

## SMD ■ B

### G42-51-R7C-F0R2S2F8E-3T-AM(EE)



#### Features

- RoHS compliant
- Chip LED package.
- Colorless clear resin.
- Wide viewing angle X90° Y60°
- Precondition: Bases on JEDEC J-STD 020D Level 3.
- Automotive reflow profile (IR reflow or wave soldering)
- Qualifications : According to AEC-Q101
- Compliance with EU REACH
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).

#### Applications

- Automotive backlighting or indicator: Dashboard, switch, audio and video equipments...etc.
- Backlight: LCD, switches, symbol, mobile phone and illuminated advertising.
- Display for indoor and outdoor application.
- Ideal for coupling into light guides.
- Substitution of traditional light.
- Optical indicator.
- General applications.

## Device Selection Guide

| Chip Materials | Emitted Color | Resin Color |
|----------------|---------------|-------------|
| AlGaInP        | Dark Red      | Water Clear |

## Absolute Maximum Ratings (Ta=25°C)

| Parameter             | Symbol              | Rating       | Unit |
|-----------------------|---------------------|--------------|------|
| Reverse Voltage       | V <sub>R</sub>      | 12           | V    |
| Forward Current       | I <sub>F(MAX)</sub> | 30           | mA   |
| Power Dissipation     | P <sub>d</sub>      | 71.0         | mW   |
| Junction Temperature  | T <sub>j</sub>      | 125          | °C   |
| Operating Temperature | T <sub>opr</sub>    | -40 ~ +100   | °C   |
| Storage Temperature   | T <sub>stg</sub>    | -40 ~ +110   | °C   |
| Thermal Resistance    | R <sub>th J-A</sub> | 600          | K/W  |
|                       | R <sub>th J-S</sub> | 400          | K/W  |
| ESD                   | ESD <sub>HBM</sub>  | 2000         | V    |
| Soldering Temperature | T <sub>sol</sub>    | Max : 260 °C |      |

**Electro-Optical Characteristics (Ta=25°C)**

| Parameter                    | Symbol            | Min.  | Typ.   | Max.  | Unit | Condition            |
|------------------------------|-------------------|-------|--------|-------|------|----------------------|
| Luminous Intensity           | Iv                | 140   | -----  | 280   | mcd  |                      |
| Viewing Angle                | 2θ <sub>1/2</sub> | ----- | 100/80 | ----- | deg  |                      |
| Peak Wavelength              | λ <sub>p</sub>    | ----- | 639    | ----- | nm   |                      |
| Dominant Wavelength          | λ <sub>d</sub>    | 628   | -----  | 636   | nm   | I <sub>F</sub> =20mA |
| Spectrum Radiation Bandwidth | Δλ                | ----- | 30     | ----- | nm   |                      |
| Forward Voltage              | V <sub>F</sub>    | 1.65  | -----  | 2.35  | V    |                      |
| Reverse Current              | I <sub>R</sub>    | ----- | -----  | 10    | μA   | V <sub>R</sub> =12V  |

Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength ±1nm
3. Tolerance of Forward Voltage: ±0.1V

**Bin Range of Luminous Intensity**

| Bin Code | Min. | Max. | Unit | Condition            |
|----------|------|------|------|----------------------|
| R2       | 140  | 180  | mcd  | I <sub>F</sub> =20mA |
| S1       | 180  | 224  |      |                      |
| S2       | 224  | 280  |      |                      |

**Bin Range Of Dom. Wavelength**

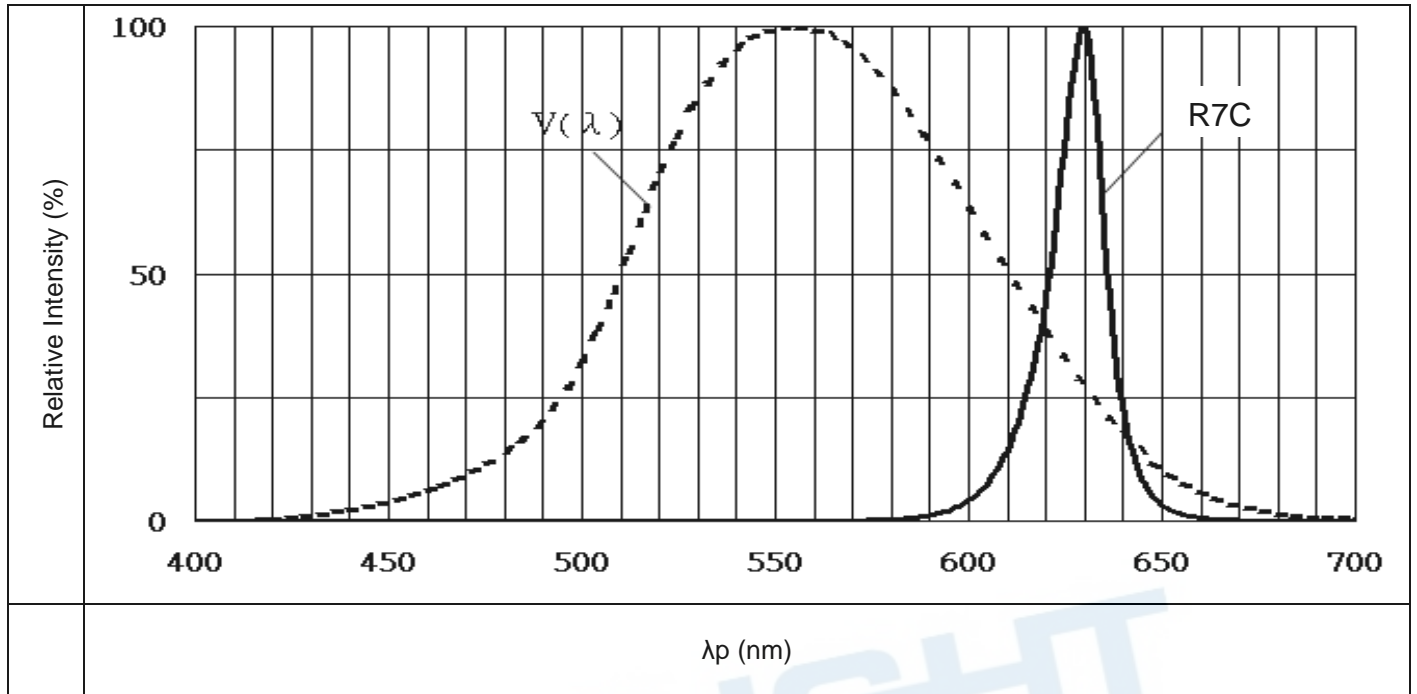
| Bin Code | Min. | Max. | Unit | Condition            |
|----------|------|------|------|----------------------|
| FF3      | 628  | 632  | nm   | I <sub>F</sub> =20mA |
| FF4      | 632  | 636  |      |                      |

- Note:  
 1.Tolerance of Luminous Intensity: ±11%  
 2.Tolerance of Dominant Wavelength ±1nm



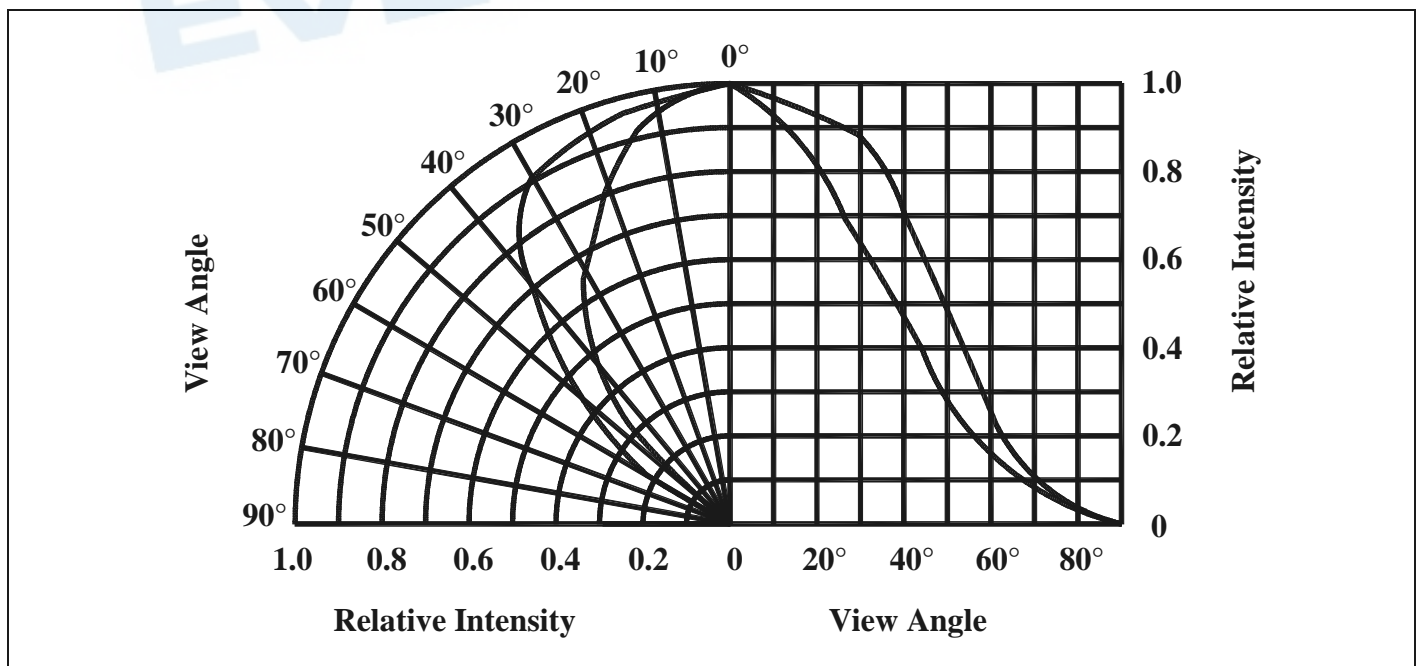
Typical Electro-Optical Characteristics Curves

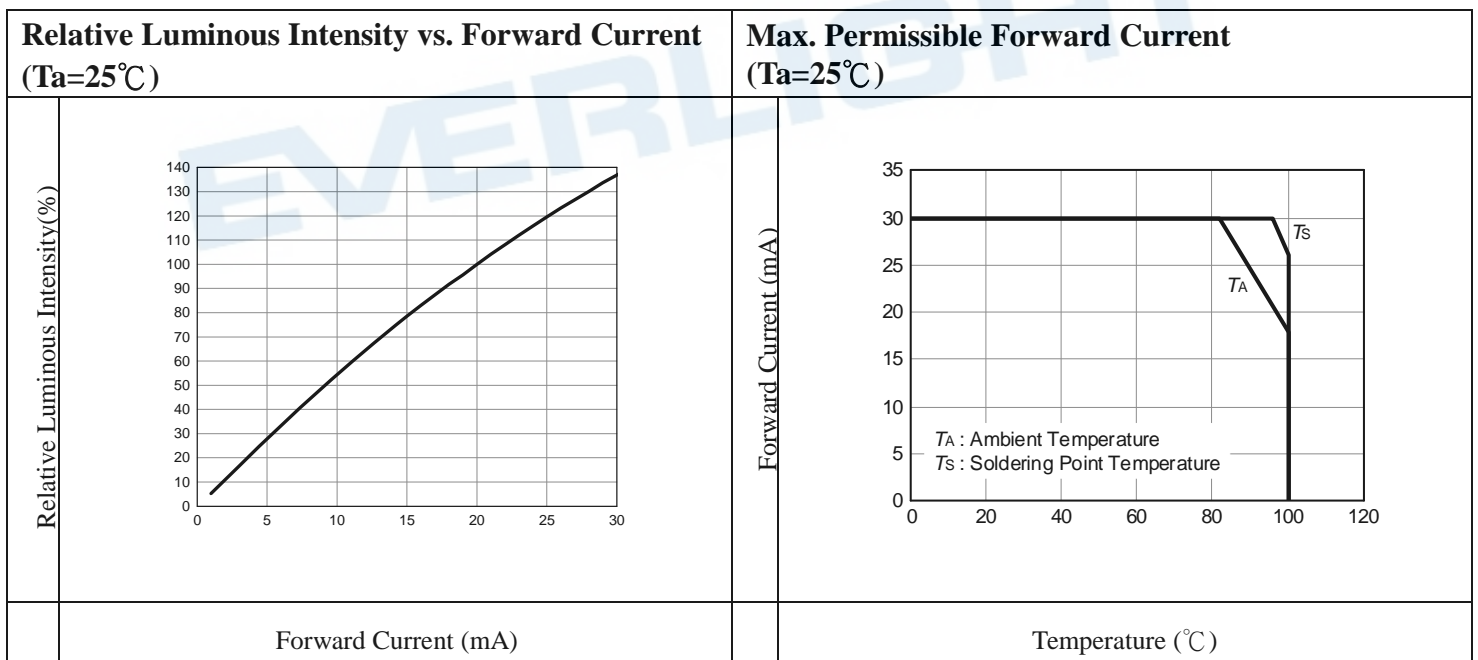
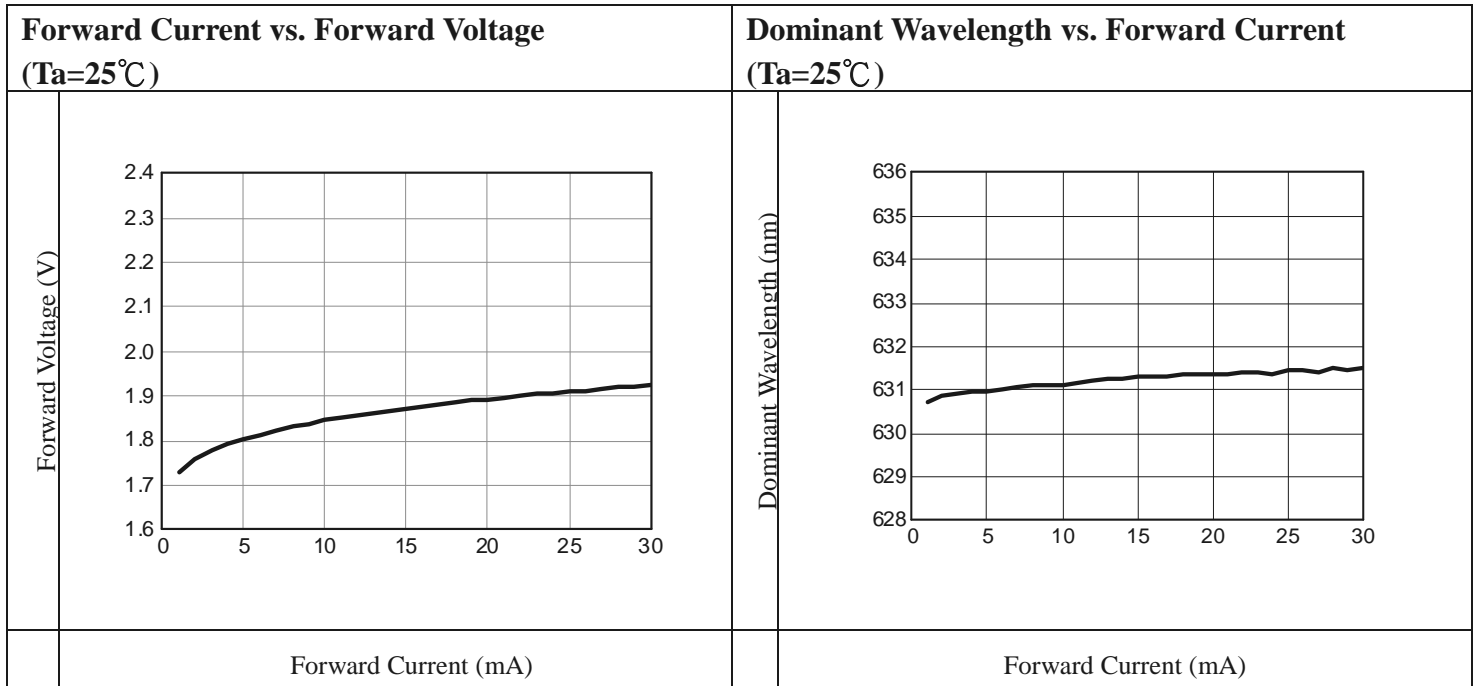
Typical Curve of Spectral Distribution



Note:  $V(\lambda)$ =Standard eye response curve;  $I_f = 20\text{mA}$

Diagram Characteristics of Radiation

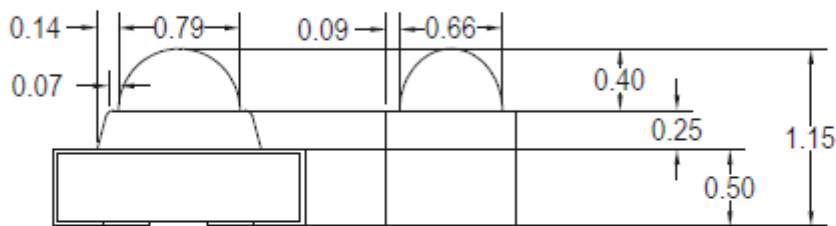
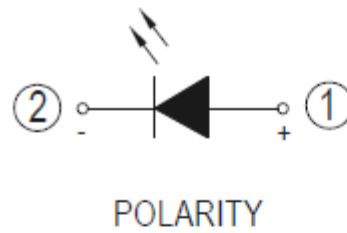
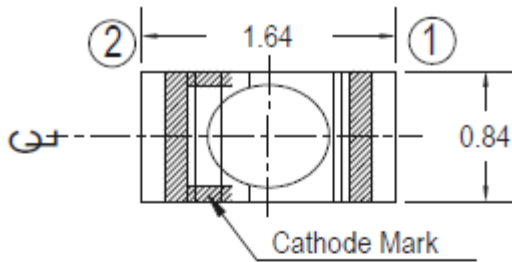




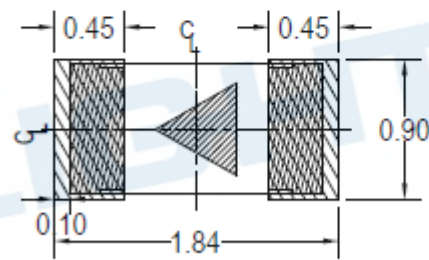
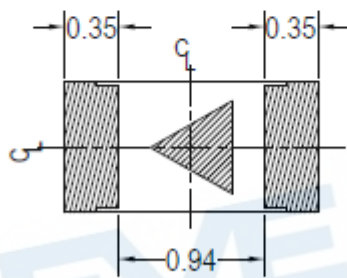
| Ambient Temperature vs. Relative Luminous Intensity                |                          | Ambient Temperature vs. Forward Voltage |                          |
|--|--------------------------|---|--------------------------|
| Relative Luminous Intensity(a.u.)                                  |                          | Forward Voltage (V)                     |                          |
|  | Ambient Temperature (°C) |   | Ambient Temperature (°C) |
| Note: $f(T_j) = I_v / I_v(25^\circ\text{C})$ ; $I_F = 20\text{mA}$ |                          |   |                          |



Package Dimension



Recommend Soldering pad

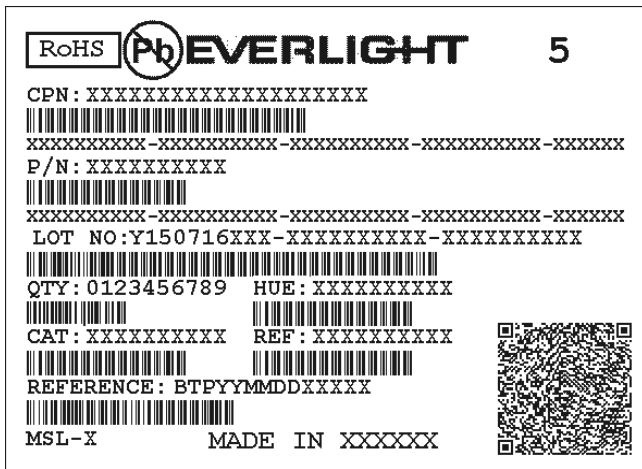


Suggested pad dimension is just for reference only.  
 Please modify the pad dimension based on individual need.

Note: Tolerances unless mentioned  $\pm 0.1$ mm. Unit = mm

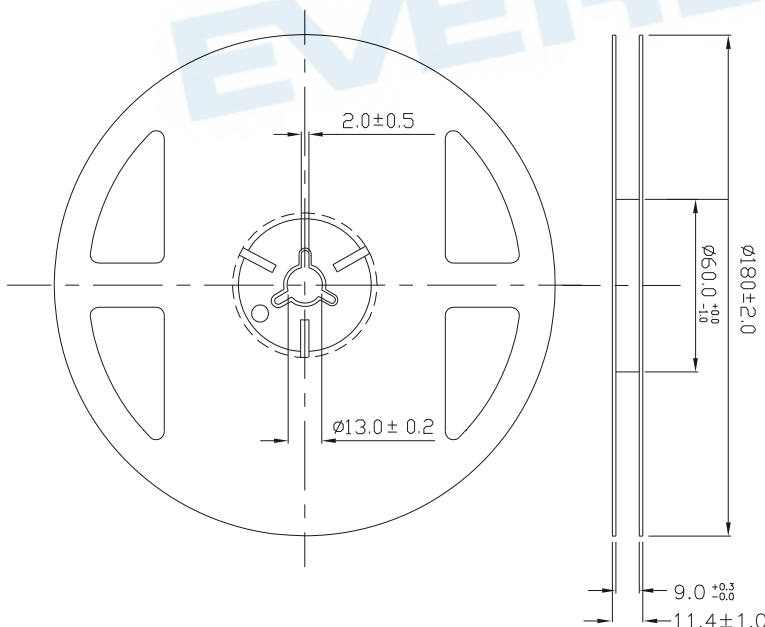


Label Explanation



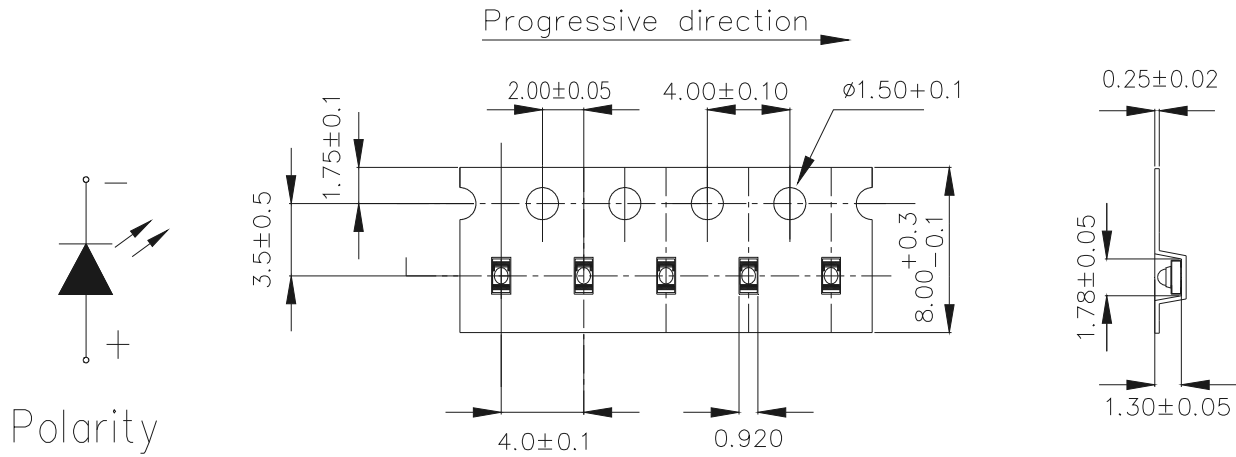
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Chromaticity Coordinates & Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

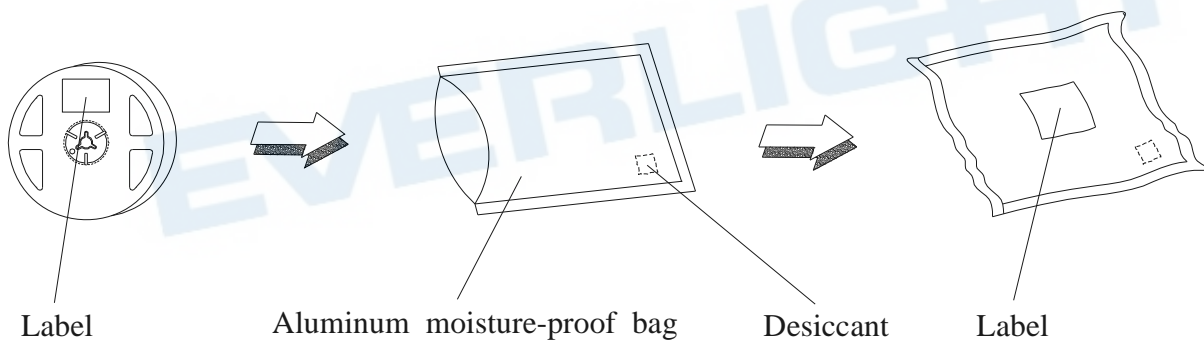


Note: The tolerances unless mentioned is  $\pm 0.1\text{mm}$  ,Unit = mm

**Carrier Tape Dimensions: Loaded quantity 3000 PCS per reel**



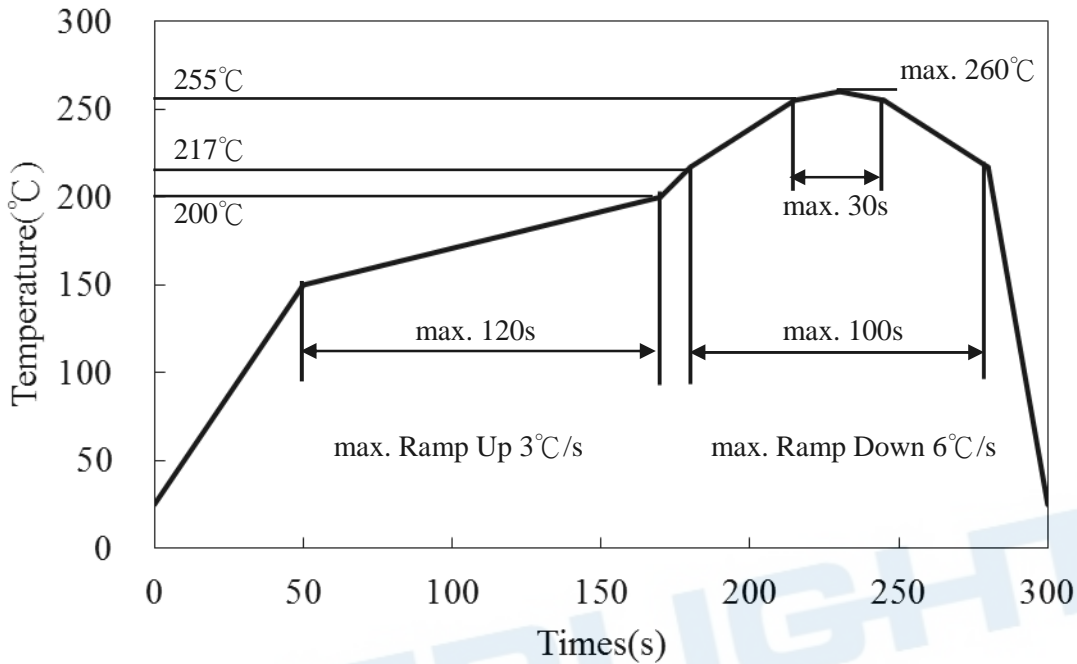
**Moisture Resistant Packaging**



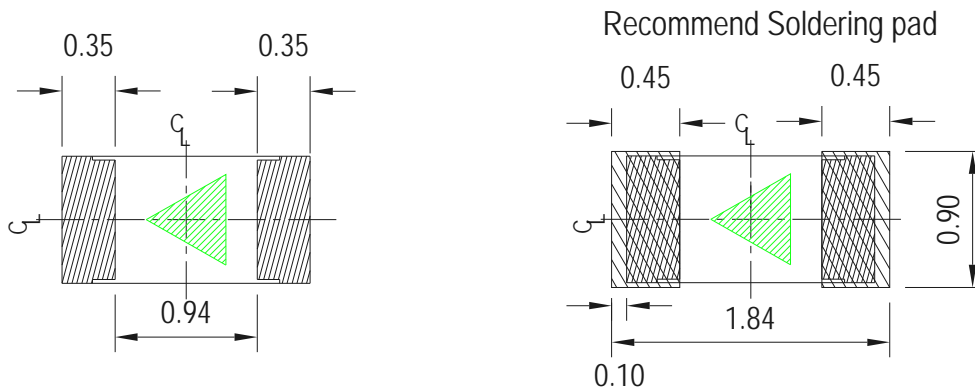
**Precautions for Use**

**1. Soldering Condition (Reference: IPC/JEDEC J-STD-020D)**

**a. IR reflow**



**(B) Recommend soldering pad**



## 2. Current limiting

A resistor should be used to limit current spikes that can be caused by voltage fluctuations. Otherwise damage could occur.

## 3. Storage

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

3.2 Environment should be less than 30°C and 60% RH when moisture proof bag is opened.

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

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

## 4. Iron Soldering

Hand soldering is not recommended for regular production. These guidelines are for rework only. Soldering iron tip should contact each terminal no more than 3 sec at 350°C, using soldering iron with nominal power less than 25W. Allow min. 2 sec. between soldering intervals.

## 5. Usage

Do not exceed the values given in this specification.

## Application Restrictions

1. 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.

## Revision History:

| Rev. | Modified date | File modified contents                     |
|------|---------------|--|
| 4.   | 2017/08/31    | Change SD photo                            |
| 5.   | 2018/09/19    | Add Junction Temperature -25~0°C           |
| 6.   | 2019/01/24    | Add Qualifications : According to AEC-Q101 |
| 7.   | 2019/03/08    | Update Soldering Condition photo           |
| 8.   | 2019/03/13    | Update Package Dimension                   |