

RoHS

Specification

Customer Name : _____

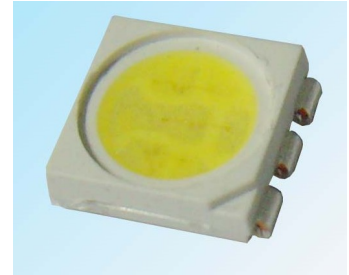
Customer P/N : OF-SMD5060W

Factory P/N : _____

Sending Date : _____

Features

- PLCC-6 Package.
- Extremely wide viewing angle.
- Suitable for all SMT assembly and solder process.
- Available on tape and reel.
- Moisture sensitivity level: Level 4.
- Package: 1000pcs/reel..
- RoHS compliant.



Description

The White LED which was fabricated using a blue chip and the phosphor

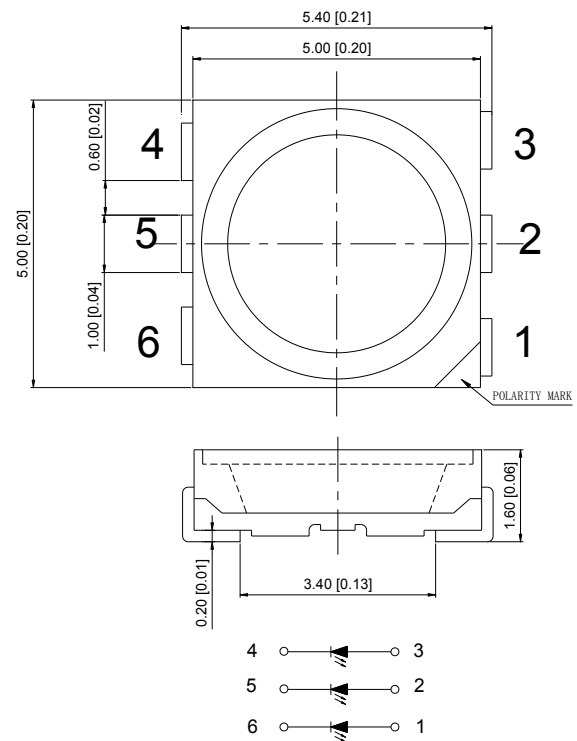


ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

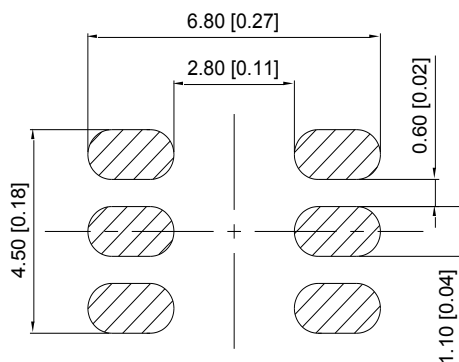
Applications

- Optical indicator
- Indoor display
- Automotive lighting
- Backlight for LCD, switch and Symbol, display
- Tubular light application
- General use

Package Dimensions



Recommended Soldering Pattern



Notes:

1. All dimension units are millimeters.
2. All dimension tolerance is $\pm 0.15\text{mm}$ unless otherwise noted.

Selection Guide

Part No.	Dice	Lens Type	Luminous intensity(mcd) @ 20mA*3		Luminous flux(lm) @ 20mA*3		Viewing Angle
			Min.	Typ.	Min	Typ	2θ1/2
OF-SMD5060W	WHITE (InGaN)	Yellow Diffused	6000	6500	23	25	120°

Note:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2. the above luminous intensity measurement allowance tolerance $\pm 10\%$.

Electrical / Optical Characteristics at Ta=25°C

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Forward Voltage	V _F	2.6	--	3.2	V	I _F =20mA *3
Reverse Current	I _R	--	--	10	μA	V _R = 5V
Color Coordinates	X	--	0.31	--	--	I _F =20mA *3
	Y	--	0.32	--	--	I _F =20mA*3
Color Temperature	T _c	--	6500	--	K	I _F =20mA *3
Color Rendering Index	CRI	80	--	--	Ra	I _F =20mA*3

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Rating	Units
Power Dissipation	P _d	256	mW
Forward Current	I _F	80	mA
Peak Forward Current [1]	I _{FP}	300	mA
Reverse Voltage	V _R	5	V
Electrostatic Discharge (HBM)	ESD	1000	V
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C

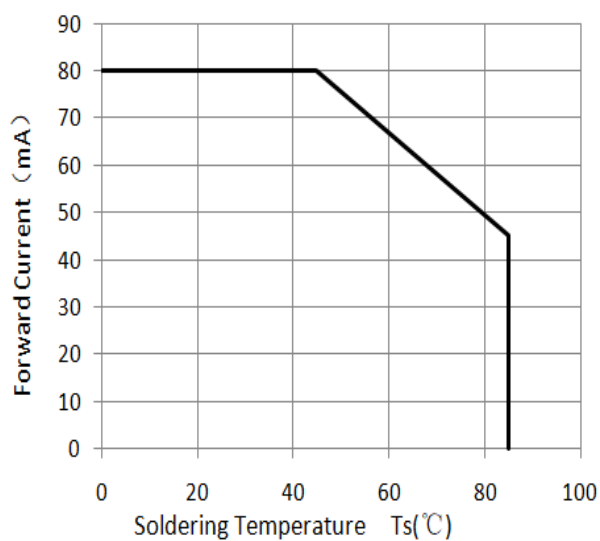
Note:

1. 1/10 Duty cycle, 0.1ms pulse width.
2. The above forward voltage measurement allowance tolerance is $\pm 0.1V$.
3. The above color coordinates measurement allowance tolerance is ± 0.003 .

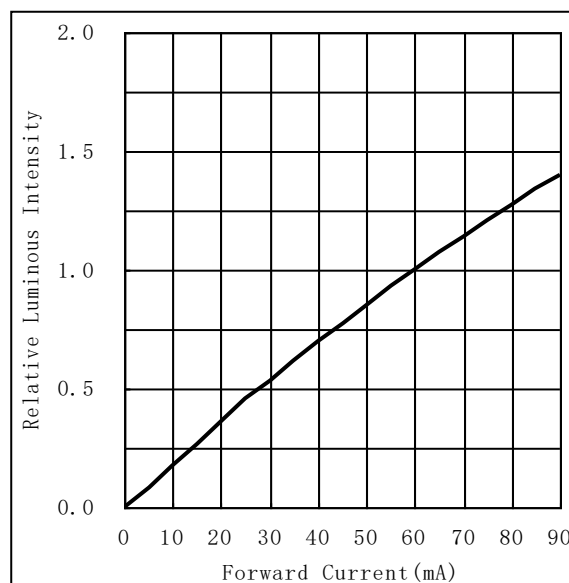
HL-AF-5060H335W-3-S1-T1-HR1

Typical optical characteristics curves 典型光学特性曲线

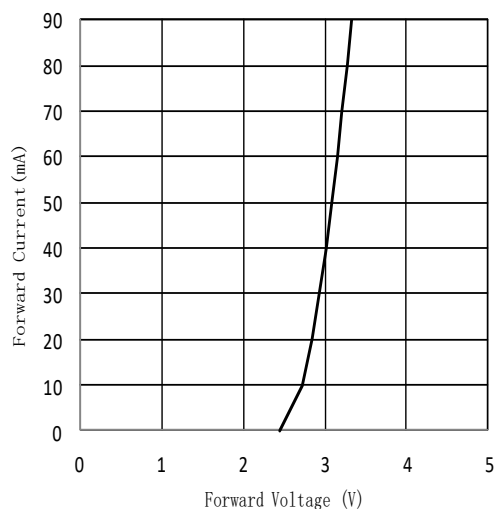
Soldering Temperature VS Allowable Forward Current 焊盘温度与允许温度电流特性



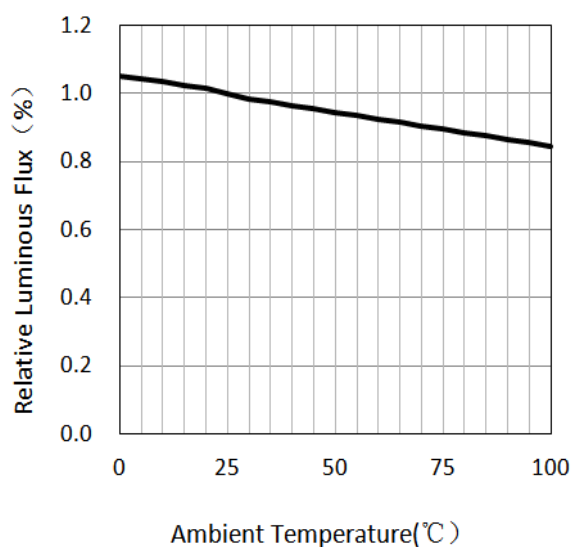
Forward Current VS. Relative Intensity 正向电流与相对光强特性曲线



Forward Voltage VS. Forward Current 正向电压与正向电流特性曲线

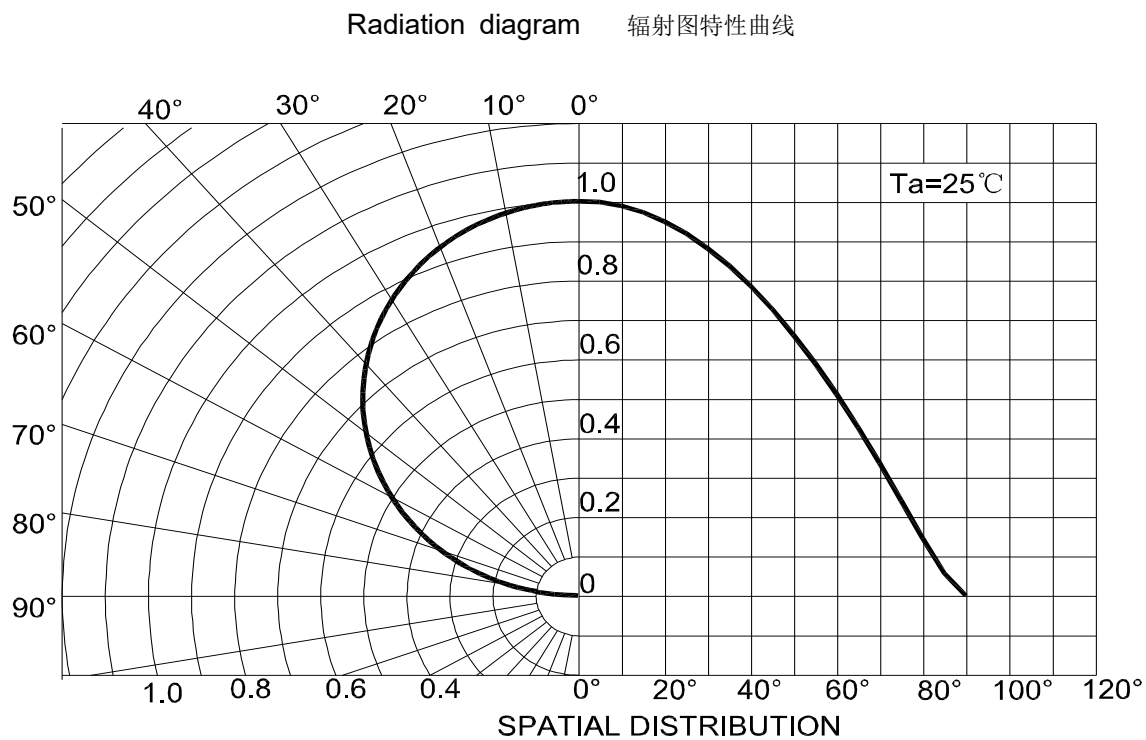
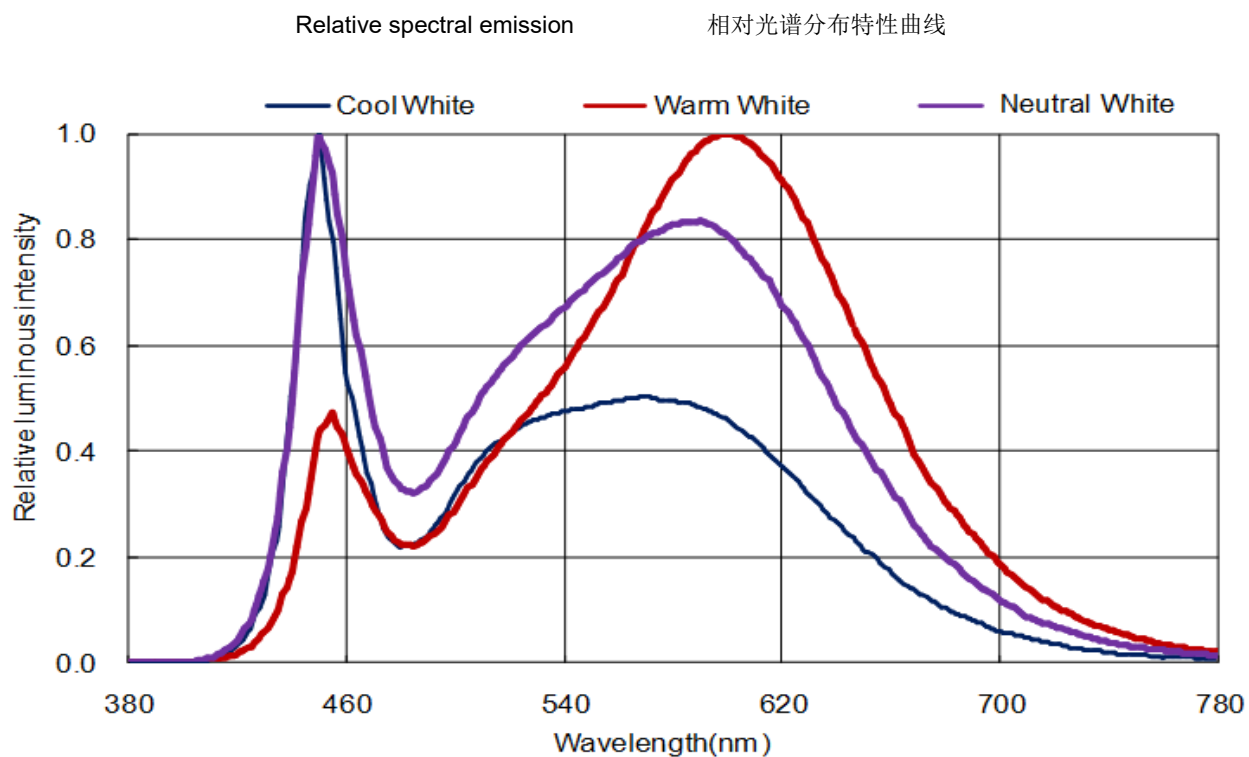


Ambient Temperature VS. Relative Intensity 环境温度与相对光强特性曲线

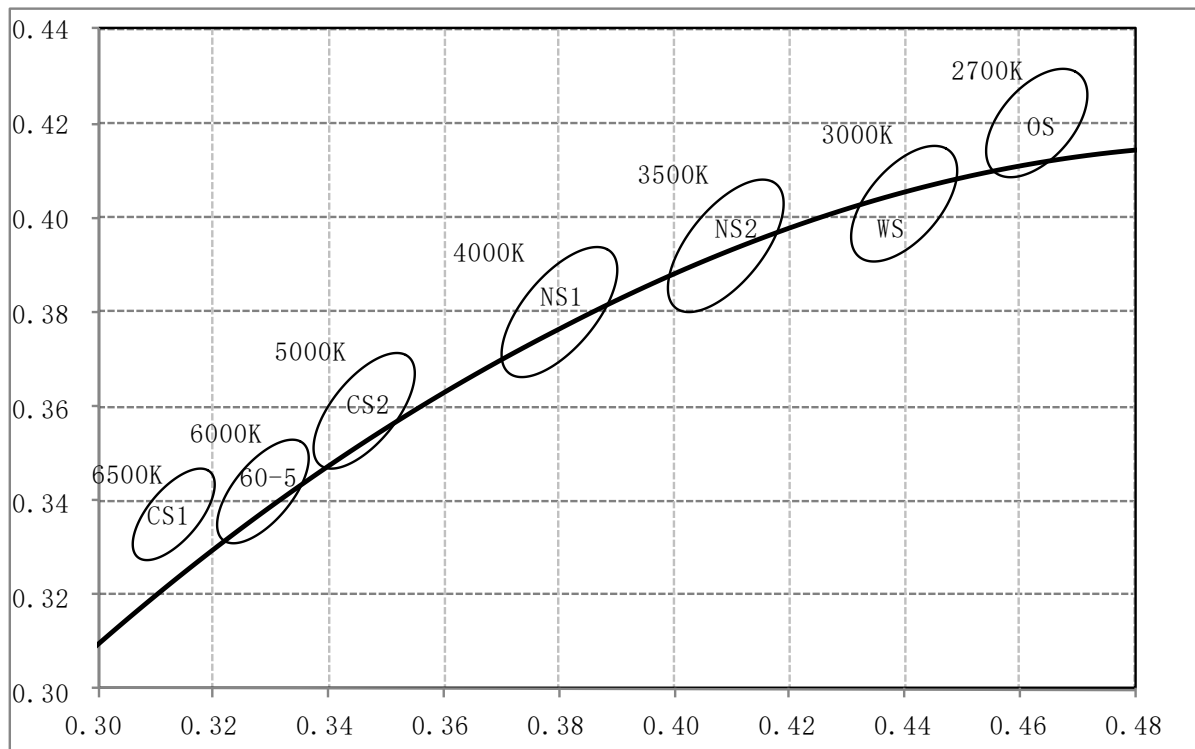


HL-AF-5060H335W-3-S1-T1-HR1

Typical optical characteristics curves 典型光学特性曲线



HL-AF-5060H335W-3-S1-T1-HR1



Bin Range of Chromaticity Coordinate Bin区分类及色坐标范围

Nominal CCT	Bin Code	Target Center Point (cx,cy)	Major Axis, a	Major Axis, b	Ellipse Rotation Angle,θ	Color Space
6500K	CS1	0.313,0.337	0.01115	0.00475	58.23°	Sing 5-step
6000K	60-5	0.3220,0.3365	0.01179	0.00504	59.21	Sing 5-step
5000K	CS2	0.346,0.359	0.01370	0.00590	59.37°	Sing 5-step
4000K	NS1	0.380,0.380	0.01565	0.00670	54.00°	Sing 5-step
3500K	NS2	0.409,0.394	0.01585	0.00695	52.58°	Sing 5-step
3000K	WS	0.440,0.403	0.01390	0.00680	53.10°	Sing 5-step
2700K	OS	0.463,0.420	0.01290	0.00685	53.17°	Sing 5-step

Reliability Test Items And Conditions

Test Items	Ref.Standard	Test Condition	Time	Quantity	Ac/Re
Reflow	JESD22-B106	Temp:260°C max T=10 sec	3 times.	22Pcs.	0/1
Temperature Cycle	JESD22-A104	100°C±5°C 30 min. ↑↓5 min -40°C±5°C 30 min.	100 Cycles	22Pcs.	0/1
High Temperature Storage	JESD22-A103	Temp:100°C±5°C	1000Hrs.	22Pcs.	0/1
Low Temperature Storage	JESD22-A119	Temp:-40°C±5°C	1000Hrs.	22Pcs.	0/1
Life Test	JESD22-A108	Ta=25°C±5°C IF=60mA	1000Hrs.	22Pcs.	0/1
High Temperature High Humidity Life Test	JESD22-A101	85°C±5°C/ 85%RH IF=15mA	1000Hrs.	22Pcs.	0/1

Criteria For Judging Damage

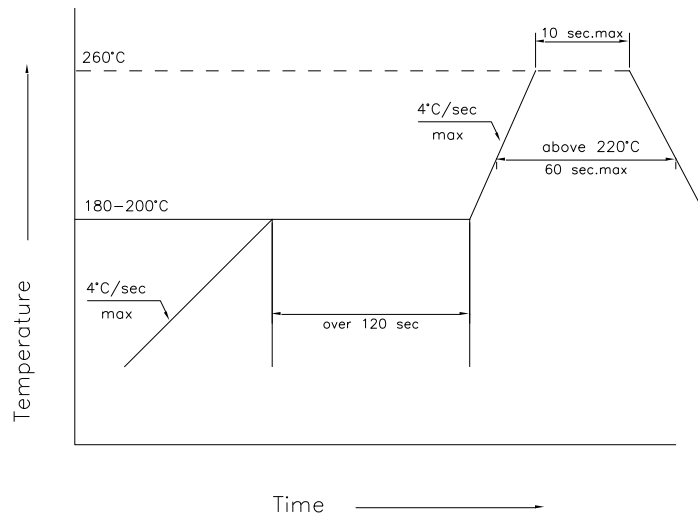
Test Items	Symbol	Test Condition	Criteria For Judgement	
			Min.	Max.
Forward Voltage	VF	IF=60mA	--	U.S.L*)x1.1
Reverse Current	IR	VR = 5V	--	U.S.L*)x2.0
Luminous Flux	Im	IF=60mA	L.S.L*)x0.7	--

U.S.L: Upper standard level

L.S.L: Lower standard level

*The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

SMT Reflow Soldering Instructions



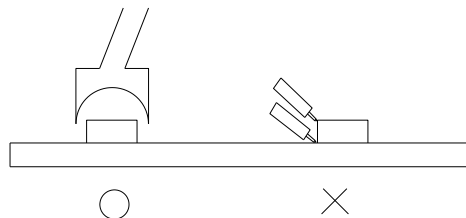
1. Reflow soldering should not be done more than two times.
2. When soldering, do not put stress on the LEDs during heating

Soldering iron

1. When hand soldering, keep the temperature of iron below less 300°C less than 3 seconds
2. The hand solder should be done only one times

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 in advance whether the characteristics of LEDs will or will not be damaged by repairing.



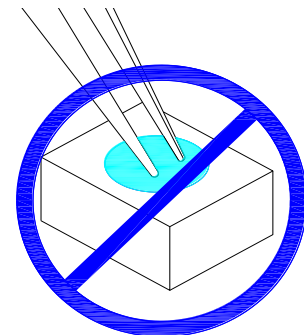
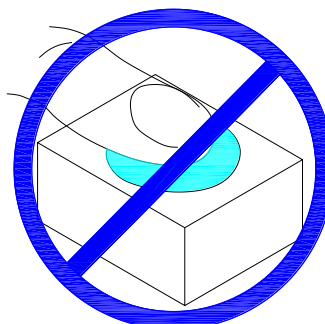
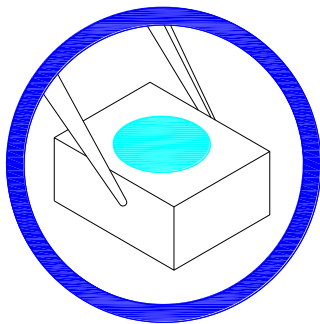
Cautions

The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the silicone resin should be proper.

Handling Precautions

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more prone to damage by external mechanical force. As a result, Special handling precautions must be observed during assembling using silicone encapsulated LED products, Failure to comply might leads to damage and premature failure of the LED.

1.Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.

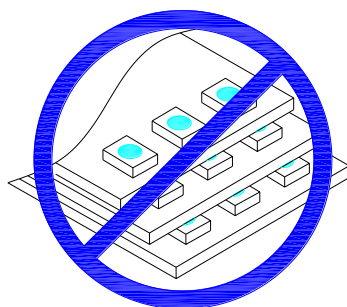


2.The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.



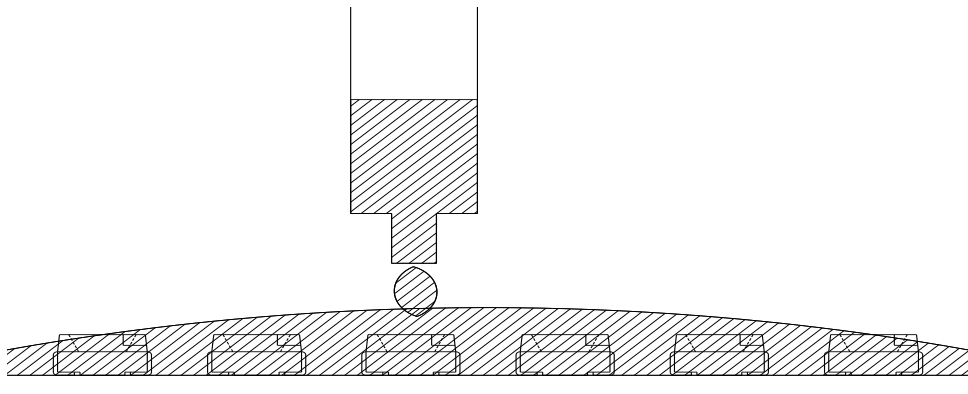
3.Do not stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage the internal circuitry

4.Not suitable to operate in acidic environment, PH<7



5.LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material.

6.When we need to use external glue for LED application products, please make sure that the external glue matches the LED packaging glue. Additionally ,as most of LED packaging glue is silica gel, and it has strong Oxygen permeability as well as strong moisture permeability; in order to prevent external material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM,the single content of Chlorine element is required to be less than 900PPM,the total content of Bromine element and Chlorine element in the external glue of the application products is required to be less than 1500PPM



7.Other points for attention, please refer to our LED user manual.

Label

IV: Luminous intensity rank
VF: Forward voltage rank
X/Y: Coordinate rank
TC: Color temperature

RoHS

Part No: XXXXXXXXXXXXXXXXXXXX

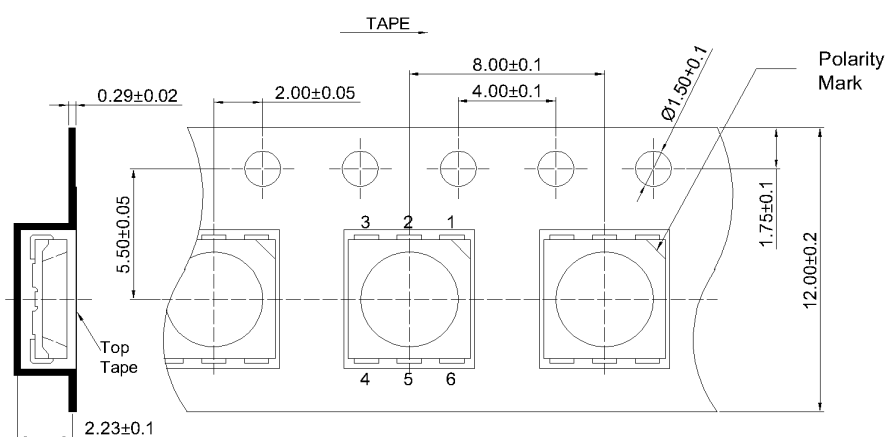
IV: VF: X/Y:

Quantity: TC:

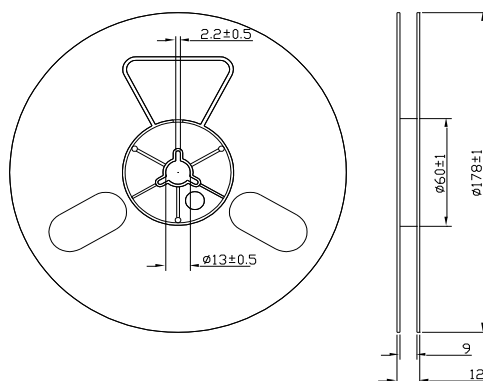
Sealing date: XXXXXXXXXXXXXXXXXXXX



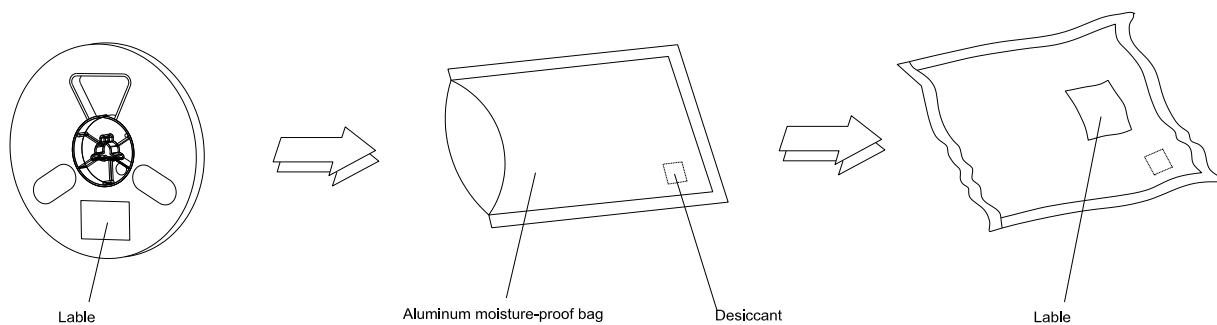
Tape Specifications (Units : mm)



Reel Dimensions



Moisture Resistant Packaging



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit: mm

注: 标注公差为 $\pm 0.1\text{mm}$, 单位: mm