

## SMD ■ Side View LEDs (Height 0.8mm) 99-213/RQC-C0U1V1G3E/2C-CS



### Features

- Side view LED.
- Lead frame package with individual 2 pins.
- Wide viewing angle.
- Soldering methods: IR reflow soldering.
- Precondition: Bases on JEDEC J-STD 020D Level 3
- Pb-free.
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br<900ppm,Cl<900ppm,Br+Cl<1500ppm).

### Descriptions

The 99-213 series is available in soft orange, green, blue and yellow. Due to the package design,the LED has wide viewing angle , low power consumption . This feature makes the LED ideal for light guide application.

### Applications

- . LCD Back Light.
- . Mobile phones.
- . Indicators.
- . Illuminations.
- . Switch Lights.

## Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Red	Water Clear

## Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	$V_R$	12	V
Forward Current	$I_F$	50	mA
Peak Forward Current (Duty 1/10 @1KHz)	$I_{FP}$	100	mA
Power Dissipation	$P_d$	140	mW
Junction Temperature	$T_j$	125	°C
Operating Temperature	$T_{opr}$	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +90	°C
ESD	$ESD_{HBM}$	2000	V
Soldering Temperature	$T_{sol}$	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	$I_v$	450	-----	900	mcd	$I_F=20mA$
Viewing Angle	$2\theta_{1/2}$	-----	110	-----	deg	$I_F=20mA$
Peak Wavelength	$\lambda_p$	-----	632	-----	nm	$I_F=20mA$
Dominant Wavelength	$\lambda_d$	619	----	628	nm	$I_F=20mA$
Spectrum Radiation Bandwidth	$\Delta\lambda$	-----	20	-----	nm	$I_F=20mA$
Forward Voltage	$V_F$	1.8	----	2.8	V	$I_F=20mA$
Reverse Current	$I_R$	-----	-----	10	$\mu A$	$V_R=12V$

### Notes:

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

**Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Condition
U1	450	560	mcd	I <sub>F</sub> =20mA
U2	560	710		
V1	710	900		

Note:  
 Tolerance of Luminous Intensity: ±11%

**Bin Range of Dominant Wavelength**

Bin Code	Min.	Max.	Unit	Condition
C2	619	622	nm	I <sub>F</sub> =20mA
C3	622	625		
C4	625	628		

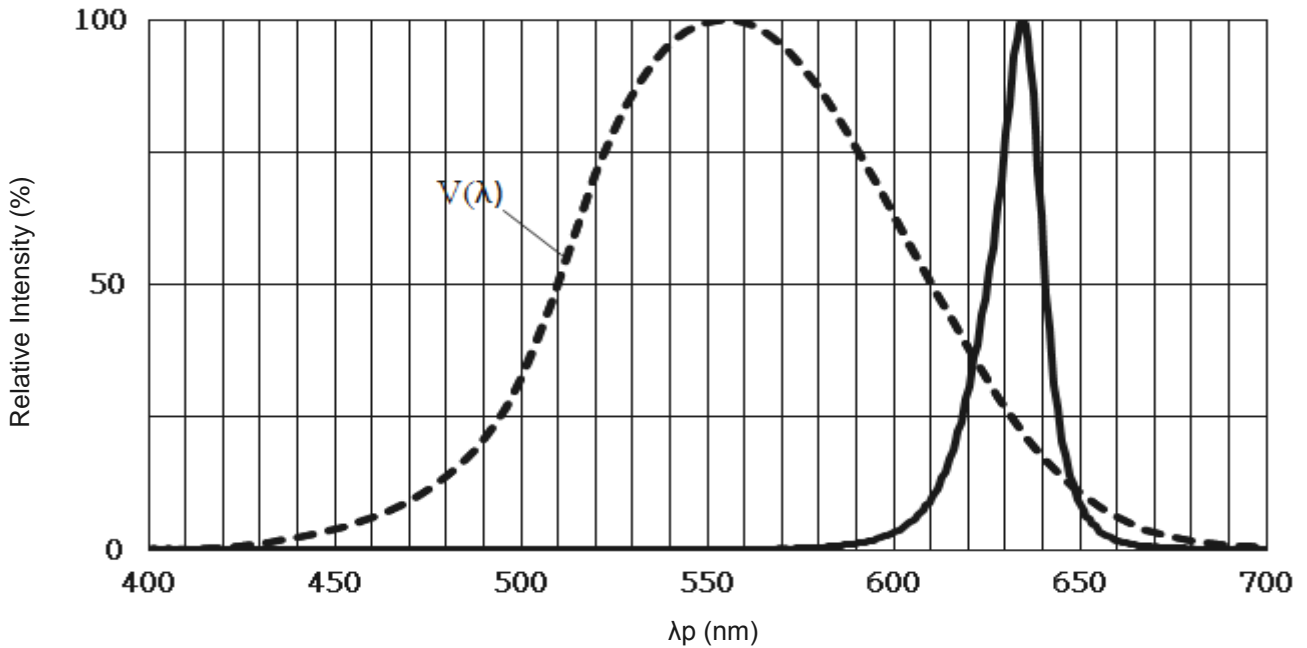
Note:  
 Tolerance of Dominant Wavelength: ±1nm

**Bin Range of Forward Voltage**

Bin Code	Min.	Max.	Unit	Condition
H0	1.75	1.95	V	I <sub>F</sub> =20mA
H1	1.95	2.15		
H2	2.15	2.35		
H3	2.35	2.55		
H4	2.55	2.75		

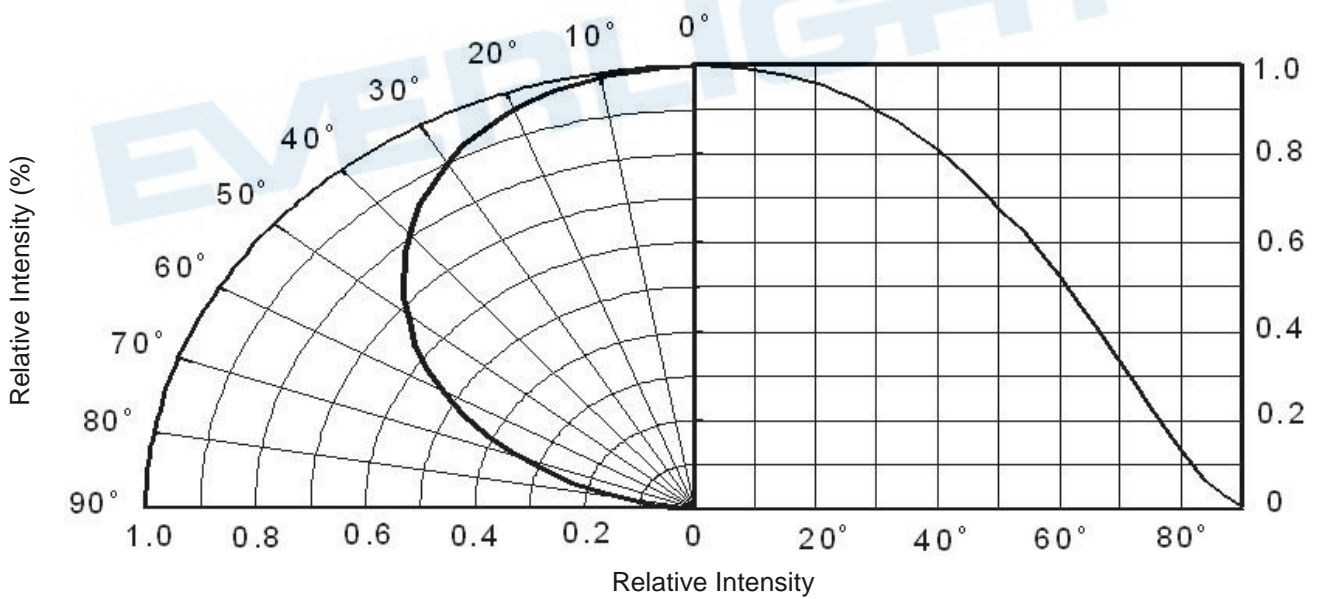
Note:  
 Tolerance of Forward Voltage: ±0.1V

**Typical Electro-Optical Characteristics Curves**  
**Typical Curve of Spectral Distribution**



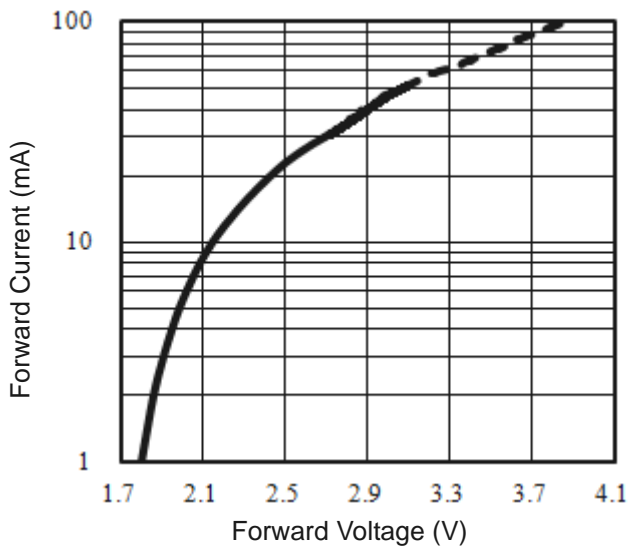
Note: V(λ)=Standard eye response curve; I<sub>F</sub> =20mA

**Diagram Characteristics of Radiation**

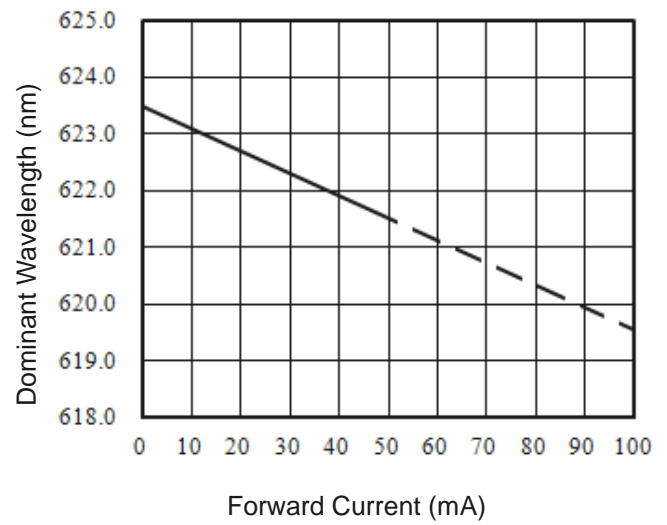


Typical Electro-Optical Characteristics Curves

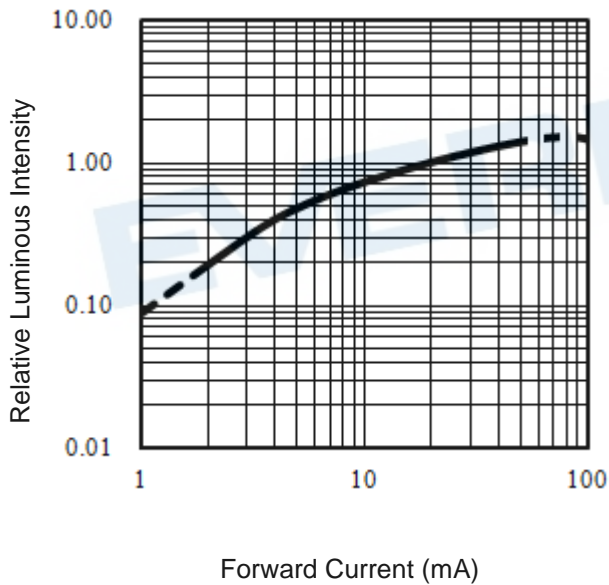
Forward Current vs. Forward Voltage (Ta=25°C)



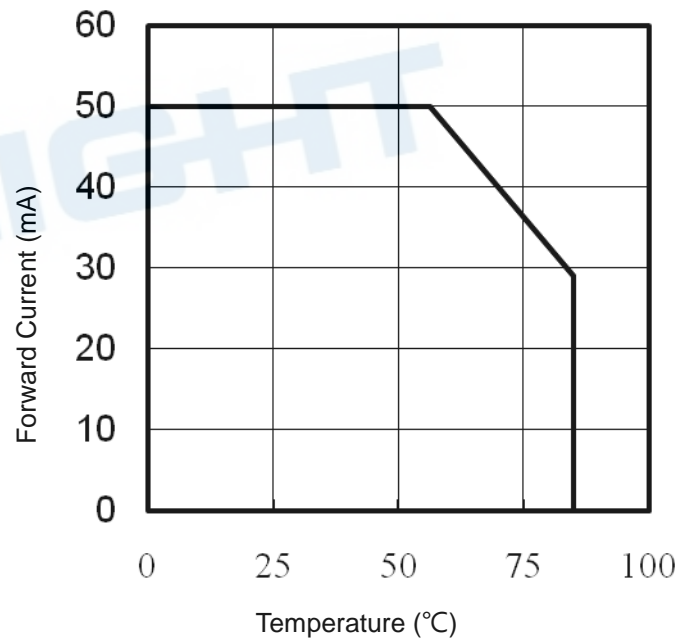
Dominant Wavelength vs. Forward Current (Ta=25°C)



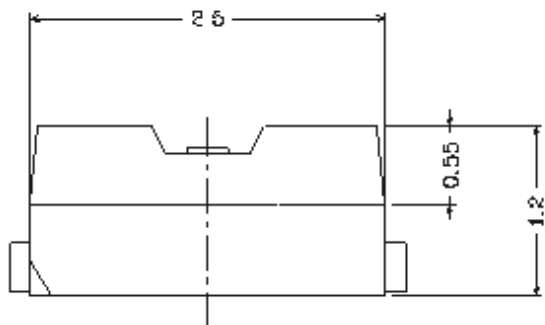
Relative Luminous Intensity vs. Forward Current (Ta=25°C)



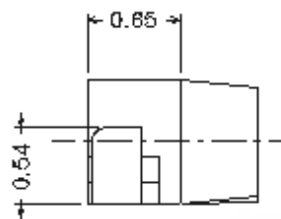
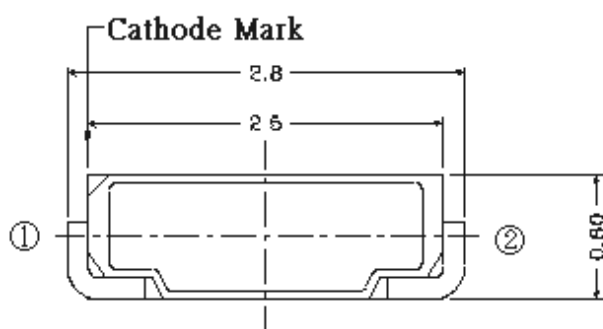
Max. Permissible Forwarded Current (Ta=25°C)



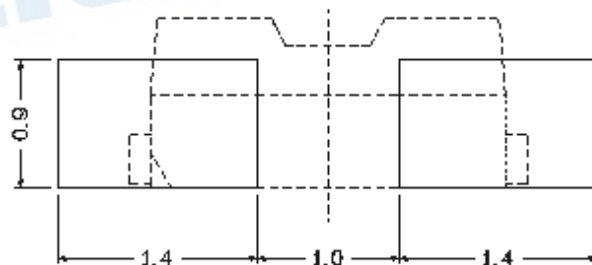
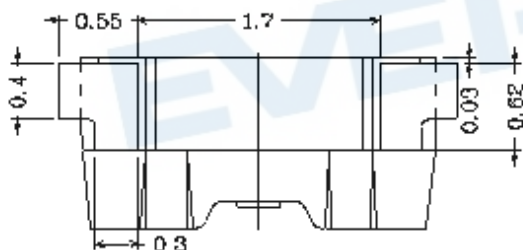
Package Dimension



Polarity



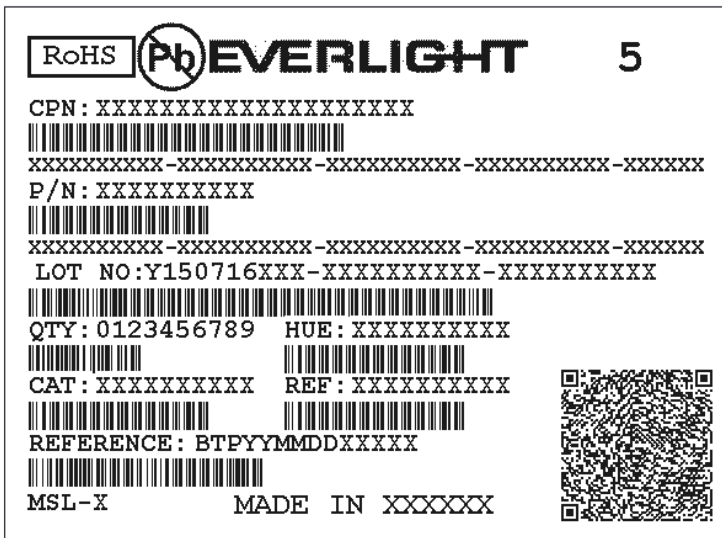
Recommended soldering pad design



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

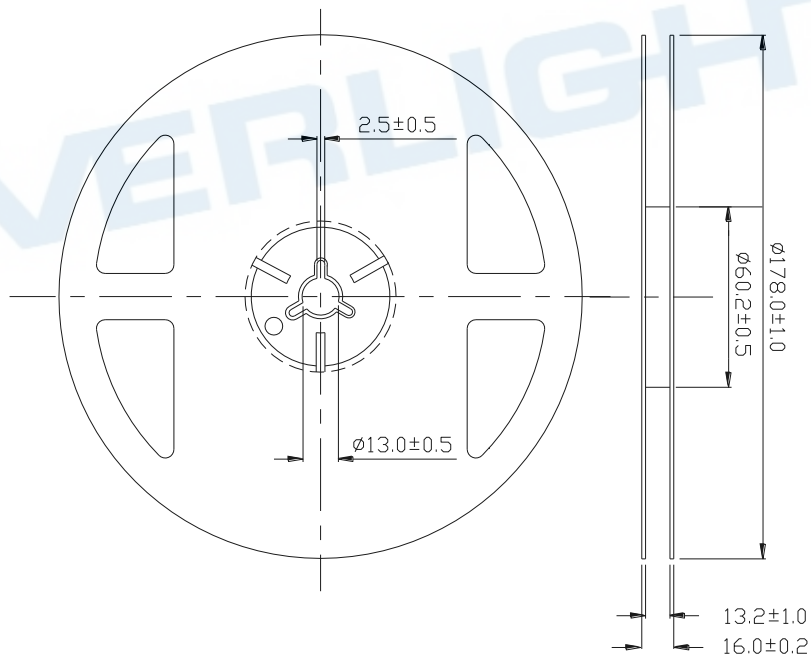
Moisture Resistant Packing Materials

Label Explanation

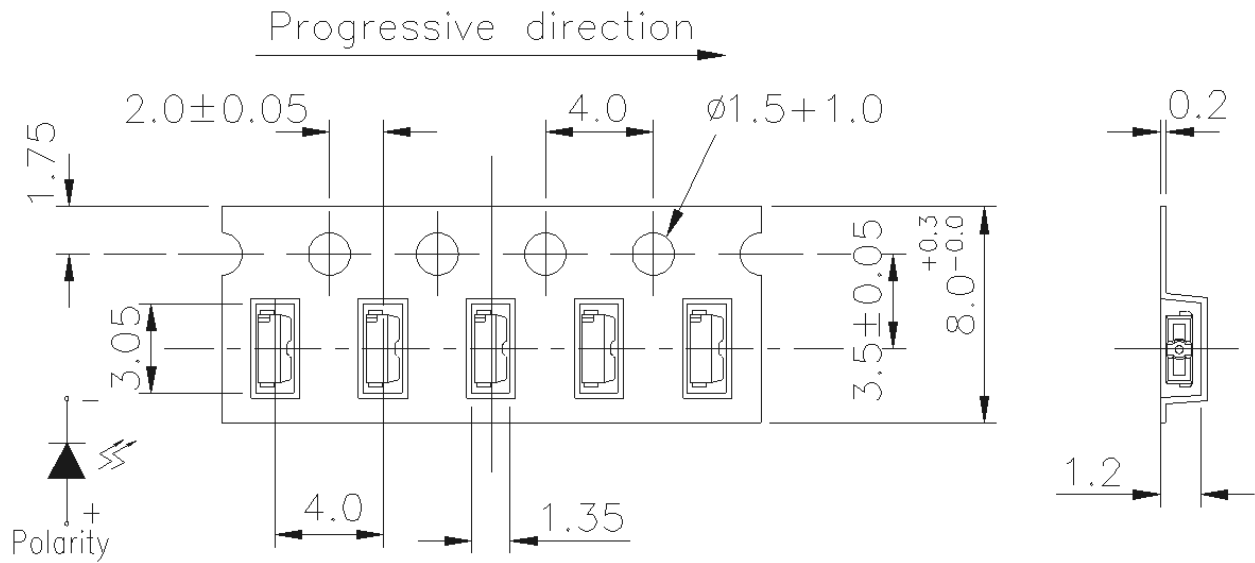


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

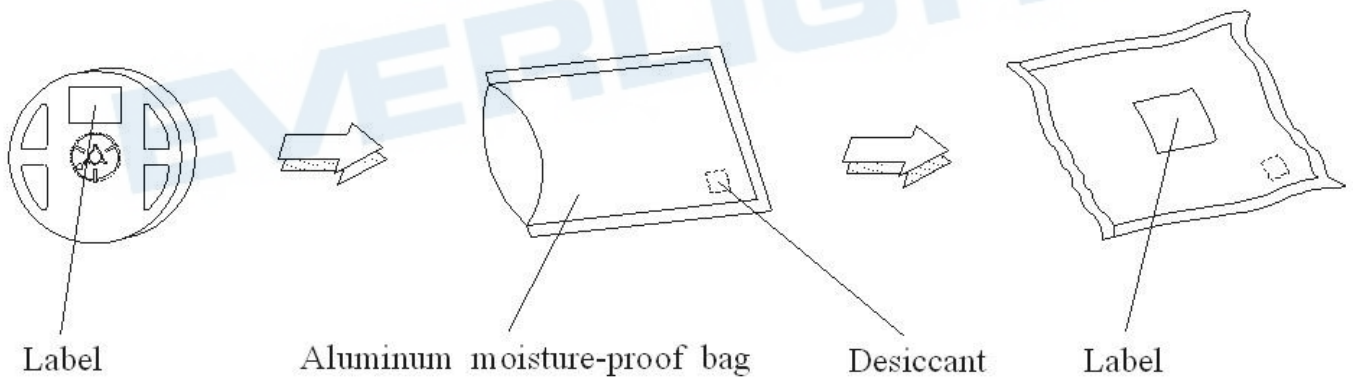


Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



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

Moisture Resistant Packing Process



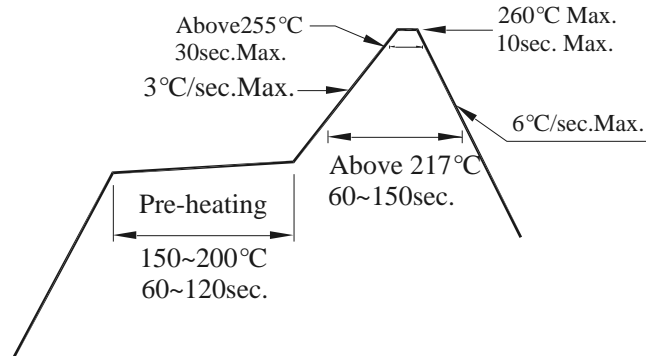
Note: Tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit = mm



## 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°C 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.

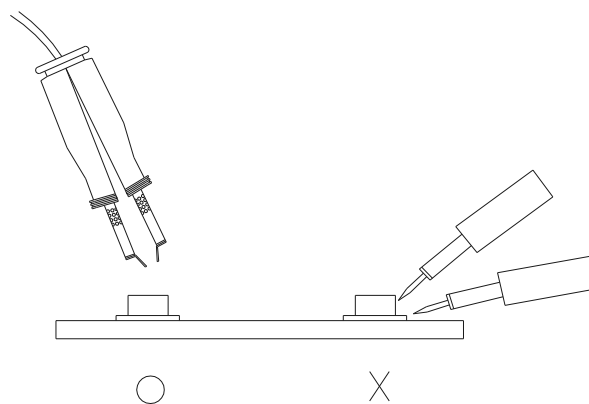
3.4 After soldering, do not warp the circuit board.

### 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C 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.



## 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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