Technical Data Sheet

Top View LEDs

67-21USOC/B110/TR8/AM

Features

- Pb-free.
- Inner reflector.
- White package.
- Optical indicator.
- P-LCC-2 package.
- Wide viewing angle.
- Colorless clear resin.
- Precondition：Base on JEDEC Level-3.
- The product itself will remain within RoHS compliant version.
- Suitable for vapor-phase reflow, infrared reflow and wave solder processes.

Descriptions

- The 67-21 series is available for orange, green, blue and yellow or other color due to the different raw material.
- Base on the package design, the device result in wide view angle.

Applications

- Automotive backlighting or indicators：Dashboards, switches, audio and video equipment…etc.
- Backlight：LCD, switches, symbols, mobile phones and illuminated advertising.
- Display for indoor and outdoor applications.
- Ideal for coupling into light guides.
- Substitution of traditional lights.
- Optical indicators.
- General applications.

Device Selection Guide

Chip Material	Emitted Color	Resin Color
AlGaInP	Reddish Orange	Water Clear

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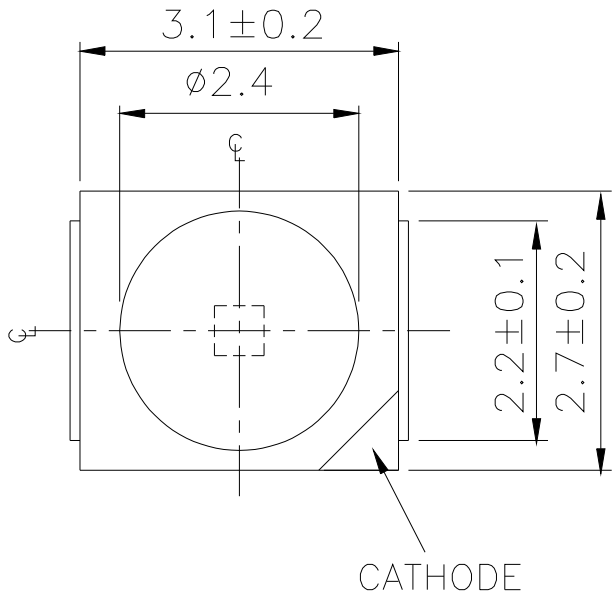
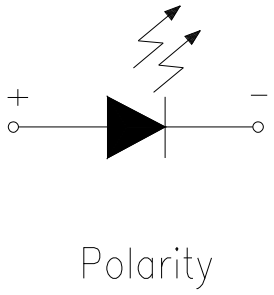
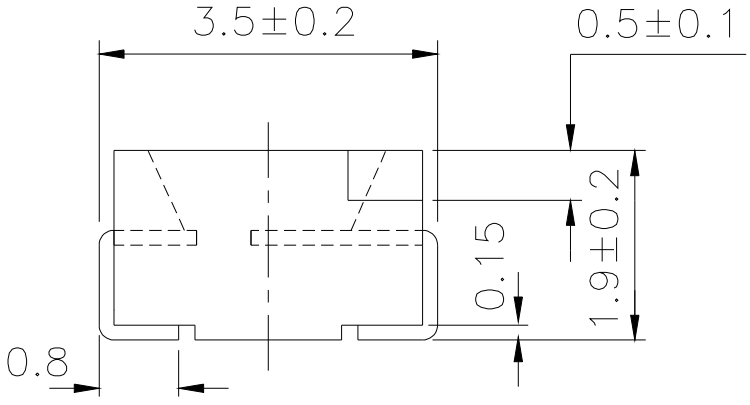
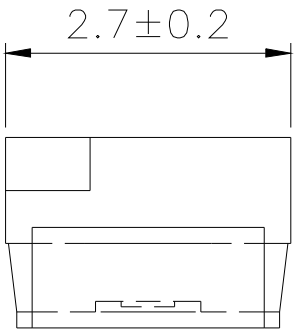
Package Dimensions









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

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Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	12	V
Forward Current	I_F	30	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	100	mA
Power Dissipation	Pd	120	mW
Junction Temperature	Tj	115	℃
Operating Temperature	Topr	-40 ~ +100	℃
Storage Temperature	Tstg	-40 ~ +110	℃
Thermal resistance	Rth_{J-A}	500	K/W
	Rth_{J-S}	280	K/W
ESD (Classification acc. AEC Q101)	ESD_{HBM}	2000	V
	ESD_{MM}	200	V
Soldering Temperature	Tsol	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

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Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	140	-----	285	mcd	I_F=20mA
Viewing Angle	2 θ 1/2	-----	120	-----	deg	I_F=20mA
Peak Wavelength	λp	-----	621	-----	nm	I_F=20mA
Dominant Wavelength	λd	618	------	624	nm	I_F=20mA
Spectrum Radiation Bandwidth	Δλ	-----	18	-----	nm	I_F=20mA
Forward Voltage	V_F	1.75	-----	2.35	V	I_F=20mA
Reverse Current	I_R	-----	-----	10	μA	V_R=12V
Temperature coefficient of λp	$TC_{\lambda p}$	-----	0.12	-----	nm/K	I_F=20mA
Temperature coefficient of λd	$TC_{\lambda d}$	-----	0.11	-----	nm/K	I_F=20mA
Temperature coefficient of VF	TC_V	-----	-2.8	-----	mV/K	I_F=20mA

Notes：

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

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Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
R2	140	180	mcd	IF=20mA
S1	180	225		
S2	225	285		

Notes：Tolerance of Luminous Intensity：±11%

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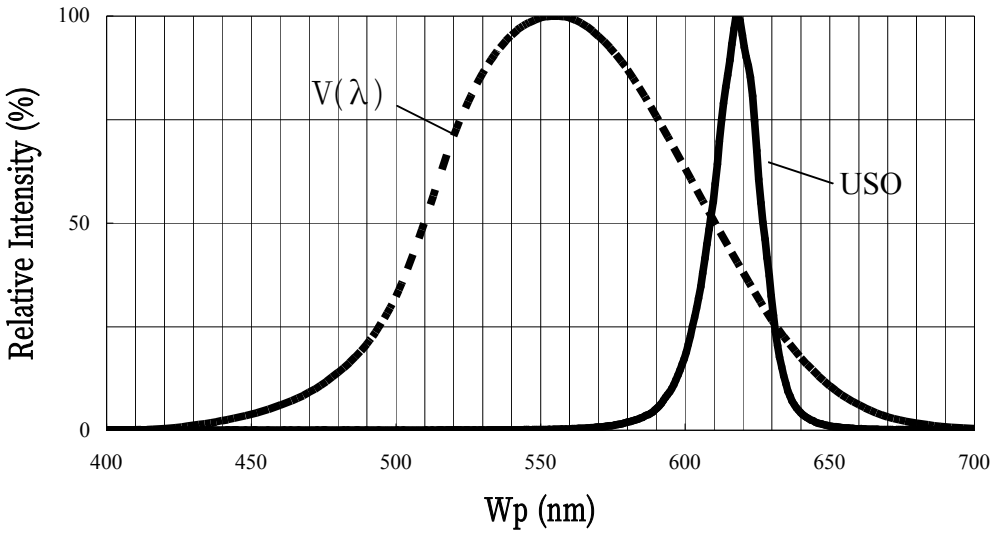
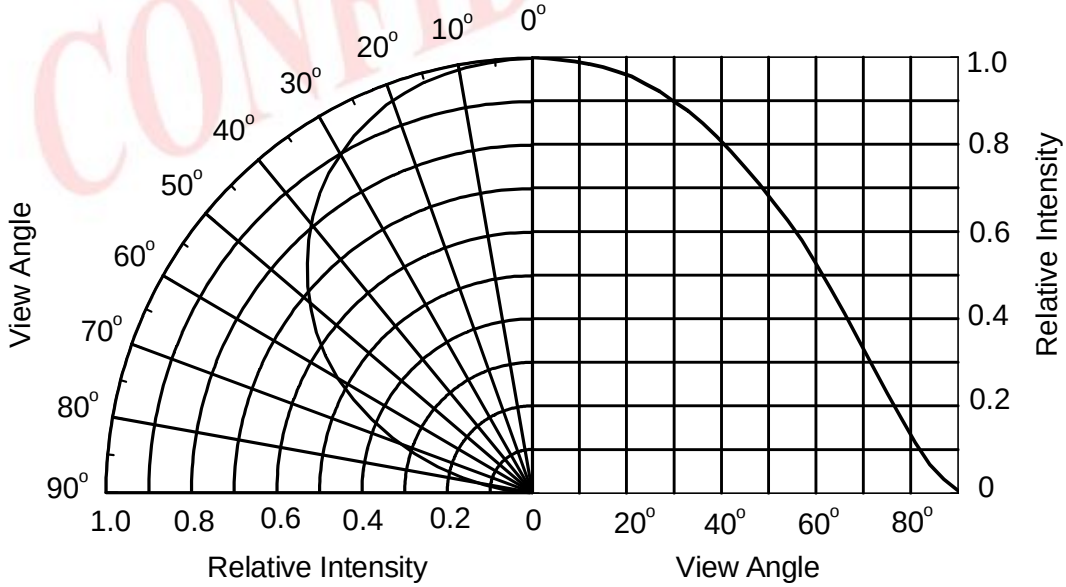
Typical Electro-Optical Characteristics Curves(Ta=25℃)

Typical Curve of Spectral Distribution:



Note：V(λ)=Standard eye response curve；I_F=20mA

Diagram characteristics of radiation



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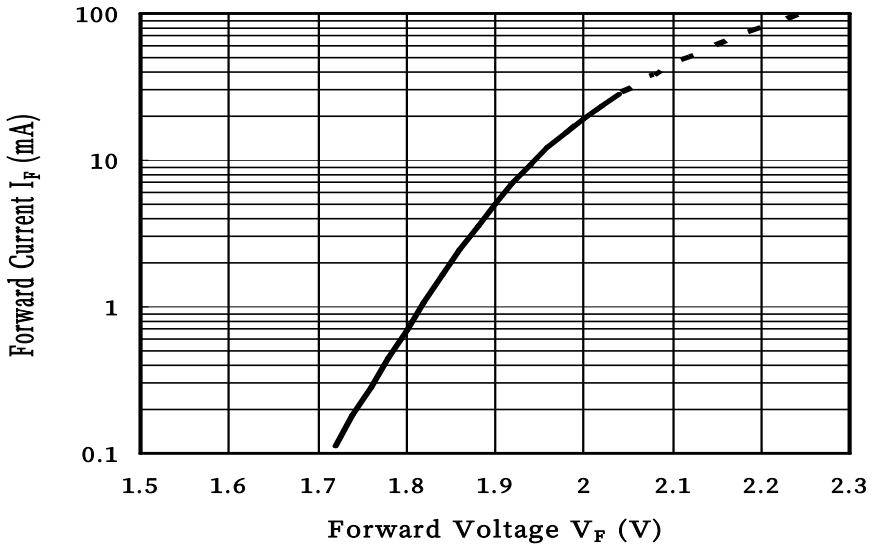
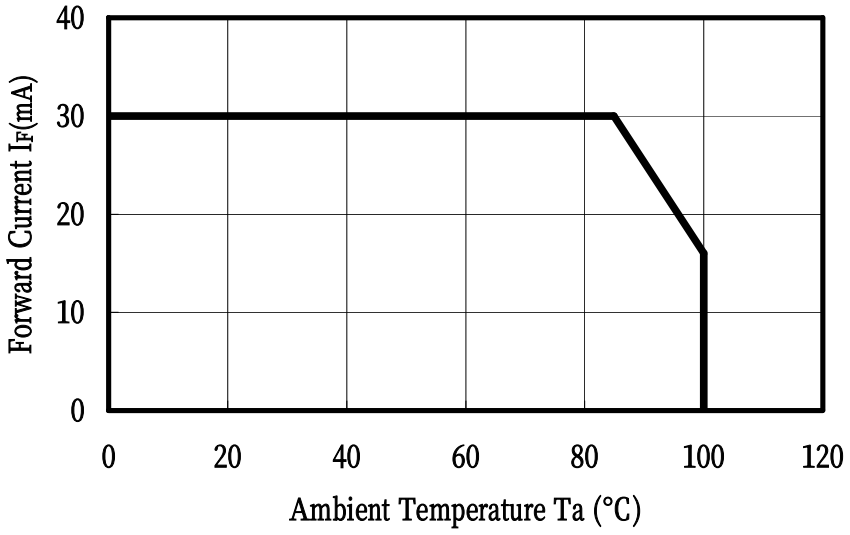
Forward Current vs. Forward Voltage (Ta=25℃)



Forward Current vs. Ambient Temperature



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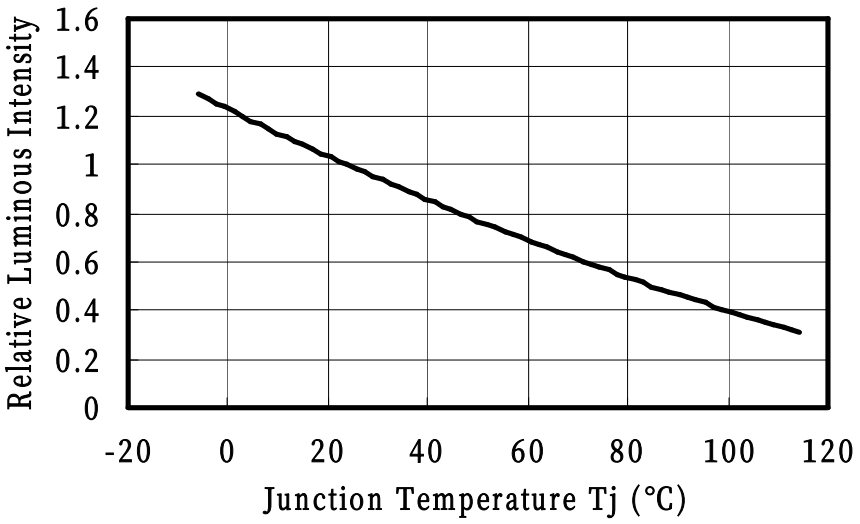
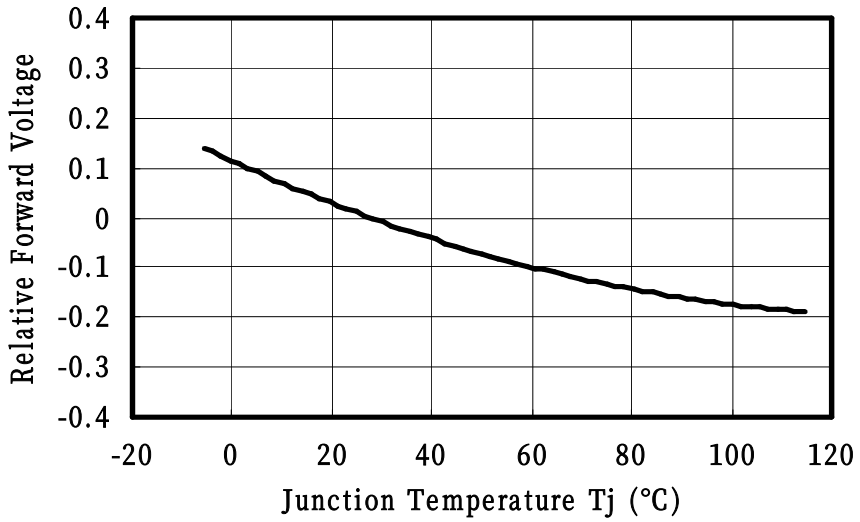
Relative Luminous Intensity vs. Junction Temperature



Note：f(Tj) = Iv / Iv(25℃)；I_F=20mA

Relative Forward Voltage vs. Junction Temperature



Note：$\triangle V_F = V_F - V_F$ (25 ℃) = f(Tj)；I_F=20mA

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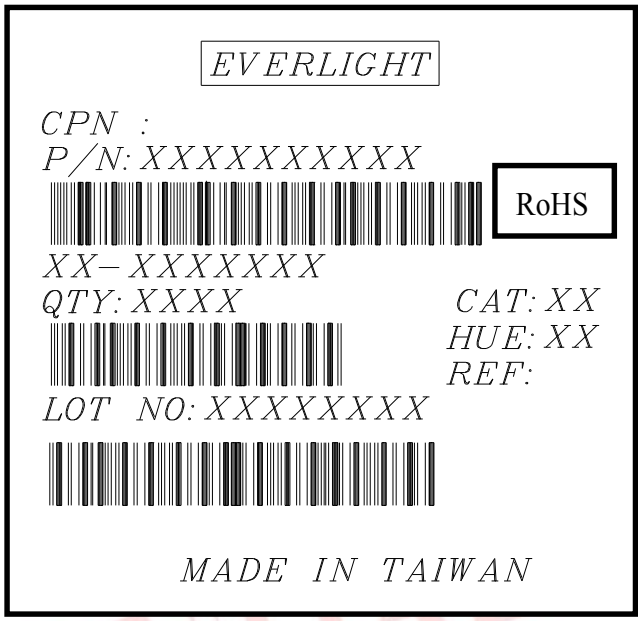
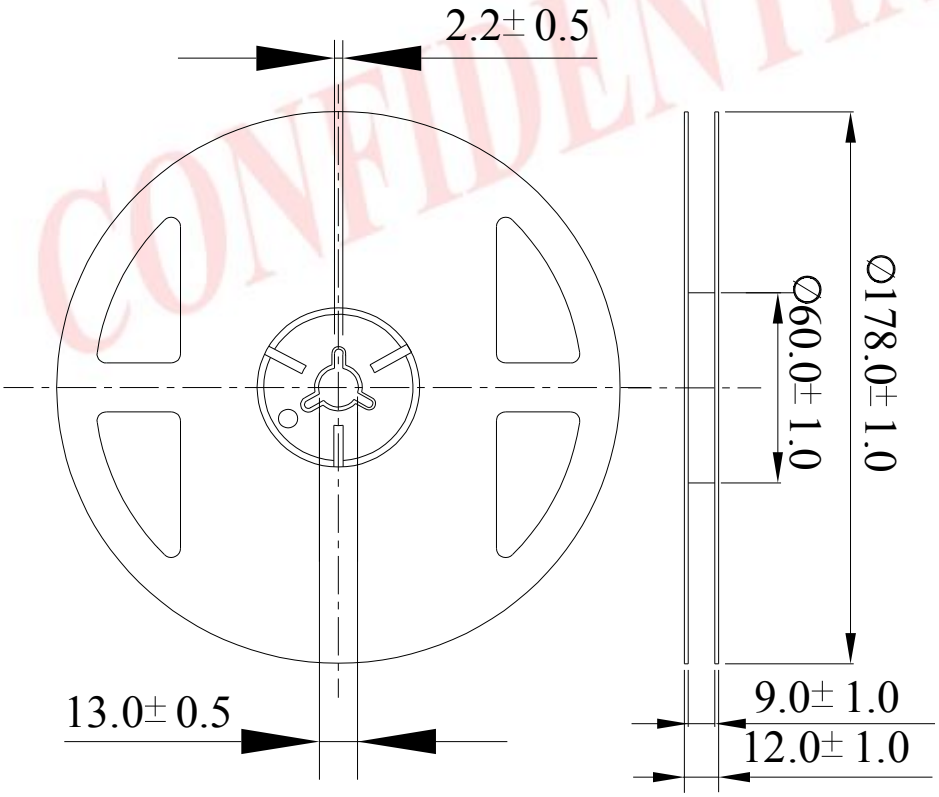
Label Explanation

- **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： Unit = mm

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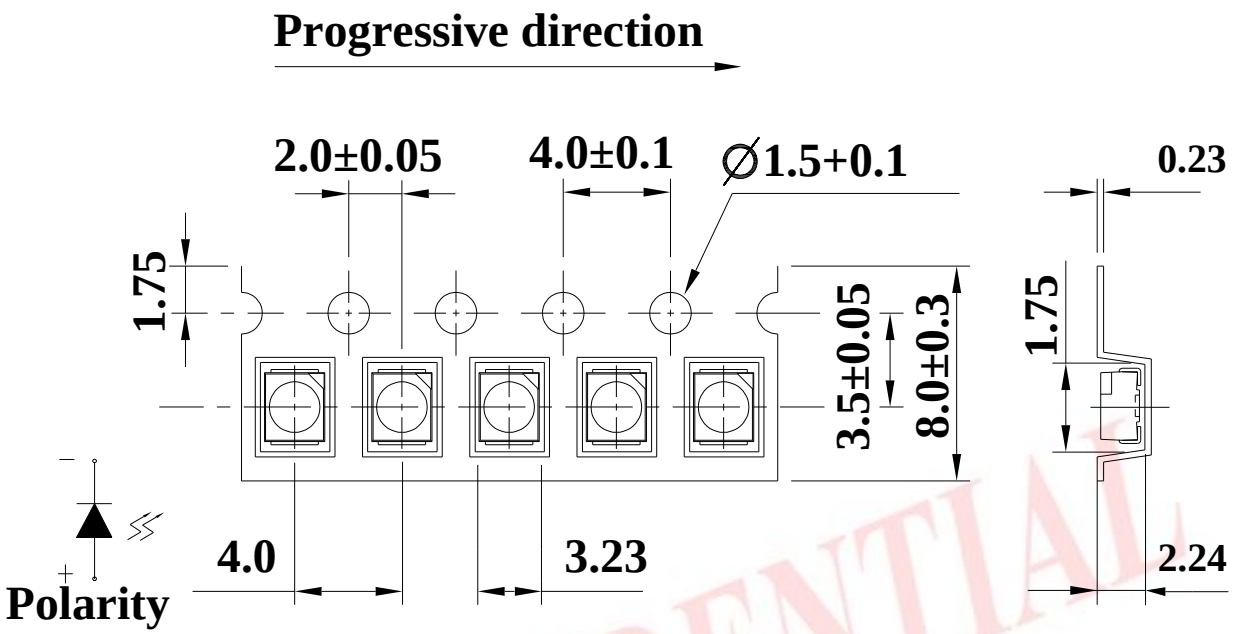
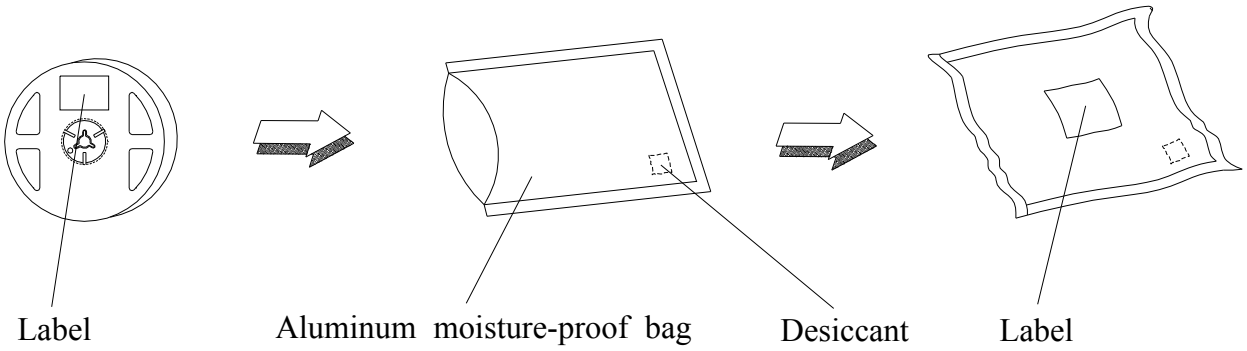
Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



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

Moisture Resistant Packaging Process and Materials



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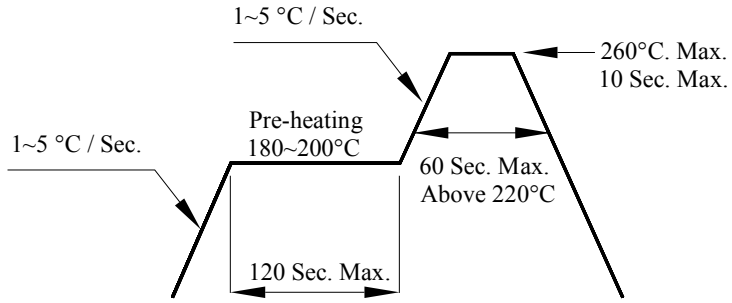
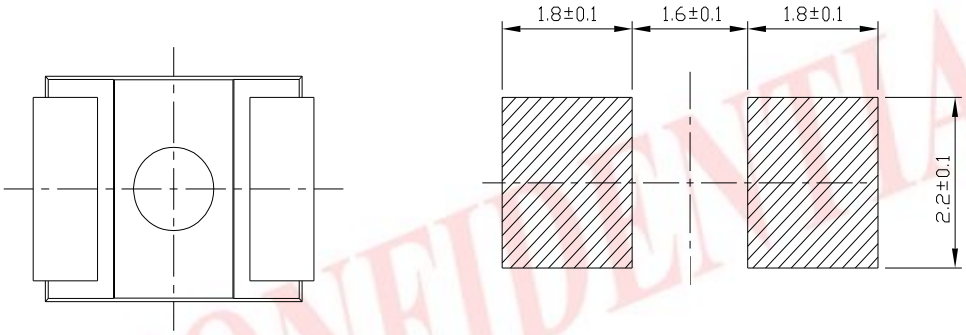
Precautions for Use

1. Soldering Condition

1.1 (A) Pb-free solder temperature profile



(B) Recommended solder pad



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

1.2 Do not put stress on the LED during heating.

1.3 After soldering, do not warp the circuit board.

2. Over-current-protection

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

3. Storage

3.1 Do not unseal moisture proof bag before the products are ready to use.

3.2 Before opening the package: The LED should be in a condition of 30℃ or less and 90% RH.

3.3 After opening the package: The LED floor life is 1 year under 30℃ or less and 60% RH. or less. If unused LED remain, it should be stored in moisture proof packages.

3.4 If the moisture absorbent material (silica gel) has failed or the LED have exceeded the storage time, baking treatment should be performed using the following conditions.
Baking treatment : 60±5℃ for 24 hours.

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.