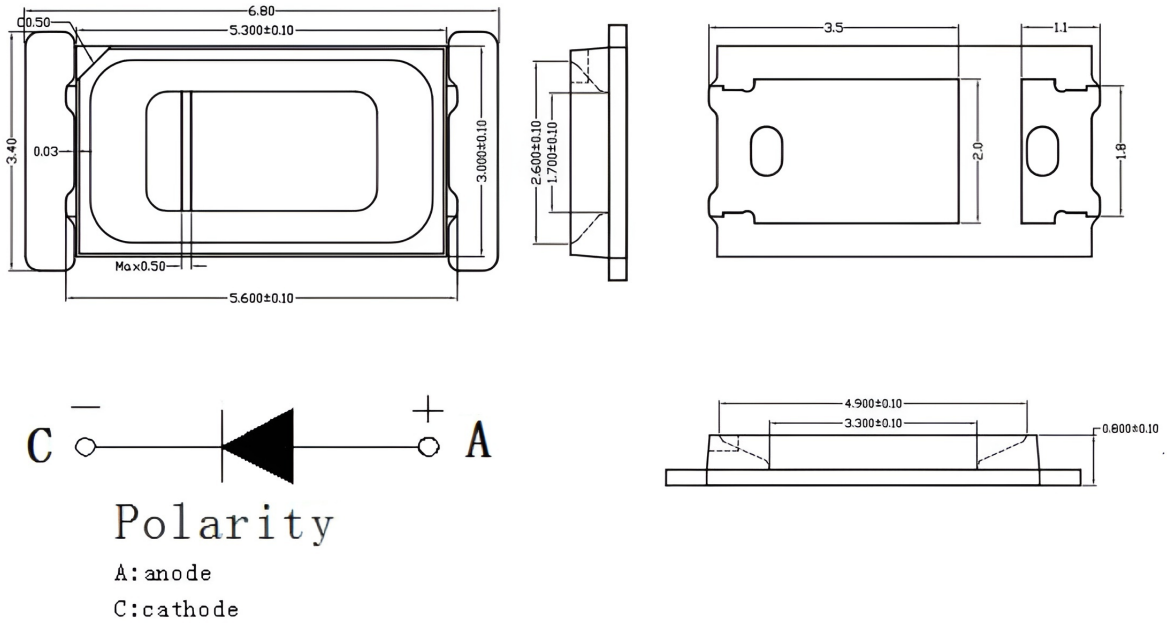
White 5000K 0.5W 5630 SMD LED

P/N: LLS-5630PW-50G-05

·Package Dimensions



NOTES: All dimensions are in millimeter [unit];

·Features

- The white LED which was fabricated using a blue chip and phosphor.
- PLCC-2 Package.
- Extremely wide viewing angle.
- Available on tape and reel.
- Suitable for all SMT assembly and solder process.
- RoHS compliant.
- Package: 2000pcs/reel
- Moisture sensitivity level: 3

·Application

- Indoor/outdoor lighting.
- Bulb lighting.
- Fluorescent lamp.
- General use.

·Absolute Maximum Ratings (Ta=25℃)

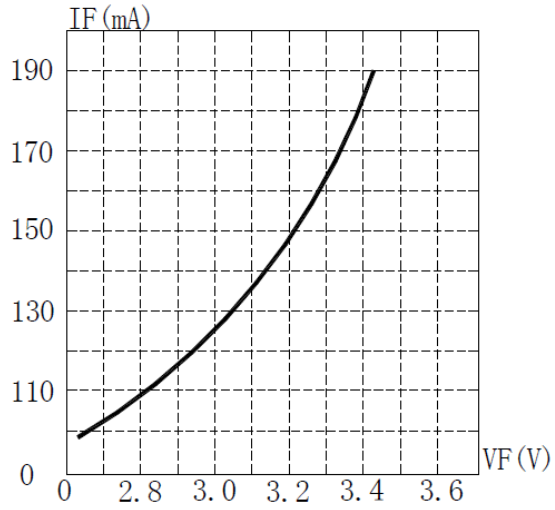
Item	Symbol	Maximum	Unit
Power Dissipation	P_d	500	mW
Continuous Forward Current	I_F	150	mA
Pulsed Forward Current (1/10 Duty Cycle 0.1ms Pulse Width)	I_{FP}	160	mA
Reverse Voltage	V_R	5	V
Electrostatic Discharge (HBM)	ESD	2000	V
Operating Temperature Range	Topr	-40 to +100	℃
Storage Temperature Range	Tstg	-40 to +100	℃
Junction Temperature	Tj	≤115	℃
Solder temperature	Ts	240	

·Electrical/Optical Characteristics (Ta=25℃)

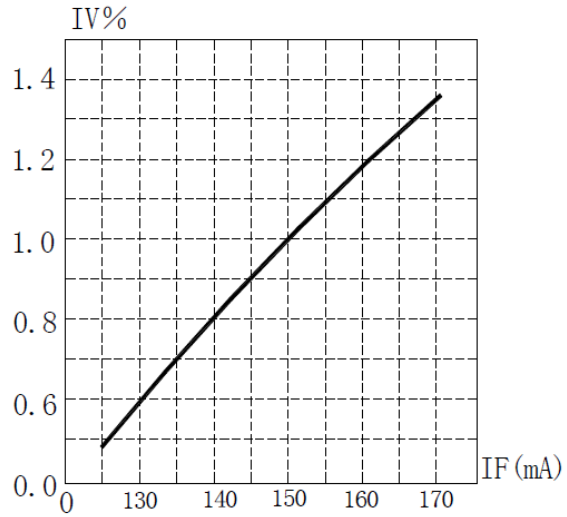
Item	Symbol	Condition	Min.	Typ.	Max	Unit
Forward Voltage	V_F	I_F=150mA	3.0	3.1	3.2	V
Luminous Intensity	I_V	I_F=150mA	50	--	70	lm
Color temprature	CCT	I_F=150mA	--	5000	--	K
Color Rendering index	Ra	I_F=150mA	--	--	--	--
Viewing Angle	$2\theta_{1/2}$	I_F=150mA	--	120	---	deg
Reverse Current	I_R	V_R =5V	-	-	1	uA
Thermal resistance	Rth(j-s)	IF=150mA	--	--	28	℃/W

Note:
1.1/10 Duty cycle, pulse width 10ms.
2.The above forward voltage measurement allowance tolerance is 0.05.
3.The above color coordinates measurement allowance tolerance is 0.003.
4. The above luminous flux measurement allowance tolerance ±10%.
5. The above color rendering index measurement allowance is ± 1.
6.Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.
7.When the LEDs are in operation the maximum current should be decided after measuring the package temperature, junction temperature should not exceed the maximum rate. LED

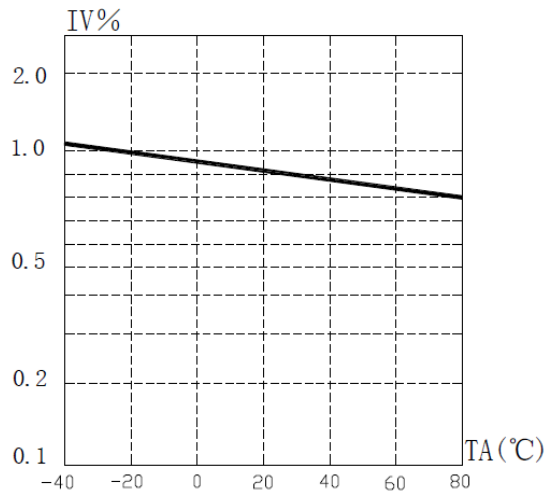
·Typical Electro-Optical Characteristics Curves



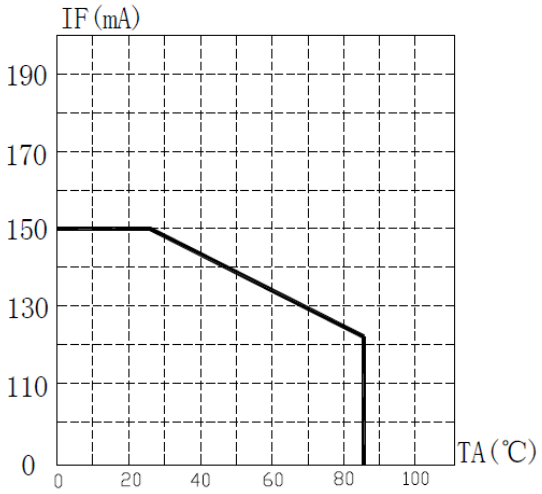
Forward Current vs. Forward Voltage



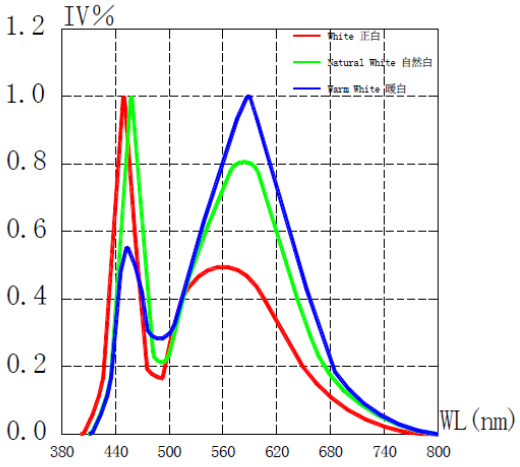
Relative Luminous Intensity vs .Forward Current



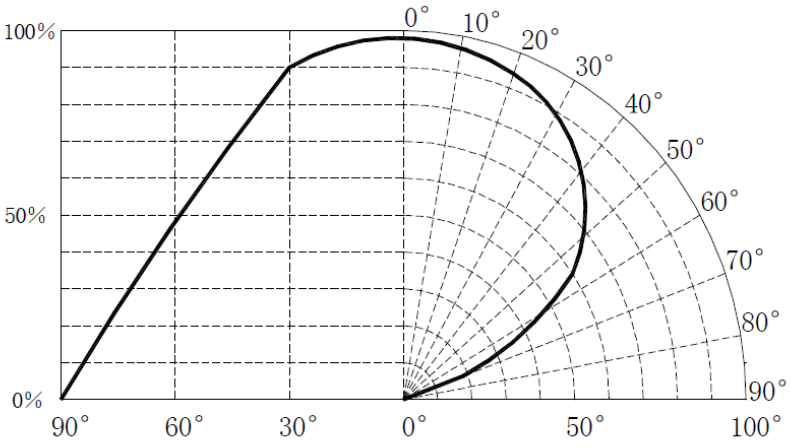
Relative Flux vs. Ambient Temperature



Forward Current vs. Ambient Temperature



Relative Luminous Flux vs. Wavelength



Relative Luminous Intensity vs. Radiation Angle

·Reliability test items and conditions

Test Items	Ref.standard	Test Condition	Time	Quantity	Ac/Re
Temperature cycle	JESD22-A104	100℃ 30 min. ↑ ↓5 min -40℃ 30 min.	200Cycles	22PCS	0/1
Thermal shock	JESD22-A106	-40℃ 15min ↑ ↓10sec 100℃ 15min	200Cycles	22PCS	0/1
High temperature storage	JESD22-A103	Temp:100℃	1000Hr	22PCS	0/1
Low temperature strorage	JESD22-A119	Temp:-40℃	1000Hrs	22PCS	0/1
Life test	JESD22-A108	Ta=25℃ IF=150mA	1000Hrs	22PCS	0/1
High temperature high humidity life test	JESD22-A101	85℃/ 85%RH IF=150mA	1000Hrs	22PCS	0/1
Reflow	JESD22-B106	Temp:240℃max T=10 sec	2times	22	0/1

·Failure Criteria

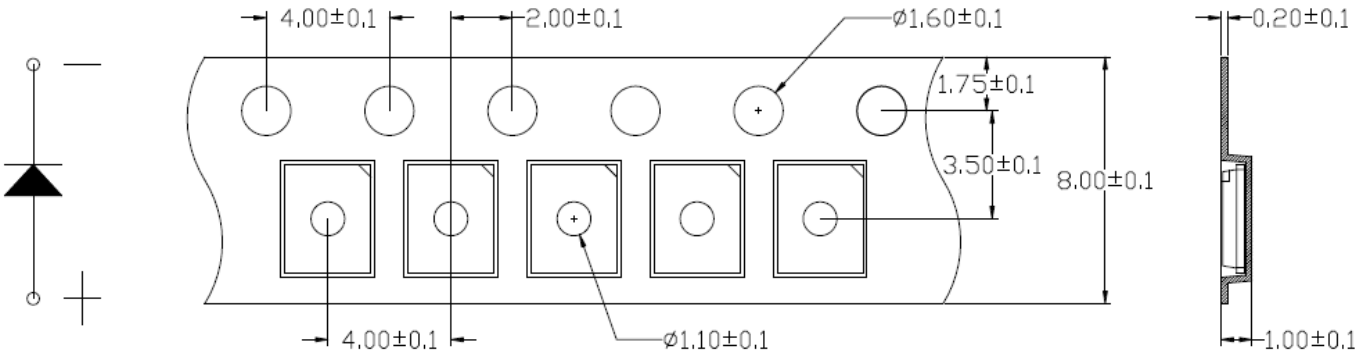
Test Items	Symbol	Test Condition	Criteria For Judgement	Applicable project
Forward voltage	VF	IF=150mA	≤±10%	Reflow Temperature Cycle High and Low Temperature Storage Life Test
Luminous flux	φ	IF=150mA	Maintenance≥85%	
High Temperature High Humidity Life Test	/	IF=150mA	No open circuit, short circuit or flicker	High Temperature High Humidity Life Test

U. S.L: Upper Specification Limit L.S.L: Lower Specification Limit

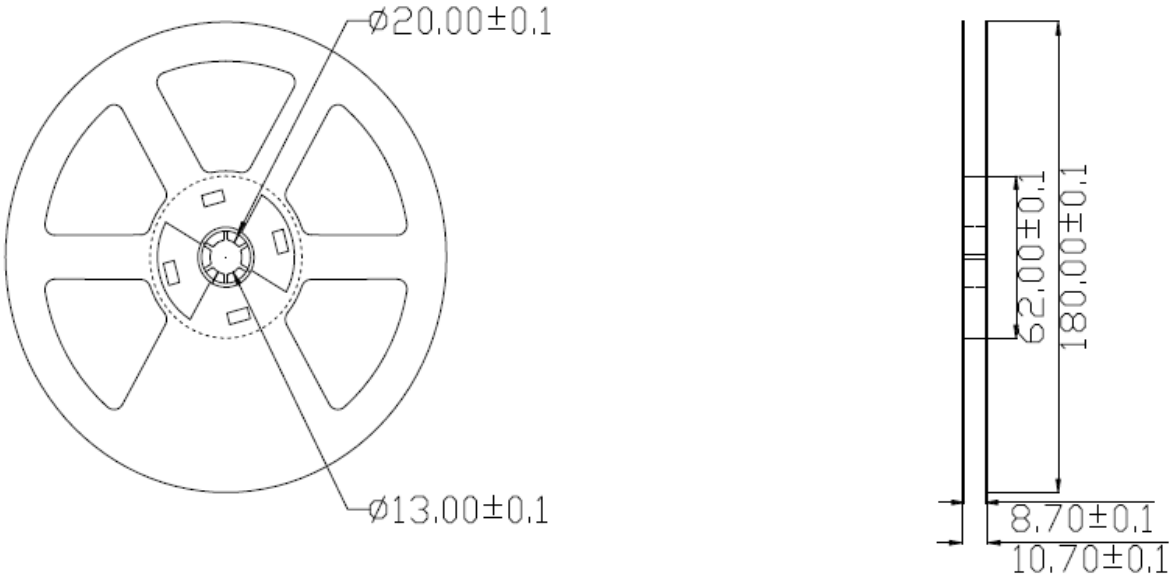
· Tape specifications (Unit:mm)

Package unit 2000pcs/reel

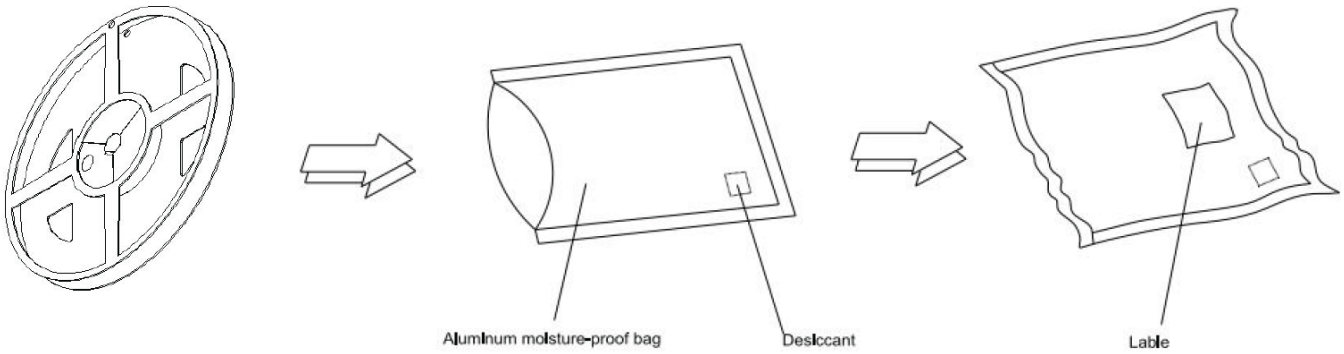
Carrier tape dimensions (unit: mm)



REEL DIMENSIONS

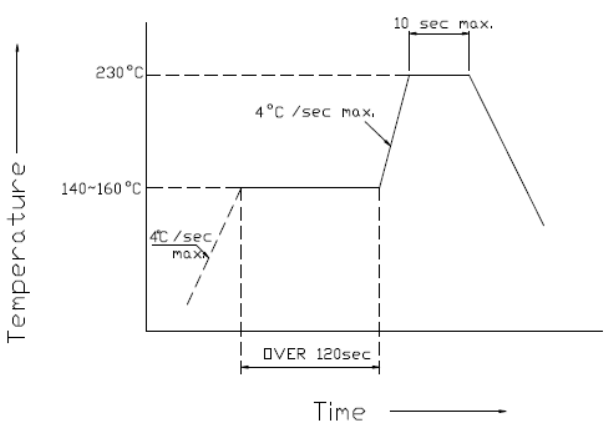


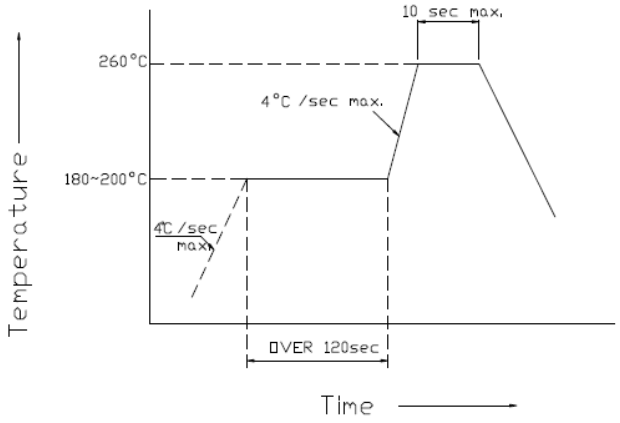
MOISTURE RESISTANT PACKAGING



· SMT Reflow soldering instructions SMT:

	Reflow soldering		Hand soldering	
	Lead solder	Lead-free solder		
Pre-heat	140-160℃	180-200℃	Temperature	350℃ Max.
Pre-heat time	120 sec. Max	120 sec. Max.	Soldering time	3 sec. Max.
Peak temperature	230℃ Max.	260℃ Max.		(one tiem only)
Soldering time	10 sec. Max.	10 sec. Max.		
Condition				





1.Reflow soldering should not be done more than two times.

In the case of more than 24 hours passed soldering after first, LEDs will be damaged.

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℃ less than 3 seconds

2.The hand solder should be done only one time.

• Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering ironshould be used (as below figure). It should be confirmed in advance whether the characteristics of LEDs will or will not bedamaged by repairing.

·SMD LED Instruction Manual

Thank you for your trust and support to our company. To enhance your understanding of the product characteristics of our company, it is convenient for you to grasp the characteristics of its use during use, to minimize or avoid unnecessary product damage or performance mismatch caused by human factors. Specifically, as below:

1. Moisture Resistant and vacuum Packaging

All the SMD LEDs are packed in moisture-proof and anti-static aluminum foil bags. During handling, it is necessary to avoid squeezing and puncturing the packaging bags to cause leakage of the moisture-proof bags.

2. Material confirmation

Please check the package for leaks, other damage, and check if the label matches your company's requirements. If you find an abnormality, please contact us in time.

3. Unopened SMD led storage

The unopened SMD led should not be stored for a long time as much as possible, because the storage environment is not easy to control. You can choose a recent delivery based on your production schedules.
The storage environment is best to choose moisture proof cabinet, the temperature is about 30 degrees, the humidity is below 60%, and in this case:

(1) RGB products can be stored for 30 days.

4. Precautions after unpacking

After receiving the SMD led from our company, please arrange the production as soon as possible. Due to the different storage environments of each warehouse, it is not recommended to make large quantities of stocks.

After opening the package:
If the package is Intact, it will be better to bake at 70° for 12 hours before reflow soldering process.
It is not recommended to store the SMD led after unpacking. Please accurately calculate the demand for the production line. If storage is required, it is recommended to store in a 60-degree oven.
In the conditions of 25±5°C and 45±15% RH, the soldering process must be completed within 12 hours.
If it is not in the range of 25±5°C and 45±15% RH, the soldering process must be completed within 6 hours. If not completed, a) unsealing, it is recommended to be stored in the oven at 70-degree low temperature before use; b) vacuum packing, it is best to choose moisture proof cabinet, the temperature is about 30 degrees, the humidity is below 60%.

5. It is not recommended to mix different batches of SMD led

Test before the production according to the first inspection standard. If you find any abnormality in the SMD led, please contact us. Please do not mix different batches of SMD led during the production process. If you can't avoid it, you need to use the LEDs of the previous batch. Please confirm the package is normal and then confirm the first piece. Finally, the products produced by this batch of SMD led are separately distinguished.

6. In the production process, please fill in the reflow soldering after the patch is completed, **and the reflow soldering is not repeatable.** Reflow soldering. Check the ESD protection measures during soldering and assembly.

7. SMD led for outdoor application, the finished product design is to use a cover lens as much as possible and then potting seal. It is not recommended to seal directly on the surface of the lamp. The potting glue should try to choose glue with low permeability and oxygen permeability and good adhesion to aluminum. The controller's negative pressure should be minimized.

8. Finished luminaires that have been installed outdoors. If the luminaires cannot be used in time after commissioning, please pay attention to the timing aging. Please use a small current to illuminate all the chips in the early stage of aging. Do not scan the program. After aging for two hours, the current is gradually amplified; do not scan the program and often aging for 4 hours once a month. In the initial stage of use, please adjust the speed of the controller to the slowest and the color conversion speed is the slowest.