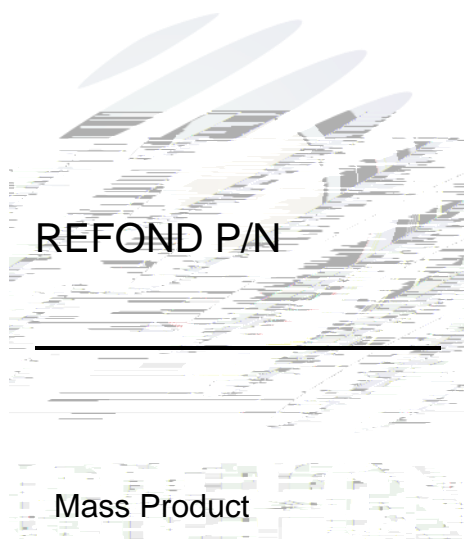


SPECIFICATION



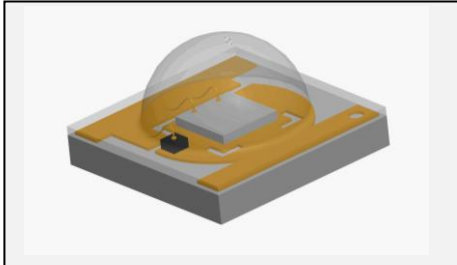
Contents

1. Description



1. Description

1.1 General Description

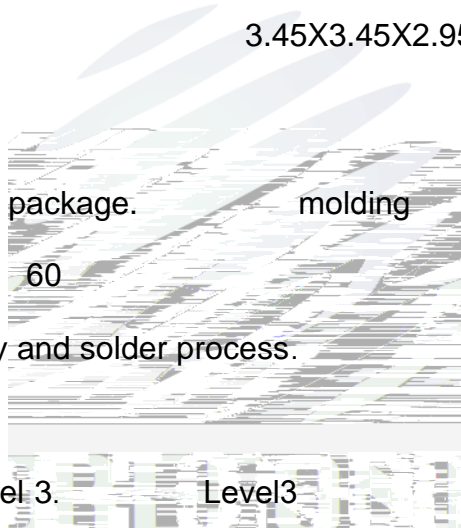


This production use the ceramics and Silicone molding package outline size 3.45X3.45X2.95mm

molding 3.45X3.45X2.95mm

1.2 Features

- ▶ Ceramic and silicone molding package. molding
- ▶ Viewing angle:60° . 60
- ▶ Suitable for all SMT assembly and solder process. SMT
- ▶ Available on tape and reel.
- ▶ Moisture sensitivity level: Level 3. Level3
- ▶ RoHS compliant. RoHS



1.3 Application

- ▶ UV Curing.
- ▶ UV Ink Curing.
- ▶ Ultraviolet disinfection.
- ▶ Medical treatment and health.
- ▶ General use.

1.4 Package Dimension

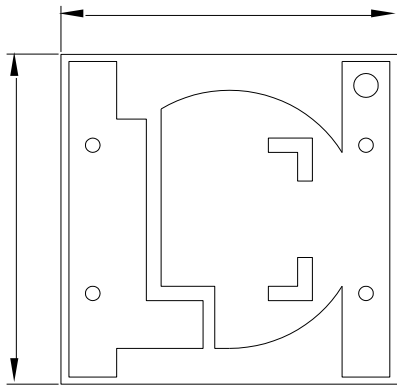


Fig.1-1 Top view

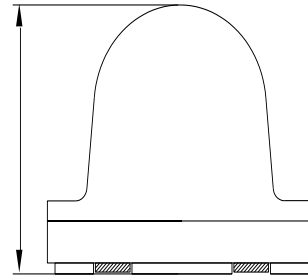


Fig.1-2 Side view

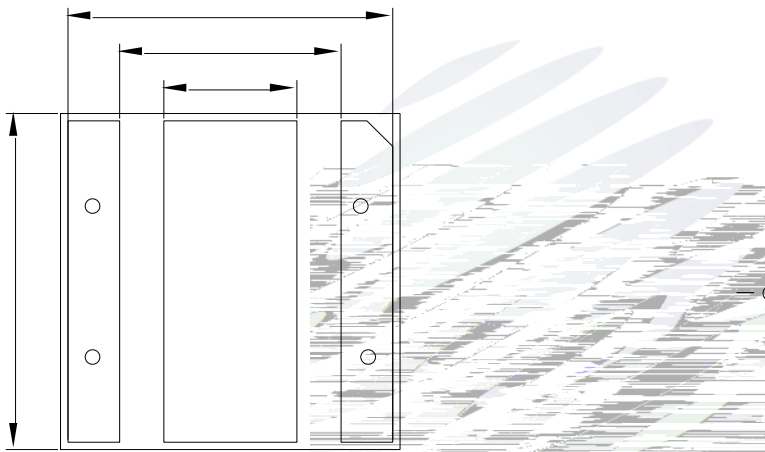


Fig.1-3 Bottom view

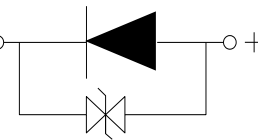


Fig.1-4 Polarity

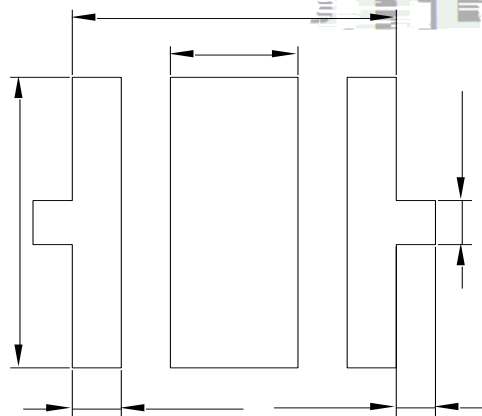


Fig.1-5 Soldering patterns

Notes

1. All dimensions units are millimeters.
2. All dimensions tolerances are $\pm 0.2\text{mm}$ unless otherwise noted.

0.2

1.5 Product Parameters

Table 1-1 Electrical / Optical Characteristics at Ts=25°C

| Item | Symbol | Test Condition | Code | Value | | | Unit |
|---|----------------|-----------------|------|-------|-----|------|------|
| | | | | Min. | Typ | Max. | |
| Forward Voltage | V_F | $I_F=500/700mA$ | B11 | 3.0 | --- | 3.2 | V |
| | | | B12 | 3.2 | --- | 3.4 | |
| | | | B13 | 3.4 | --- | 3.6 | |
| | | | B14 | 3.6 | --- | 3.8 | |
| Reverse Current | I_R | $V_R=5V$ | --- | --- | --- | 5 | uA |
| Total radiant flux () RC35E6-UBE-AR (365-370nm) | Φ_e | $I_F=500mA$ | 1E47 | 575 | --- | 675 | mW |
| | | | 1E48 | 675 | --- | 800 | |
| | | | 1E49 | 800 | --- | 940 | |
| Total radiant flux () RC35E6-UEE-AR (380-390nm) | Φ_e | $I_F=700mA$ | 1E50 | 940 | --- | 1110 | mW |
| | | | 1E51 | 1110 | --- | 1310 | |
| | | | 1E52 | 1310 | --- | 1545 | |
| Total radiant flux () RC35E6-UGE-AR (390-400nm) | Φ_e | $I_F=700mA$ | 1E50 | 940 | --- | 1110 | mW |
| | | | 1E51 | 1110 | --- | 1310 | |
| | | | 1E52 | 1310 | --- | 1545 | |
| Total radiant flux () RC35E6-UIE-AR (400-410nm) | Φ_e | $I_F=700mA$ | 1E50 | 940 | --- | 1110 | mW |
| | | | 1E51 | 1110 | --- | 1310 | |
| | | | 1E52 | 1310 | --- | 1545 | |
| Viewing Angle | 2 θ 1/2 | $I_F=500/700mA$ | --- | --- | 60 | --- | deg |
| Thermal Resistance. | R_{THJ-S} | $I_F=500/700mA$ | --- | --- | 9 | --- | /W |

Table 1-2 Absolute Maximum Ratings at Ts=25°C

| Parameter | Symbol | Item | Rating | Units |
|-------------------------------|------------------|-----------|-----------|-------|
| Maximum Power Dissipation | P _D | 365-370nm | 1.9 | W |
| | | 380-410nm | 2.6 | |
| Peak Forward Current | I _{FP} | 365-370nm | 500 | mA |
| | | 380-410nm | 700 | |
| Reverse Voltage | V _R | ALL | 5 | V |
| Electrostatic Discharge (HBM) | E _{SD} | ALL | 2000 | V |
| Operating Temperature | T _{OPR} | ALL | -20 ~ +65 | |
| Storage Temperature | T _{OPR} | ALL | -20 ~ +80 | |
| Junction Temperature | T _J | ALL | 105 | |

Notes

- 1/10 Duty cycle, 0.1ms pulse width. 0.1ms, 1/10.
- The above forward voltage measurement allowance tolerance is ±0.1V. □ □
- The above wavelength measurement allowance tolerance is ±2nm. ± 2nm.
- The above radiation flux measurement allowance tolerance ±10%. □
- Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.
- All measurements were made under the standardized environment of Refond.
- When the LEDs are in operation the maximum current should be decided after measuring the package temperature, junction temperature should not exceed the maximum rate. LED
- ESD yield is over 90% at 2000V ESD (HBM). ESD protection during products handling is needed. 90% LED ESD2000V ,

1.6 Typical optical characteristics curves

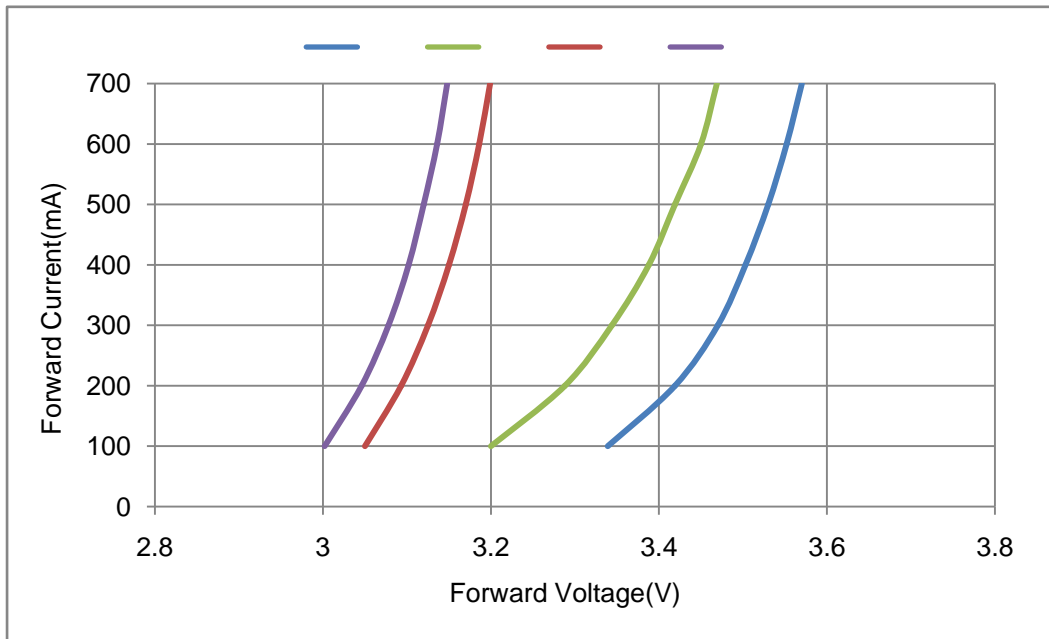


Fig.1- Forward Voltage Vs. Forward Current

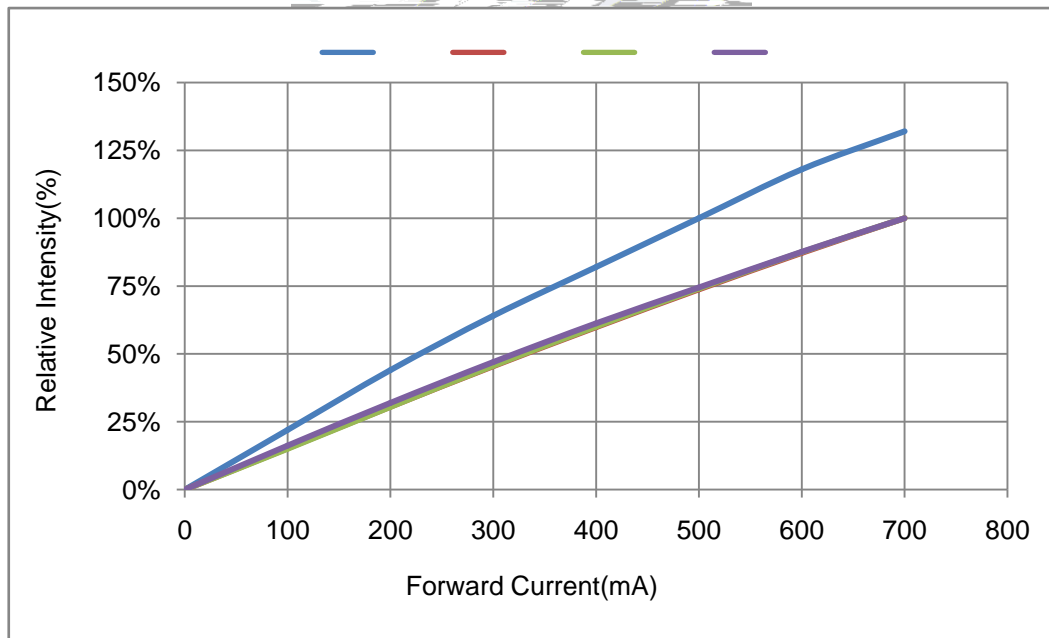


Fig.2- Forward Current Vs. Relative Power

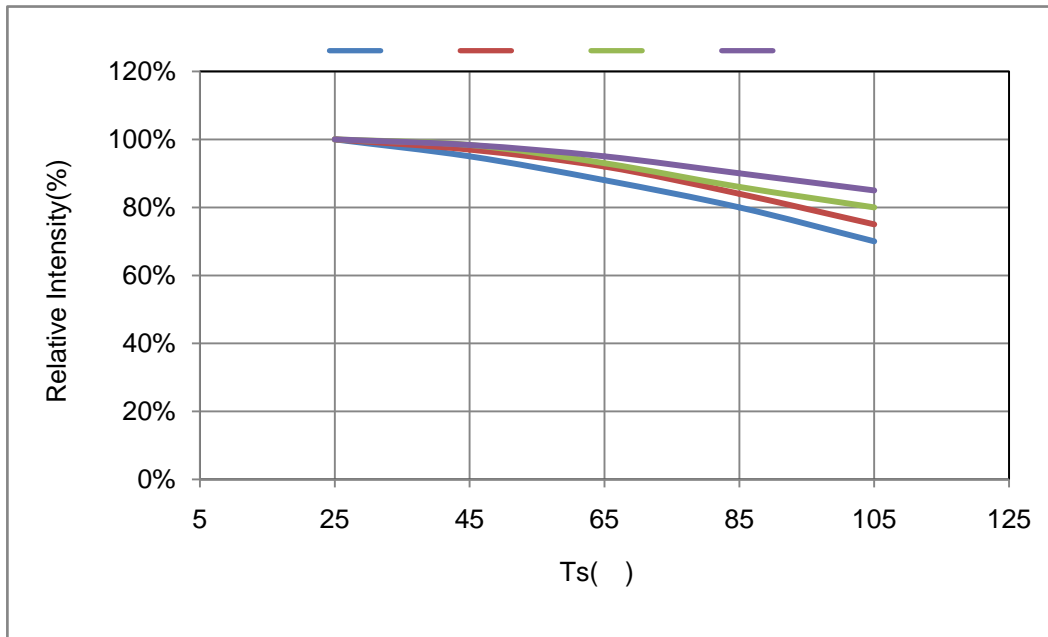


Fig.3-Solder Temperature VS. Relative Power

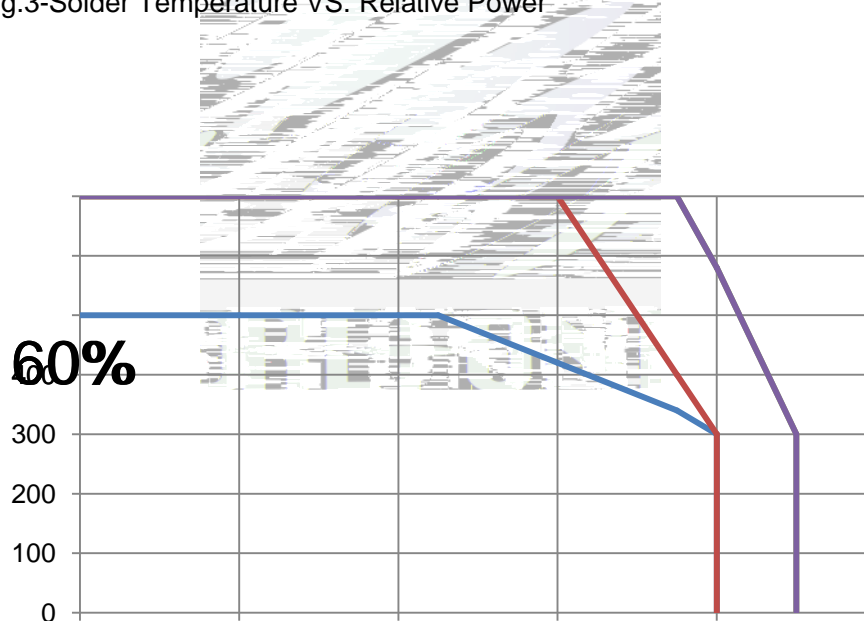


Fig.4-Ts Temperature VS. Forward Current

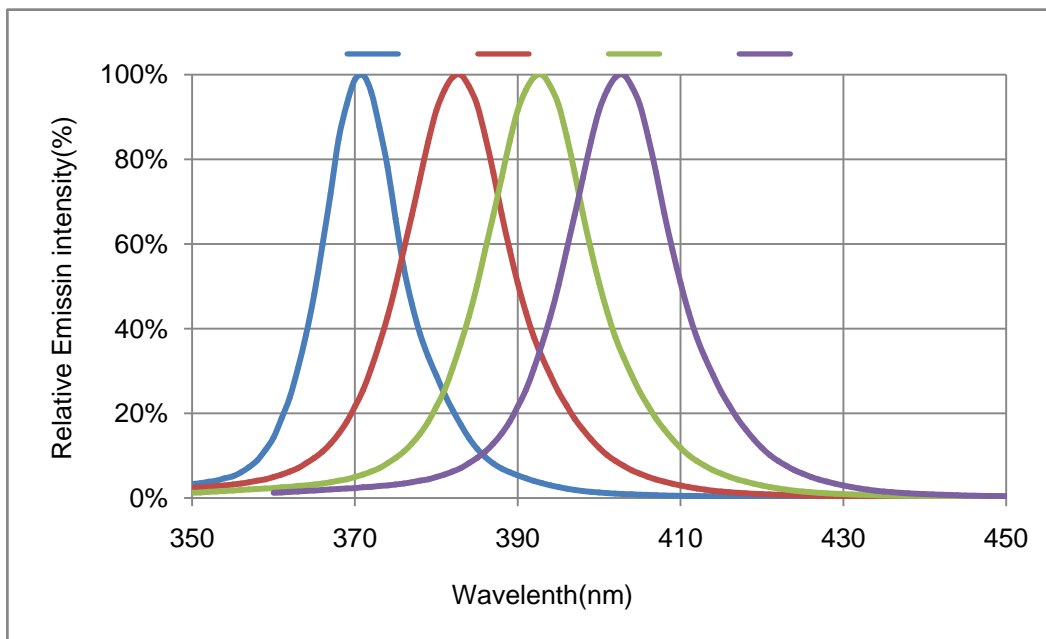


Fig.5-Spectrum Distribution

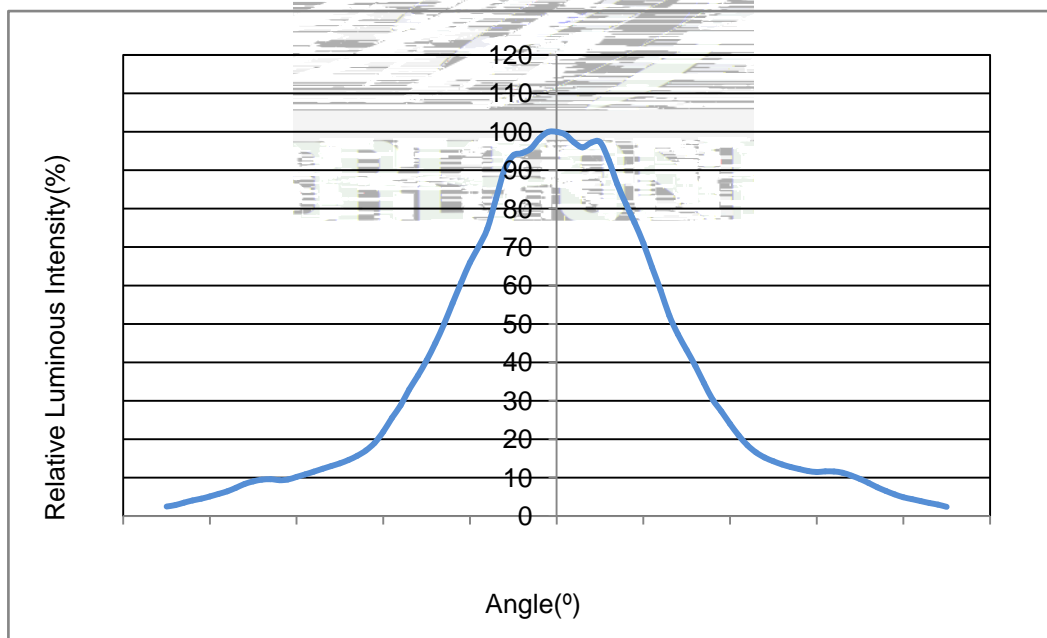


Fig.6- Radiation Diagram

2. Packaging

2.1 Packaging Specification

Package:500pcs/reel.

2.1.1 Carrier Tape Dimension

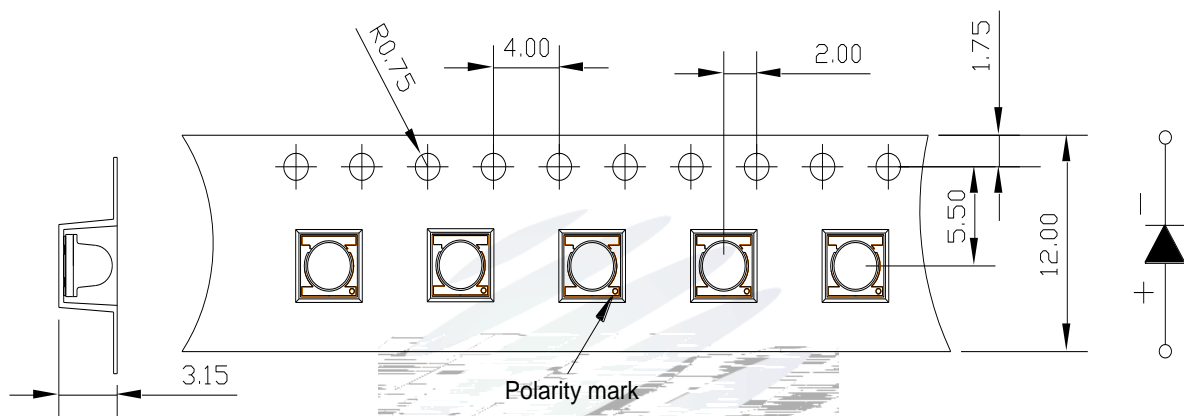


Fig.2-1 Carrier Tape Dimension

2.1.2 Reel Dimension

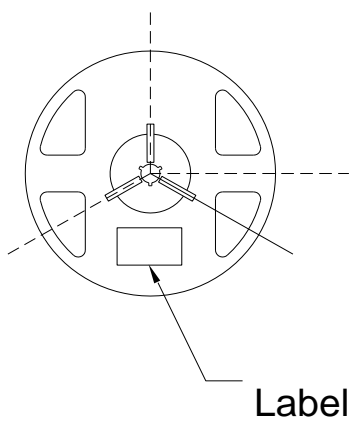


Fig.2-2 Reel Dimension

Table 2-1 Reel Dimension

| | |
|---|------------|
| A | 12 0.1mm |
| B | 178 1mm |
| C | 60 1mm |
| D | 13.0 0.5mm |

Notes

The tolerances unless mentioned $\pm 0.1\text{mm}$. Unit : mm



2.1.3 Label Form Specification

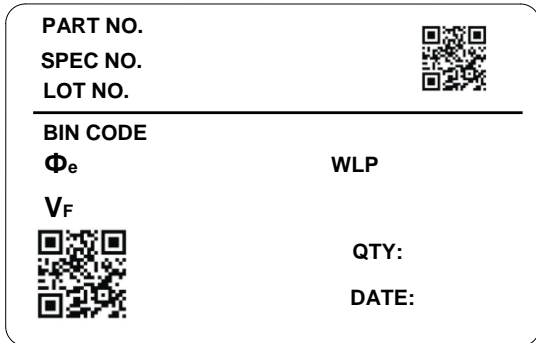


Fig. 2-3 Label Form Specification

Table 2-2 Label Form Specification

| | |
|----------|------------------|
| PART NO. | Part Number |
| SPEC NO. | Spec Number |
| LOT NO. | Lot Number |
| BIN CODE | Bin Code |
| Φ_e | Radiation flux |
| V_F | Forward Voltage |
| WLP | Wavelength |
| QTY | Packing Quantity |
| DATE | Made Date |

2.2 Moisture Resistant Packing

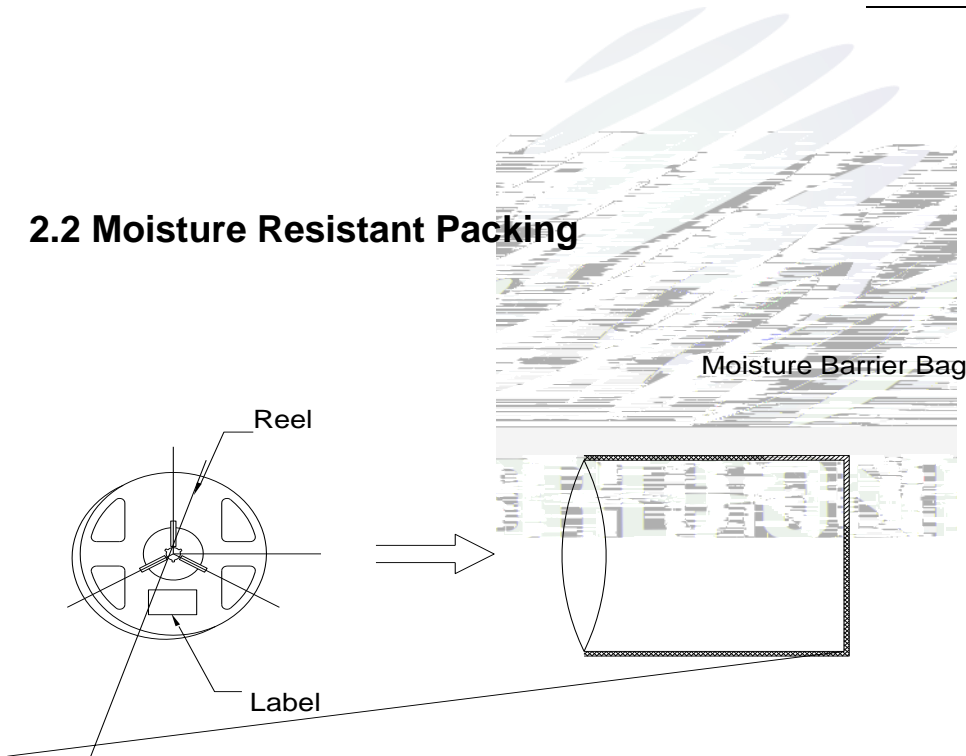


Fig.2-4 Moisture Resistant Packing Process



2.5 Criteria For Judging Damage

Table 2-4 Criteria For Judging Damage

| Test Items | Symbol | Test Condition | Criteria For Judgement | |
|--------------------|----------|-----------------|------------------------|-------------|
| | | | Min. | Max. |
| Forward Voltage | V_F | $I_F=500/700mA$ | - | U.S.L*)x1.1 |
| Reverse Current | I_R | $V_R = 5V$ | - | U.S.L*)x2.0 |
| Total radiant flux | Φ_e | $I_F=500/700mA$ | L.S.L*)x0.7 | - |

Notes

1.U.S.L: Upper standard level

L.S.L: Lower standard level

2. The above reliability tests is based on the verification of a single/strip LED of Refond's existing experimental platform, the reliability experiment was taken under good heat dissipation conditions. when customers applies the LED to the series and parallel circuit, should take consideration of all the factors such as the current, voltage distribution, heat dissipation and others. / LED

LED

3.The technical information shown in the data sheets is limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

3. SMT Reflow Soldering Instructions SMT





4. Handling Precautions

4.1 Handling Precautions

(1) LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material. This is provided for informational purposes only and is not a warranty or endorsement.

LED

100PPM.

(2) In order to prevent external material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM, the single content of Chlorine element is required to be less than 900PPM, the total content of Bromine element and Chlorine element in the external materials of the application products is required to be less than 1500PPM. This is provided for informational purposes only and is not a warranty or endorsement.

LED

900PPM

900PPM

1500PPM.

(3) VOCs (Volatile organic compounds) emitted from materials used in the construction of fixtures can penetrate silicone encapsulants of LEDs and discolor when exposed to heat and photonic energy. The result can be a significant loss of light output from the fixture. Knowledge of the properties of the materials selected to be used in the construction of fixtures can help prevent these issues. Refond advises against the use of any chemicals or materials that have been found or are suspected to have an adverse effect on device performance or reliability. To verify compatibility, Refond recommends that all chemicals and materials be tested in the specific application and environment for which they are intended to be used. Attaching LEDs, do not use adhesives that outgas organic vapor.

LED

LED

LED

LED

(4) Handle the component along the side surface by using forceps or appropriate tools; Do not directly touch or handle the silicone lens surface, it may damage the internal circuitry.

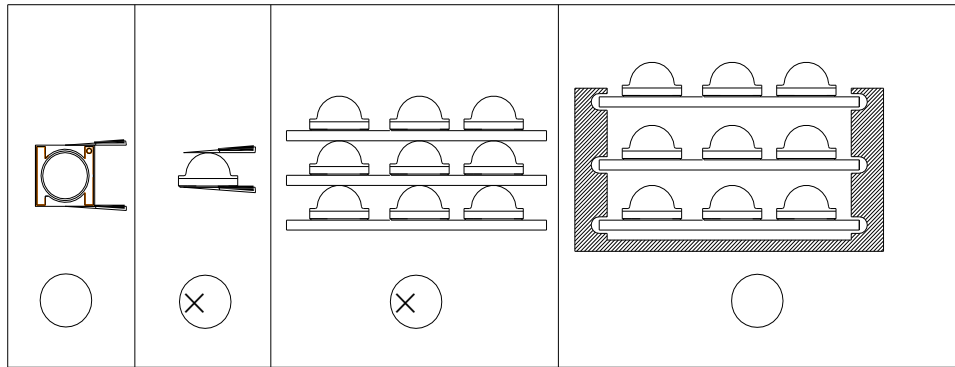


Fig 4-1 Operate Method

(5) In designing a circuit, the current through each LED can not exceed the absolute maximum rating specified for each LED. In the meanwhile, resistors for protection should be applied, otherwise slight voltage shift will cause big current change, burn out may happen. The driving circuit must be designed to allow forward voltage only when it is ON or OFF. If the reverse voltage is applied to LED, migration can be generated resulting in LED damage.

LED

LED

(6) Thermal Design is paramount importance because heat generation may result in the Characteristics decline, such as brightness decreased, lifetime, Color change and so on. Please consider the heat generation of the LEDs when making the system design.

LED

(7) Compared to standard encapsulants, silicone is generally softer, and the surface is more likely to attract dust, requiring special care during processing. In cases where a minimal level of dirt and dust particles cannot be guaranteed, a suitable cleaning solution must be applied to the surface after the soldering of components. Refond suggests using isopropyl alcohol for cleaning. In case other solvents are used, it must be assured that these solvents do not dissolve the package or resin. Ultrasonic cleaning is not recommended. Ultrasonic cleaning may cause damage to the LED.

LED

Table 4-1 Storage

| Conditions | | Temperature | Humidity | Time |
|------------|-----------------------------|-------------|----------|-------------------------|
| Storage | Before Opening Aluminum Bag | 30 | 75% | Within 1 Year From Date |
| | After Opening Aluminum Bag | 30 | 60% | 24hours 24 |
| Baking | | 60 5 | - | 24hours |



| Date | Revisor | Version | Verifier | Remarks |
|------------|---------|---------|----------|---------|
| 2020-05-20 | | E4 | | |
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Declare

This specification is written both in English and in Chinese and the latter is formal.