parameter | | Symbol | Minimum | Typical | Maximum | Unit |
|---|-------|-----------------------|---------|---------|---------|---------|
| Forward Current at test | | I_F | | 1500 | | mA |
| Forward Voltage(6V,@1500mA) | | V_F | 5.25 | 5.7 | 6.25 | V |
| Forward Voltage(12V,@750mA) | | V_F | 10.5 | 11.4 | 12.5 | V |
| Luminus Flux | 6500K | ϕ_v | | 1120 | | lm |
| Radiometric Flux | 6500K | ϕ_e | | 3650 | | mW |
| Viewing Angle | A120 | $2\theta_{1/2}$ | | 120 | | Degrees |
| Color Rendering Index | | CRI | 65 | 70 | | |
| Forward Current (CW) ² | | I_{fmin} / I_{fmax} | 0.2 | | 5250 | mA |
| Maximum Surge Current | | I_{F-smax} | | | 8000 | mA |
| Maximum Reverse Current ³ | | I_{rev} | | | N.A. | |
| LED Junction Temperature | | T_J | | | 150 | °C |
| ESD withstand Voltage HBM Per JEDEC/ESDA STANDARD JS-001 | | V_{HBM} | 8000 | | | V |
| ESD withstand Voltage CDM Per JEDEC/ESDA STANDARD JS-002 | | V_{CDM} | 1000 | | | V |
| Operating Temperature | | T_{OPR} | - 40 | | 100 | °C |
| Thermal resistance junction to case (electrical) | | $R_{\theta JC-EL}$ | | 0.6 | | °C/W |

Note 1: Values are at 85°C unless otherwise noted.

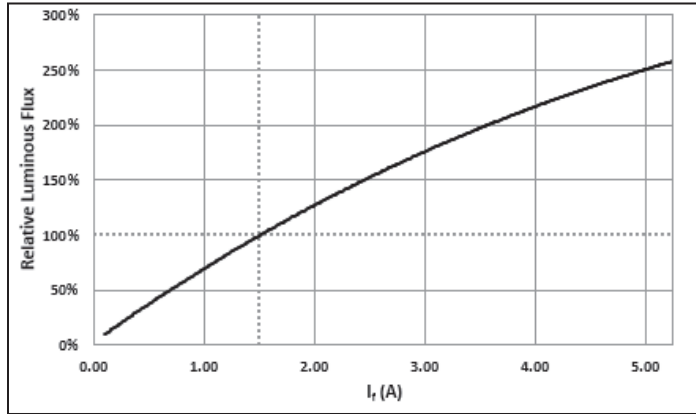
Note 2: Sustained operation at maximum current will result in shortened lifetime.

Note 3: Not designed for reverse voltage operation.

Optical & Electrical Characteristics

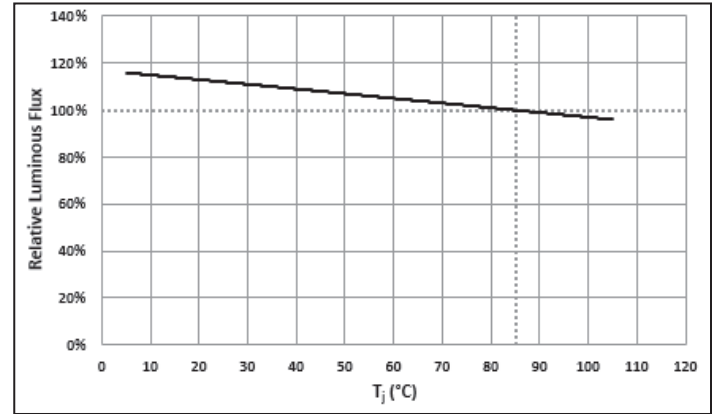
Relative Luminous Flux vs. Forward Current

$\phi_v/\phi_v(1.5A)$ Single Pulse 20ms $T_j = 85^\circ C$



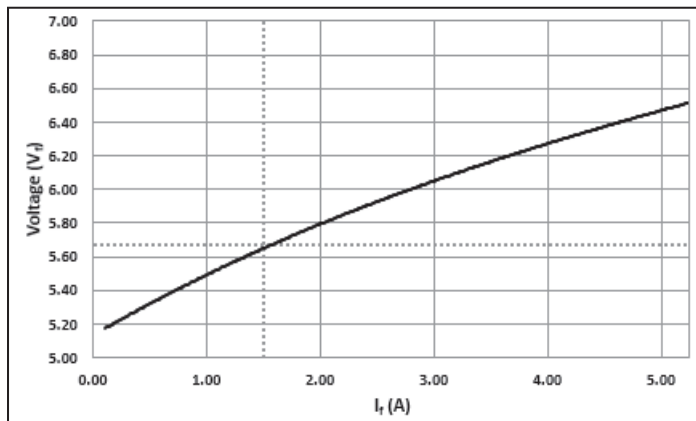
Relative Luminous Flux vs. Temperature (T_j)

$\phi_v/\phi_v(85^\circ C)$ Single Pulse 20ms $I_f = 1.5A$



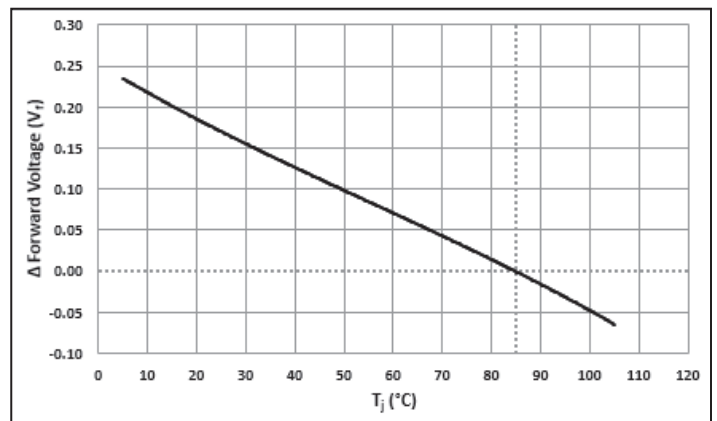
Forward Voltage vs. Forward Current

$V_f(I_f)$ Single Pulse 20ms $T_j = 85^\circ C$



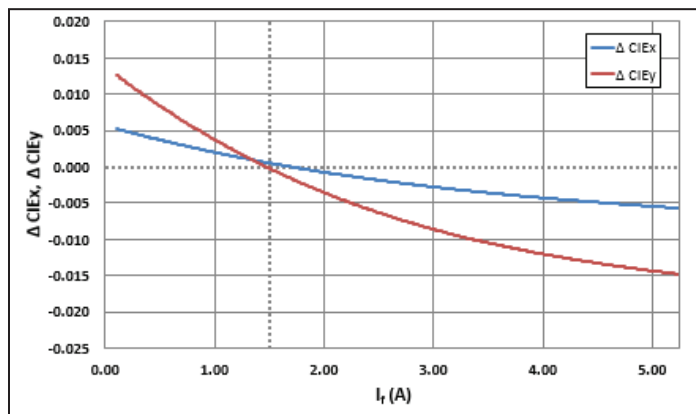
Relative Forward Voltage vs. Temperature (T_j)

$\Delta V_f = V(T_j) - V(85^\circ C)$ Single Pulse 20ms $I_f = 1.5A$



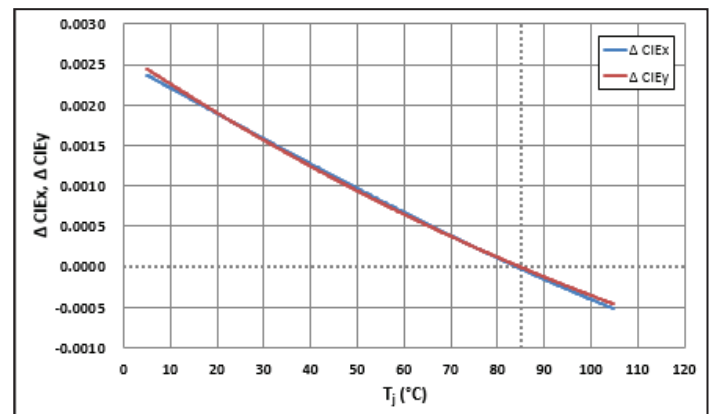
Relative Chromaticity vs. Forward Current

$\Delta CIE_{x,y} = CIE_{x,y}(I_f) - CIE_{x,y}(1.5A)$, Single Pulse 20ms $T_j = 85^\circ C$



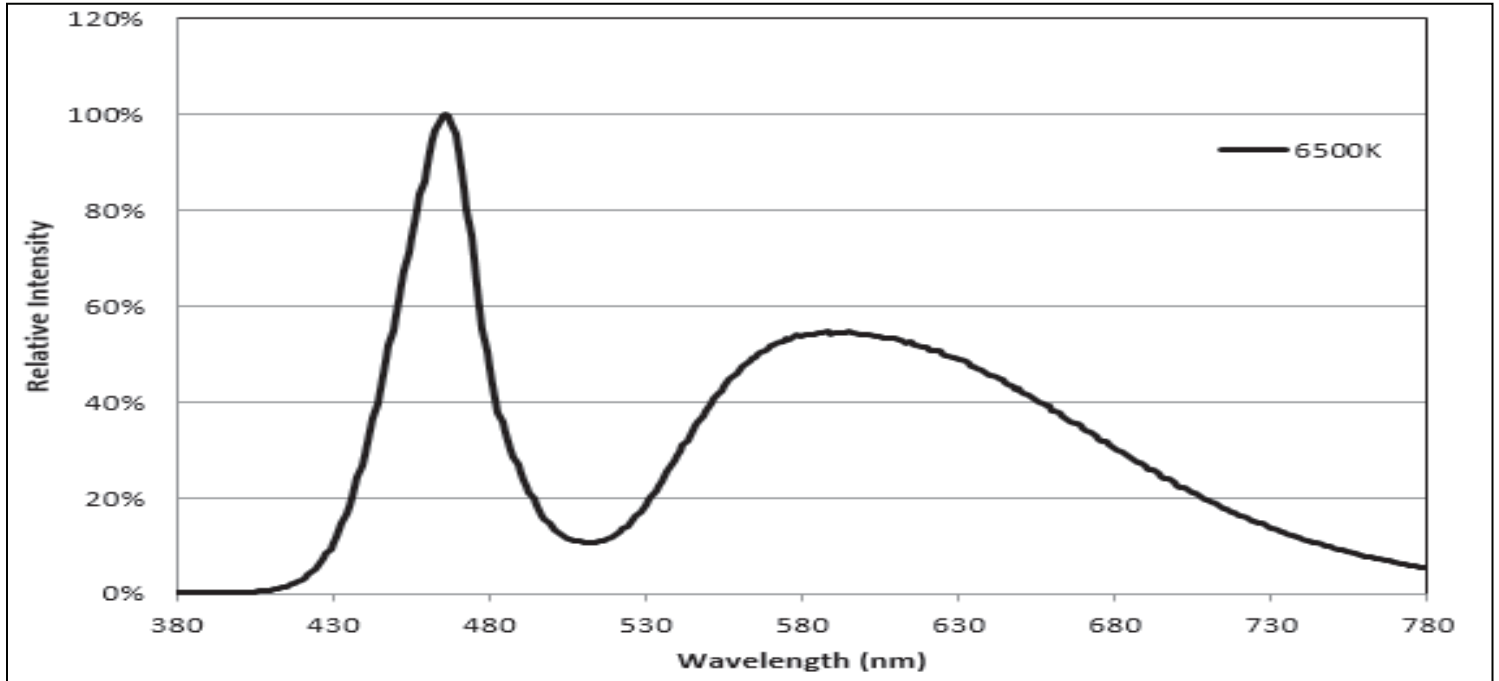
Relative Chromaticity vs. Temperature (T_j)

$\Delta CIE_{x,y} = CIE_{x,y}(T_j) - CIE_{x,y}(85^\circ C)$ Single Pulse 20ms $I_f = 1.5A$

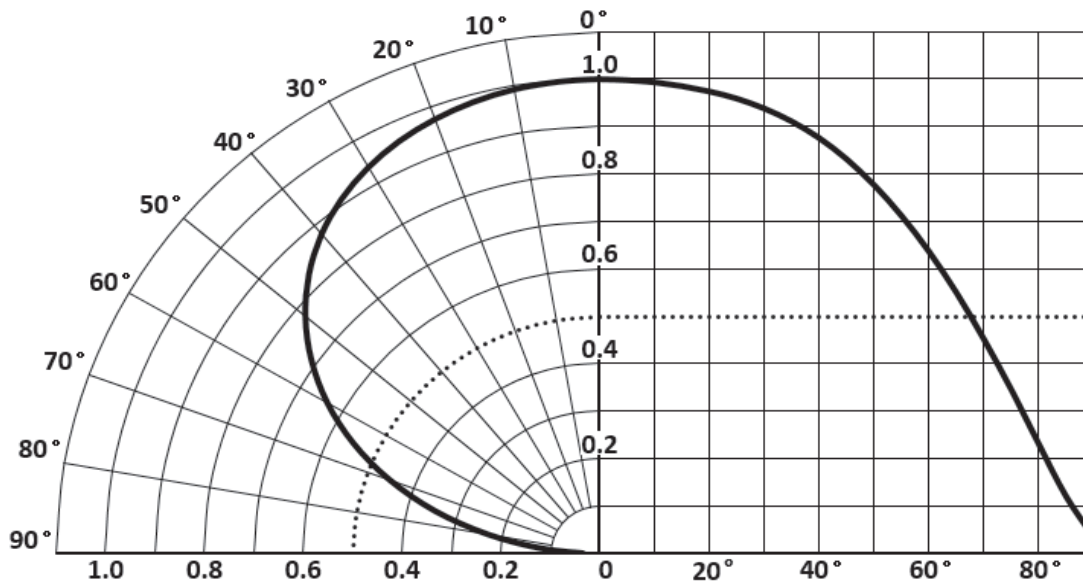


Optical & Electrical Characteristics

Typical Relative Radiant Power ¹



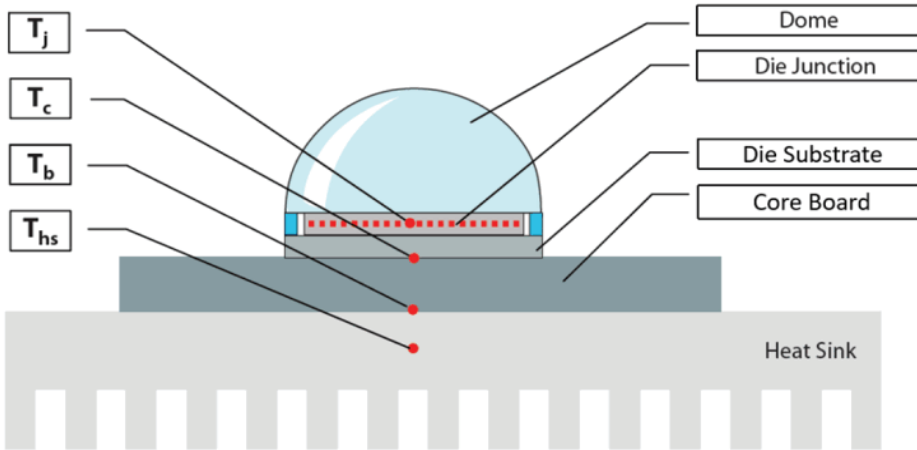
Typical Angular Pattern of Radiant Power ²



Note 1: Relative radiant power measurements were made at 1.5 A, 85 °C.

Note 2: Angular pattern measurements were made at 1.5 A, 25 °C.

Thermal Resistance



Typical Thermal Resistance

| | |
|----------------|-----------|
| R_{j-c}^{-1} | 0.6 °C/W |
| R_{j-b}^{-1} | 0.84 °C/W |

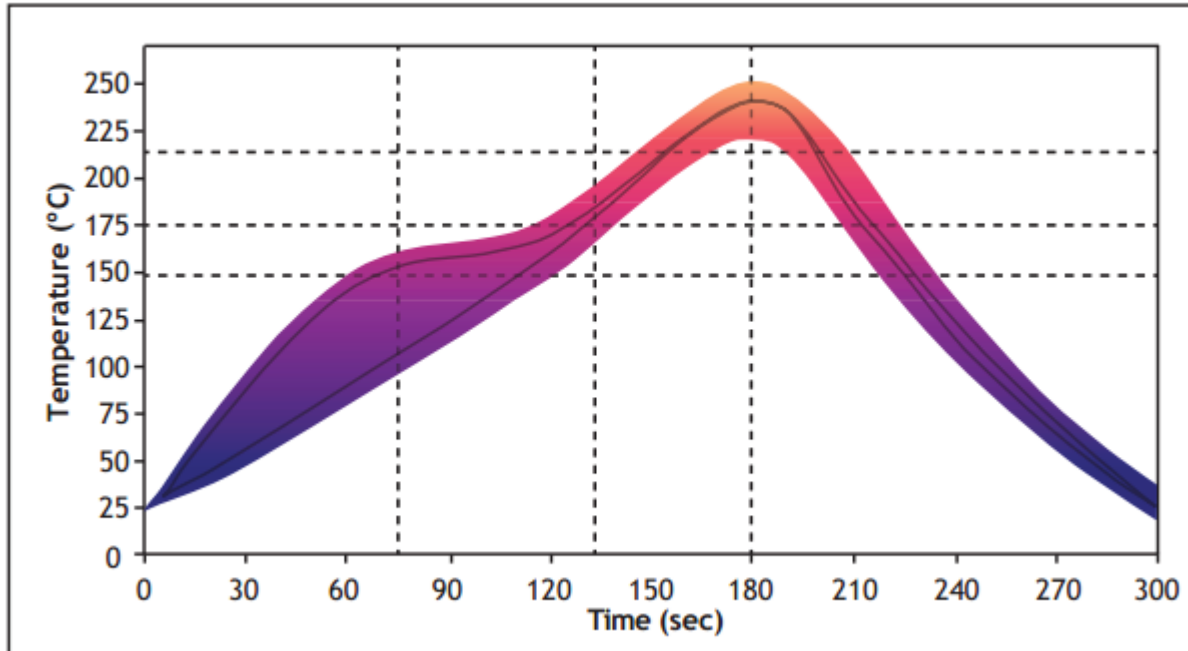
Note 1: Thermal resistance values are based on rapid thermal transient testing results.

Note 2: Thermal resistance is measured using a SAC305 solder and a Cu-pedestal MCPCB.

Note 3: The values represent the electrical thermal resistance @1.5A operation.

Soldering Profile

SAC 305 Reflow Profile Window For Low Density Boards



Lead free solder guideline for low density boards

| Solder Profile Stage | Lead-Free Solder | Lead-based Solder |
|------------------------------------|--------------------|--------------------|
| Profile length, Ambient to Peak | 2.75 - 3.5 minutes | 2.75 - 3.5 minutes |
| Time Maintained Above: Temperature | 217 °C | 183 °C |
| Time Maintained Above: Time | 30 - 60 seconds | 30 - 60 seconds |
| Cooldown Rate | ≤4° C/sec | ≤4° C/sec |
| Cooldown Duration | 45 ± 15 sec | 45 ± 15 sec |

Note 1: Temperatures are taken and monitored at the component copper layer.

Note 2: Optimum profile may differ due to oven type, circuit board or assembly layout.

Note 3: Recommended lead free, no-clean solder: AIM NC254-SAC305.

Note 4: Refer to APN-001473 soldering and handling application note for additional solder profiles and details.

Precautions for Use

Storage:

1. The recommended storage condition is between 5 °C and 30 °C and relative humidity less than or equal to 60% RH in its original package.
2. After this bag is opened, devices that will be applied to infrared reflow, vapor - phase reflow, or equivalent soldering process must be:
 - a) Completed within 168 hours.
 - b) Stored at less than 60% relative humidity.
 - c) If not completely used within 168 hours, seal the remaining in the moisture barrier bag.
3. Devices require baking before mounting, if 2 a) is not met.
4. If baking is required, devices must be baked under below conditions:
24 hours at 60 C +/-5 °C

The LED's electrode and leadframe are a silver plated copper alloy. The silver surface may be affected by its environment. Please avoid conditions which may cause the LEDs to corrode or become discolored. The corrosion or discoloration might lower the solderability or affect the optical characteristics of the device.

Please avoid rapid transitions in ambient temperature, especially in high humidity environments where condensation can occur.

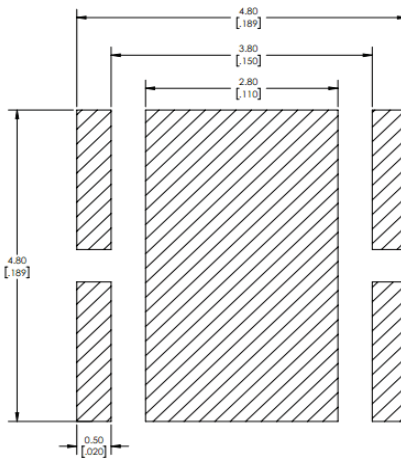
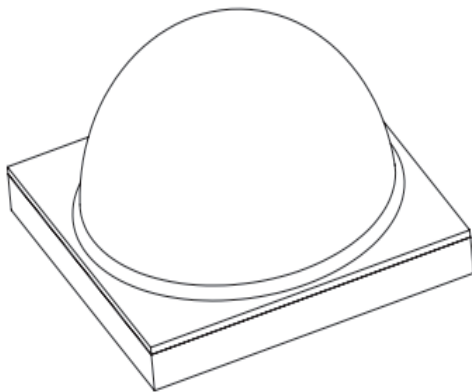
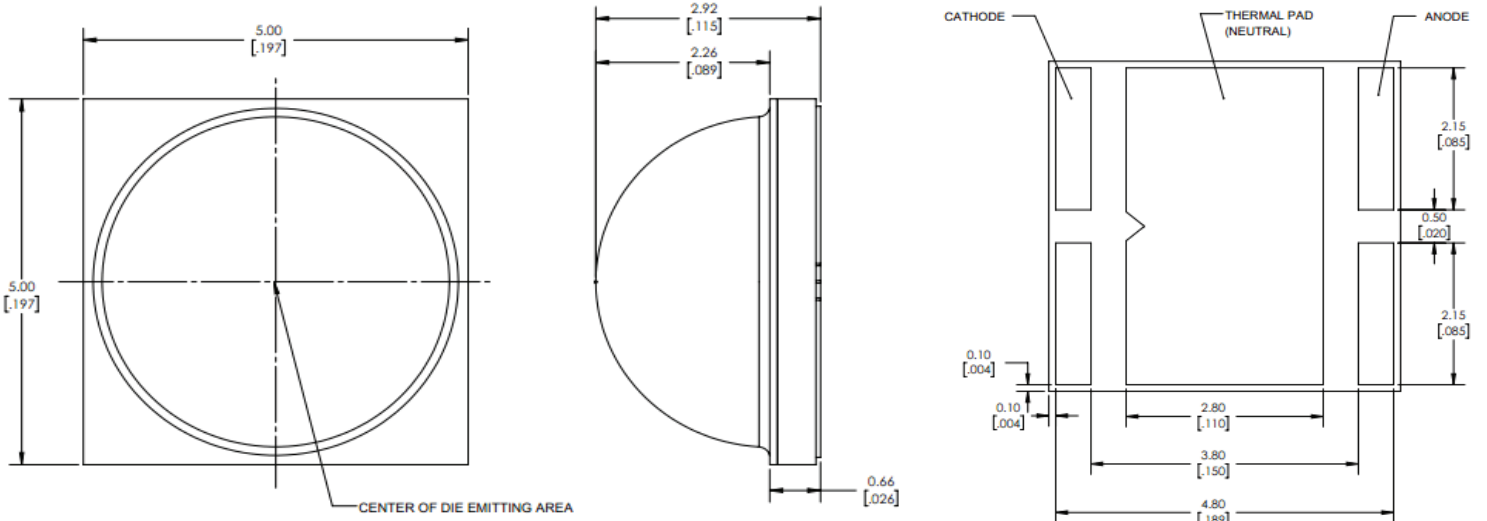
Static Electricity:

1. The products are sensitive to static electricity and care should be taken when handling them.
2. Static electricity or surge voltage will damage the LEDs. It is recommended to wear an anti-electrostatic wristband or anti-electrostatic gloves when handling the LEDs.
3. All devices, equipment and machinery must be properly grounded. It is recommended that measures be taken against surge voltage to the equipment that mounts the LEDs.

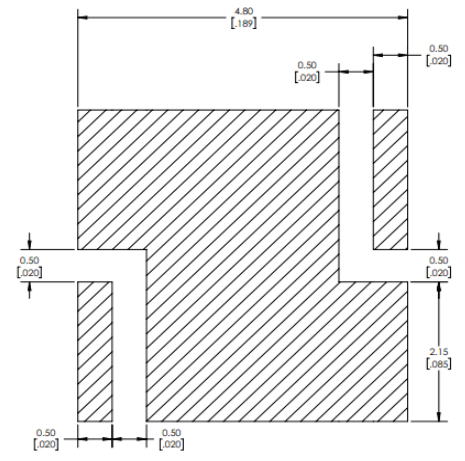
Vision Advisory

WARNING: Looking at an exposed LED during operation can result in eye injury.

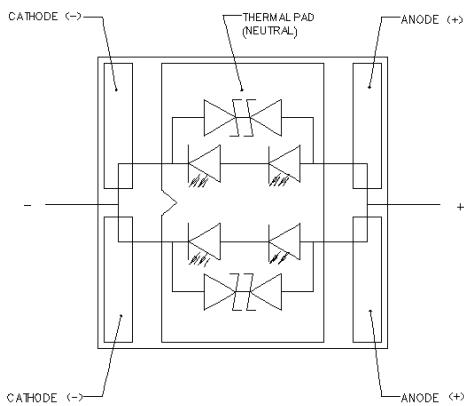
Mechanical Dimensions



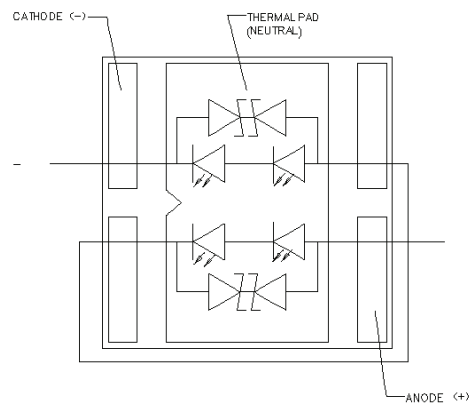
**RECOMMENDED PCB SOLDER PAD
6V CONFIGURATION**



**RECOMMENDED PCB SOLDER PAD
12V CONFIGURATION**



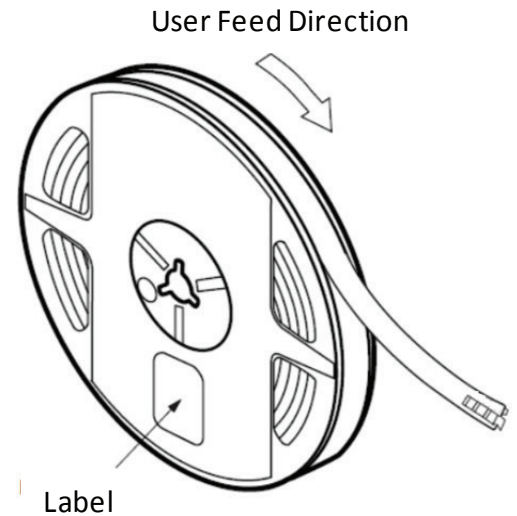
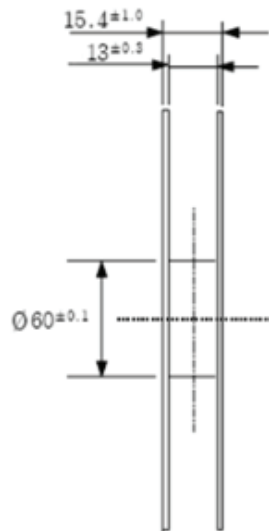
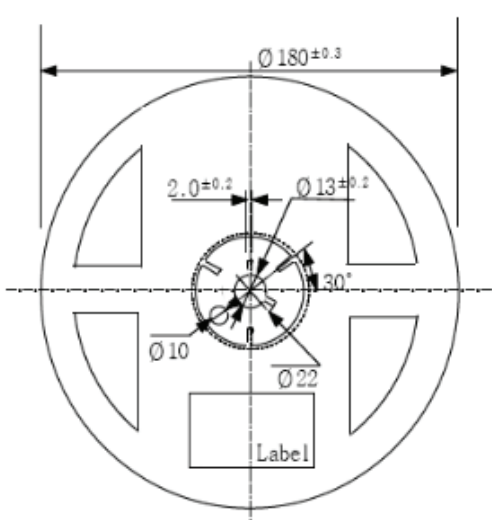
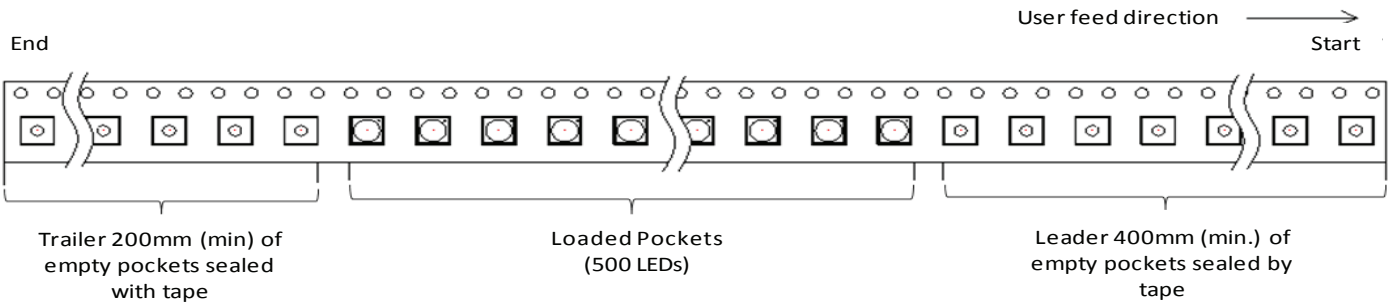
6V Configuration



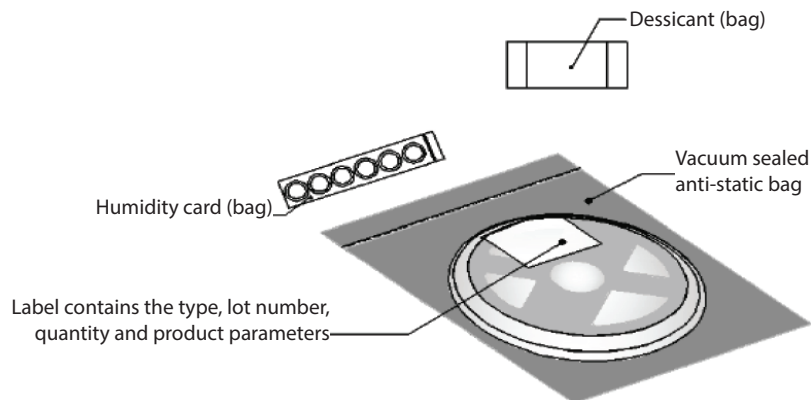
12V Configuration

Reel Package

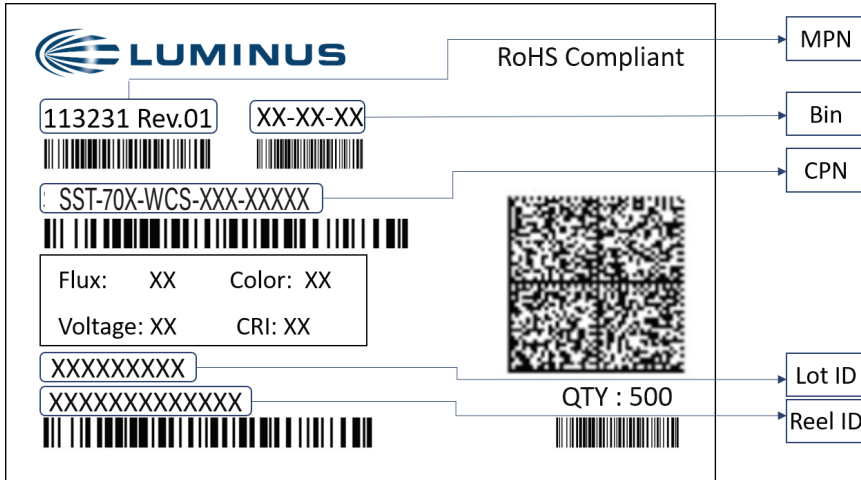
Tape Drawing



Reel dimensions are in millimeters.



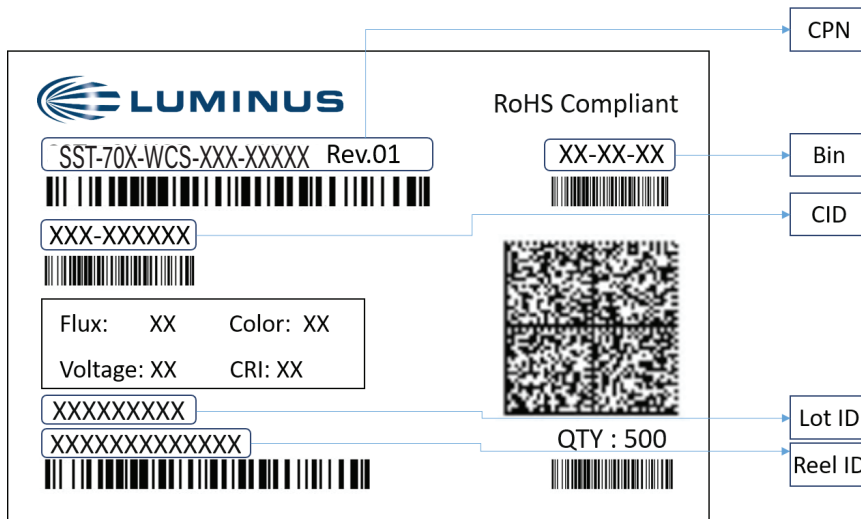
Reel Label



Label Fields:

- CPN: Luminus ordering part number
- MPN: For Luminus internal use
- Qty: On reel
- Flux: Bin as defined on page 3
- Voltage: Bin as defined on page 3
- Color: Bin as defined on page 4
- Mfg Info: For Luminus internal use

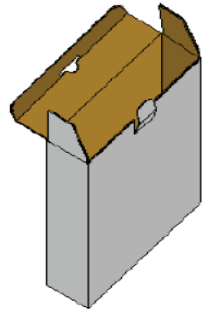
Shipping Label



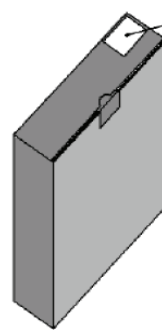
Label Fields:

- CPN: Luminus ordering part number
- CID: Customer ID (Optional)
- Qty: On reel
- Flux: Bin as defined on page 3
- Voltage: Bin as defined on page 3
- Color: Bin as defined on page 4

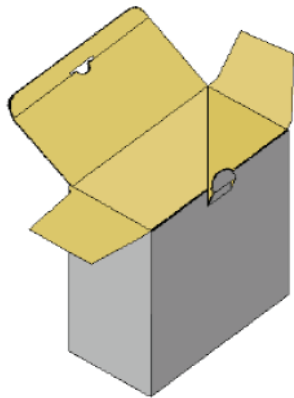
Box Packaging Information



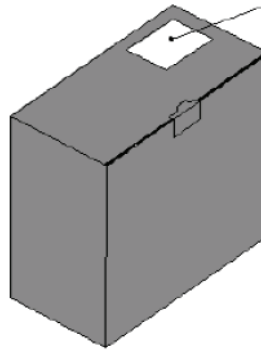
Size: 22.5*24.5*6.5 cm
Capacity: 5 reels per box



Label contains the type, lot number,
quantity and product parameters



Size: 22.5*24.5*13 cm
Capacity: 10 reels per box



Label contains the type, lot number,
quantity and product parameters

History of Changes

| Revision | Date | Description of Change |
|----------|------------|-----------------------|
| 1 | 11/01/2020 | Initial revision |
| | | |

The products, their specifications and other information appearing in this document are subject to change by Luminus Devices without notice. Luminus Devices assumes no liability for errors that may appear in this document, and no liability otherwise arising from the application or use of the product or information contained herein. None of the information provided herein should be considered to be a representation of the fitness or suitability of the product for any particular application or as any other form of warranty. Luminus Devices' product warranties are limited to only such warranties as accompany a purchase contract or purchase order for such products. Nothing herein is to be construed as constituting an additional warranty. No information contained in this publication may be considered as a waiver by Luminus Devices of any intellectual property rights that Luminus Devices may have in such information.

This product is protected by U.S. Patents 6,831,302; 7,074,631; 7,083,993; 7,084,434; 7,098,589; 7,105,861; 7,138,666; 7,166,870; 7,166,871; 7,170,100; 7,196,354; 7,211,831; 7,262,550; 7,274,043; 7,301,271; 7,341,880; 7,344,903; 7,345,416; 7,348,603; 7,388,233; 7,391,059 Patents Pending in the U.S. and other countries.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [High Power LEDs - White category](#):

Click to view products by [Luminus Devices manufacturer](#):

Other Similar products are found below :

[LTW-K140SZR40](#) [B42180-08](#) [STW8Q2PA-R5-HA](#) [LTPL-P00DWS57](#) [LTW-K140SZR30](#) [LZP-D0WW00-0000](#) [SZ5-M1-WW-C8-V1/V3-FA](#) [LTW-K140SZR57](#) [LTW-K140SZR27](#) [BXRE-50C2001-C-74](#) [MP-5050-8100-27-80](#) [MP-5050-6100-65-80](#) [MP-5050-6100-50-80](#) [MP-5050-6100-40-80](#) [MP-5050-6100-30-80](#) [KW DPLS32.SB-6H6J-E5P7-EG-Z264](#) [L1V1-507003V500000](#) [KW DMLS33.SG-Z6M7-EBVFFCBB46-8E8G-700-S](#) [GW PSLT33.PM-LYL3-XX56-1-G3](#) [ASMT-MW05-NMNS1](#) [KW DPLS33.KD-HIJG-D30D144-HN-22C2-120-S](#) [KW DDLM31.EH-5J6K-A737-W4A4-140-R18](#) [GW JTLRS1.CM-K1LW-XX57-1-100-Q-R33](#) [KW DDLM31.EH-5J6K-A636-W4A4-140-R18](#) [KW DDLM31.EH-5J6K-A131-W4A4-140-R18](#) [GW PSLT33.PM-LYL3-XX57-1-G3](#) [SML-LXL8047MWCTR/3](#) [L2C5-40HG1203E0900](#) [JB3030AWT-P-U27EA0000-N0000001](#) [JK3030AWT-P-U30EA0000-N0000001](#) [JK3030AWT-P-B40EB0000-N0000001](#) [JK3030AWT-P-H30EB0000-N0000001](#) [JK3030AWT-P-H40EB0000-N0000001](#) [JK3030AWT-P-U27EB0000-N0000001](#) [JK3030AWT-P-U30EB0000-N0000001](#) [XPGBWT-HE-0000-00JE5](#) [GW JCLPS2.EM-H3H8-A131-1-65-2-R33](#) [GW PUSTA1.PM-PAPC-XX53-1-1050-R18](#) [GW CSSRM2.PM-N3N5-XX53-1](#) [GW P9LMS1.EM-NRNU-30S7-0-200-R18](#) [GW PSLPS1.EC-KSKU-5R8T-1](#) [LTPL-M03614ZS50-F1](#) [LTW-2835SZK65](#) [LTW-3030AQL40](#) [LTW-3030AZL40-EU](#) [LTW-3030BSL42](#) [LTW-3030DZL30](#) [LTW-3030SZK40](#) [LTW-3030SZK65](#) [LTW-5630AQL27](#)