DATASHEET

Top View LEDs
65-21/R7C-AH2K1X/3AA

Features

- White SMT package.
- Optical indicator.
- Wide viewing angle.
- Soldering methods: IR reflow soldering
- Available on tape and reel
- Pb-free
- The product itself will remain within RoHS
- compliant version

Description

The 65-21 series is available in soft orange, green, blue, and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. Besides, LED is mounted top down and emits through the PCB. This feature makes the ideal for light pipe application.

Applications

- Optical indicators.
- Coupling into light guides.
- Backlighting (LCD, cellular phones, switches, keys, displays, illuminated advertising, general lighting).
- Coupling into light guides; Interior automotive lighting (e.g. dashboard backlighting, etc.).

Device Selection Guide

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

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	50	mA
Power Dissipation	Pd	55	mW
Junction Temperature	T_j	115	℃
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +90	℃
Electrostatic Discharge (HBM)	ESD	2000	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	3.6	-----	9.0	mcd	I_F=2mA
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	
Dominant Wavelength	λd	624	-----	636	nm	
Spectrum Radiation Bandwidth	Δλ	-----	20	-----	nm	
Forward Voltage	V_F	1.4	-----	2.2	V	
Reverse Current	I_R	-----	-----	10	μA	V_R=5V

Note:
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Forward Voltage: ±0.1V
3. Tolerance of dominant wavelength ±1nm.
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 Dom. Wavelength

Bin Code	Min.	Max.	Unit	Condition
---	624	636	nm	I_F=2mA

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
H2	3.6	4.5	mcd	I_F=2mA
J1	4.5	5.8		
J2	5.8	7.2		
K1	7.2	9.0		

Bin Range of Forward Voltage

Bin Code	Min.	Max.	Unit	Condition
F8	1.4	2.2	V	I_F=20mA

Note:
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Forward Voltage: ±0.1V
3. Tolerance of dominant wavelength ±1nm.

Typical Electro-Optical Characteristics Curves

Relative Intensity vs. Wavelength (Ta=25℃)

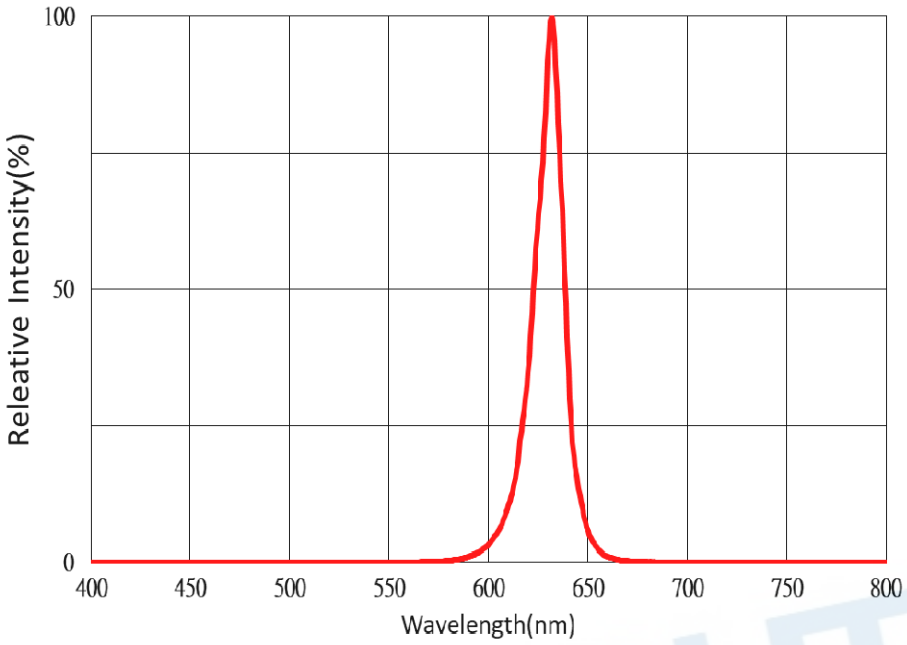
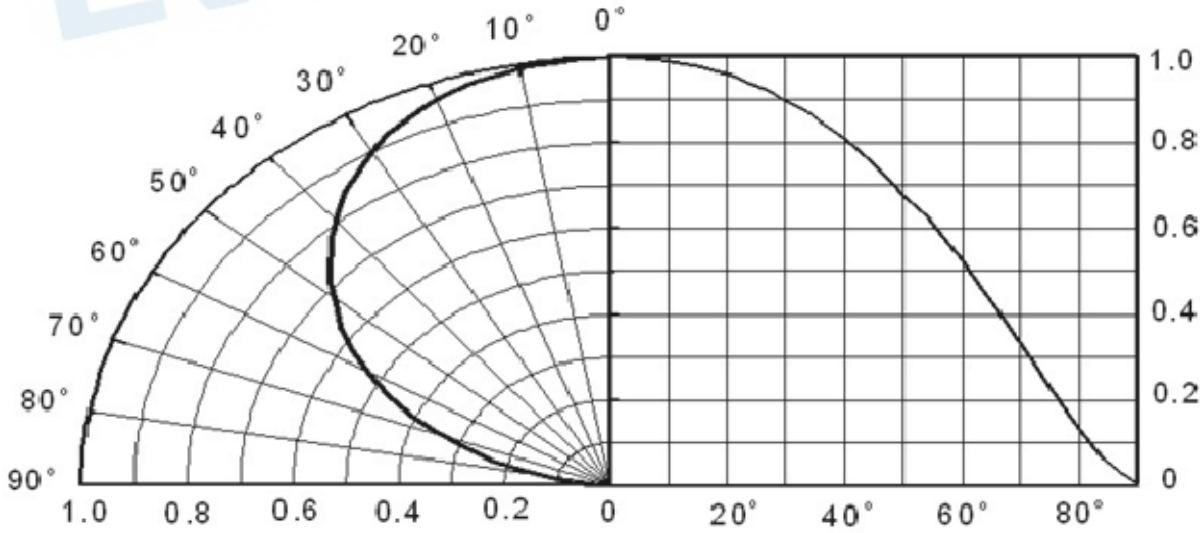
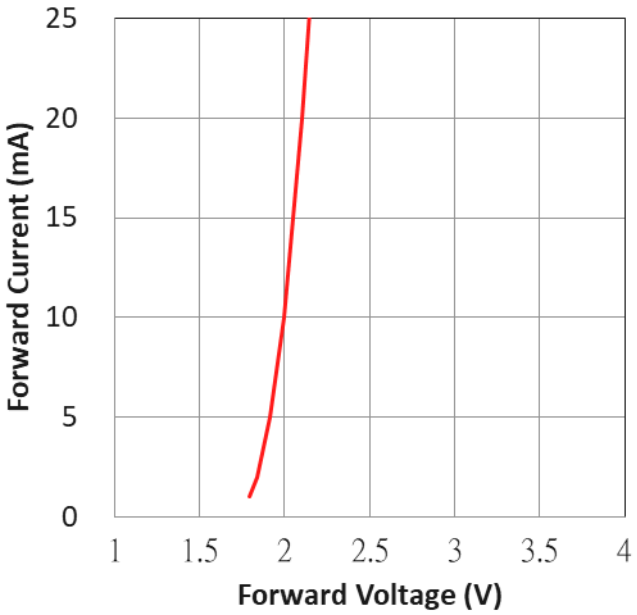


Diagram Characteristics of Radiation

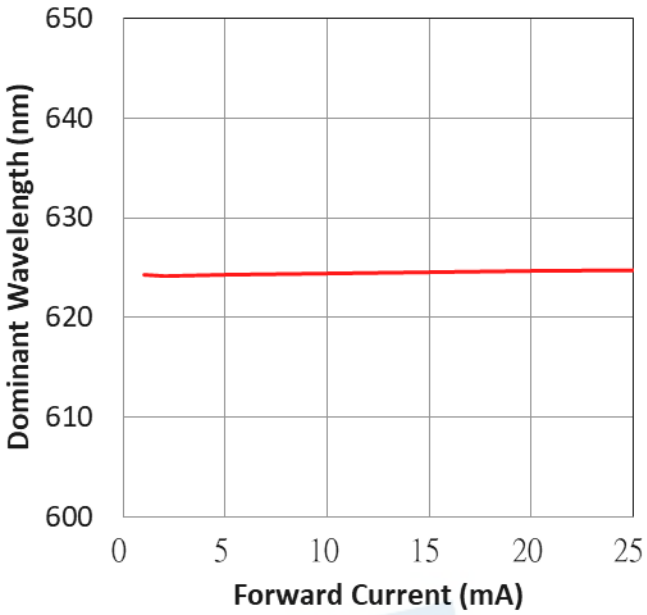


Typical Electro-Optical Characteristics Curves (Red)

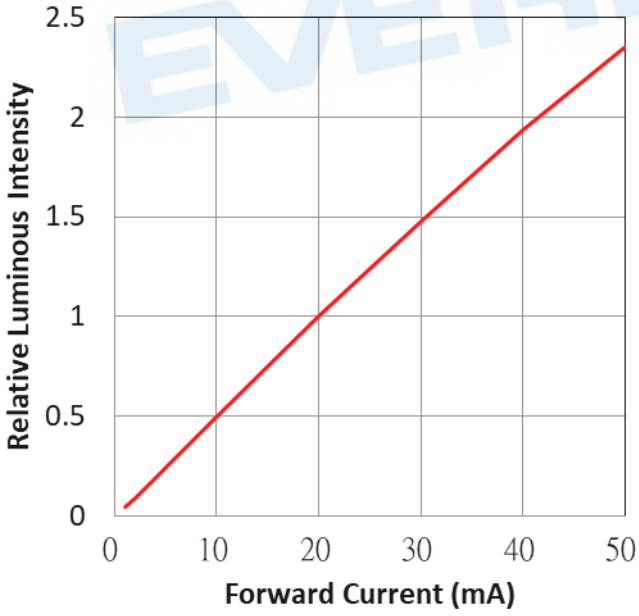
Forward Current vs. Forward Voltage (Ta=25℃)



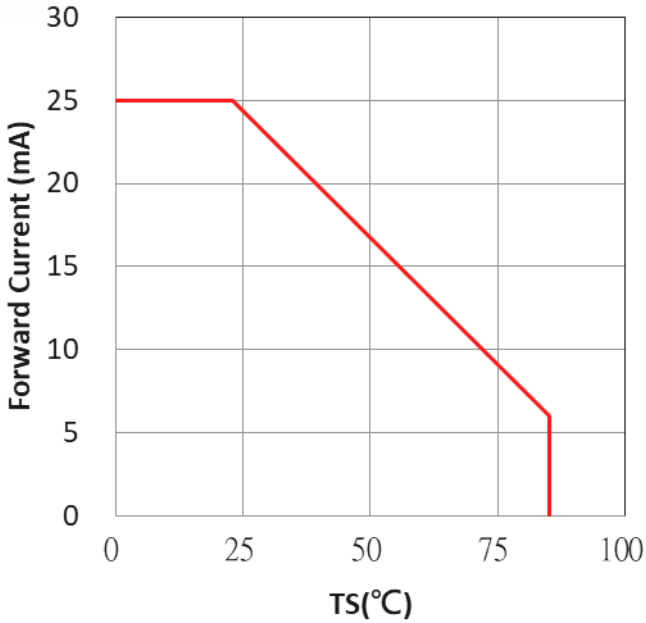
Dominant Wavelength vs. Forward Current (Ta=25℃)



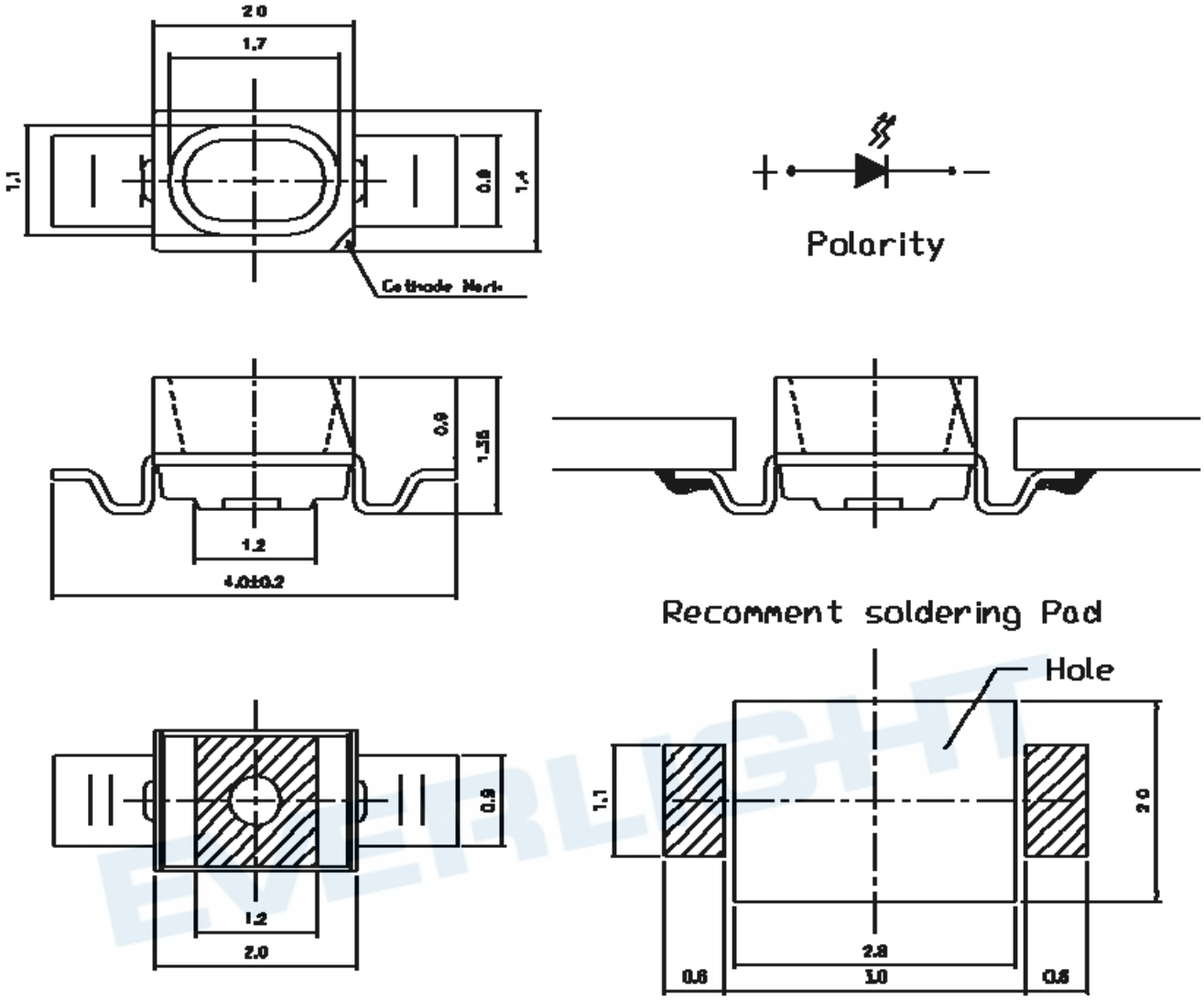
Relative Luminous Intensity vs. Forward Current (Ta=25℃)



Max. Permissible Forwarded Current (Ta=25℃)



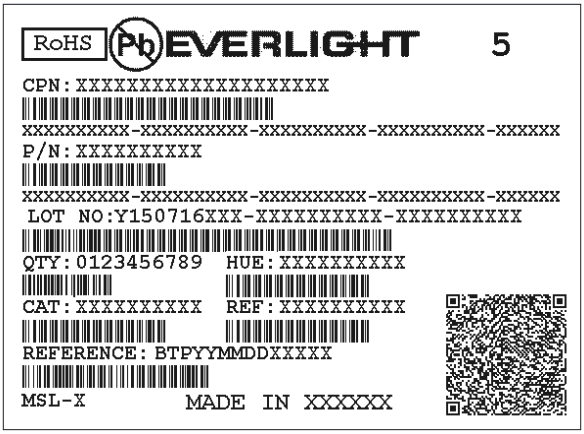
Package Dimension



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

Moisture Resistant Packing Materials

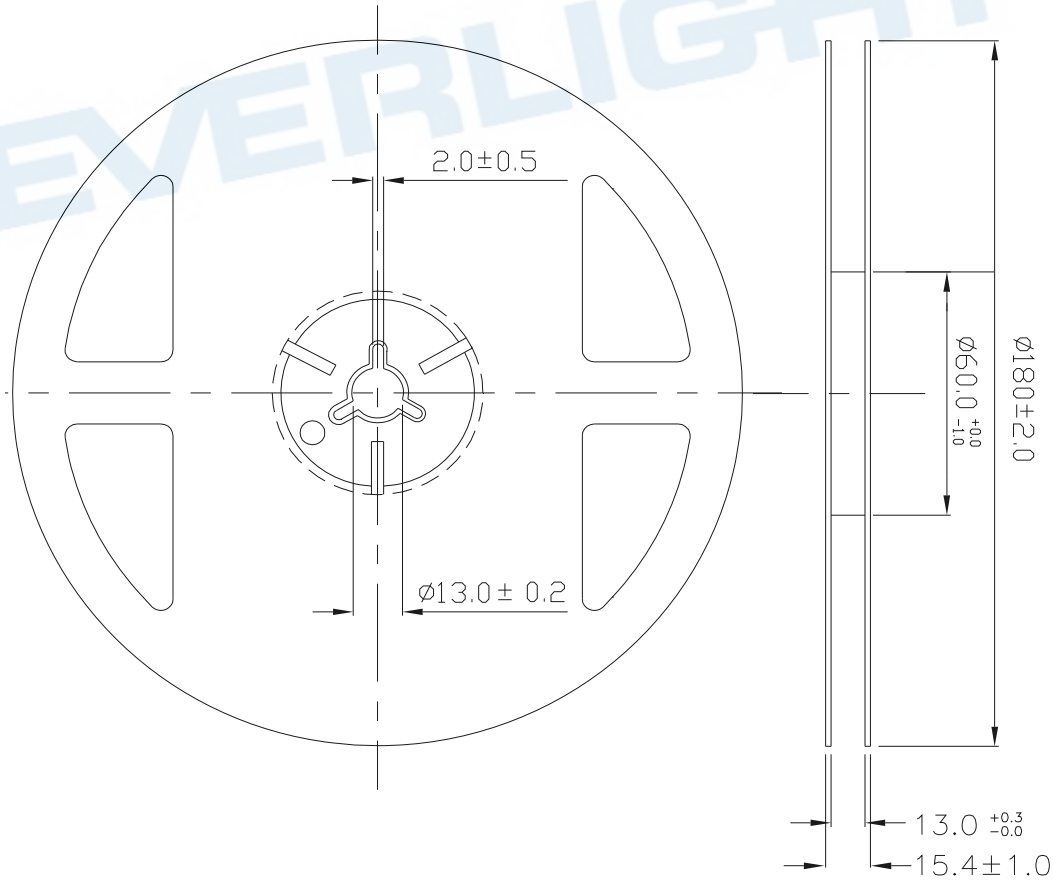
Label Explanation



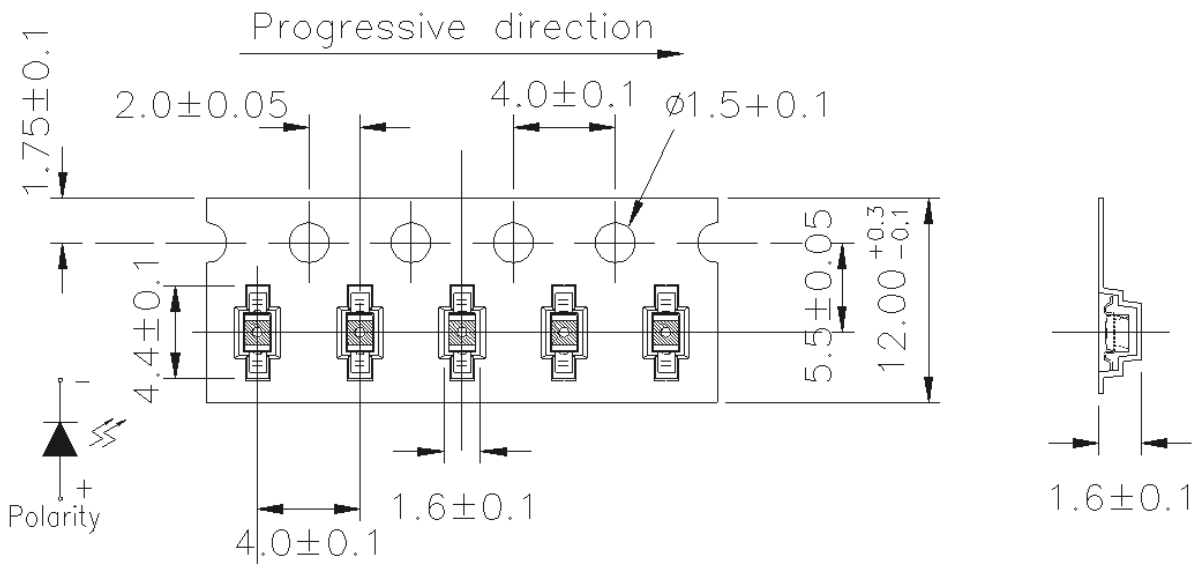
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

Note: Tolerance unless mentioned is ±0.1mm; Unit = mm

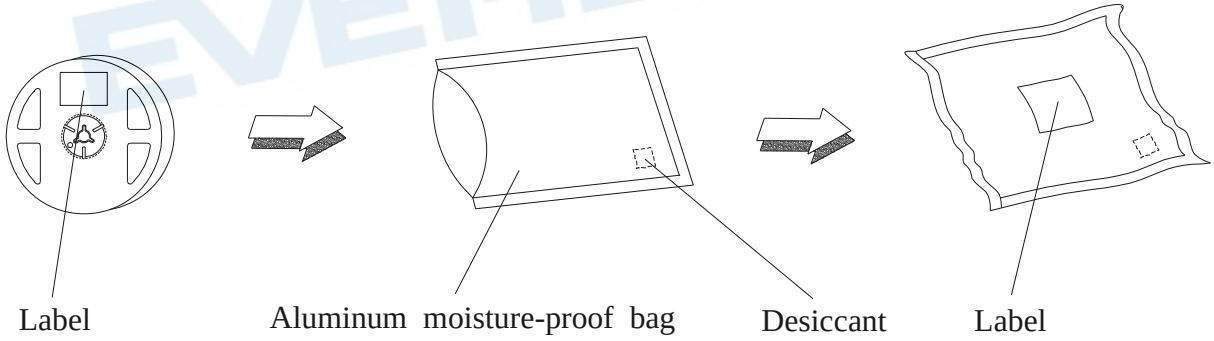


Carrier Tape Dimensions: Loaded Quantity 3,000 pcs Per Reel



Notes:
1.Tolerances unless mentioned ±0.1mm. Unit = mm
2.Minimum packing amount is 250/500/1000/1500/2000/2500 pcs per reel

Moisture Resistant Packing Process

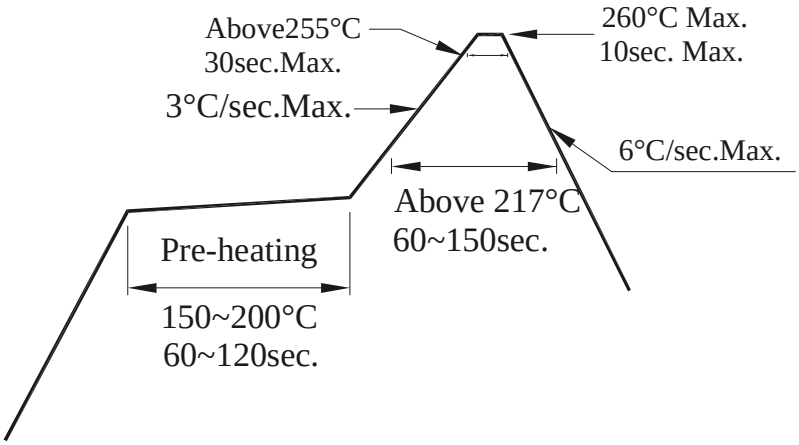


Note: Tolerances unless mentioned ±0.1mm. Unit = mm

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℃ 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.

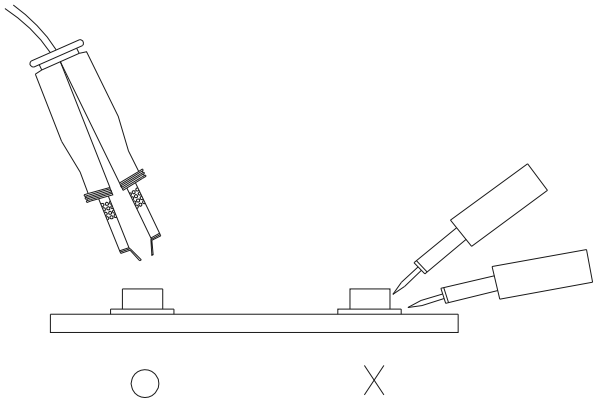
3.4 After soldering, do not warp the circuit board.

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.

DISCLAIMER

1.EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2.The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3.The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4.When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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