

### Features

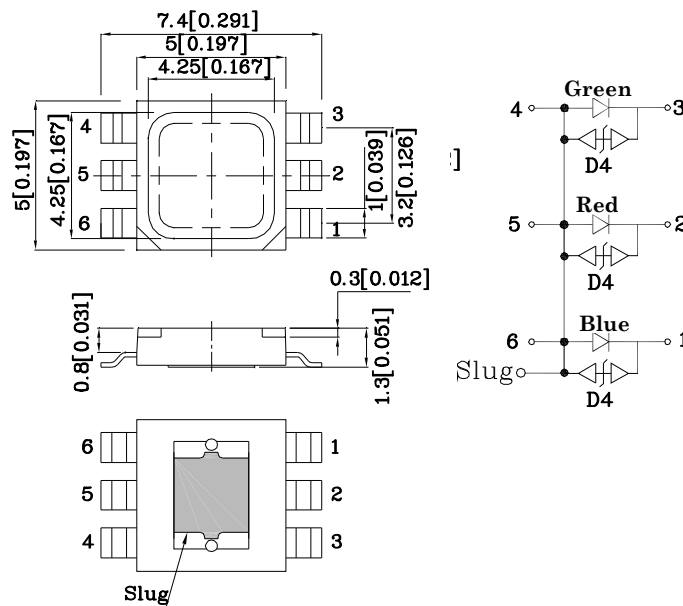
- Ideal for indication light on hand held products
- Long life and robust package
- White SMD package, silicone resin.
- Standard Package: 500pcs/ Reel
- MSL (Moisture Sensitivity Level): 3
- RoHS compliant.



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES



### Package Schematics



Notes:

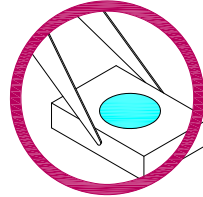
1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.15 [\pm 0.006]$  unless otherwise noted.
3. Specifications are subject to change without notice.

## Handling Precautions

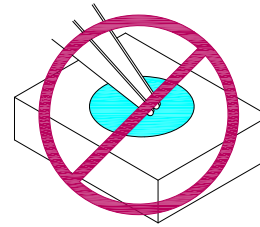
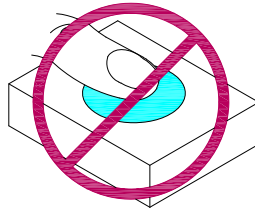
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.

As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

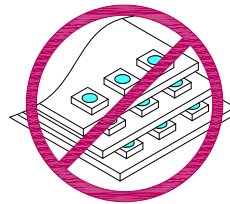
1. Handle the component along the side surfaces by using forceps or appropriate tools.



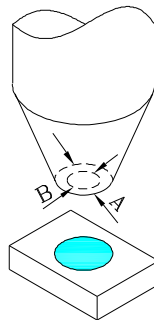
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



- 4.1. The inner diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks.
- 4.2. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.
- 4.3. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.



5. As silicone encapsulation is permeable to gases, some corrosive substances such as  $H_2S$  might corrode silver plating of leadframe. Special care should be taken if an LED with silicone encapsulation is to be used near such substances.

**Selection Guide**

| Part Number         | Emitting Color | Emitting Material | Lens-color  | Luminous Intensity<br>CIE127-2007* [2]<br>(IF=150mA)<br>cd |       | Luminous Flux<br>CIE127-2007* [2]<br>(IF=150mA )<br>lm |       |      | Viewing Angle<br>2 θ 1/2 [1] |
|---------------------|----------------|-------------------|-------------|--|-------|--|-------|------|------------------------------|
|                     |                |                   |             | min.   | typ.  | min.   | typ.  | max. |                              |
| XZCB25MO24DG25X111S | Blue           | InGaN             | Water Clear | 1*   | 1.59* | 2.9*   | 4*    | 6    | 120°                         |
|                     | Red            | AlGaInP           |             | 2.7*   | 4.29* | 8.6*   | 10.7* | 17   |                              |
|                     | Green          | InGaN             |             | 4.2*   | 5.99* | 12*  | 16.7* | 29   |                              |

Notes:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity/ luminous Flux: +/-15%. \*LEDs are binned according to their luminous flux.
- \* Luminous Intensity/Luminous Flux value is in accordance with CIE127-2007 standards.

**Absolute Maximum Ratings at Ta=25°C**

| Parameter                | Symbol  | Emitting Color | Value      | Unit |
|--------------------------|---------|----------------|------------|------|
| Power dissipation        | PD      | Blue           | 0.6        | W    |
|                          |         | Red            | 0.45       |      |
|                          |         | Green          | 0.6        |      |
| Junction temperature     | Tj      | Blue           | 110        | °C   |
|                          |         | Red            | 110        |      |
|                          |         | Green          | 110        |      |
| Operating Temperature    | Top     | Blue           | -40 To +85 | °C   |
|                          |         | Red            |            |      |
|                          |         | Green          |            |      |
| Storage Temperature      | Tstg    | Blue           | -40 To +85 | °C   |
|                          |         | Red            |            |      |
|                          |         | Green          |            |      |
| DC Forward Current [1]   | IF      | Blue           | 150        | mA   |
|                          |         | Red            | 150        |      |
|                          |         | Green          | 150        |      |
| Peak Forward Current [2] | IFM     | Blue           | 300        | mA   |
|                          |         | Red            | 300        |      |
|                          |         | Green          | 300        |      |
| Thermal resistance       | Rth j-a | Blue           | 220        | °C/W |
|                          |         | Red            | 270        |      |
|                          |         | Green          | 200        |      |
| Thermal resistance       | Rth j-s | Blue           | 25         | °C/W |
|                          |         | Red            | 40         |      |
|                          |         | Green          | 33         |      |

Notes:

1. Results from mounting on Aluminum Board.
2. 1/10 Duty Cycle, 0.1ms Pulse Width.
3. A Relative Humidity between 40% and 60% is recommended in ESD-protected work areas to reduce static build up during assembly process (Reference JEDEC/ JESD625-A and JEDEC/J-STD-033)

**Electrical / Optical Characteristics at Ta=25°C**

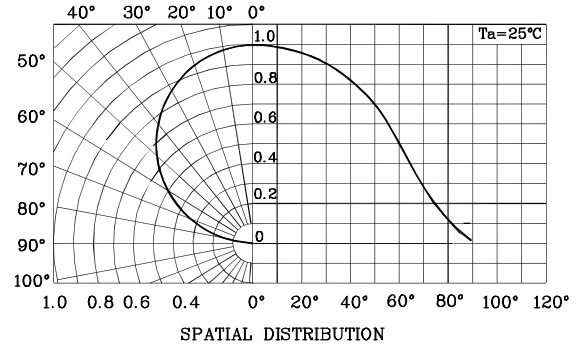
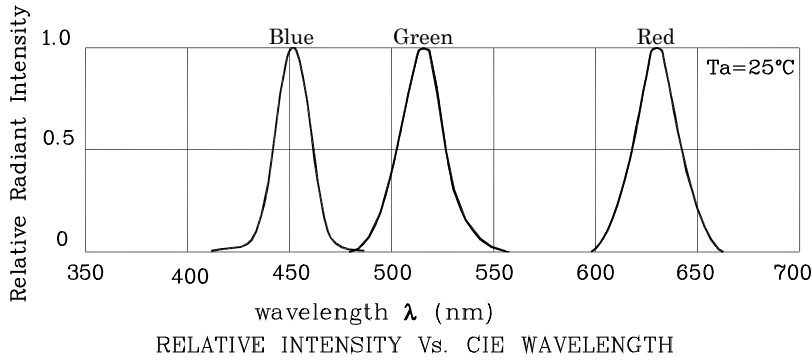
| Parameter  | Symbol                | Emitting Color | Value |      |      | Unit  |
|--|-----------------------|----------------|-------|------|------|-------|
|  |                       |                | Min.  | Typ. | Max. |       |
| Wavelength at peak emission CIE127-2007*<br>IF=150mA   | $\lambda_{peak}$      | Blue           |       | 452* |      | nm    |
| Wavelength at peak emission CIE127-2007*<br>IF=150mA   |                       | Red            |       | 635* |      |       |
| Wavelength at peak emission CIE127-2007*<br>IF=150mA   |                       | Green          |       | 515* |      |       |
| Dominant Wavelength CIE127-2007*<br>IF=150mA   | $\lambda_{dom}$ [1]   | Blue           |       | 460* | 473* | nm    |
| Dominant Wavelength CIE127-2007*<br>IF=150mA   |                       | Red            |       | 624* | -    |       |
| Dominant Wavelength CIE127-2007*<br>IF=150mA   |                       | Green          |       | 525* | 535* |       |
| Spectral Line Half-width<br>IF=150mA   | $\Delta\lambda_{1/2}$ | Blue           |       | 20   |      | nm    |
| Spectral Line Half-width<br>IF=150mA   |                       | Red            |       | 20   |      |       |
| Spectral Line Half-width<br>IF=150mA   |                       | Green          |       | 30   |      |       |
| Forward Voltage IF=150mA   | $V_F$ [2]             | Blue           | 3.0   | 3.5  | 4.0  | V     |
| Forward Voltage IF=150mA   |                       | Red            | 2.0   | 2.5  | 3.0  |       |
| Forward Voltage IF=150mA   |                       | Green          | 3.0   | 3.5  | 4.0  |       |
| Reverse Voltage  | $V_R$                 | Blue           |       |      | 5    | V     |
|  |                       | Red            |       |      | 5    |       |
|  |                       | Green          |       |      | 5    |       |
| Temperature coefficient of $\lambda_{peak}$<br>IF=150mA, $-10^\circ C \leq T \leq 100^\circ C$ | $TC\lambda_{peak}$    | Blue           |       | 0.12 |      | nm/°C |
| Temperature coefficient of $\lambda_{peak}$<br>IF=150mA, $-10^\circ C \leq T \leq 100^\circ C$ |                       | Red            |       | 0.09 |      |       |
| Temperature coefficient of $\lambda_{peak}$<br>IF=150mA, $-10^\circ C \leq T \leq 100^\circ C$ |                       | Green          |       | 0.13 |      |       |
| Temperature coefficient of $\lambda_{dom}$<br>IF=150mA, $-10^\circ C \leq T \leq 100^\circ C$  | $TC\lambda_{dom}$     | Blue           |       | 0.1  |      | nm/°C |
| Temperature coefficient of $\lambda_{dom}$<br>IF=150mA, $-10^\circ C \leq T \leq 100^\circ C$  |                       | Red            |       | 0.03 |      |       |
| Temperature coefficient of $\lambda_{dom}$<br>IF=150mA, $-10^\circ C \leq T \leq 100^\circ C$  |                       | Green          |       | 0.11 |      |       |
| Temperature coefficient of $V_F$<br>IF=150mA, $-10^\circ C \leq T \leq 100^\circ C$            | $TCV$                 | Blue           |       | -2.3 |      | mV/°C |
| Temperature coefficient of $V_F$<br>IF=150mA, $-10^\circ C \leq T \leq 100^\circ C$            |                       | Red            |       | -2.7 |      |       |
| Temperature coefficient of $V_F$<br>IF=150mA, $-10^\circ C \leq T \leq 100^\circ C$            |                       | Green          |       | -3.9 |      |       |

Notes:

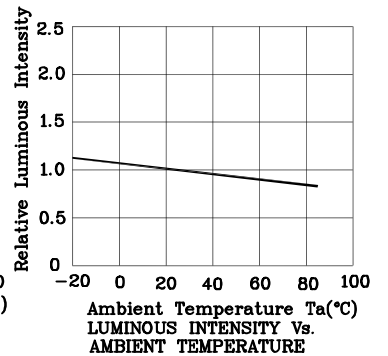
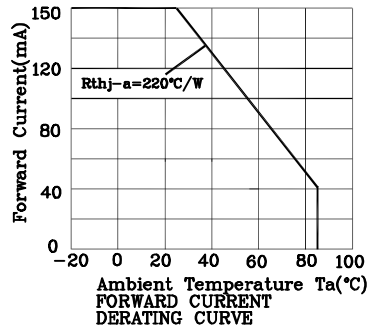
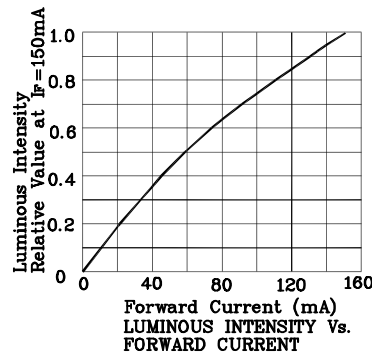
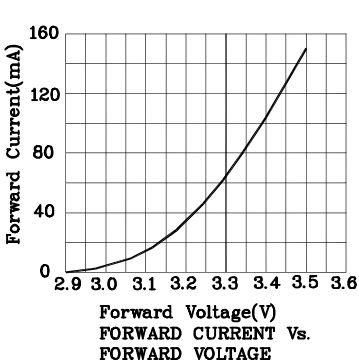
1. Wavelength: +/-1nm.

2. Forward Voltage: +/-0.2V.

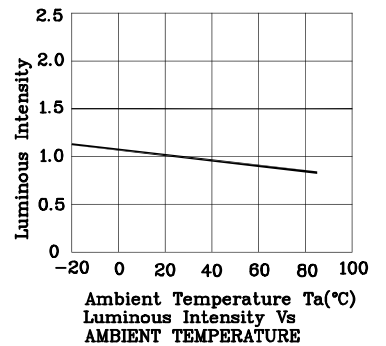
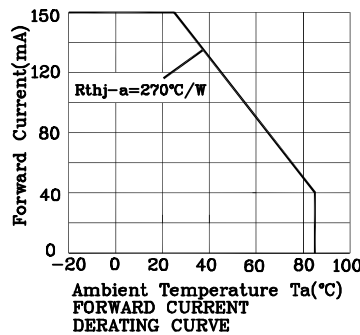
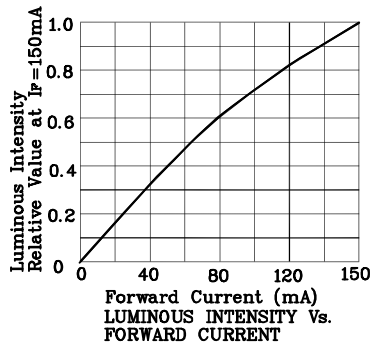
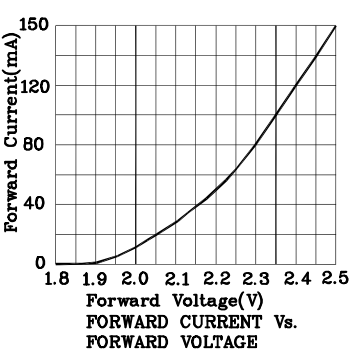
\*wavelength is in accordance with CIE127-2007 standards.



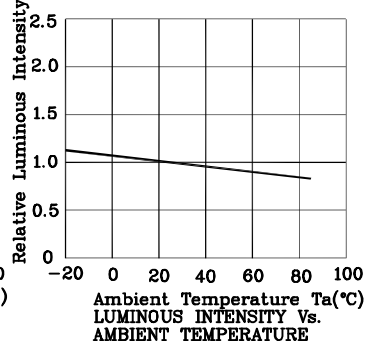
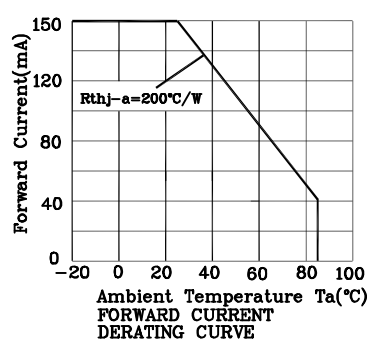
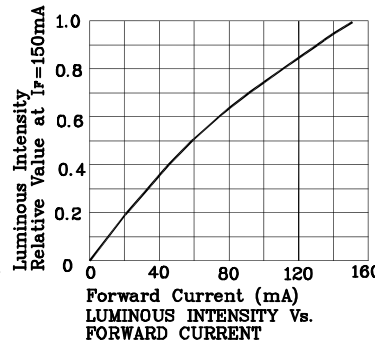
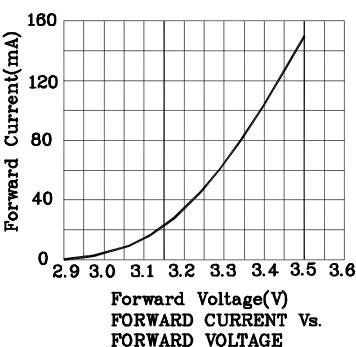
❖ Blue



❖ Red

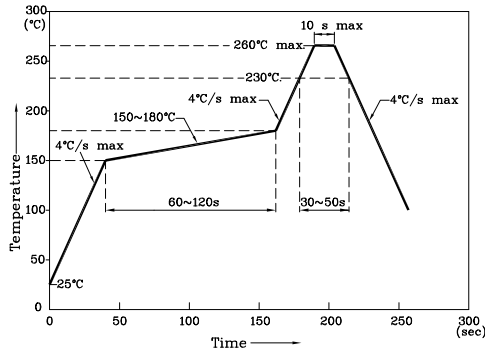


❖ Green



Reflow soldering is recommended and the soldering profile is shown below.  
Other soldering methods are not recommended as they might cause damage to the product.

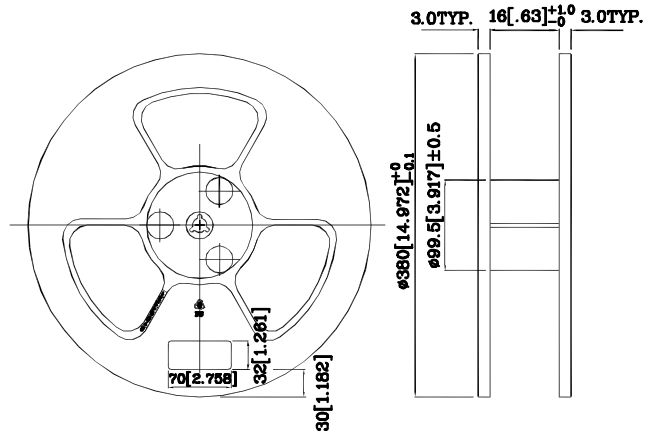
Reflow Soldering Profile For Lead-free SMT Process.



NOTES:

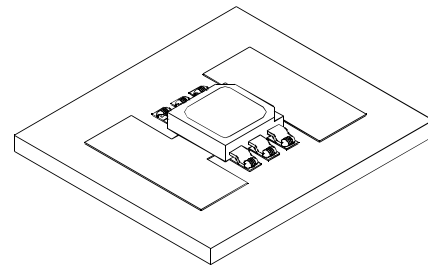
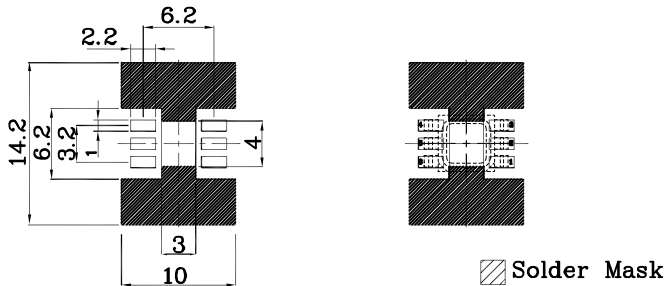
1. Maximum soldering temperature should not exceed 260°C.
2. Recommended reflow temperature: 145°C-260°C.
3. Do not put stress to the epoxy resin during high temperatures conditions.

Reel Dimension

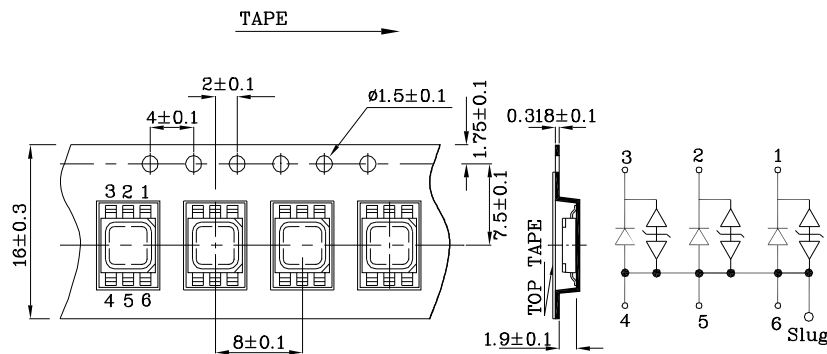


❖ Recommended Soldering Pattern  
(Units : mm; Tolerance: ± 0.1)

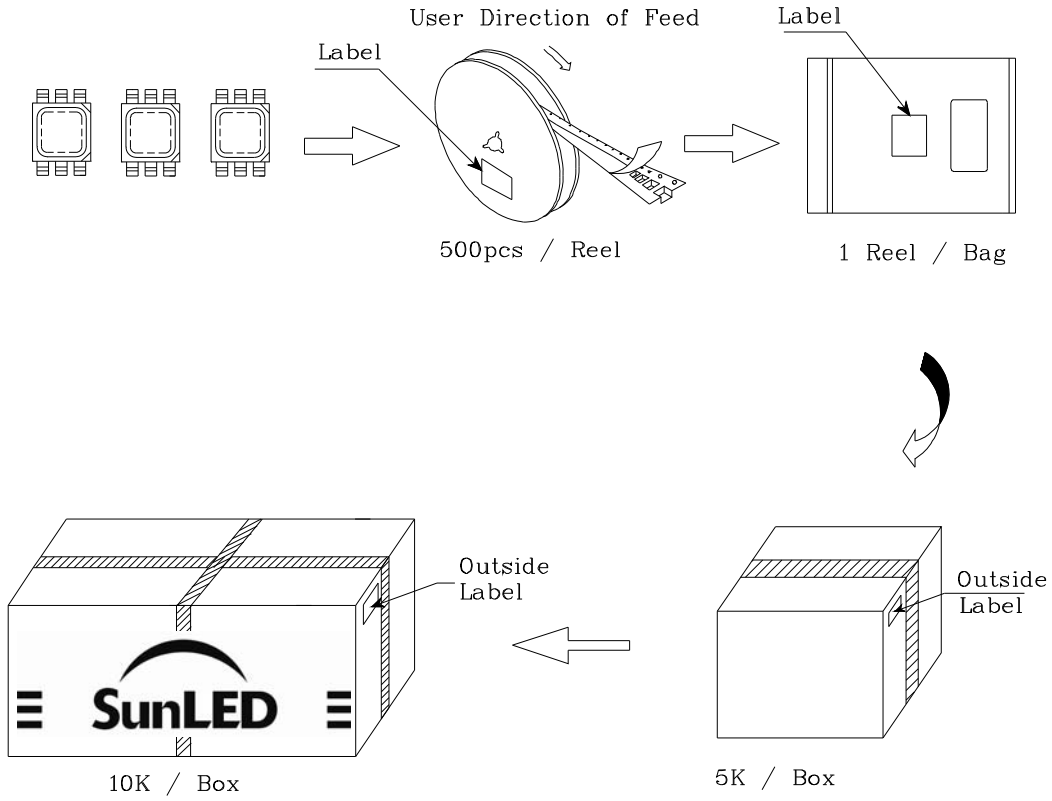

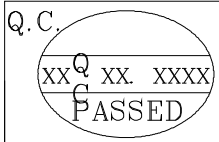
❖ The device has a single mounting surface. The device must be mounted according to the specifications.




❖ Tape Specification (Units : mm)



**PACKING & LABEL SPECIFICATIONS**

|  |           |
|--|-----------|
| P/NO : XZxxx111x   |           |
| QTY : 500 pcs  | CODE: XXX |
| S/N : XX   |           |
| LOT NO :   |           |
| <br>XXXXXXXXXXXXXXXXXXXXXXXXXXXX |           |
| RoHS Compliant   |           |

**TERMS OF USE**

1. Data presented in this document reflect statistical figures and should be treated as technical reference only.
2. Contents within this document are subject to improvement and enhancement changes without notice.
3. The product(s) in this document are designed to be operated within the electrical and environmental specifications indicated on the datasheet.  
User accepts full risk and responsibility when operating the product(s) beyond their intended specifications.
4. The product(s) described in this document are intended for electronic applications in which a person's life is not reliant upon the LED. Please consult with a SunLED representative for special applications where the LED may have a direct impact on a person's life.
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