

●Features

- 1、 Size (mm) 5.0*5.0*1.6
- 2、 Wide viewing angle
- 3、 Typical viewing angle: 120°
- 4、 Pb-free
- 5、 Available on tape and ree
- 6、 Suitable for all SMT assembly and solder process

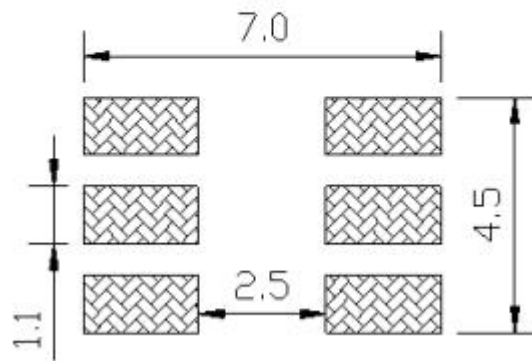
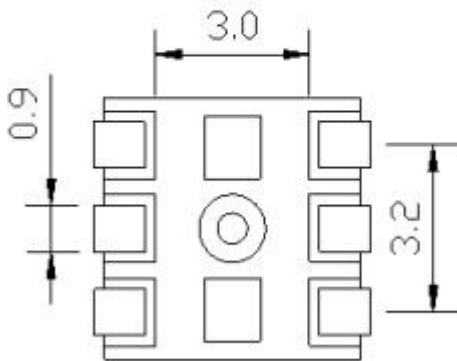
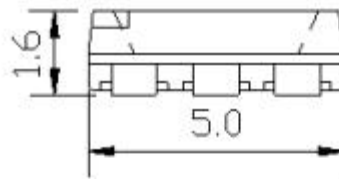
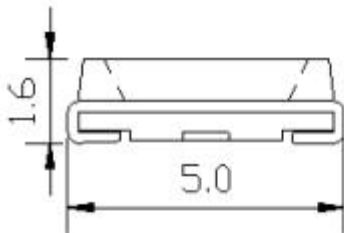
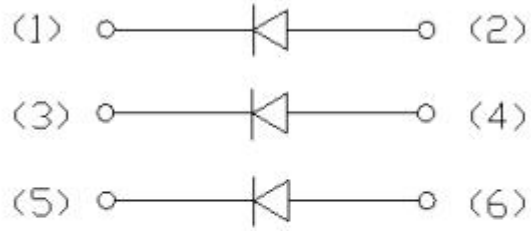
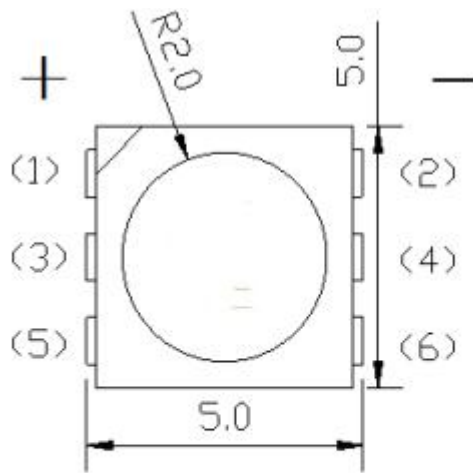
●Applications

- 1、 General lighting
- 2、 Channel letter
- 3、 Indoor display
- 4、 General use

●Descriptio

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

●Package Dimension



Notes:

1. All dimensions units are mm.
2. All dimensions tolerances are 0.2mm unless otherwise noted.

● Absolute maximum ratings at Ta=25℃

Parameter	Symbol	Absolute Maximum Rating	Unit
Forward Current	If	75	mA
Pulse Forward Current	Ifp	120	mA
Reverse Voltage	VR	5	V
Power Dissipation	PD	250	mW
Operating Temperature	Topr	-30~+85	℃
Storage Temperature	Tstg	-40~+85	℃
Junction Temperature	Tj	115	℃
Solder Temperature	Ts	Reflow Soldering : 260℃ for 10sec . Hand Soldering : 300℃ for 3 sec .	

Note: Ifp conditions with pulse width ≤10ms and duty cycle ≤10%

● Electro-Optical Characteristics (TSoldering=25℃)

Parameter	Symbol	Value			Unit	Condition
		Min.	Typ.	Max.		
Forward Voltage	VF	3.4	--	3.6	V	IF:60mA
Radiation Flux	Φe	40	--	60	mW	
Color Temperature	CCT	--	--	--	K	
Thermal resistance	Rth		33		℃/W	
Peak wavelength	WP	365	--	370	nm	
Viewing angle	2θ1/2	---	120	---	Deg	
Reverse Current	IR	---	---	10	uA	VR=5V

Tolerance of Forward Voltage (VF) ±0.1V;

Tolerance of Wavelength(X,Y) ±0.01 (CCT±5%) ;

Tolerance of Color Rendering Index (CRI) ±2;

Tolerance of Dominant wavelength ±1;

● Typical Optical-Electrical Characteristics curves

(Environment Parameter: Temperature=25℃, Humidity=45%)

● Reliability Test

Test Item	Test Conditions	Continuous cycle	Result	Reference Standard
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Temperature Cycling	-40℃ 30min ↑↓25℃(5min) 125℃ 30min	100 cycle	0/22	JESD22-A104
Thermal Shock	-40℃ 30min ↑↓ 125℃ 30min	100 cycle	0/22	JESD22-A106
High Temperature Storage	Ta=100℃	1000 hours	0/22	JESD22-A103
Low Temperature Storage	Ta=-40℃	1000 hours	0/22	JESD22-A119
Operation Life	Ta=25℃ IF=60mA	1000 hours	0/22	JESD22-A108
High Humidity Heat Life Test	60℃ RH=85% IF=60mA	1000 hours	0/22	JESD22-A101
Solder Resistance	260℃(Max.), within 10seconds. (Max.)	3 times	0/22	JESD22-B106

● Judgment criteria of failure for the reliability

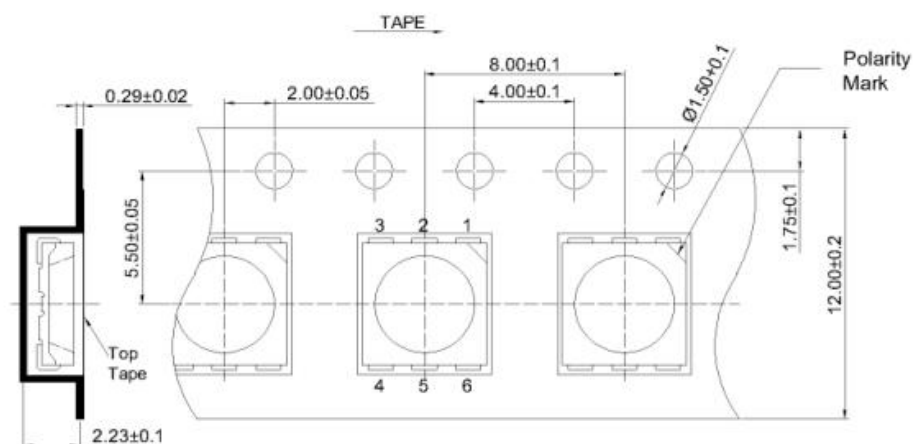
Item	Symbol	Condition	Judgment criteria for failure	
Forward voltage	VF	IF=60mA		USL×1.1
Reverse current	IR	VR=5V		10uA
Luminous Flux	Φ	IF=60mA	LSL×0.7	

[Note]:

*1 USL: Uper Specification Level

*2 LSL: Lower Specification Level

● Packaging



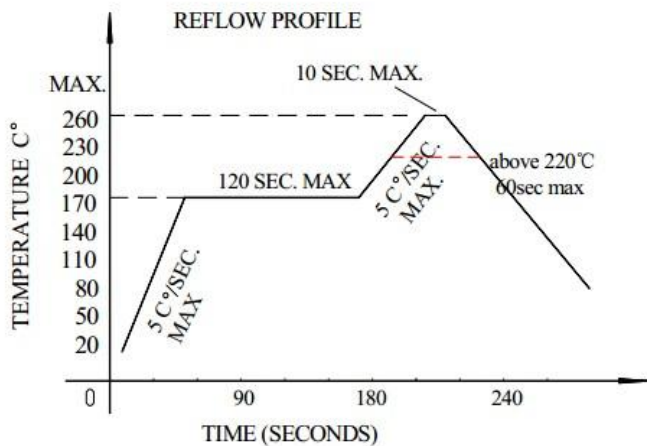
NOTES:

1. Tolerance unless mentioned is $\pm 0.1\text{mm}$; Unit = mm;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
4. 1,000 pcs/ Reel.

● Reflow profile**Soldering condition****● Recommended soldering conditions**

Reflow		Soldering	
Pre-heat	160~180℃	Temperature	300℃ Max.
Pre-heat time	120 seconds Max.		
Peak temperature	260℃ Max.		
Soldering time	10 seconds Max.		
Condition	Referto Temperature-profile	Soldering time	3 second Max. (one time only)

● After reflow soldering rapid cooling should be avoided**Pb-free solder temperature profile**



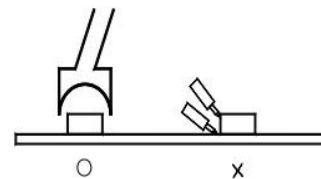
1. We suggest that the reflow soldering temperature is $240 \pm 5^{\circ}\text{C}$, the highest control the welding temperature to 260°C ;
2. Reflow soldering should not be done more than two times;
3. When soldering, do not put stress on the LEDs during heating;

Soldering iron

1. When hand soldering, keep the temperature of the iron under 300°C , and at that temperature keep the time under 3 sec;
2. The hand soldering should be done only a time;
3. The basic spec is ≤ 5 sec. when the temperature of 260°C , do not contact the resin when hand soldering;

Rework

1. Customer must finish rework within 5 sec under 260°C ;
2. The head of iron can not touch the resin;
3. Twin-head type is preferred;



CAUTIONS

Storage

1. Storage condition before opening the package: $5^{\circ}\text{C} \sim 30^{\circ}\text{C}$, the largest percentage relative humidity is 60% and the storage period is one month. The LEDs beyond the storage period just can be used after dealing as step 4.
2. After opening the package, If the LEDs will be Infrared reflow soldering, Oxygen phase reflow soldering or any other welding.
 - a. must be welding within 24 hours.
 - b. the storage humidity must be below 30%.
3. If the situation does not satisfy 2a or 2b, the LEDs must be roasted.
4. If the LEDs need to be roasted, the roast temperature should be $60^{\circ}\text{C} \pm 3$ and the roast time should be 48 hours.

ESD

Static Electricity or power surge will damage the LED.

The following procedures may decrease the possibility of ESD damage:

1. All production machinery and test instruments must be electrically grounded.
2. Use a conductive wrist band or anti-electrostatic glove when handling these LEDs.
3. Maintain a humidity level of 50% or higher in production areas.
4. Use anti-static packaging for transport and storage.

Cleaning

1. LED should be cleaned in a normal temperature and the time for cleaning should be less than 3 minutes; please use Alcohol as cleaner, before you use other cleaning solvent, please make sure that the cleaner will not make any damage to the LED performance or the appearance.
2. Ultrasonic Cleaning is also commonly used for cleaning LED, please verify the Ultrasonic cleaning's

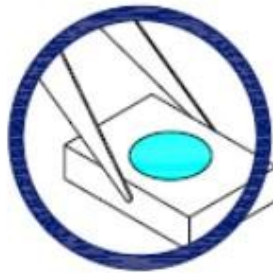
Power and time to avoid any damage to the LED .
The recommended solvent for cleaning

Common cleaning solvent 常用清潔溶劑	Disable cleaning solvent 禁用清潔溶劑
Alcohol 酒精	Thinner、Acetone、Two fluorine resin 、 Acetone b dilute 稀釋劑、丙酮、二氟脂、三氯乙稀

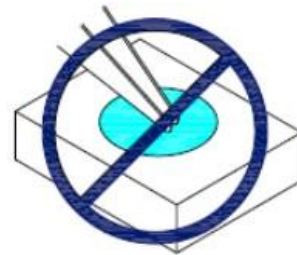
Handing Precautions

Compare to epoxy encapsulant that is hard and brittle,silicone is softer and flexible.Although its characteristic significantly reduces thermal stress,it is more susceptible to damage by external mechanical force.
As a result,special handling precautions need to be observed during assembly 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 surfaces by using forceps or appropriate tools



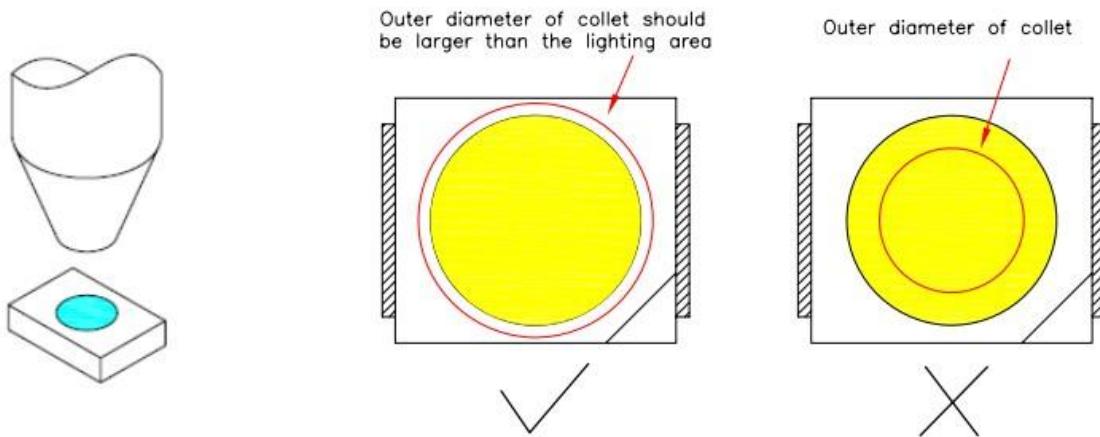
2.Do not directly touch or handle the silicone lens surface.It may damage the internal circuitry.



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



4.During surface-mounting,the pickup capillary diameter should be larger than the silicone lens to insure the capillary does not scratch or damage the lens.



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 singlecontent of Bromine element is required to be less than 500PPM,the single content of Chlorine elementis required to be less than 500PPM,the total content of Bromine element and Chlorine element in theexternal glue of the application products is required to be less than 1000PPM. Other points for attention, please refer to our LED user manual.