Data Sheet

Customer:

Part No: L-SP192CW1D-A30-4T

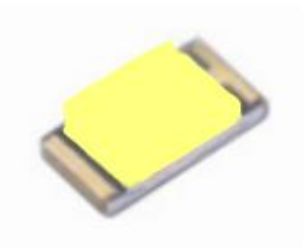
Sample No:

Description: 1608 Warm 3000-4000k WHITE

Item No:

Customer			
Check	Inspection	Approval	Date

SMD Type※Top view Package
L-SP192CW1D-A30-4T



Features

- ■0603 package
- ■Top view LED
- ■Package in 8mm tape on 7″ diameter reel
- ■Compatible with infrared and vapor phase reflow solder process.
- ■Pb-free
- ■RoHS compliant

Description

■Ciellight 192 SMD LED is much smaller than lead frame type components,thus enable smaller board size, higher packing density,reduced storage space and finally smaller equipment to be obtained.

■Besides,lightweight makes them ideal for miniature applications etc.

Applications

- ■General lighting
- ■Decorative and Entertainment Lighting
- ■Indicators
- ■Automotive Telecommunication
- ■Switch lights

Device Selection Guide

Chip Material	Emitted Color	Resin Color
InGaN	White	Yellow Diffused

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Forward Current	I_F	25	mA
Peak Forward Current (Duty 1/10 @1ms)	I_{FP}	60	mA
Power Dissipation	P_d	95	mW
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	
Reverse Voltage	V_R	5	V

Note:
The products are sensitive to static electricity and must be carefully taken when handling products.

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Reverse Current	IR	---	---	10	μA	VR=5V
Viewing Angle	2θ1/2	---	120	---	deg	IF=20mA
Forward Voltage	VF	2.7	---	3.3	V	IF=20mA
Luminous Intensity	Iv	700	---	1050	mcd	IF=20mA

Notes:
1.Tolerance of Luminous Intensity ±10%.
2.Tolerance of Forward Voltage : ±0.1V.

Bin Code Description

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
Sa1	700	765	mcd	I_F=20mA
Sa2	765	840		
Ta1	840	920		
Ta2	920	1050		

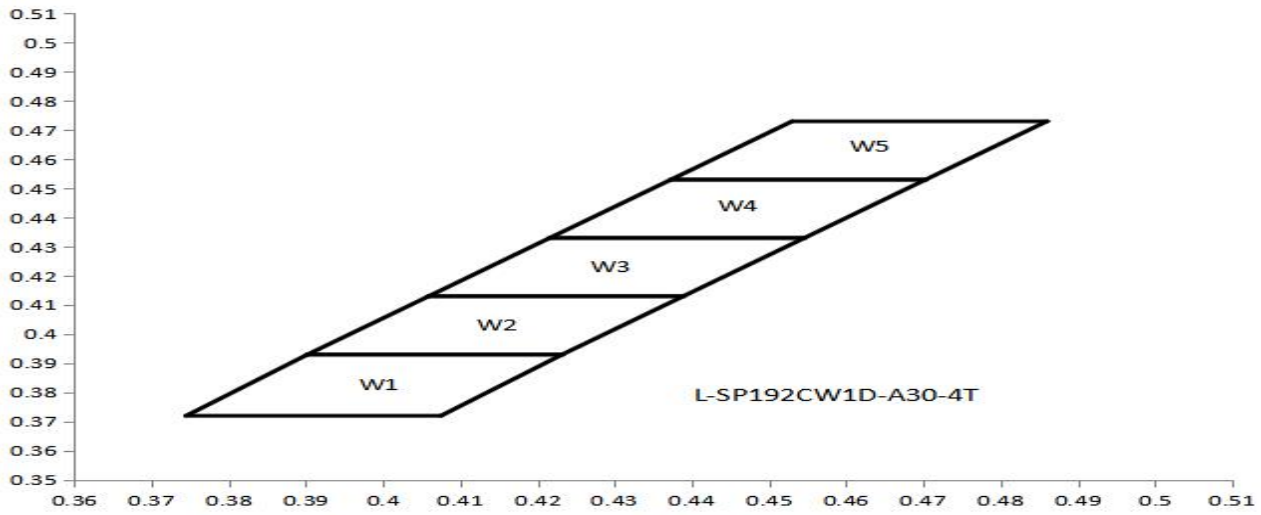
Note:
Tolerance of Luminous Intensity: ±10%.

Bin Range of Forward Voltage

Bin Code	Min.	Max.	Unit	Condition
27	2.7	2.8	V	I_F=20mA
28	2.8	2.9		
29	2.9	3.0		
30	3.0	3.1		
31	3.1	3.2		
32	3.2	3.3		

Note:
Tolerance of Forward Voltage : ±0.1V

Bin Range of Chromaticity Coordinates

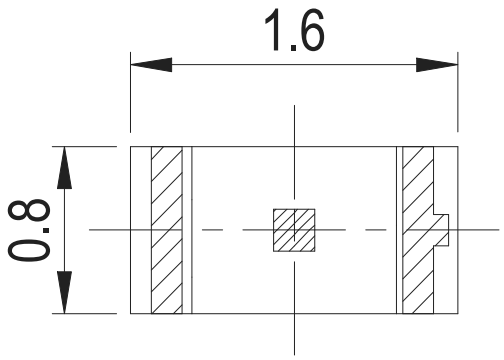


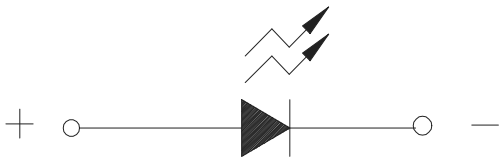
	X	Y		X	Y		X	Y
W1	0.3745	0.372	W2	0.3902	0.393	W3	0.4059	0.413
	0.4075	0.372		0.4232	0.393		0.4389	0.413
	0.4232	0.393		0.4389	0.413		0.4546	0.433
	0.3902	0.393		0.4059	0.413		0.4216	0.433
W4	0.4216	0.433	W5	0.4373	0.453			
	0.4546	0.433		0.4703	0.453			
	0.4703	0.453		0.486	0.473			
	0.4373	0.453		0.453	0.473			

Note:

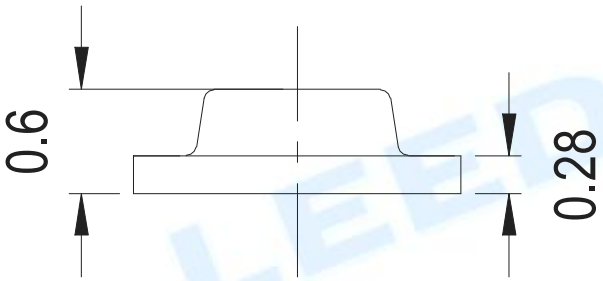
1. The value is based on driving current by 20mA.
2. Tolerance of Chromaticity Coordinates: ±0.01.

Package Dimensions

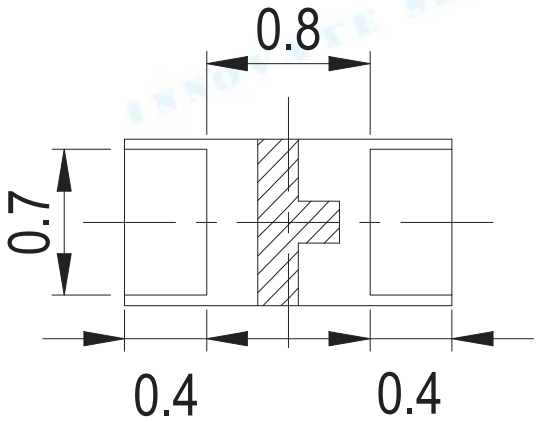


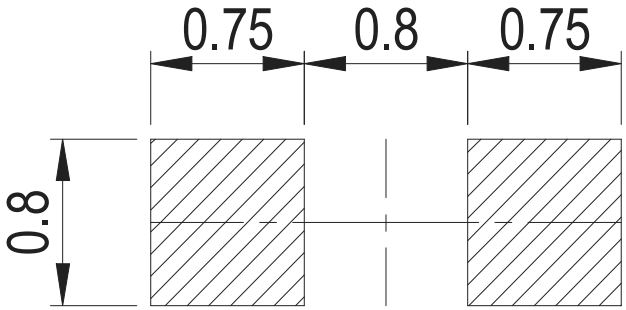


Polarity



Recommended Solder Pad





Note: Tolerance unless mentioned is ±0.1mm,Unit = mm.

Typical Electro-Optical Characteristics Curves

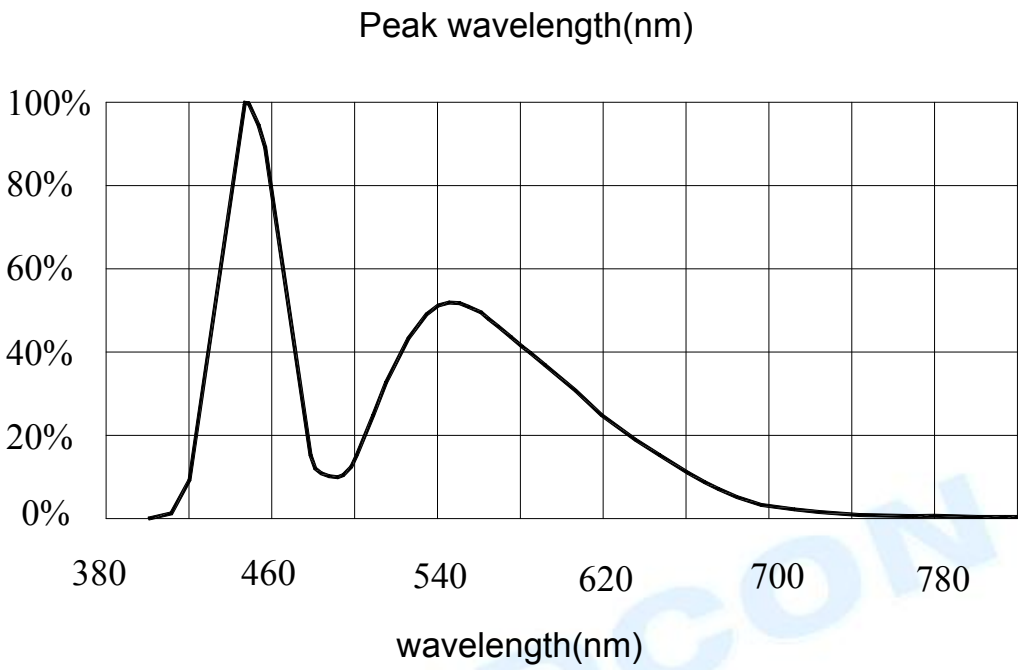


Fig.1-Forword Current(V) vs. Forward Voltage

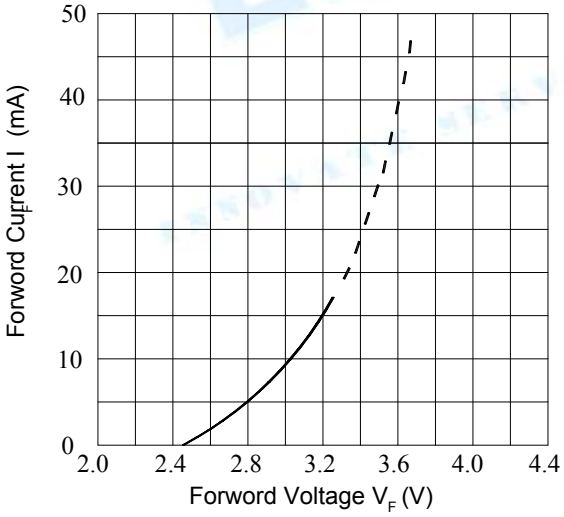
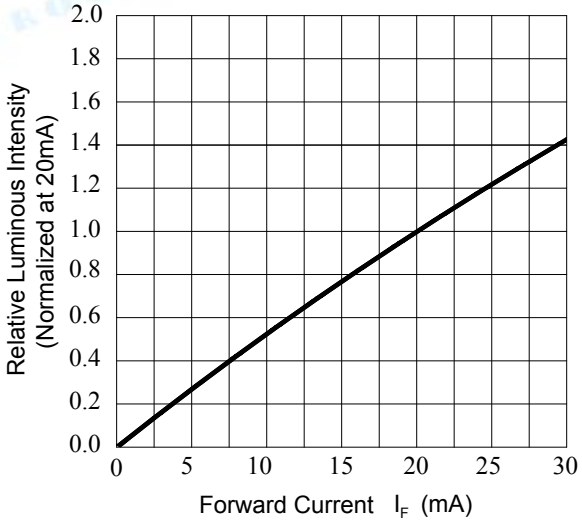


Fig.2-Relative Luminous Intensity vs. Forword Current



Typical Electro-Optical Characteristics Curves

Fig.3-Relative Luminous Intensity vs.Juntion Temperature

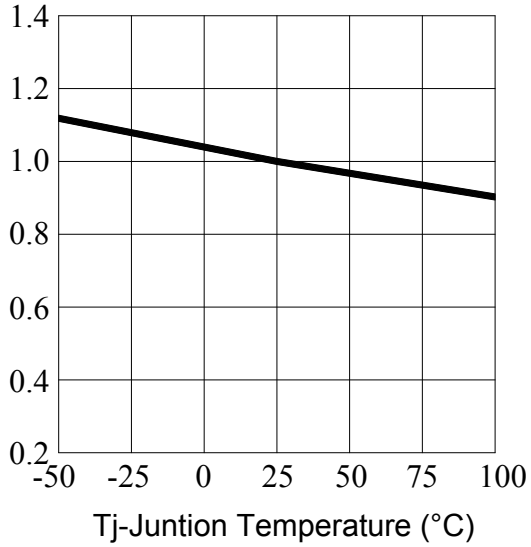


Fig.4-Max.Driving Forward Current vs.Soldering Temperture

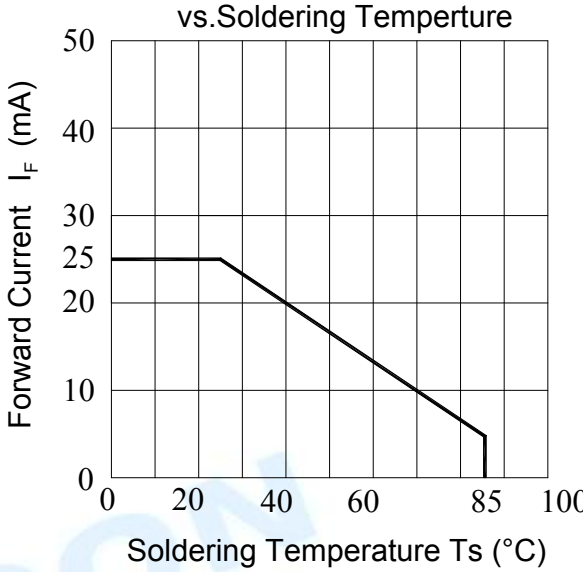


Fig.5-Forword Voltage Shift vs. Juntion Temperature

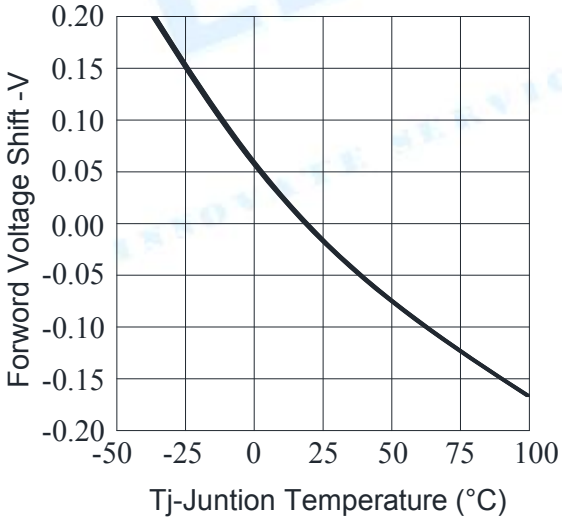
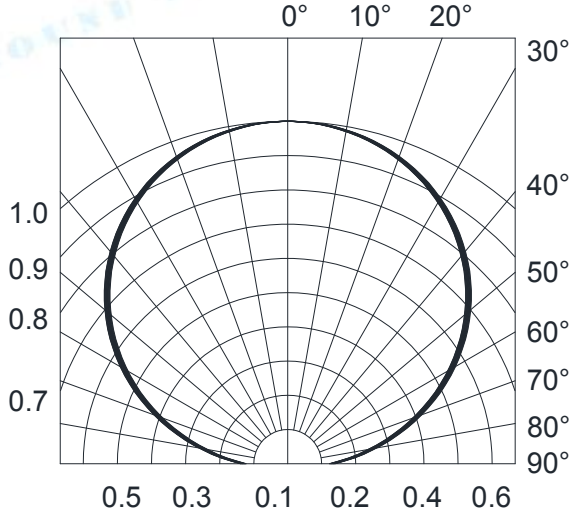
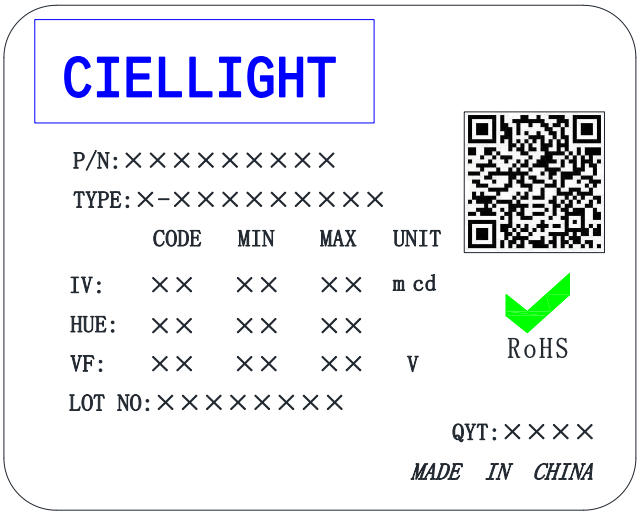


Fig.6-Radiation Diagram Ta=25°C

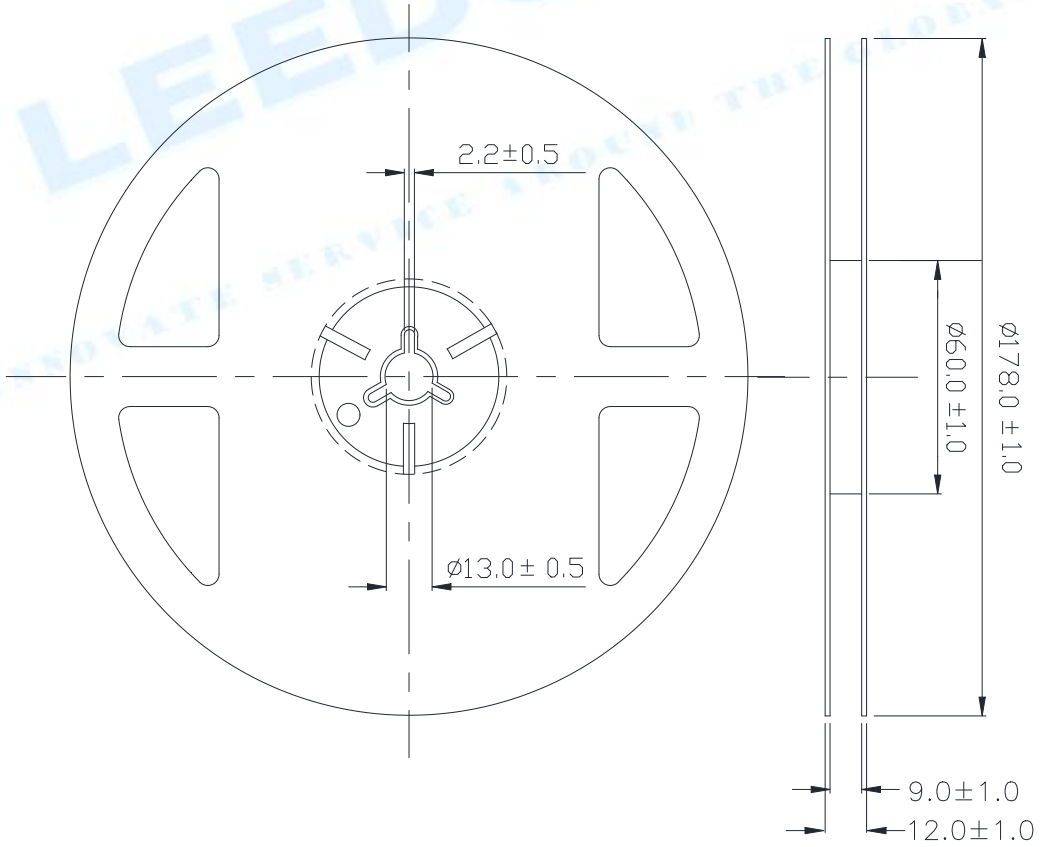


Label Form Specification



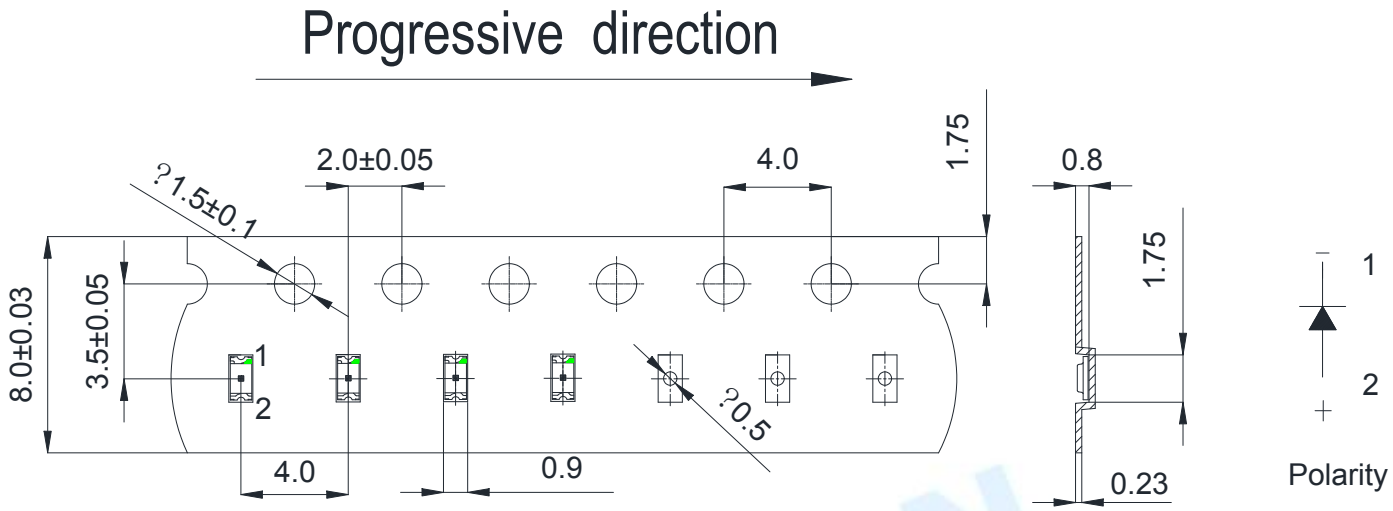
CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number

Reel Dimensions



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

Carrier Tape Dimensions:(Quantity: 4000pcs/Reel)

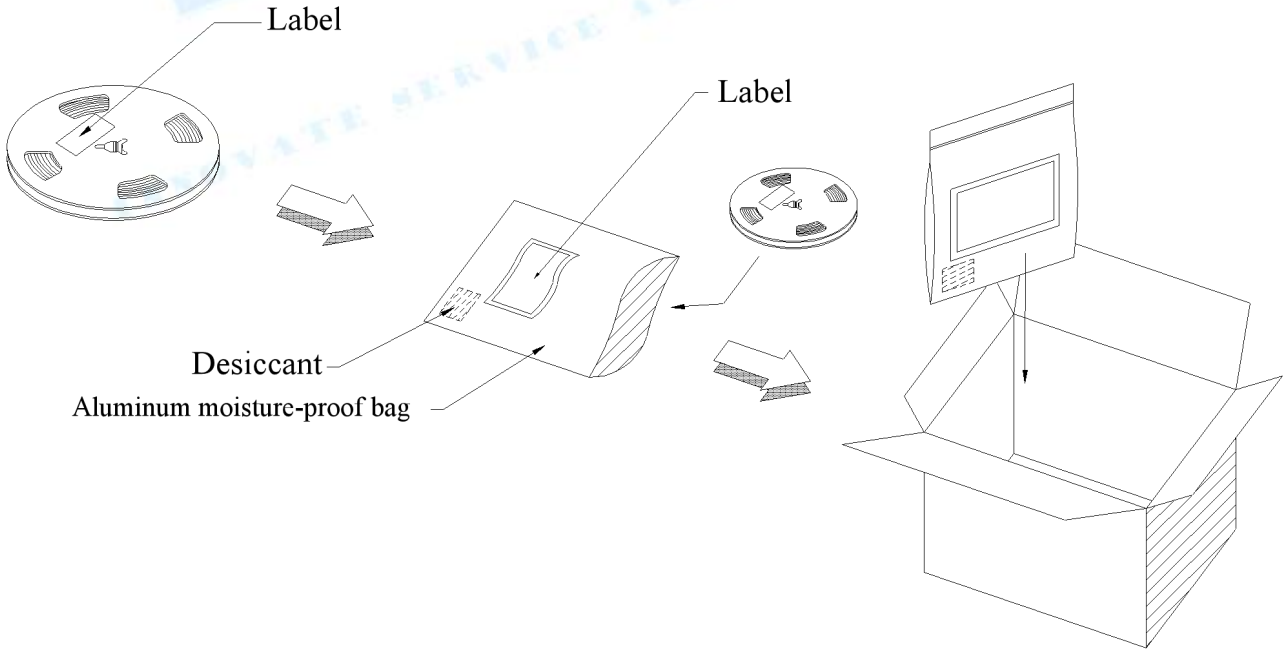


Note:

1.Tolerance unless mentioned is ±0.1mm,Unit = mm.

2.Minimum packing amount is 1000/2000 pcs per reel.

Moisture Resistant Packing Process



Reliability Test Items and Conditions

The reliability of products shall be satisfied with items listed below.

Confidence level：90%

LTPD：10%

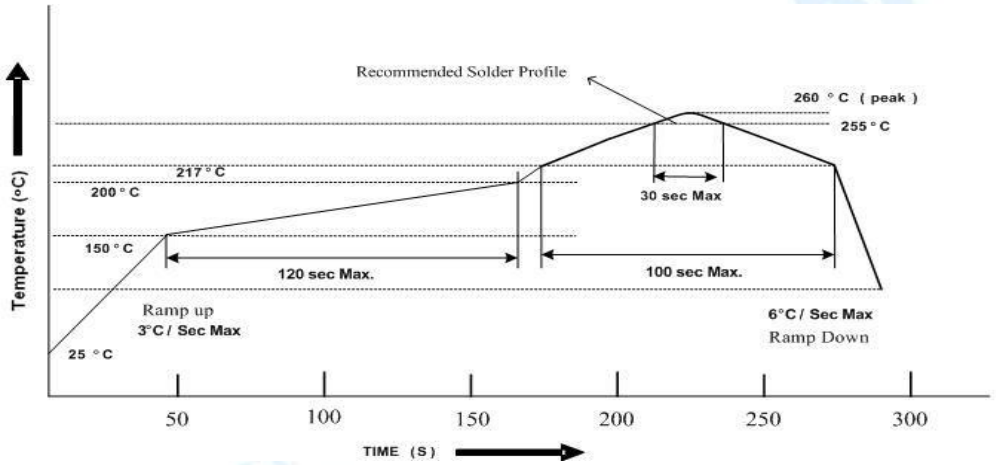
No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260℃/10sec.	6 Min	22 PCS	0/1
2	Thermal Shock	H : +100℃ 5min ∫ 10 sec L : -10℃ 5min	300 Cycles	22 PCS	0/1
3	Temperature Cycle	H : +100℃ 15min ∫ 5 min L : -40℃ 15min	300 Cycles	22 PCS	0/1
4	High Temperature/Humidity Reverse Bias	Ta=85℃,85%RH	1000 Hrs.	22 PCS	0/1
5	Low Temperature Storage	Ta=-40℃	1000 Hrs.	22 PCS	0/1
6	High Temperature Storage	Ta=100℃	1000 Hrs.	22 PCS	0/1
7	DC Operation Life	Ta=25℃ IF = 5 mA	1000 Hrs.	22 PCS	0/1

Precautions For Use

1. Over-current-proof
   Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage
   2.1 Do not open moisture proof bag before the products are ready to use.
   2.2 Before opening the package, the LEDs should be kept at 40℃ or less and 90%RH or less.
   2.3 After opening the package: The LED's floor life is 1 year under 30℃ or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages
   2.4 After opening the package, the LEDs should be kept at 30℃ or less and 60%RH or less.
   2.5 The LEDs should be used within 168 hours (7 days) after opening the package
   2.6 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following J-STD-33 Standard.

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.