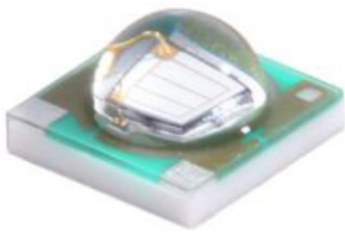
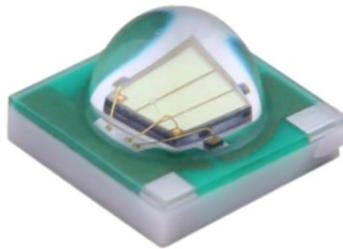


SMD 3535 3W XE Series Data Sheet

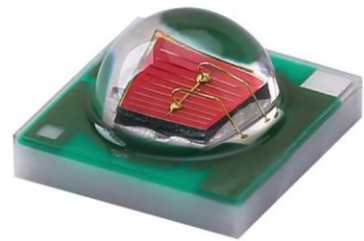
SOL-3535X300-XE



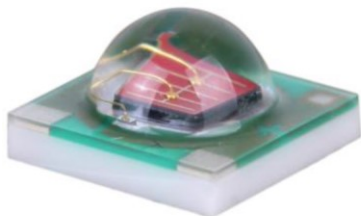
Blue



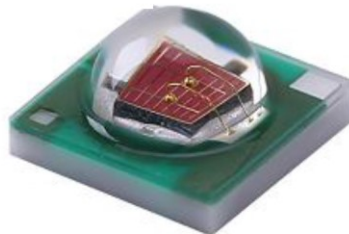
Green



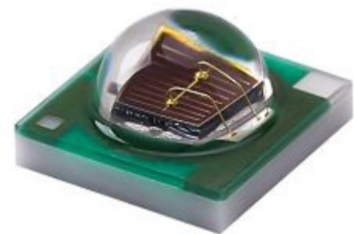
Amber



Red



HE Photo Red



Far Red

➤ Features:

- Ceramic substrates package
- According to the ANSI standard colour gamut
- ESD protection
- Size:3.50mm×3.50 mm
- Compatible wiht SMT
- Viewing Angle: 120°
- Chip: InGaAlP/GaN Thinfilm

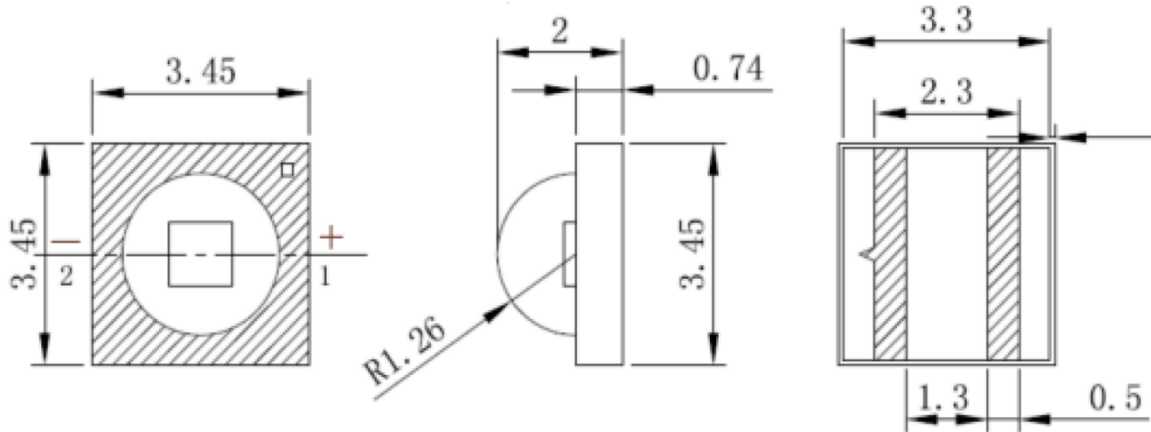
➤ Application:

- Plant lighting
- Landscape lighting
- Entertainment lighting
- Stage lighting

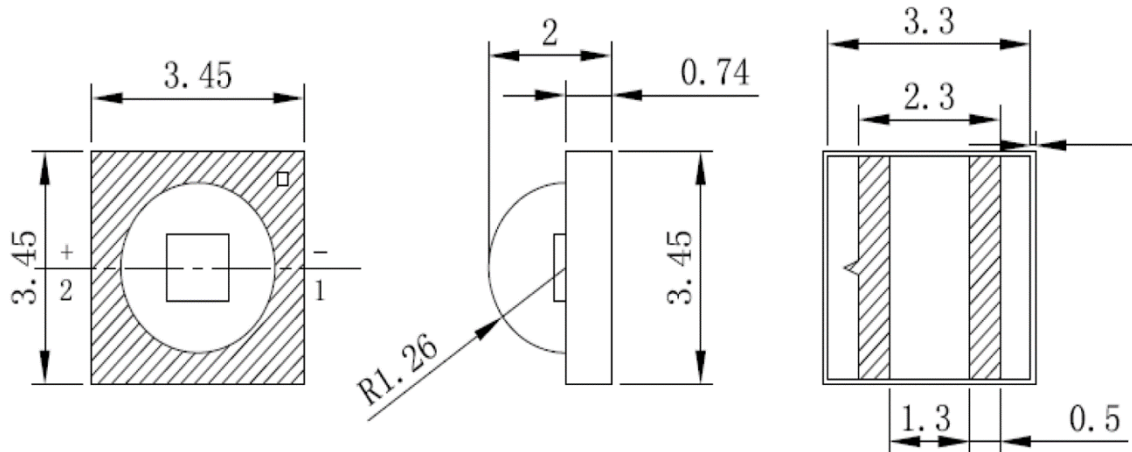


➤ Outline Dimensions:

Size for Green,Red,Amber,Red,HE Photo Red,Far Red



Only Size for Blue



Soldering pads reference

Note:

- Please strictly refer to the positive and negative of the product
- Unit: mm. Tolerance: ± 0.05

➤ Electrical Characteristics, T_j=25°C:

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---------------------------|-----------------|------|------|------|-------|
| Wavelength | Blue | 450 | 460 | 475 | nm |
| | Green | 515 | 520 | 540 | nm |
| | Amber | 580 | 590 | 600 | nm |
| | Red | 615 | 620 | 635 | nm |
| | Photo Red | 650 | 660 | 670 | nm |
| | Far Red | 720 | 730 | 740 | nm |
| Luminous Flux | Blue | 400 | 550 | 650 | mW |
| | Green | 100 | 140 | 150 | Lm |
| | Amber | 55 | 70 | 100 | Lm |
| | Red | 50 | 70 | 90 | Lm |
| | Photo Red | 300 | 350 | 400 | mW |
| | Far Red | 250 | 300 | 400 | mW |
| Forward Voltage | Blue | 2.8 | 3.1 | 3.3 | V |
| | Green | 2.6 | 2.8 | 3.2 | V |
| | Amber | 2 | 2.2 | 2.6 | V |
| | Red | 2 | 2.2 | 2.4 | V |
| | Photo Red | 1.9 | 2.2 | 2.6 | V |
| | Far Red | 1.9 | 2.2 | 2.6 | V |
| Forward Current | IF | — | 350 | 1000 | mA |
| Reverse Voltage | VR | — | — | 5 | V |
| Viewing Angle | 2θ1/2 | — | 120 | — | ° |
| Thermal Resistance | R _{th} | — | 5~7 | — | °C /W |
| Human Body Model | ESD | — | 8000 | — | V |
| Juntion Temperture | T _j | — | — | 125 | °C |

Note:

- It maintains a tolerance of ±7% on luminous flux measurements.
- HE photo red and far red LEDs are tested for peak wavelength (PWL) and Color LEDs are tested for dominant wavelength (DWL)

➤ BINS Region:

1. Wavelength Bins

| Colour | Bins | Min.(nm) | Max.(nm) | Contidion |
|-----------|------|----------|----------|-------------------------------------|
| Blue | D1 | 450 | 455 | T solder pad = 25°C IF=350 mA |
| | D2 | 455 | 460 | |
| | D3 | 460 | 465 | |
| | D4 | 465 | 470 | |
| | D5 | 470 | 475 | |
| Green | G1 | 515 | 520 | |
| | G2 | 520 | 525 | |
| | G3 | 525 | 530 | |
| | G4 | 530 | 535 | |
| | G5 | 535 | 540 | |
| Amber | A1 | 580 | 585 | |
| | A2 | 585 | 590 | |
| | A3 | 590 | 595 | |
| | A4 | 595 | 600 | |
| Red | R1 | 615 | 620 | |
| | R2 | 620 | 625 | |
| | R3 | 625 | 630 | |
| | R4 | 630 | 635 | |
| Photo Red | H2 | 650 | 655 | |
| | H3 | 655 | 660 | |
| | H4 | 660 | 665 | |
| | H5 | 665 | 670 | |
| Far Red | F2 | 720 | 725 | |
| | F3 | 725 | 730 | |
| | F4 | 730 | 735 | |
| | F5 | 735 | 740 | |

Note:

➤ HE photo red and far red LEDs are tested for peak wavelength (PWL) and Color

➤ Absolute Maximum Ratings:

2. Luminous Flux Bins

Bins for Green, Amber, Red (Lm)

| Bins | Min. | Max. | Contidion |
|------|------|------|-------------------------------------|
| N2 | 51.7 | 56.8 | T solder pad = 25°C IF=350 mA |
| N3 | 56.8 | 62 | |
| N4 | 62 | 67.2 | |
| P2 | 67.2 | 73.9 | |
| P3 | 73.9 | 80.6 | |
| P4 | 80.6 | 87.4 | |
| Q2 | 87.4 | 93.9 | |
| Q3 | 93.9 | 100 | |
| Q4 | 100 | 107 | |
| Q5 | 107 | 114 | |
| R2 | 114 | 122 | |
| R3 | 122 | 130 | |
| R4 | 130 | 139 | |
| R5 | 139 | 148 | |
| S2 | 148 | 156 | |
| S3 | 156 | 164 | |

Note: It maintains a tolerance of $\pm 7\%$ on luminous flux measurements.

Bins for Bule, HE Photo Red and Far Red (mW)

| Bins | Min. | Max. | Contidion |
|------|------|------|-------------------------------------|
| EA | 300 | 325 | T solder pad = 25°C IF=350 mA |
| EB | 325 | 350 | |
| EC | 350 | 375 | |
| ED | 375 | 400 | |
| EF | 400 | 425 | |
| J2 | 175 | 210 | |
| J3 | 210 | 250 | |
| J4 | 250 | 300 | |
| J5 | 300 | 350 | |
| J6 | 350 | 425 | |
| E1 | 425 | 500 | |
| E2 | 500 | 575 | |
| E3 | 575 | 650 | |

Note: It maintains a tolerance of $\pm 7\%$ on luminous flux measurements.

3. Voltage Bins

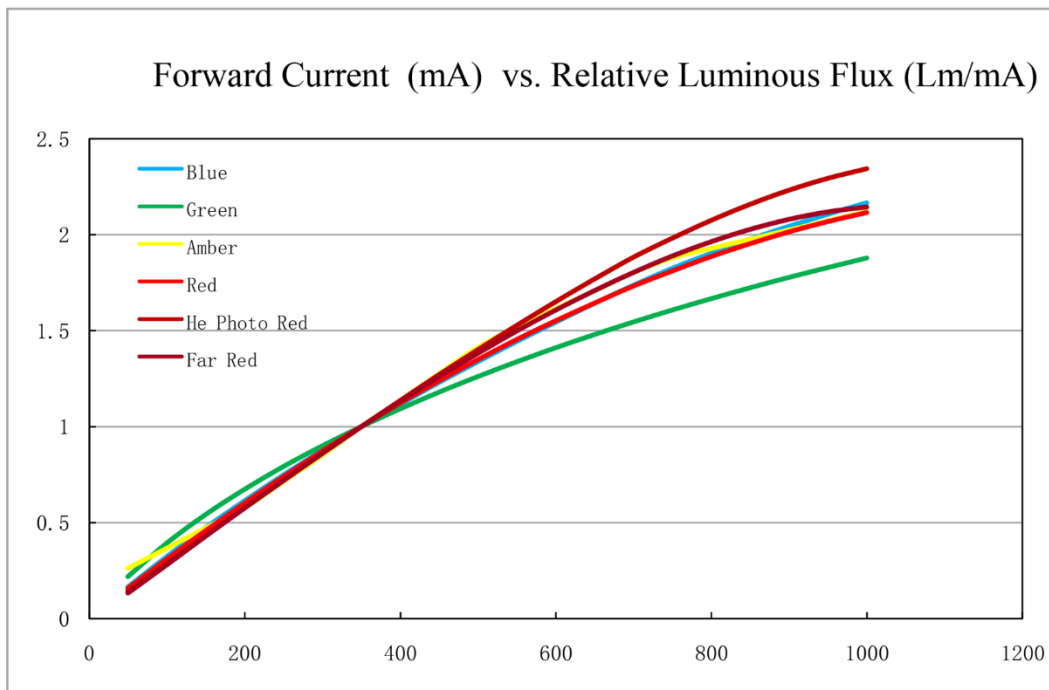
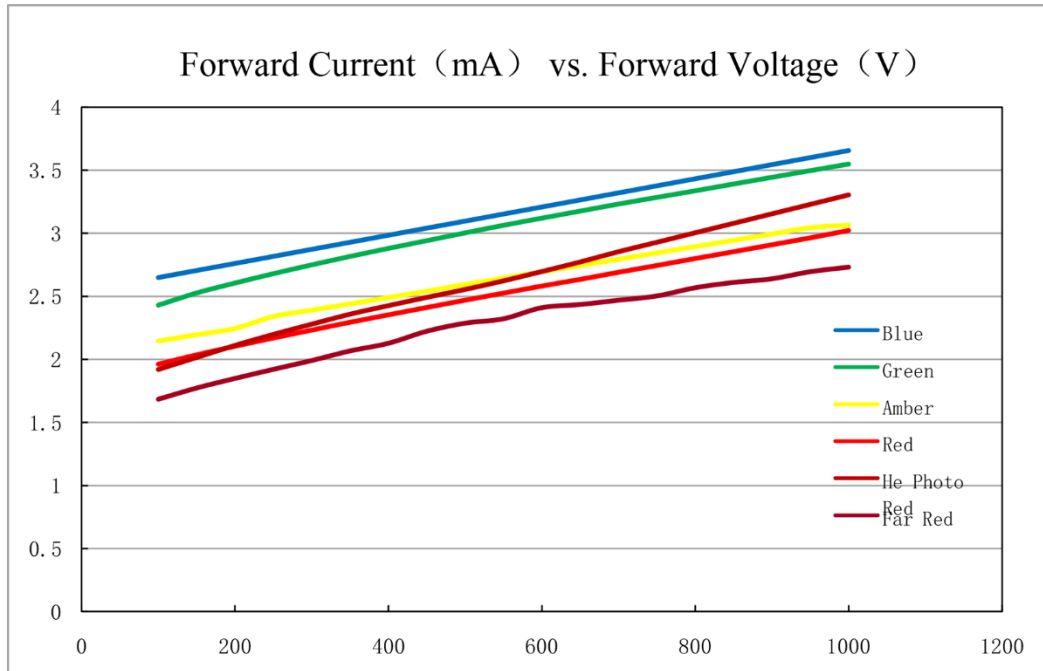
| Bins | Min.(V) | Max.(V) | Contidion |
|------|---------|---------|-------------------------------------|
| CD | 1.5 | 1.75 | T solder pad = 25°C IF=350 mA |
| CE | 1.75 | 2 | |
| CF | 2 | 2.25 | |
| CG | 2.25 | 2.5 | |
| CH | 2.5 | 2.75 | |
| CI | 2.75 | 3 | |
| CJ | 3 | 3.25 | |
| CK | 3.25 | 3.5 | |
| CL | 3.5 | 3.75 | |
| CM | 3.75 | 4 | |

Note: It maintains a tolerance of ± 0.1 on voltage measurements.

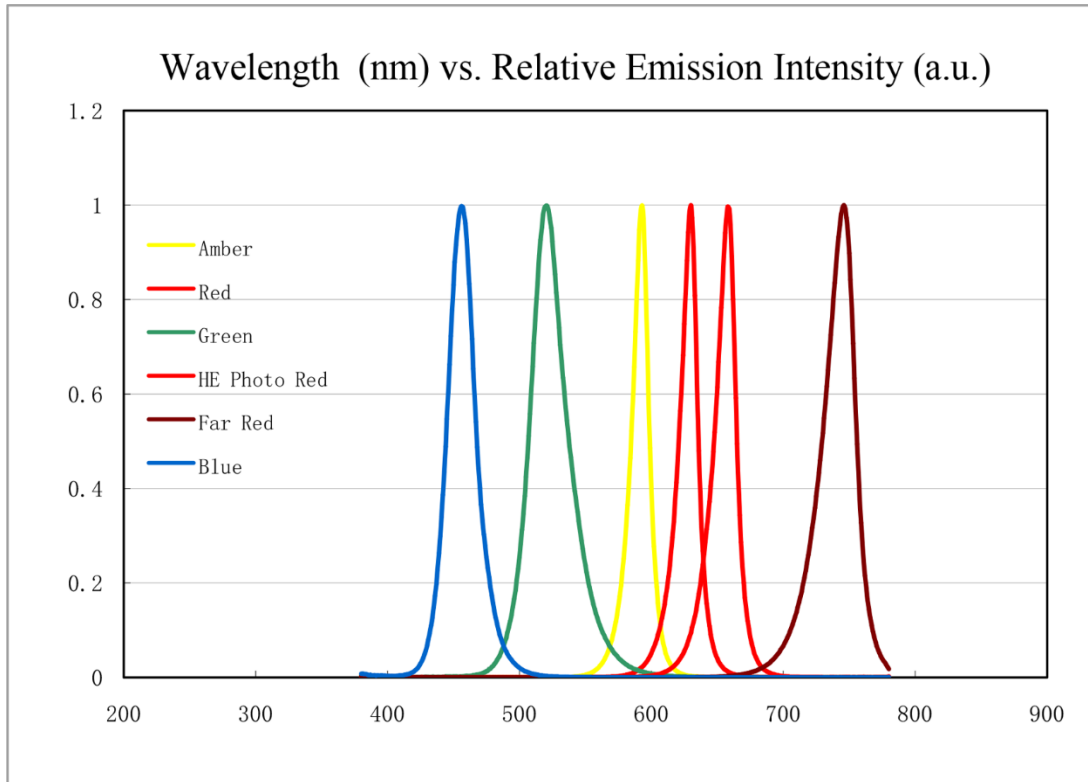
➤ The Photoelectric Characteristics Graph (T_j= 25 °C) :

Safe use advised within the scope of photoelectric curve

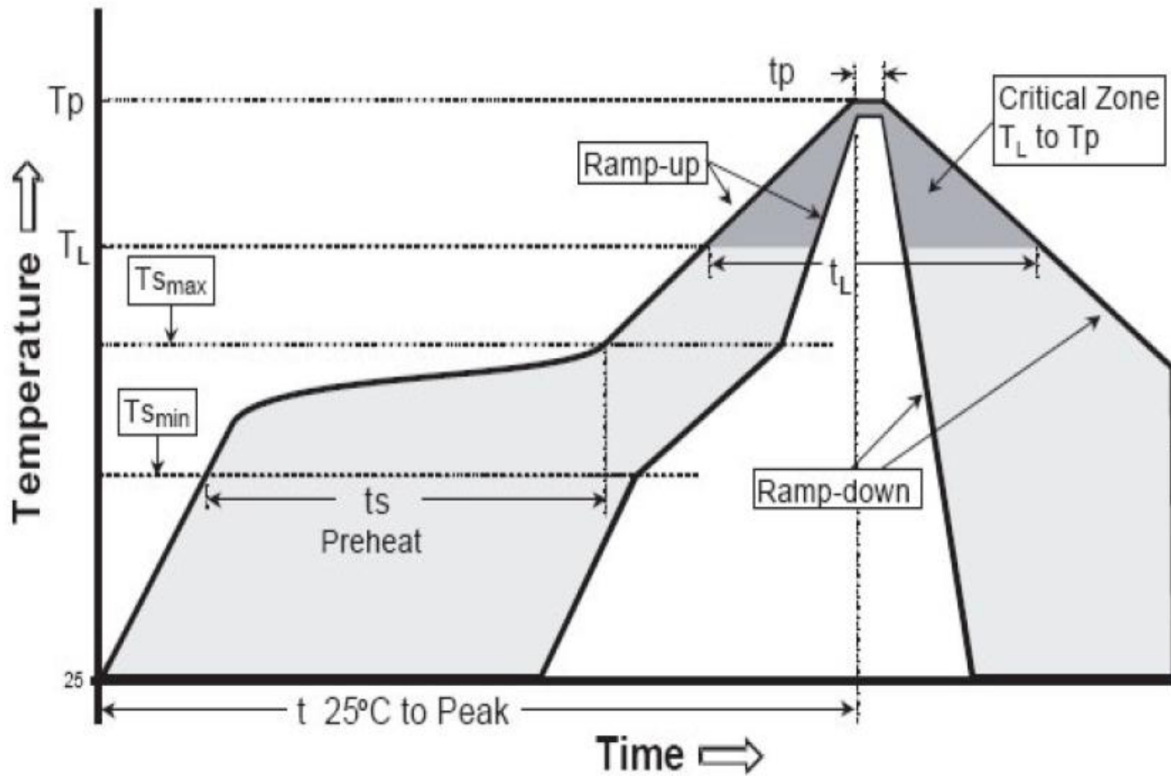
1. U-I Curve



3. Relative Intensity Curve



➤ Reflow Soldering Temperature Graph:

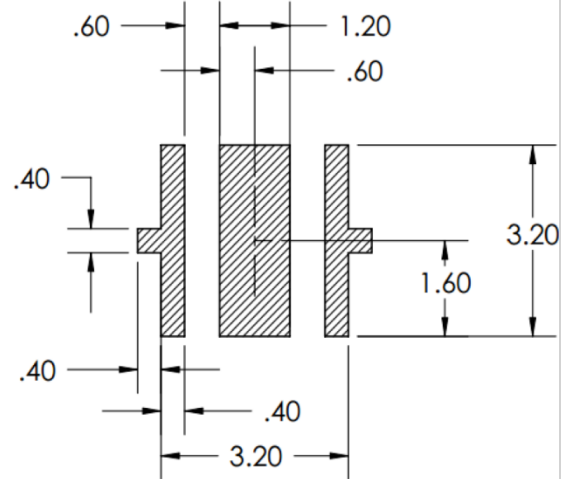
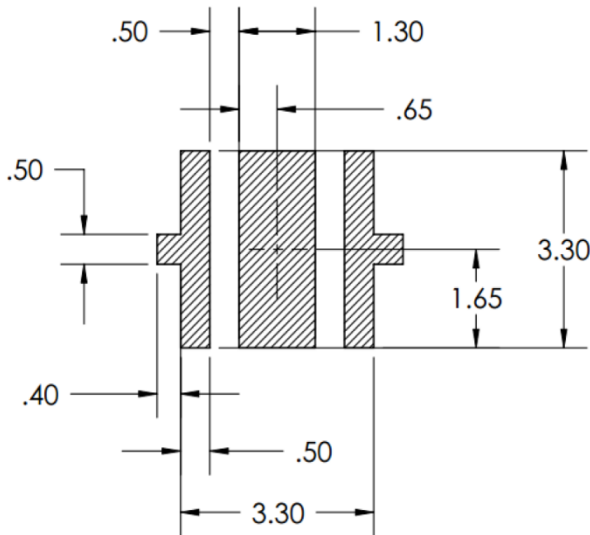


| Profile Feature | Lead-Based Solder | Lead-Free Solder |
|--|-------------------|------------------|
| Average Ramp-Up Rate (Tsmax-Tp) | 3°C/second max | 3°C/second max |
| Preheat: Temperature Min (Tsmmin) | 100°C | 150°C |
| Preheat: Temperature Max (Tsmax) | 150°C | 200°C |
| Preheat: Time (tsmin-tsmax) | 60~120 seconds | 60~180 seconds |
| Temperature (TL) | 183°C | 217°C |
| Time Maintained Above TL (tL) | 60~150 seconds | 60~150 seconds |
| Peak Temperature (Tp) | 215°C | 260°C |
| Time Within 5°C of Actual Peak Temperature | 10~30 seconds | 20~40 seconds |
| Ramp-Down Rate | 6°C/second max. | 6°C/second max. |
| Time 25°C up to Peak Temperature | 6 minutes max. | 8 minutes max. |

Notes :

1. All temperature refers to the package surface temperature, the data measured on the surface of encapsulation.
2. The reflow curve is for reference, not suitable for all the PCB design and reflow soldering equipment.
3. Other matters refer to the 《Precaution for use》.

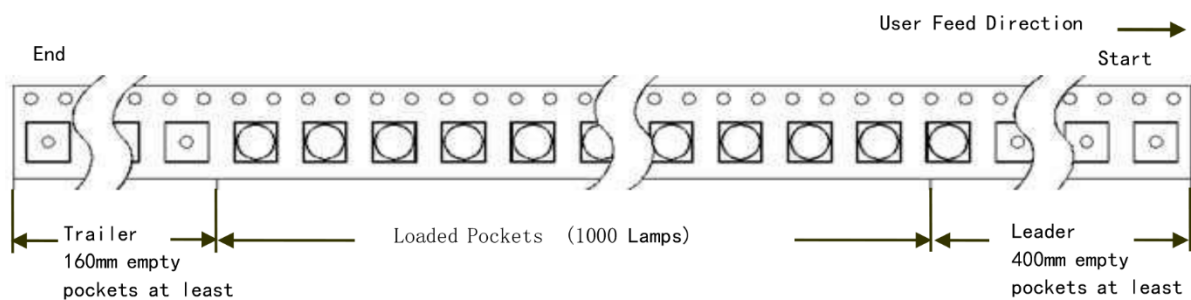
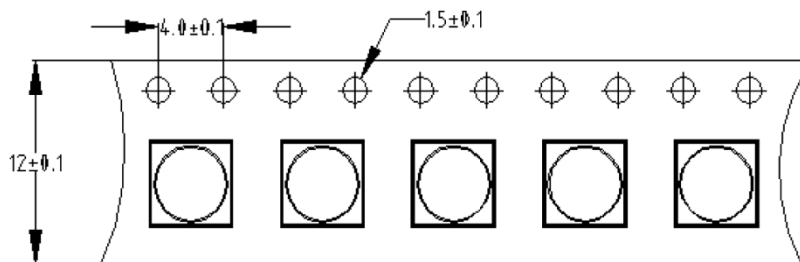
► PCB Pad Dimensions:



Package Type

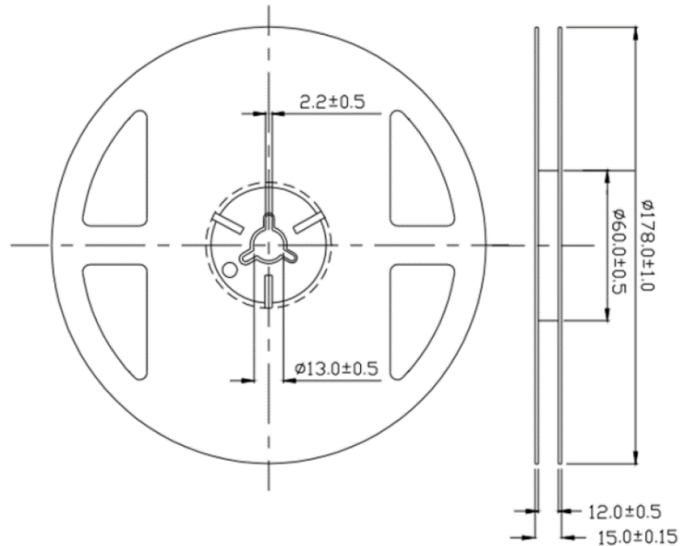
Packaging Methods: 7 "reel packaging (package quantity: 1000 pcs)

Carrier Tape Dimension

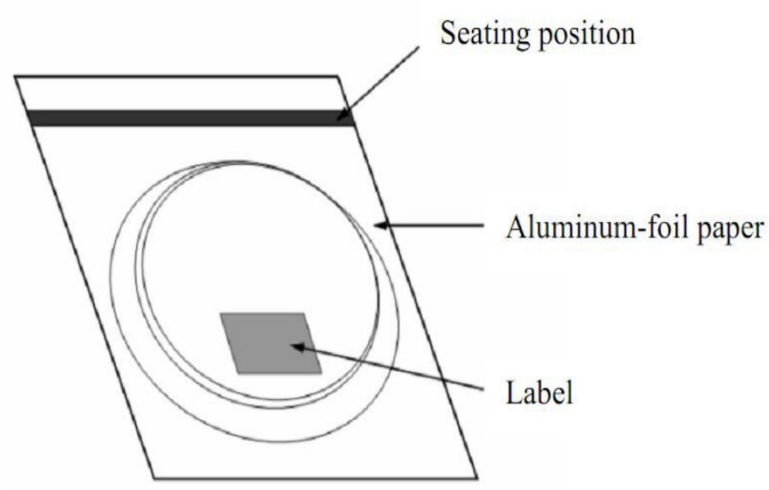


Reel Dimensions

Unit: mm.



➤ Damp-Proof Packing:



➤ Precaution for use:

The product storage conditions

1. Product should be stored in a dry, less than 30% relative humidity environment, storage temperature 5~30°C.
2. Avoid damaging the vacuum bags by the external force, in case of flat bags and being affected with damp.
3. Guard against damp, if it is, there is a need to put the reel patch in 60°C oven for 24 hours; After taking out the reel from the package, the lamp should be welded within 12 hours at best.
4. LEDs, already taking out from the original package but without being welded, should be stored in any of the following ways:
 - a. After opening, the LED lamp can be sealed in the original vacuuming bags again.
 - b. Put component into the solid metal container with closed lid for storage, fresh desiccant and humidity card should be put in the container at the same time, and test the related humidity less than 30%.
 - c. Put component into dry cabinet or container purified by nitrogen, and the cabinet or container can effectively keep the relative humidity below 30%.
 - d. Reflow soldering should be finished within 24 hours after opening the package, and workshop condition should be less than or equal to 30°C/60%RH.
 - e. If there is no environment with relative humidity less than 30% for storage, it needs to bake for one hour before reflow soldering.
5. Stacking PCB or components of LEDs containing X series, don't drop all the weight on the lens of lamp. The force on the lens can lead to lamp falling off, and at least 2cm should be set aside above LED lens. Also, foam wrapping paper shouldn't be used directly on the lamp, LEDs may be damaged by the force from the foam wrapping paper.

Reflow soldering conditions

1. Printed circuit board should be prepared or cleaned according to manufacturer's standards, then LED lamp can be put or welded on the PCB.
2. Our company LED design is used for welding on the PCB by reflow soldering. Reflow soldering can be finished in the reflow furnace, or put the PCB on the hot plate and operate according to the reflow soldering temperature curve.
3. Pay attention to reflow soldering conditions when using, the reflow soldering temperature should be debugged before using reflow soldering. Reflow soldering condition: preheating temperature 100~150°C, reflow soldering temperature 230~260°C, welding time within 10sec. Operators should receive electrostatic protective measures, and all equipment must be reliable grounding.
4. Reflow soldering is no more than 2 times.
5. Force and pressure should not be exerted on the lamp when carrying out reflow soldering.
6. PCB can not be packaged immediately after reflow soldering, and there needs natural cooling for PCB and lamp.

➤ Cleaning after reflow soldering:

1. Lamp should be cooled to room temperature after welding, then carrying out subsequent processing. Early to deal with the component, especially the part around the lens, may lead to damage of product.
2. The consistency of the weld is suggested to check. After avoiding the selected components on printed circuit boards, it seems to achieve full circle during welding process(no obvious welding particles). Looking from the back of package and PCB, empty holes should be seen hardly in welding area.
3. When cleaning PCB after welding, isopropyl alcohol can be used to clean PCB but without ultrasonic cleaning. Also the PCB board already equipped with lamps can not be cleaned by water.
4. Don't use the following chemicals for cleaning:
 - a. Chemicals that may lead to outgassing of aromatic hydrocarbon compounds(such as toluene, xylene)
 - b. Methyl acetate and ethyl acetate (i.e., nail cream cleaner)
 - c. Cyanoacrylate (i.e., the super glue)
 - d. Ethylene glycol (including Radio Shack ® precision electronic cleaning agent)
 - e. PLIOBOND ® adhesives

➤ Cleaning after reflow soldering:

1. White LED has anti-static requirements, so corresponding anti-static measures should be taken during the process of installation and use.
2. Pay attention to the exterior line arrangement of all kinds of devices to avoid wrong polarity. Devices can't be too close to the heating elements, and working conditions can not exceed the prescribed limits. .
3. When deciding to install in the hole, the size and tolerance of hole and distance between holes on PCB need to be well calculated to avoid excessive pressure forcing on the plate.
4. Avoid any vibration and external force on LED.

➤ Working conditions:

1. In order to make LED work under a stable condition, protective resistance must be in series, and the resistance can be measured by supplied voltage or current of LED. LED working voltage and current are endowed by specifications of different LEDs.
2. There needs the circuit design to be carried out to prevent super voltage(or super current) when witching LEDs, short current or pulse current can both damage the connection of LED.
3. When LED source working, ambient temperature can affect the reliability of life, so please keep away from the heat source at work. At the same time, surface temperature is required to keep within 60°C .
4. Based on the incompatible volatile organic compounds existing in the LED solid-state lighting design, these may weaken the performance of the lighting system and shorten its service life, so please avoid using organic compounds during the process of design and working.

➤ Other matters:

1. This product is silicon encapsulation, so please avoid hard objects extrusion.
2. All the equipments contacting LED must be grounded, and operators must wear grounded anti-static gloves, anti-static shoes and anti-static clothing.