

SMD ■ Side View LEDs

C3804CDWN1-IBC20262403420-2G(TS)

**Features**

- Lead frame package with individual 2 pins.
- Wide viewing angle.
- Soldering methods: IR reflow soldering.
- ESD protection.
- 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).
- Precondition: Bases on JEDEC J-STD 020D Level 3

Descriptions

The 3804 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. This feature makes the LED ideal for light guide application.

Applications

- Electric Equipment
- Indicators.
- Switch Lights.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Ice Blue	Green

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
Forward Current	I _F	30	mA
Peak Forward Current (Duty 1/10 @10ms)	I _{FP}	100	mA
Power Dissipation	P _d	102	mW
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +90	°C
Soldering Temperature	T _{sol}	Reflow Soldering : 260 °C for 10 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°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I _v	2400	-----	3200	mcd	I _F =20mA
Viewing Angle	2θ _{1/2}	-----	115	-----	deg	
Chromaticity Coordinates	x	-----	0.207	-----	-----	
	y	-----	0.267	-----	-----	
Forward Voltage	V _F	2.7	----	3.4	V	
Reverse Current	I _R	-----	-----	10	μA	V _R =5V

Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Chromaticity Coordinates : ±0.01
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

Bin Code	Min.	Max.	Unit	Condition
S15	2400	2500	mcd	I _F =20mA
S16	2500	2600		
S17	2600	2700		
S18	2700	2800		
S19	2800	2900		
S20	2900	3000		
S21	3000	3100		
S22	3100	3200		

Note: Tolerance of Luminous Intensity: ±11%

Bin Range of Forward Voltage

Bin Code	Min.	Max.	Unit	Condition
VX	2.7	2.8	V	I _F =20mA
VY	2.8	2.9		
V0	2.9	3.0		
V1	3.0	3.1		
V2	3.1	3.2		
V3	3.2	3.3		
V4	3.3	3.4		

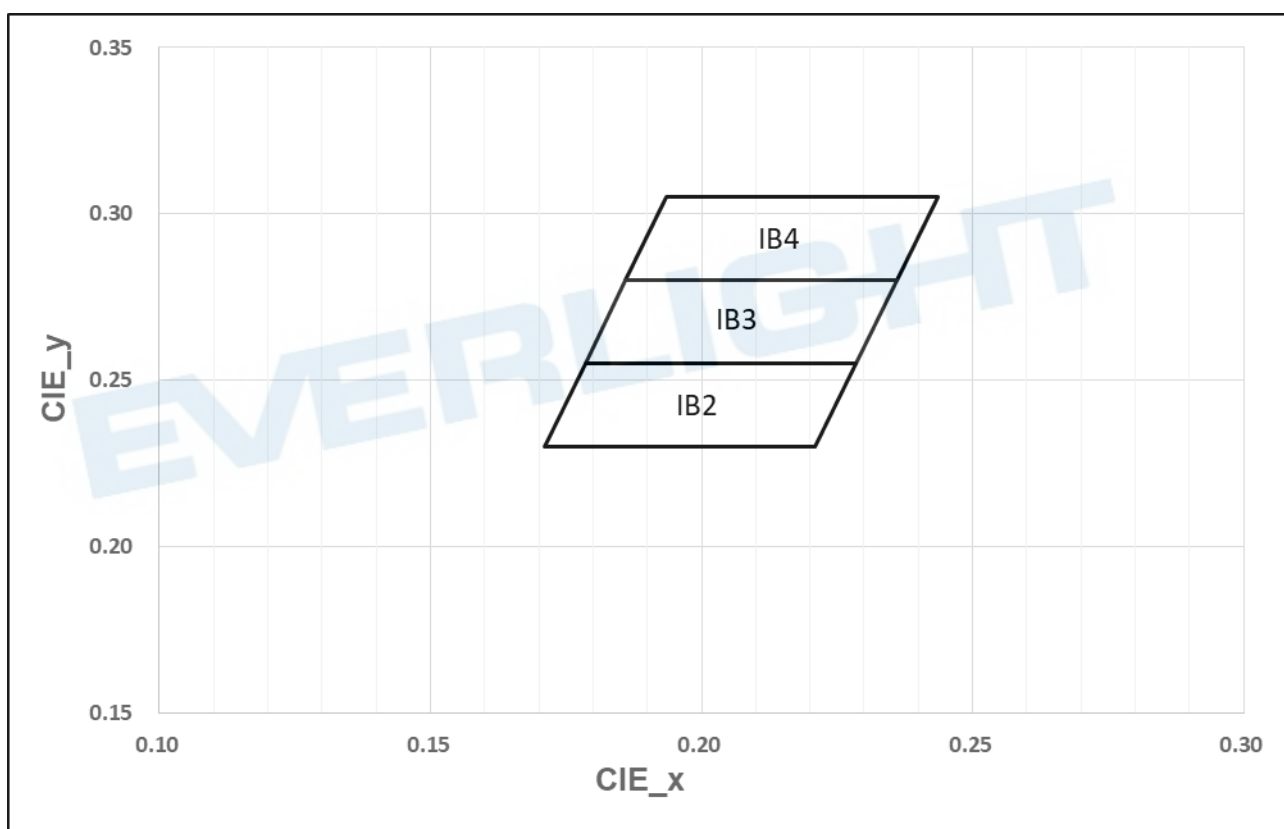
Note: Tolerance of Forward Voltage: ±0.1V

Chromaticity Coordinates Specifications for Bin Grading

Color Bin Table (I _F =20mA)											
Bin Code	Color Bin Limits					Bin Code	Color Bin Limits				
	CIE	Point1	Point2	Point3	Point4		CIE	Point1	Point2	Point3	Point4
IB2	x	0.1785	0.1710	0.2210	0.2285	IB3	x	0.1860	0.1785	0.2285	0.2360
	y	0.2550	0.2300	0.2300	0.2550		y	0.2800	0.2550	0.2550	0.2800
IB4	x	0.1935	0.1860	0.2360	0.2435						
	y	0.3050	0.2800	0.2800	0.3050						

Notes: Tolerance of Chromaticity Coordinates : ±0.01

The C.I.E. 1931 Chromaticity Diagram



Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution

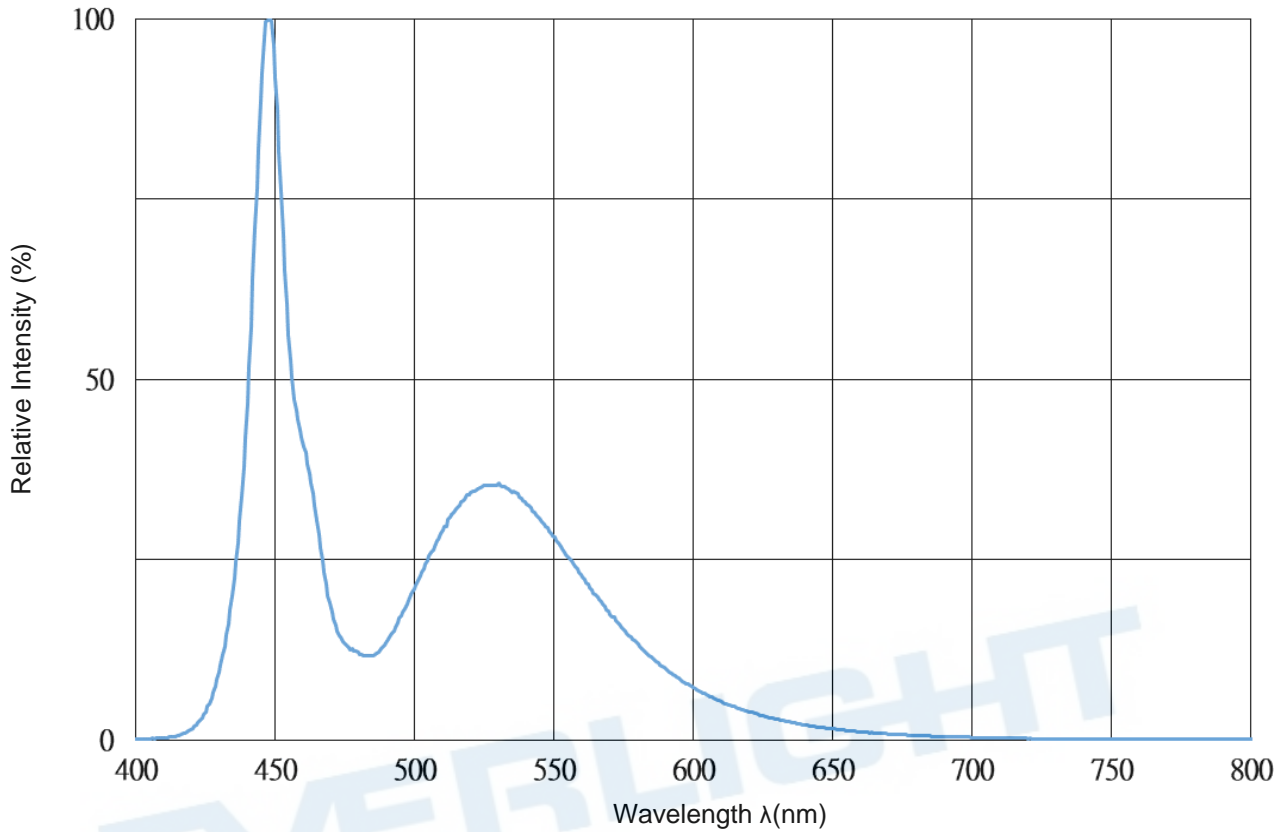
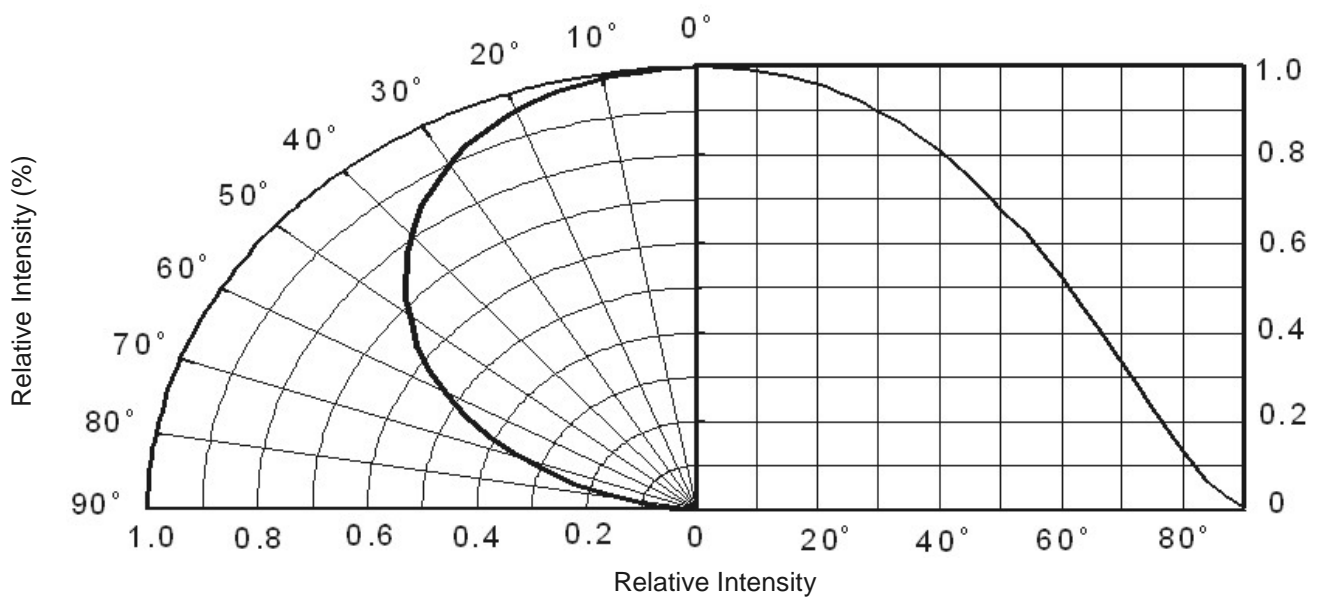
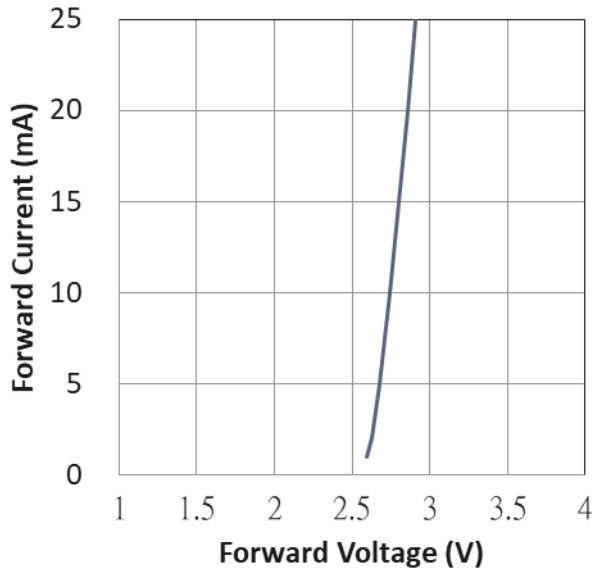


Diagram Characteristics of Radiation

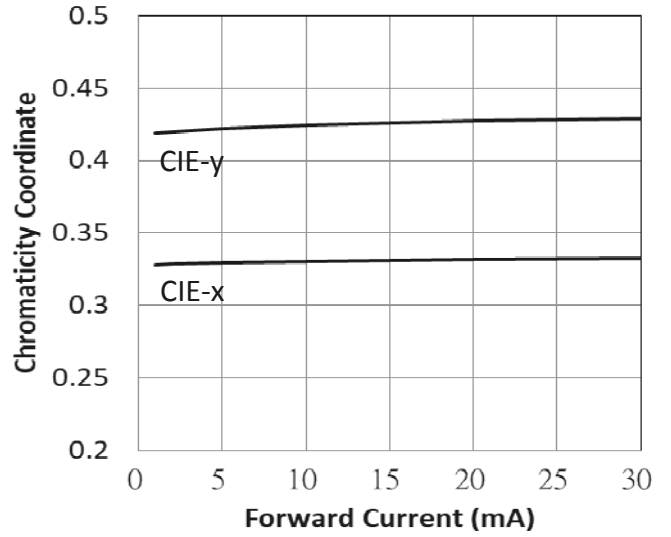


Typical Electro-Optical Characteristics Curves

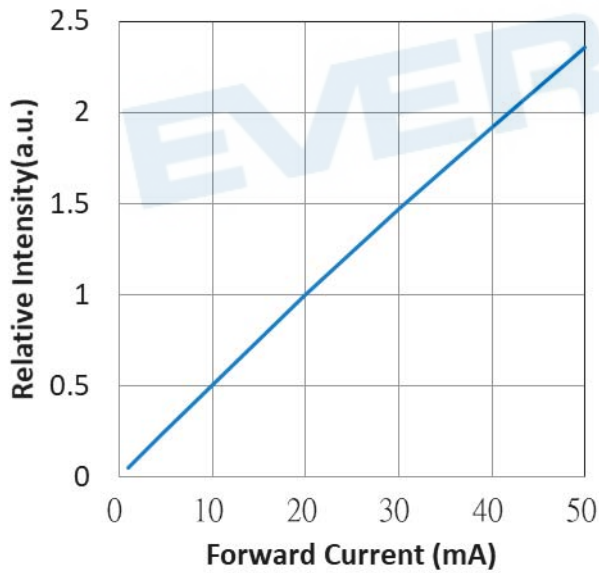
Forward Current vs. Forward Voltage (Ta=25°C)



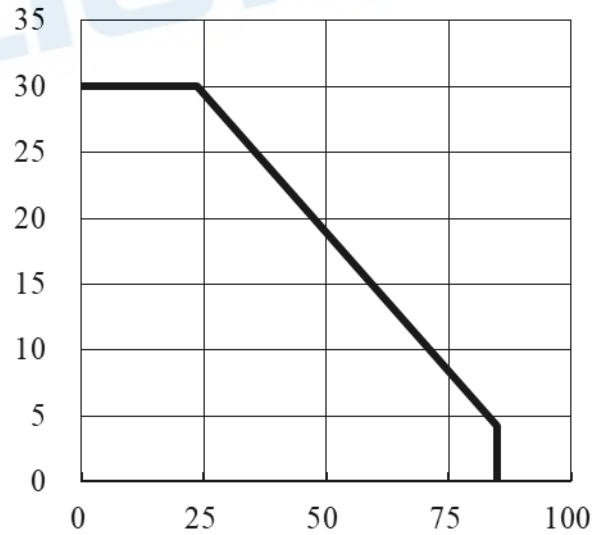
Chromaticity Coordinate vs. Forward Current (Ta=25°C)



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

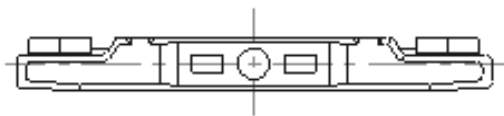


Max. Permissible Forwarded Current(Ta=25°C)

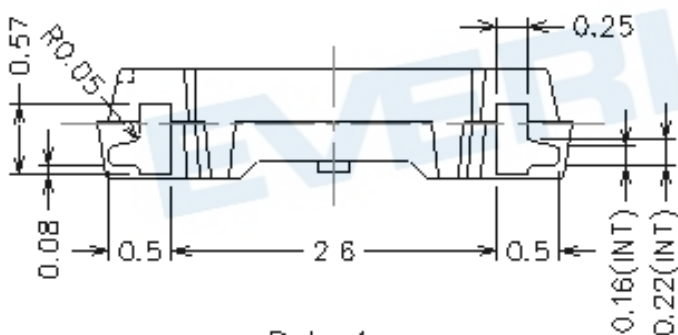
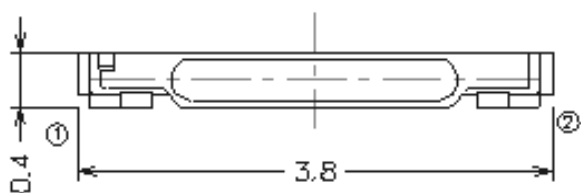


TS (°C)

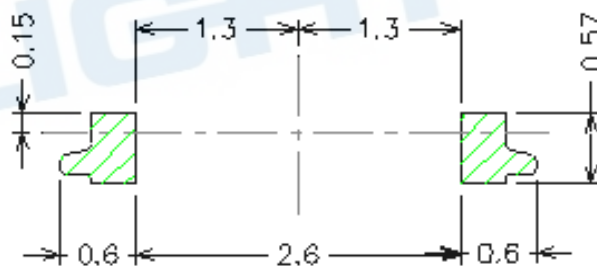
Package Dimension



Polarity



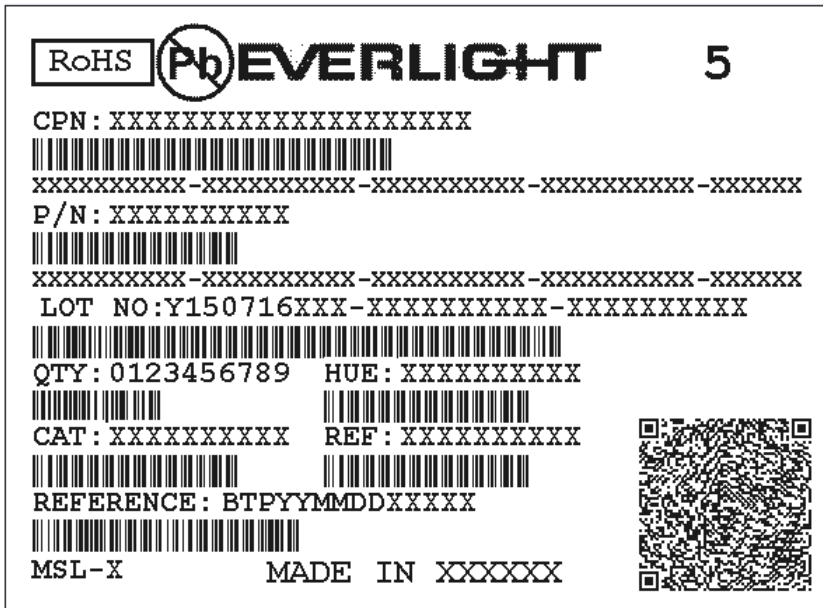
Bot. view



Soldering patterns

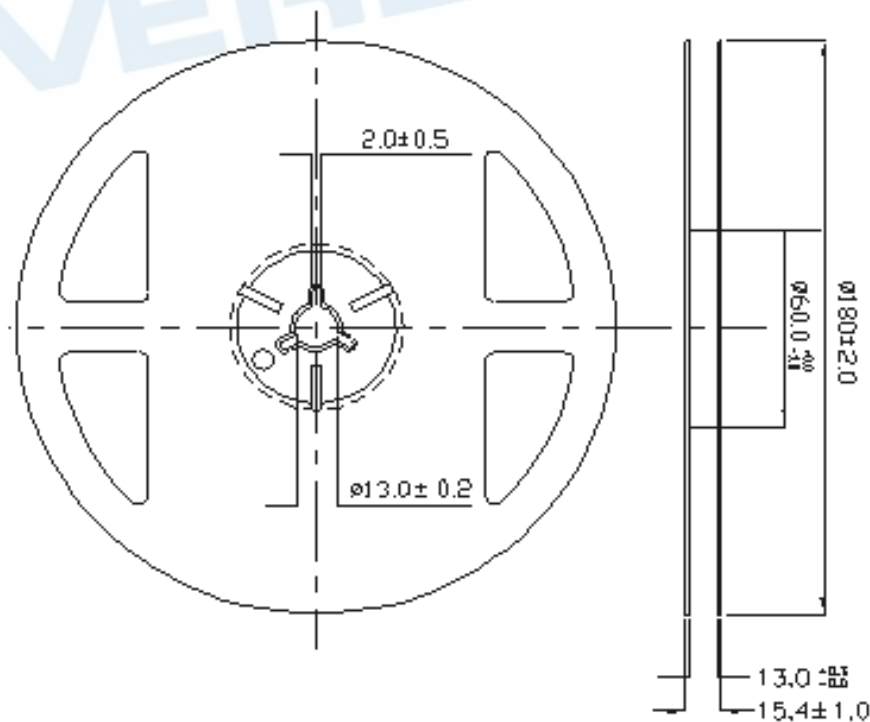
Moisture Resistant Packing Materials

Label Explanation



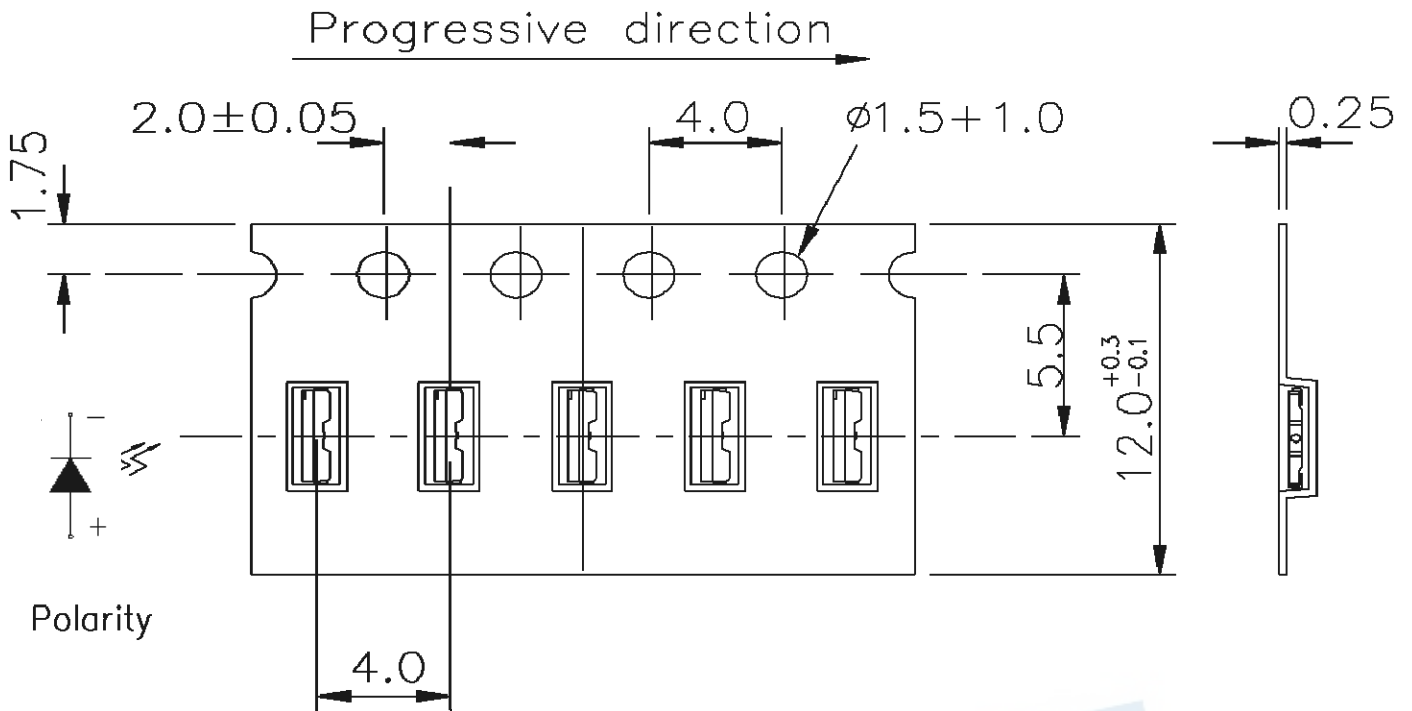
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



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

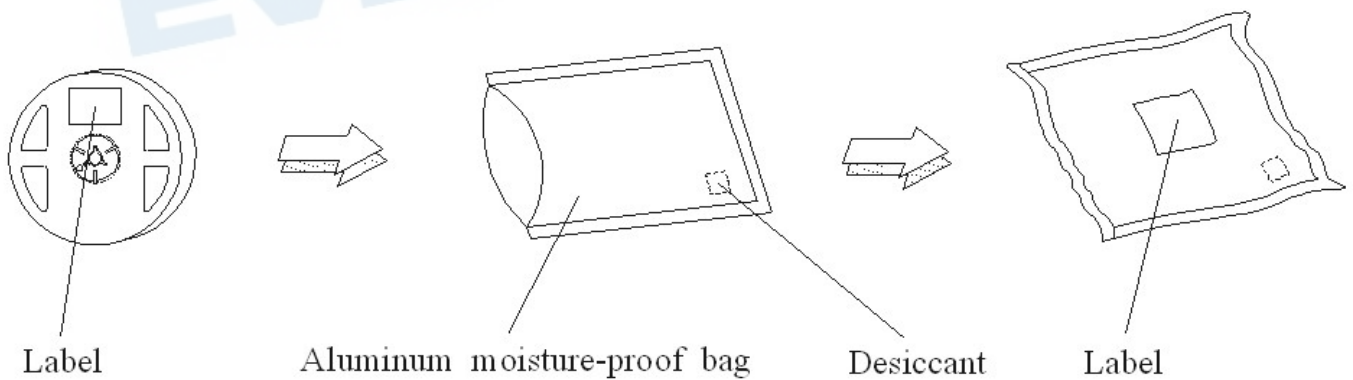
Carrier Tape Dimensions; Loaded Quantity 2000 pcs Per Reel



Note:

1. Tolerance unless mentioned is ± 0.1 mm. Unit = mm
2. Minimum packing amount is 250/500/1000/2000 pcs per reel.

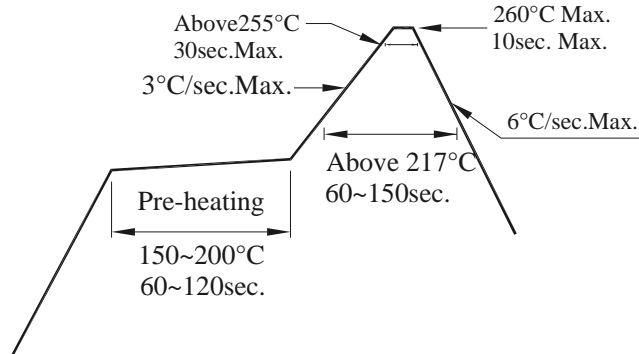
Moisture Resistant Packing Process



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°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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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.
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