

CSP Top view LEDs

CSP1005BN1H1-WP31320453005-T

**Features**

- Dimension: 1.0*0.55*0.27 mm LED
- Direct attach-Flip Chip type
- Wide viewing angle.
- Suitable for vapor-phase reflow, Infrared reflow and wave solder processes
- Computable with automatic placement equipment.
- Available on tape and reel (8mm Tape).
- 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 1005 CSP LED is much smaller than general components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.

Applications

- Status indicator, keypad, keyboard, and industrial equipment.
- Light pipe application.
- General use.

Device Selection Guide

Type	Chip Materials	Emitted Color	Resin Color
W	InGaN	White	Yellowish

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Forward Current	I _F	40	mA
Peak Forward Current (Duty 1/10 @1KHz)	I _{FP}	100	mA
Power Dissipation	P _d	120	mW
Junction Temperature	T _j	115	°C
Operating Temperature	T _{opr}	-40 ~ +105	°C
Storage Temperature	T _{stg}	-40 ~ +120	°C
ESD	ESD _{HBM}	1000	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 Flux	I _v	560	600	900	mcd	I _F =5mA
Viewing Angle	2θ _{1/2}	-----	120	-----	deg	I _F =5mA
Forward Voltage	V _F	2.3	2.65	2.9	V	I _F =5mA

Notes:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Forward Voltage: ±0.1V
3. Led components are not supposed to be reverse operated

Bin Range of Luminous Intensity

Chip	Bin Code	Min.	Max.	Unit	Condition
W	B	560	710	mcd	IF=5mA
	C	710	900		

Note:
 Tolerance of Luminous Intensity: $\pm 11\%$

Bin Range of Forward Voltage

Chip	Bin Code	Min.	Max.	Unit	Condition
W	VA	2.3	2.5	V	IF=5mA
	VB	2.5	2.7		
	VC	2.7	2.9		

Note:
 Tolerance of Forward Voltage: $\pm 0.1V$

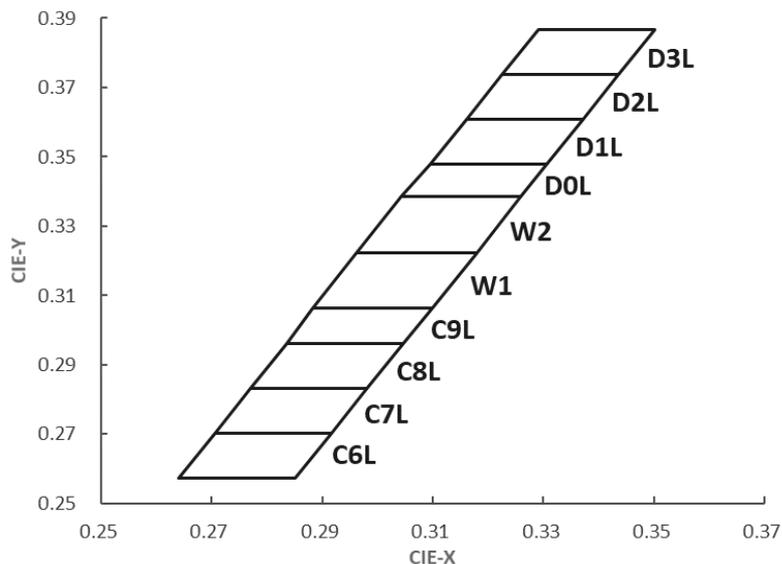


Bin Range of Chromaticity Coordinates

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
D3L	0.3291	0.3868	W1	0.2962	0.3224
	0.3501	0.3868		0.3179	0.3224
	0.3436	0.3738		0.3099	0.3064
	0.3226	0.3738		0.2882	0.3064
D2L	0.3226	0.3738	C9L	0.2882	0.3064
	0.3436	0.3738		0.3099	0.3064
	0.3371	0.3609		0.3046	0.2962
	0.3161	0.3609		0.2836	0.2962
D1L	0.3161	0.3609	C8L	0.2836	0.2962
	0.3371	0.3609		0.3046	0.2962
	0.3306	0.3480		0.2981	0.2833
	0.3096	0.3480		0.2771	0.2833
D0L	0.3096	0.3480	C7L	0.2771	0.2833
	0.3306	0.3480		0.2981	0.2833
	0.3259	0.3384		0.2916	0.2704
	0.3042	0.3384		0.2706	0.2704
W2	0.3042	0.3384	C6L	0.2706	0.2704
	0.3259	0.3384		0.2916	0.2704
	0.3179	0.3224		0.2851	0.2574
	0.2962	0.3224		0.2641	0.2574

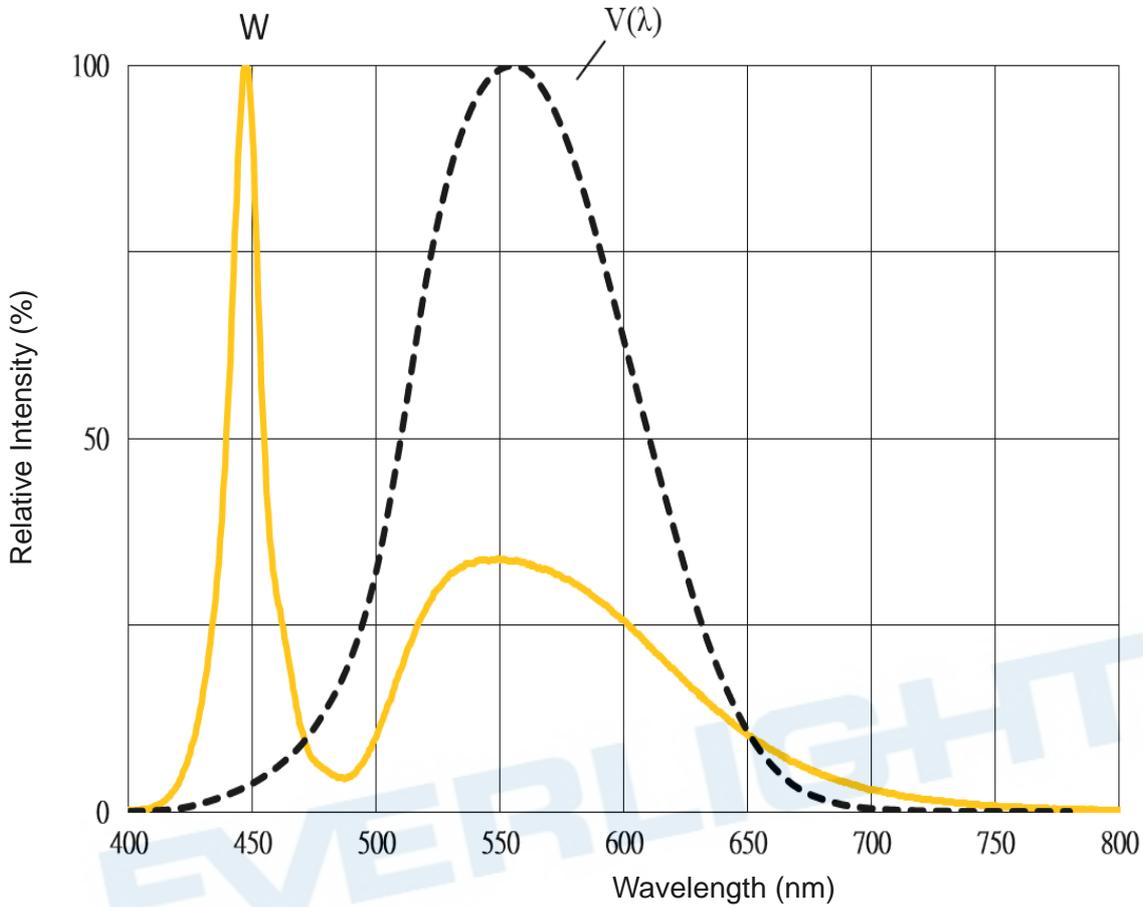
Notes: Tolerance of Chromaticity Coordinates : ± 0.01

The C.I.E. 1931 Chromaticity Diagram



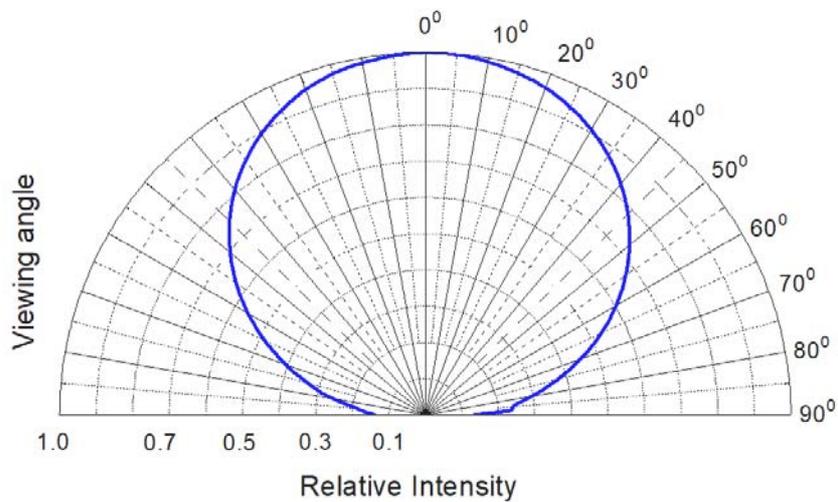
Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution



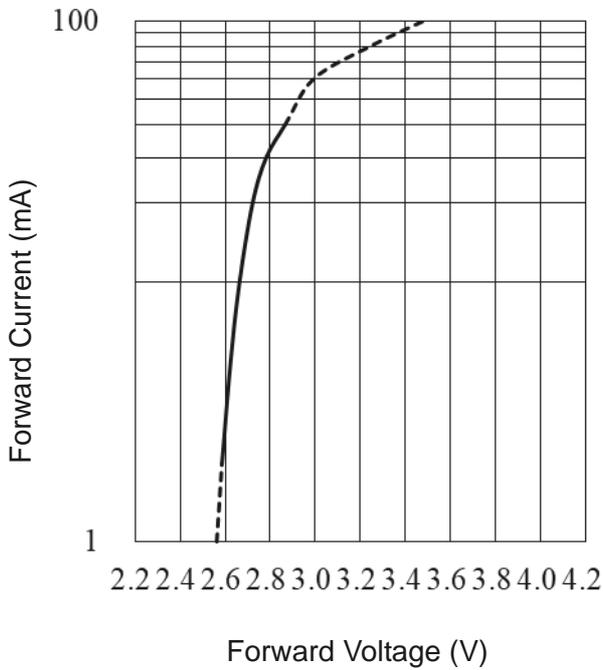
Note: $V(\lambda)$ =Standard eye response curve; $I_f = 5\text{mA}$

Diagram Characteristics of Radiation

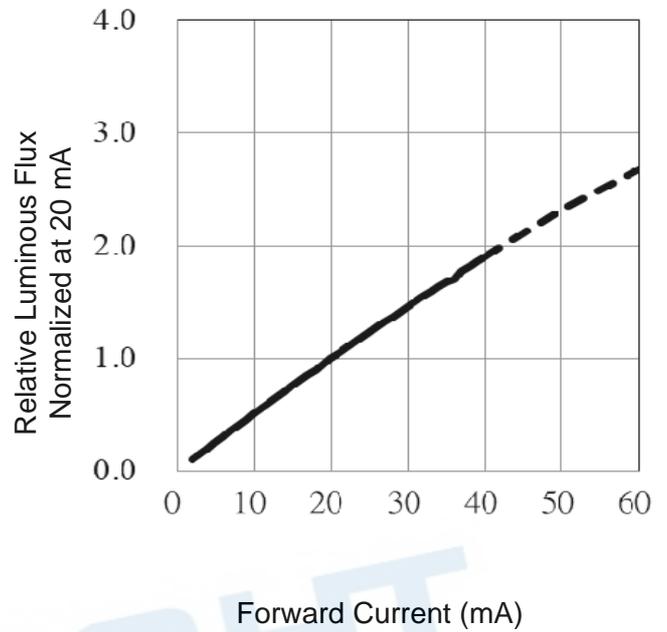


Typical Electrical-Optical Characteristics Curves (25°C Ambient Temperature)

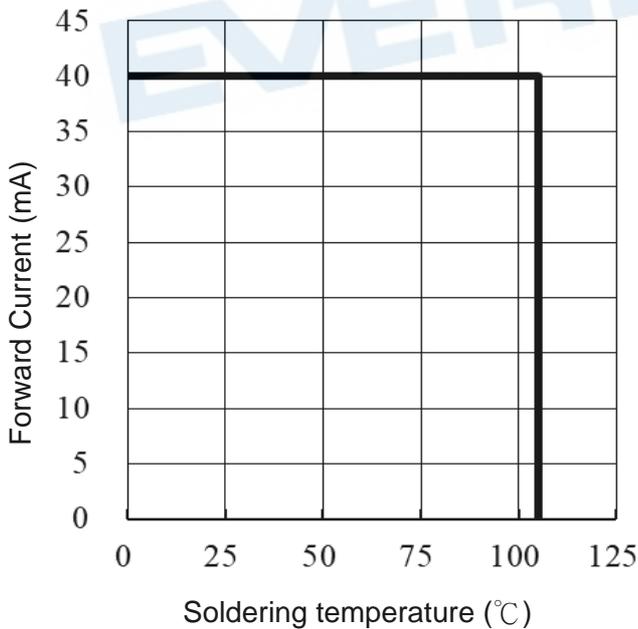
Forward Current vs. Forward Voltage



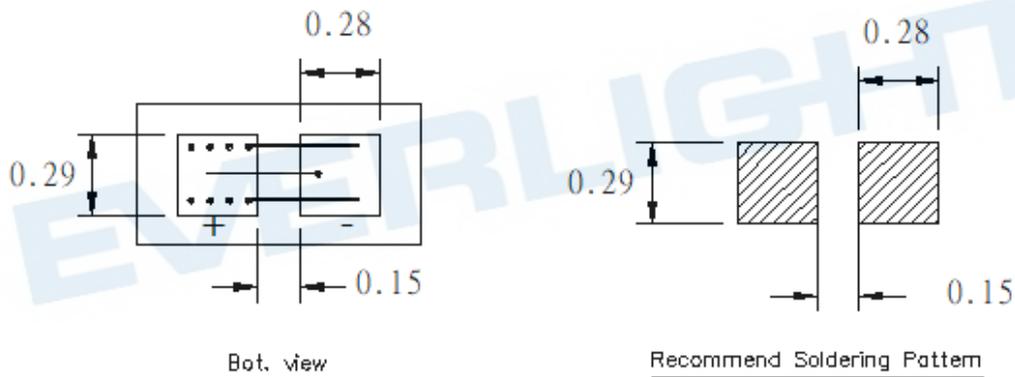
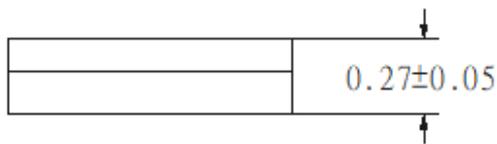
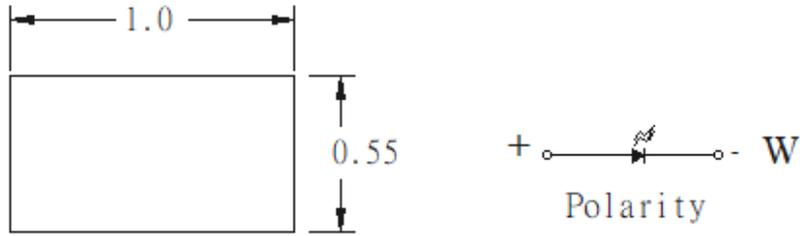
Relative Luminous Flux vs. Forward Current



Forward Current Derating Curve



Package Dimension

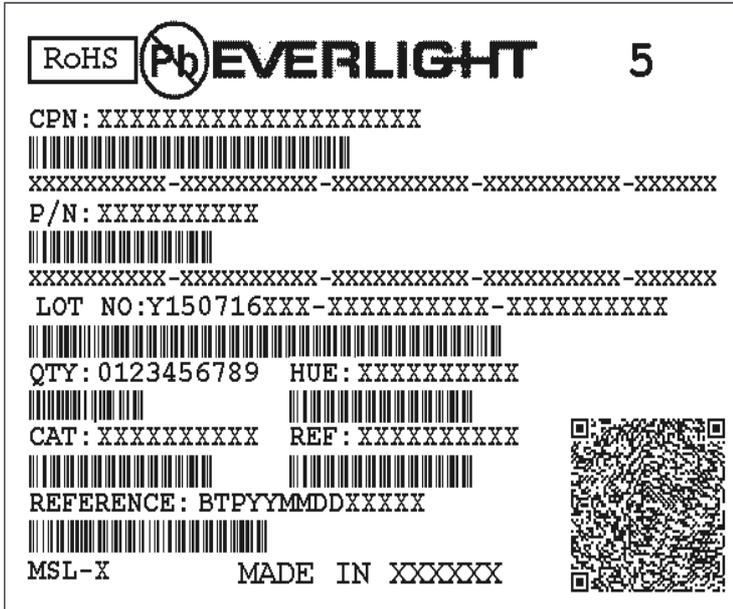


Suggested pad dimension is just reference only.
 Please modify the pad dimension based on individual need.

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

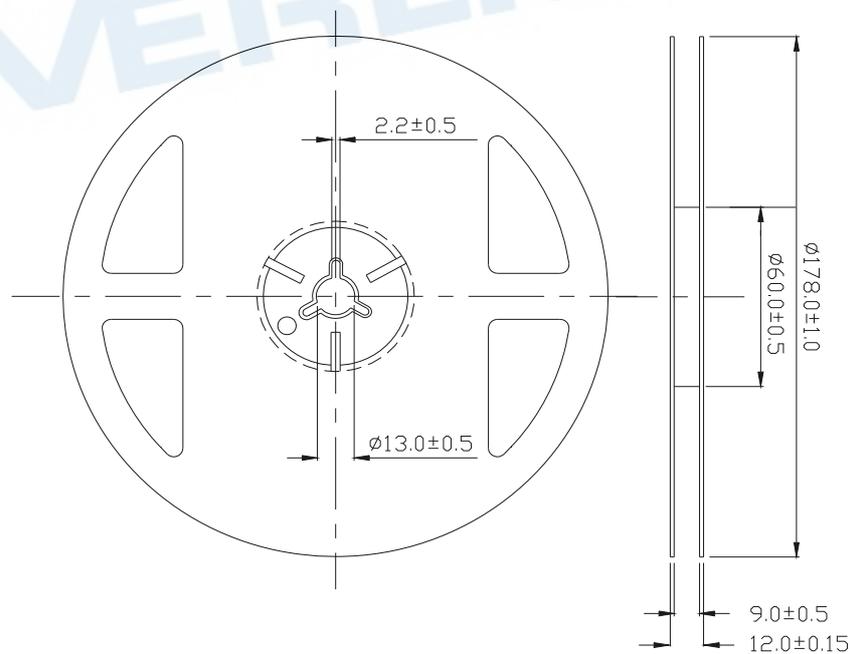
Moisture Resistant Packing Materials

Label Explanation



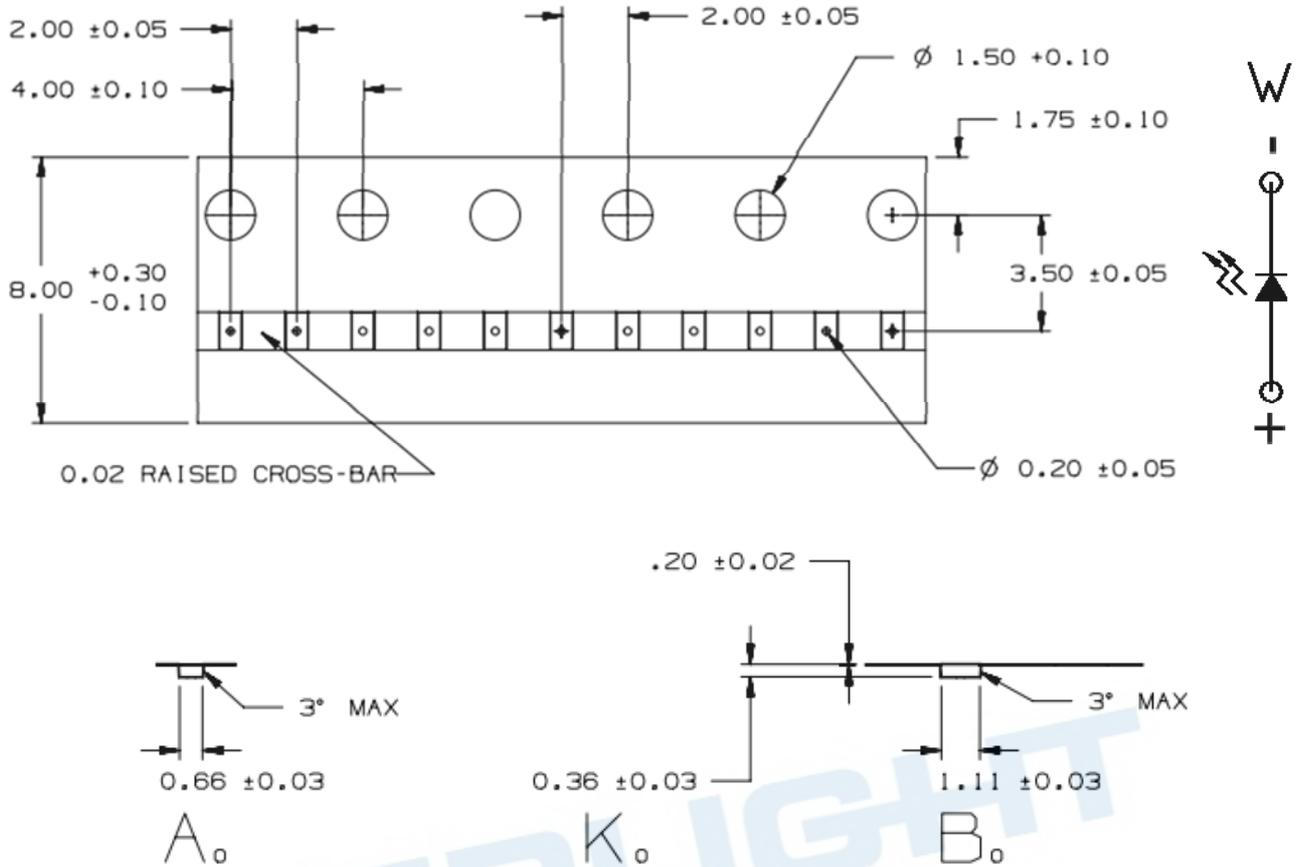
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



Note: The tolerances unless mentioned is ± 0.1 mm ,Unit = mm

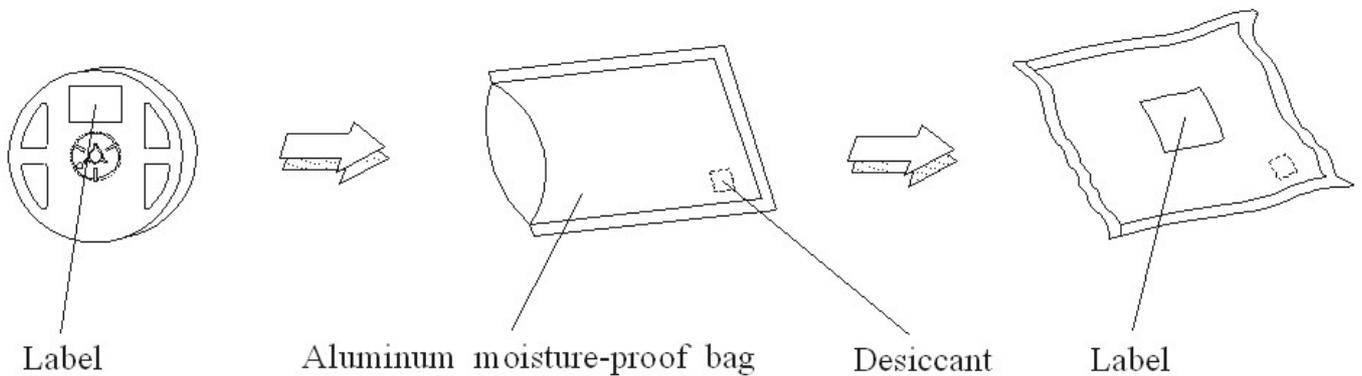
Carrier Tape Dimensions: Loaded Quantity 6000 pcs Per Reel



Notes:

1. Tolerances unless mentioned ± 0.1 mm. Unit = mm
2. Packing quantities are multiples of 250 pcs per reel. Minimum/Maximum quantities are 250/6000 pcs per reel.

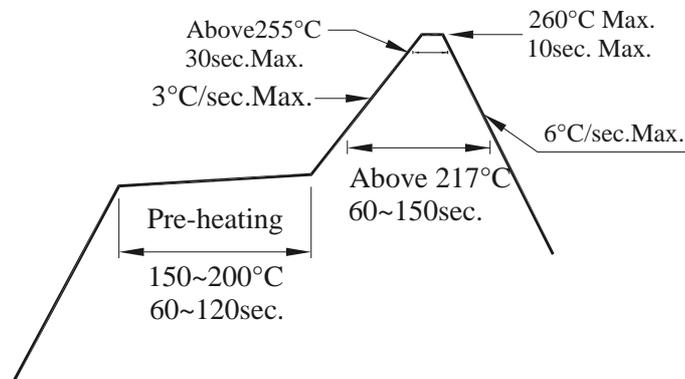
Moisture Resistant Packing Process



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 There are one humidity indicator on brown and one desiccant in each package

2.5 If the moisture sensitivity card indicates higher than acceptable moisture, the indicator's color will turn into blue from brown as following picture. As the situation happened, 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.

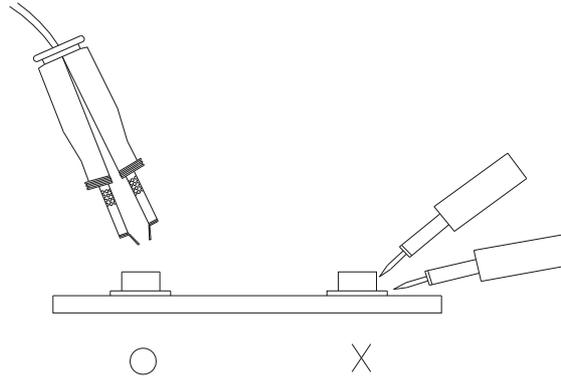
3.4 After soldering, do not warp the circuit board.

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.



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Application Restrictions

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3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
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