DATASHEET

# SMD Top View LEDs
# C3227UDWN2R-RGD0120-2T(TS)

## Features

- P-LCC-4 package.
- White package and Inter reflector.
- Optical indicator.
- Wide viewing angle.
- Available on tape and reel.
- Pb-free.
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br < 900 ppm, Cl < 900 ppm, Br + Cl < 1500 ppm).
- Precondition: Bases on JEDEC J-STD 020D Level 3

## Description

Due to the C3227 series package design, the LED has wide viewing angle and optimized light coupling by inter reflector. The low current requirement makes this device ideal for portable equipment.

## Applications

- Indicator.
- General use.

## Device Selection Guide

| Chip Code | Chip Materials | Emitted Color | Resin Color |
|---|---|---|---|
| R | AlGaInP | Brilliant Red | Diffuser |
| G | InGaN | Brilliant Green | Diffuser |

## Absolute Maximum Ratings (Ta=25℃) (note 1)

| Parameter | Symbol | | Rating | Unit |
|---|---|---|---|---|
| Forward Current | $I_F$ | R | 20 | mA |
| | | G | 20 | |
| Peak Forward Current (Duty 1/10 @1KHz) | $I_{FP}$ | | 40 | mA |
| Power Dissipation | Pd | R | 50 | mW |
| | | G | 68 | |
| Operating Temperature | $T_{opr}$ | | -25 ~ +85 | ℃ |
| Storage Temperature | $T_{stg}$ | | -25 ~ +90 | ℃ |
| Soldering Temperature | $T_{sol}$ | Reflow Soldering: 260 ℃ for 5 sec.<br>Hand Soldering: 350 ℃ for 3 sec. | | |

Note:
*1 Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability.
*2 LED components are not supposed to be reverse operated.

## Electro-Optical Characteristics (Ta=25℃)

| Parameter | Symbol | | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|---|
| Luminous Intensity | Iv | R | 180 | ----- | 355 | mcd | $I_F$=20mA |
| | | G | 1120 | ----- | 2240 | | |
| Viewing Angle | $2\theta_{1/2}$ | | ----- | 120 | ----- | deg | $I_F$=20mA |
| Dominant Wavelength | λd | R | 615 | ----- | 630 | nm | $I_F$=20mA |
| | | G | 522 | ----- | 540 | | |
| Forward Voltage | $V_F$ | R | 1.7 | ----- | 2.5 | V | $I_F$=20mA |
| | | G | 2.8 | ----- | 3.6 | | |
| Reverse Current | $I_R$ | R | ----- | ----- | 10 | μA | $V_R$=10V |
| | | G | ----- | ----- | 10 | μA | $V_R$=5V |

Note:
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V
4. All reliability item are tested under good thermal management. Dynamic reliability are tested at 20mA.
5. LED components are not supposed to be reverse operated.

## Bin Range of Luminous Intensity

| Chip | Bin Code | Min. | Max. | Unit | Condition |
|---|---|---|---|---|---|
| R | S1 | 180 | 224 | mcd | IF=20mA |
| | S2 | 224 | 280 | | |
| | T1 | 280 | 355 | | |
| G | AA | 1120 | 1400 | | |
| | AB | 1400 | 1800 | | |
| | BA | 1800 | 2240 | | |

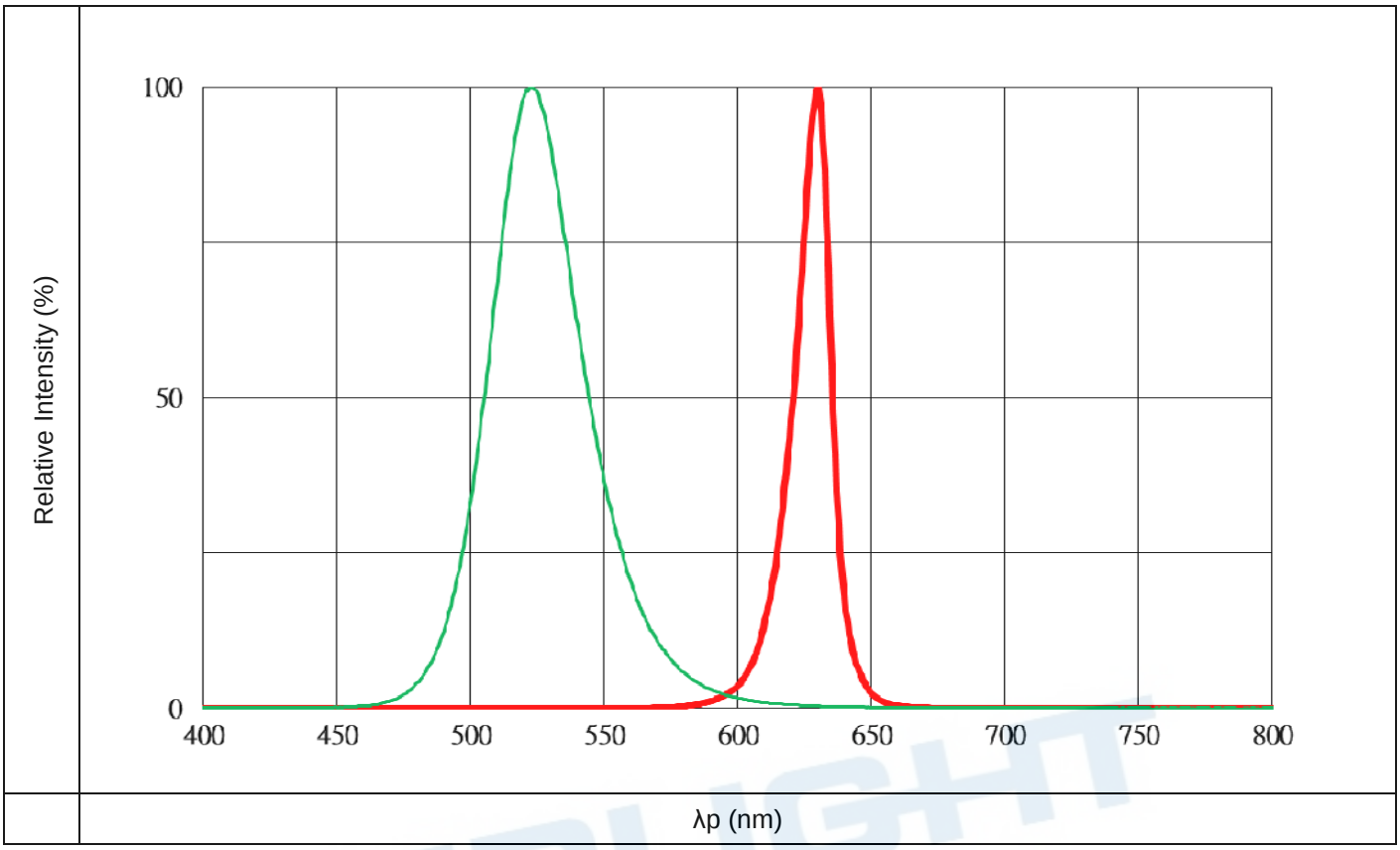
Note:Tolerance of Luminous Intensity: ±11%

## Bin Range of Dominant Wavelength

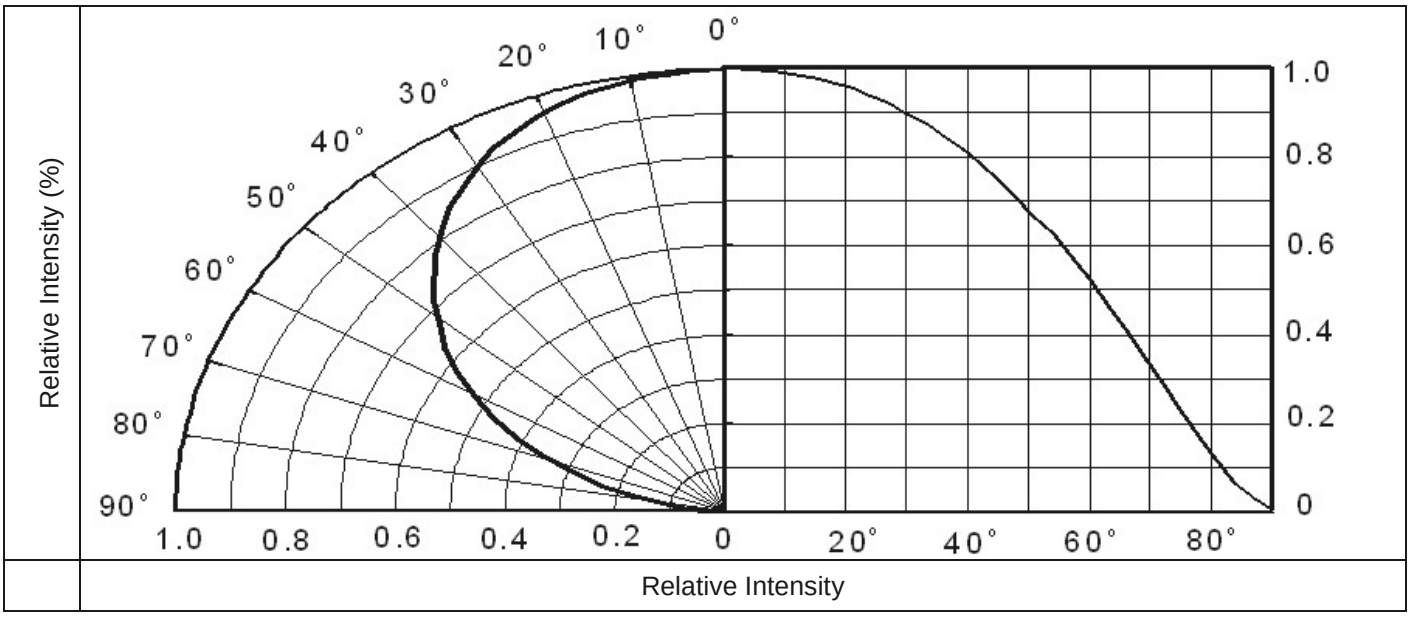
| Chip | Bin Code | Min. | Max. | Unit | Condition |
|---|---|---|---|---|---|
| R | X | 615 | 620 | nm | $I_F$ =20mA |
| | Y | 620 | 625 | | |
| | Z | 625 | 630 | | |
| G | C1-2 | 522 | 528 | | |
| | C1-3 | 528 | 534 | | |
| | C1-4 | 534 | 540 | | |

Note:Tolerance of Dominant Wavelength: ±1nm

## Typical Electro-Optical Characteristics Curves

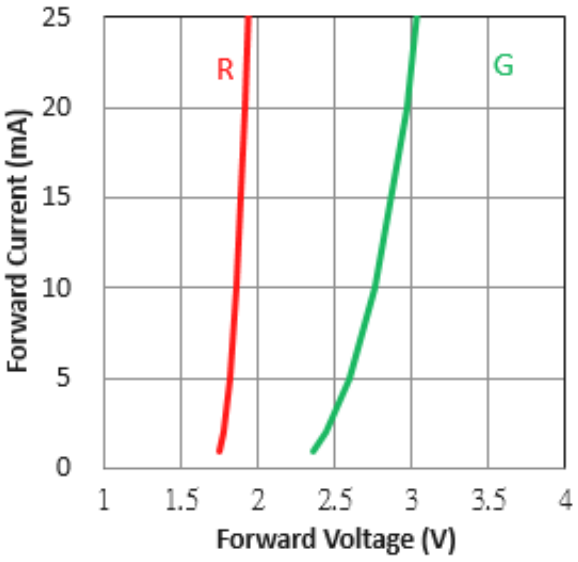



### Diagram Characteristics of Radiation

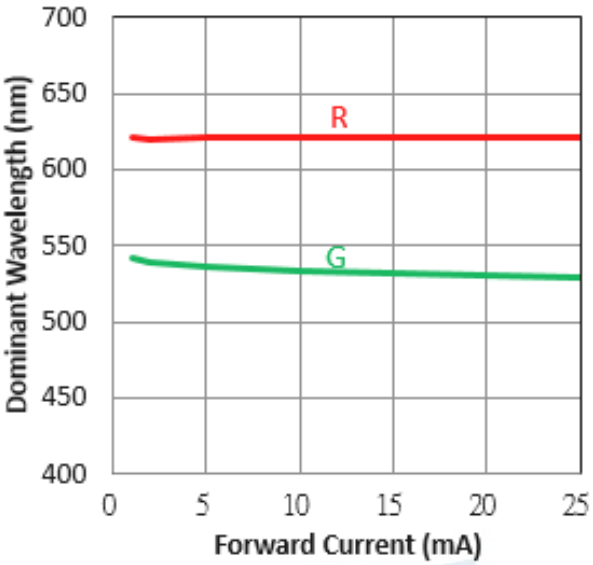


# Typical Electro-Optical Characteristics Curves

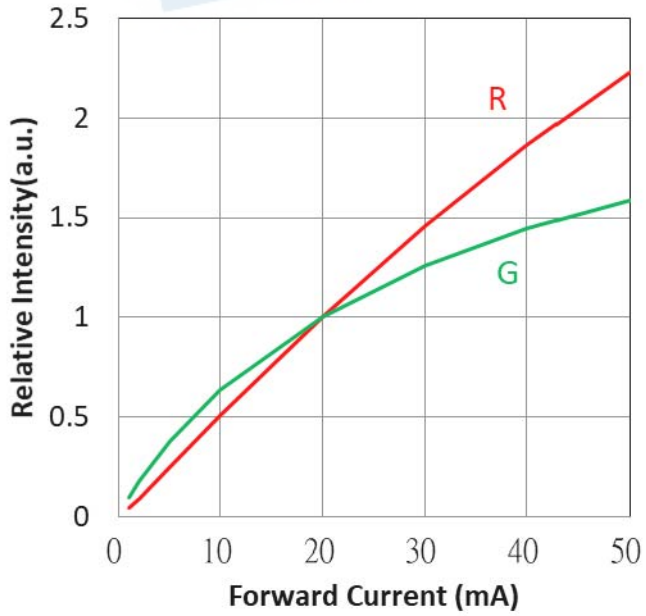
**Forward Current vs. Forward Voltage (Ta=25℃)**



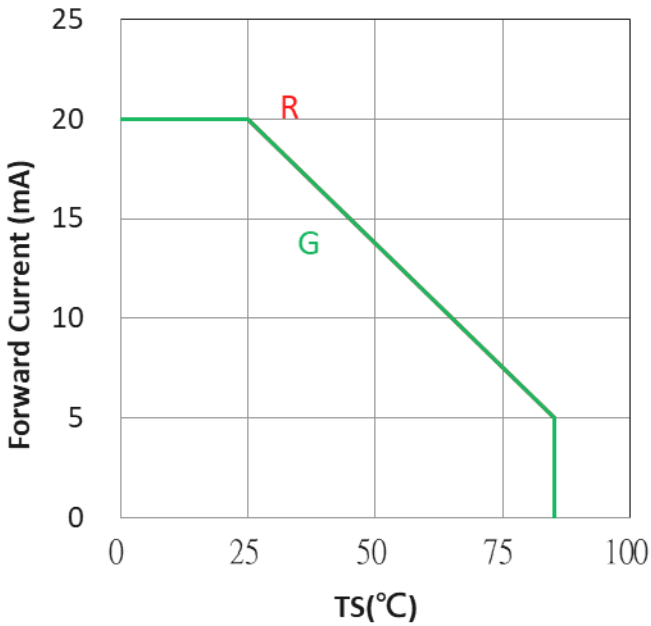

**Dominant Wavelength vs. Forward Current (Ta=25℃)**



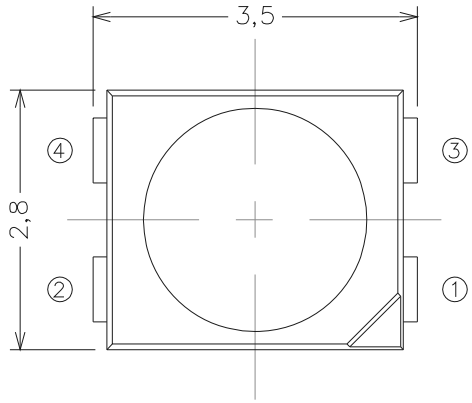

**Relative Luminous Intensity vs. Forward Current (Ta=25℃)**

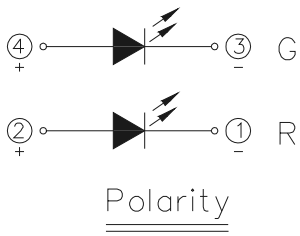


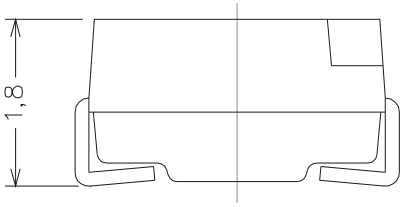

**Max. Permissible Forwarded Current (Ta=25℃)**

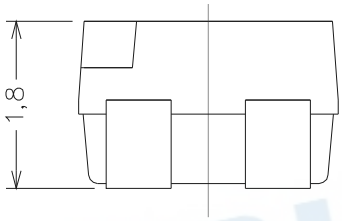


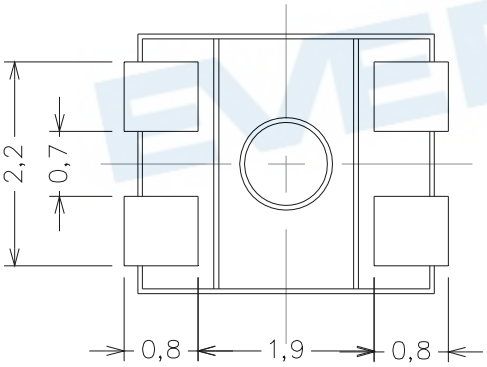
## Package Dimension

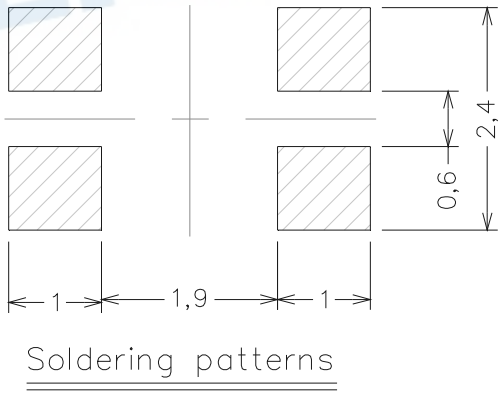


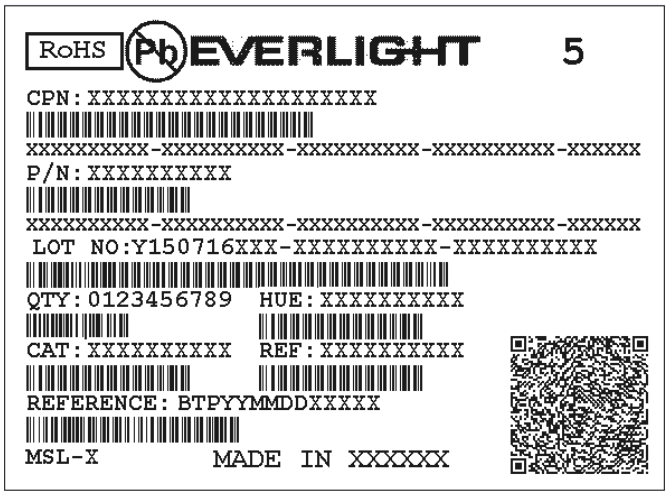




Suggested pad dimension is just reference only.
Please modify the pad dimension based on individual need

Note: Tolerances unless mentioned ±0.1mm. Unit = mm

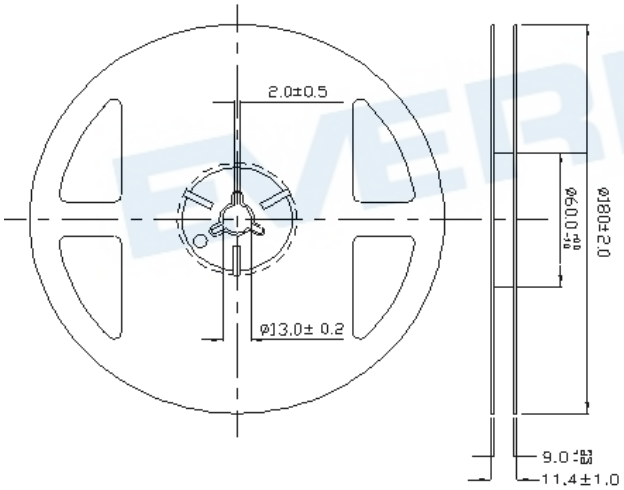
## Moisture Resistant Packing Materials

### Label Explanation



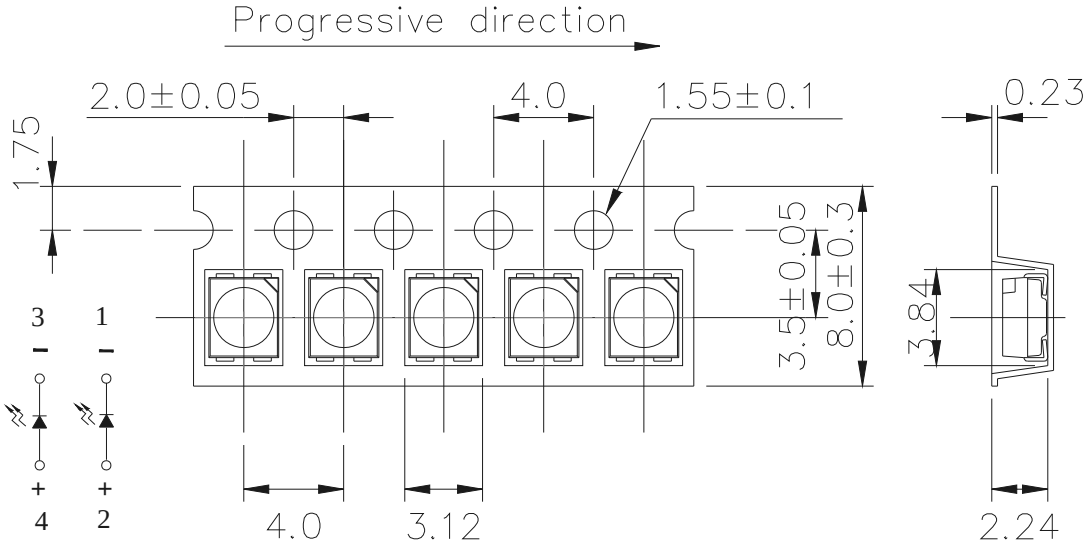

- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

### Reel Dimensions



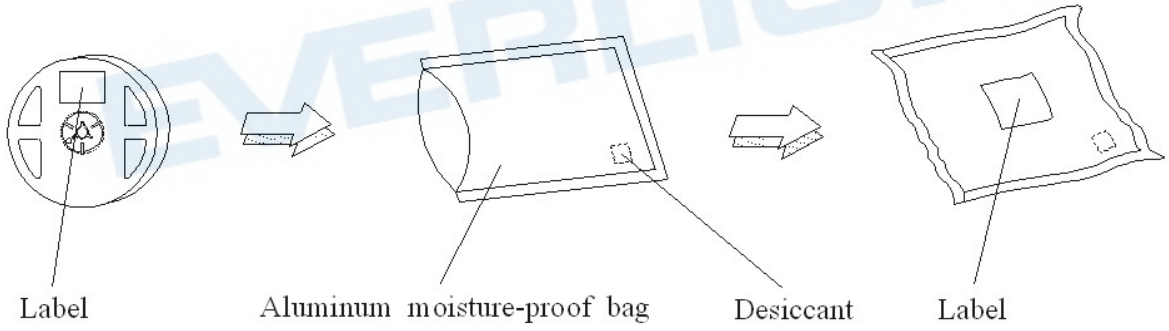

Notes: Tolerances unless mentioned ±0.15mm. Unit = mm

## Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel




Notes:
1. Tolerances unless mentioned ±0.15mm. Unit = mm
2. Minimum packing amount is 250/500/1000/2000 pcs per reel.

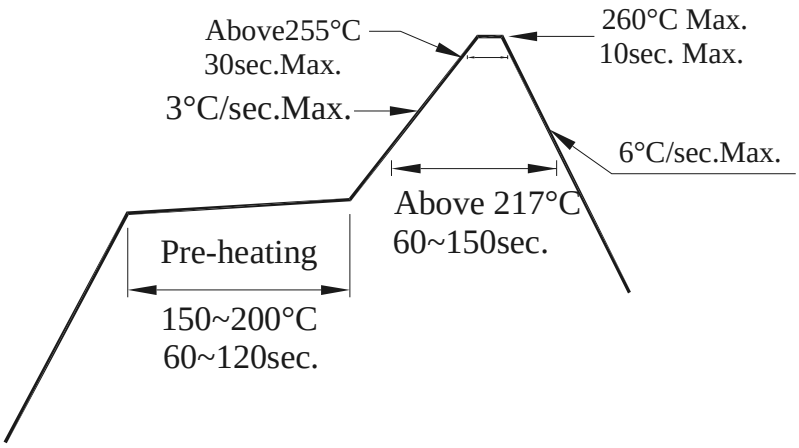
### Moisture Resistant Packing Process



## Precautions for Use

1. Over-current-proof

1.1 Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change ( Burn out will happen ).




2. Storage

2.1 Moisture proof bag should only be opened immediately prior to usage.

2.2 Environment should be less than 30℃ and 60% RH when moisture proof bag is opened.

2.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.

2.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg +/-5deg for 24 hours.

3. Soldering Condition

3.1 Pb-free solder temperature profile

3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

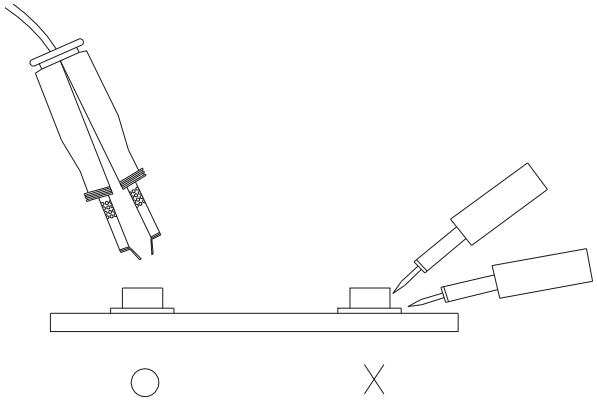
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350℃ for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



## ESD Precaution

Proper storage and handling procedures should be followed to prevent ESD damage to the devices especially when they are removed from the Anti-static bag. Electro-Static Sensitive Devices warning labels are on the packing.

## Application Restrictions

High reliability applications such as military/aerospace, automotive safety/security systems, and medical equipment may require different product. If you have any concerns, please contact Everlight before using this product in your application. This specification guarantees the quality and performance of the product as an individual component. Do not use this product beyond the specification described in this document.

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2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
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