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Mass production	



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES



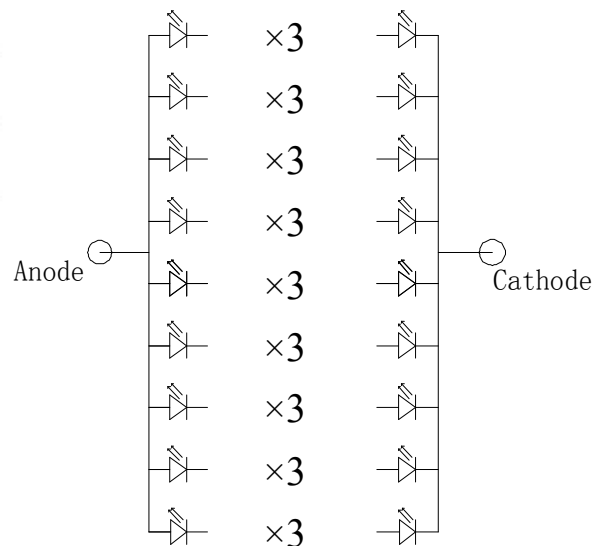
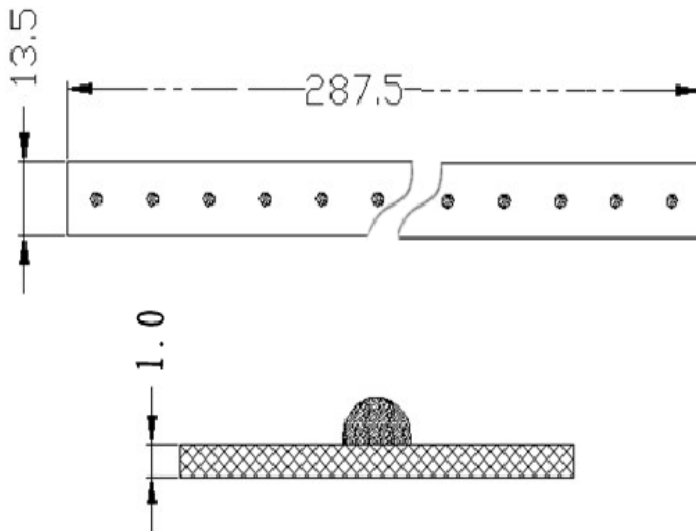
## Features

- Package: Domestic initiative package—MLCOB (Multiple Lens Chip On Board); One-step molding lens with colored diffused silicone
- PCB substrate:FR4
- High brightness uniformity
- Others: Simple structure ;Easy instal-lation; Compliant with RoHS

## Applications

- T5/T8 fluorescent tube

## Package Dimensions



**Notes:**

1. All dimension units are millimeters.
2. All dimension tolerance is  $\pm 0.2\text{mm}$  unless otherwise noted.



# Specifications

## (1) Absolute Maximum Ratings at TC=25°C

Parameter	Symbol	Rating	Units
Input power	Pi	5	W
DC Forward Current	I <sub>F</sub>	450	mA
Peak Forward Current (Duty 1/10@1KHZ ) [1]	I <sub>FP</sub>	540	mA
Junction Temperature	T <sub>j</sub>	40	°C
Operating Temperature Range	Topr	-20°C To +75°C	
Storage Temperature Range	Tstg	0°C To +40°C	

Note:

- 1.1/10 Duty Cycle,0.1ms Pulse Width.
- 2.The temperature of Aluminum PCB do not exceed 55°C.

## (2) Electrical / Optical Characteristics at TC=25°C

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Color Temperature[1]	TC	5665	6000	6530	K	IF=450mA
Color-rendering index[1]	Ra	70	—	—	—	IF=450mA
Viewing Angle(50%)[1]	Θ	—	160	—	°	IF=450mA
Efficacy[1]	η	—	128	—	lm/W	IF=450mA
Forward Voltage [1]	V <sub>F</sub>	8	9	10	V	IF=450mA
Luminous Flux[1]	Φ <sub>v</sub>	—	540	—	lm	IF=450mA
Power dissipation[2]	P <sub>d</sub>	—	4	—	W	IF=450mA

Note:

- 1.The tolerance of measurement at our tester is V<sub>F</sub>+/-3% , Φ<sub>v</sub>+/-10% and Ra+/-1.
- 2.All high power LED products mounted on Aluminum substrate can be lighted directly, but we do not recommend lighting the high power products for more than 5 seconds without a appropriate heat dissipation equipment.

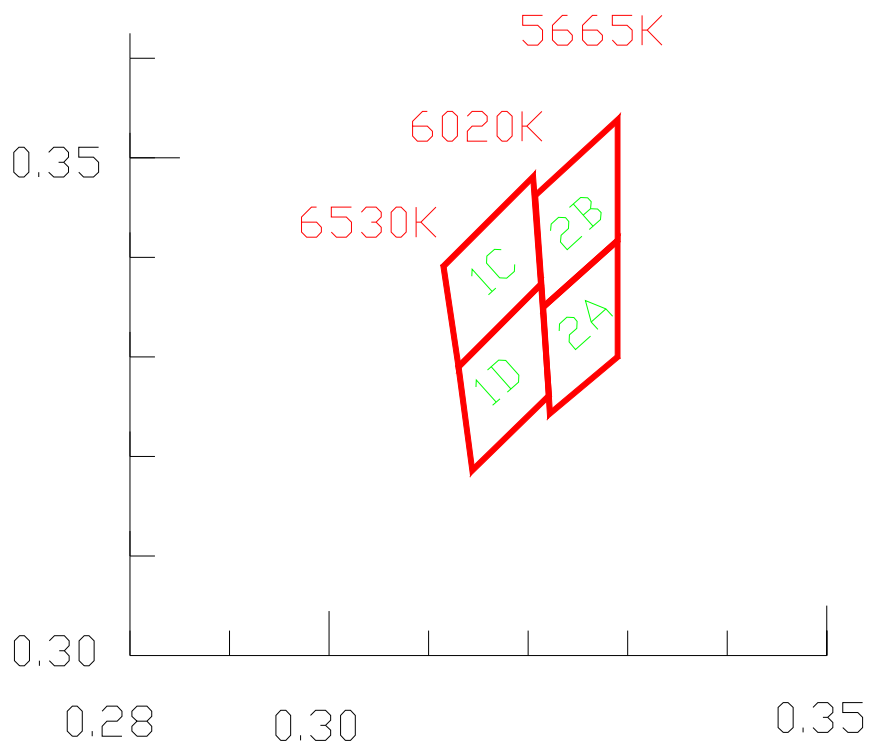
## (3) Device Selection Guide

Part No.	Chip		Lens Type
	Material	Emitting Color	
HL-LB021H431W-4B9C3	InGaN	Blue	Cold White



# Product bins

## Chromaticity bins

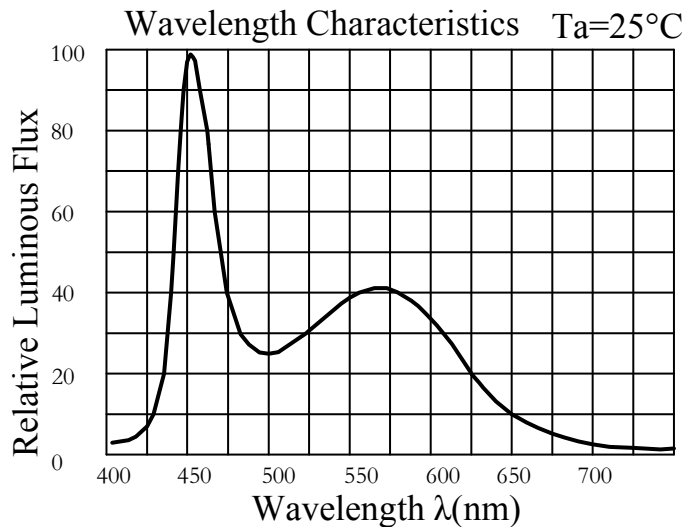
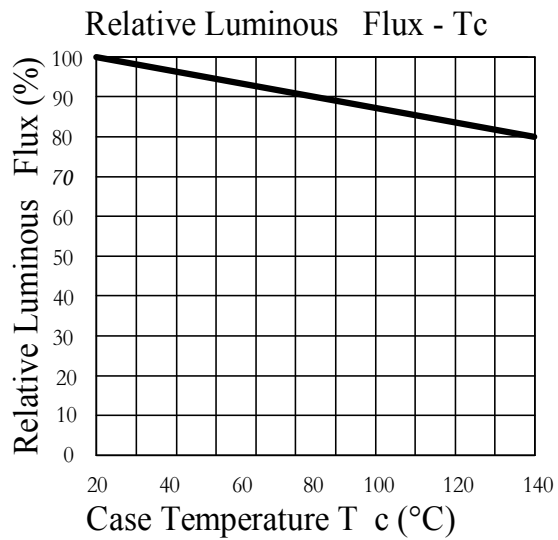
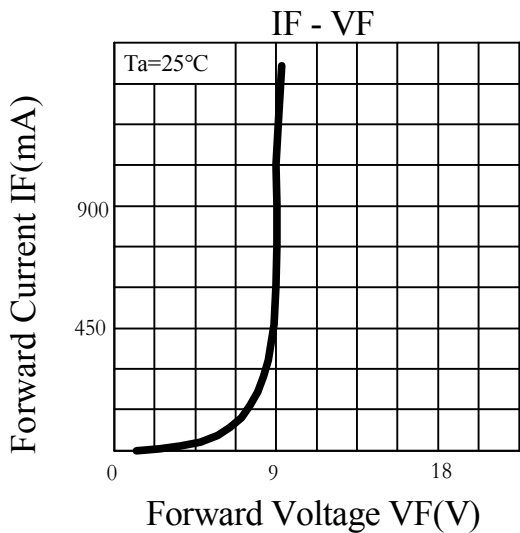
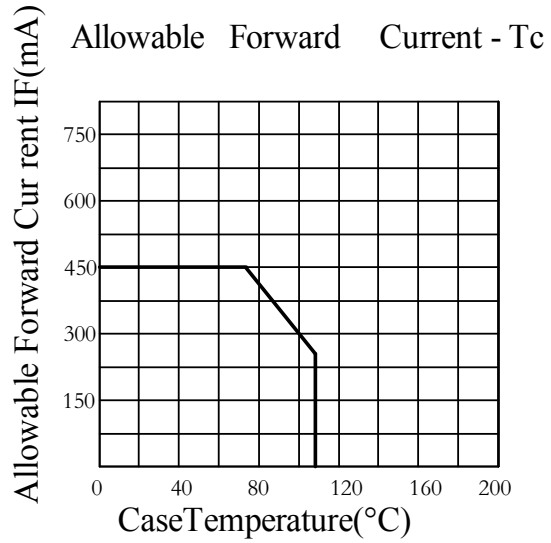
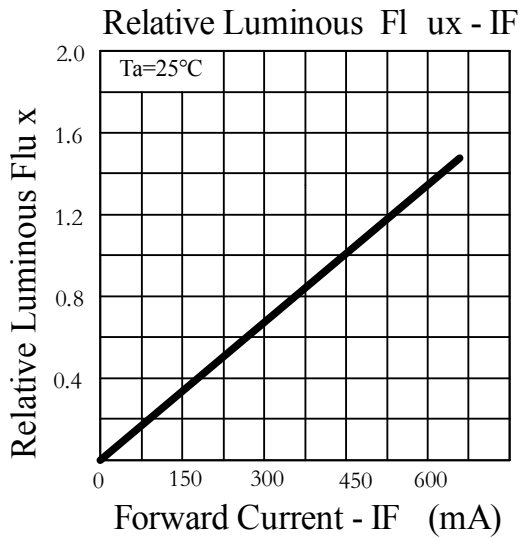


bin code	CIEX	CIEY
2A	0. 3215	0. 3350
	0. 3290	0. 3417
	0. 3290	0. 3300
	0. 3222	0. 3243
2B	0. 3207	0. 3462
	0. 3290	0. 3538
	0. 3290	0. 3417
	0. 3215	0. 3350
1C	0. 3115	0. 3391
	0. 3205	0. 3481
	0. 3213	0. 3373
	0. 3130	0. 3290
1D	0. 3130	0. 3290
	0. 3213	0. 3373
	0. 3221	0. 3261
	0. 3144	0. 3186



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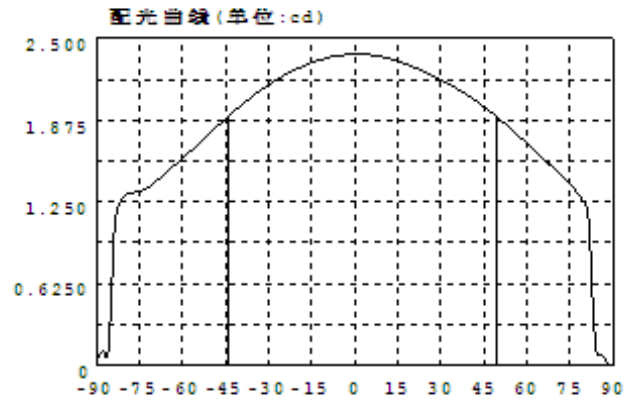
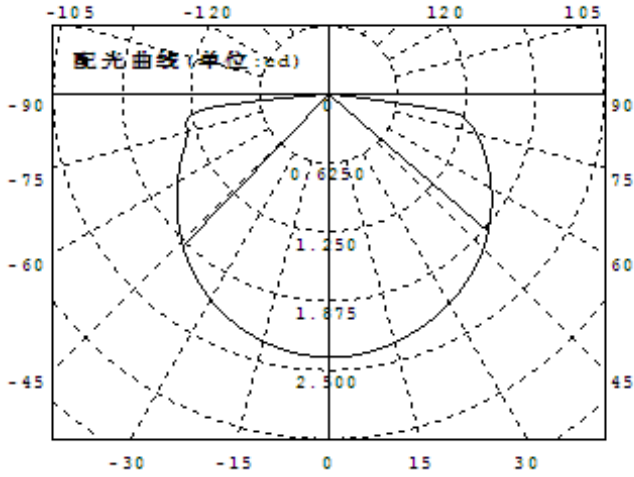
# Spatial Distribution Graph



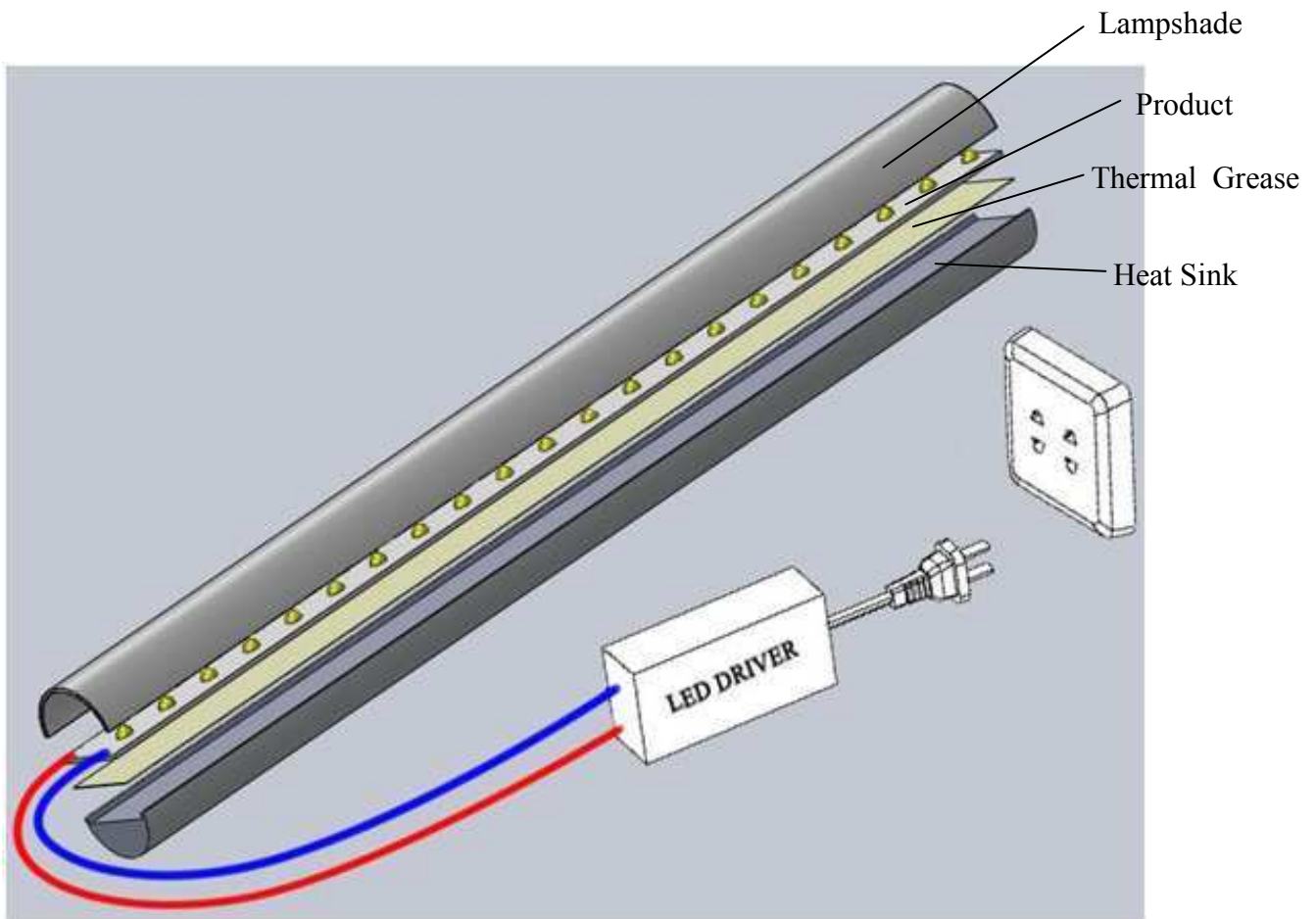


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## Spatial Distribution Graph



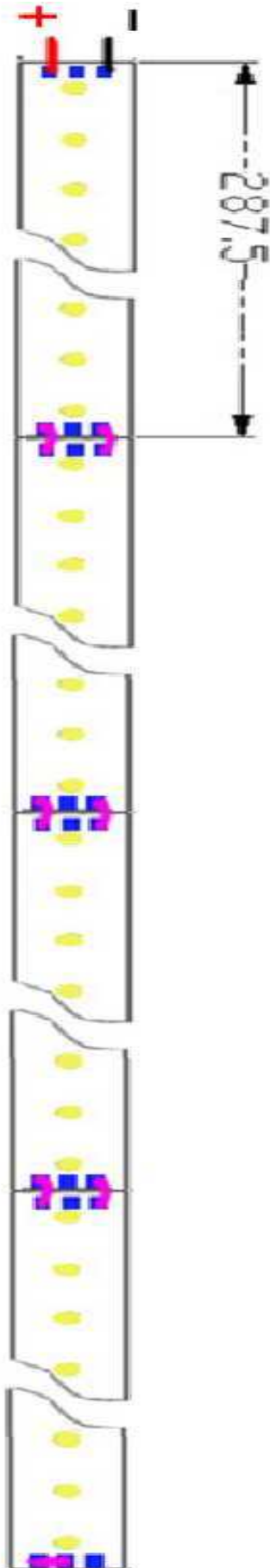
## Product Thermal Application Information





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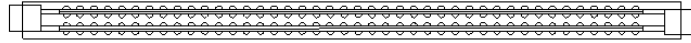
Installation method between devices of a T8 fluorescent tube



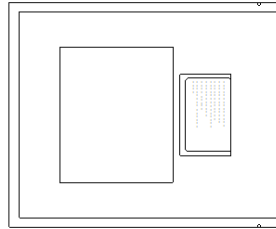


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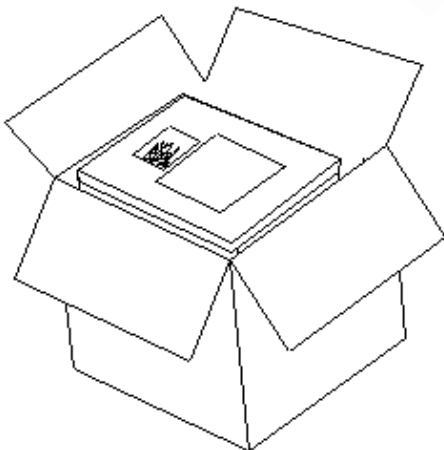
## Tape Specification



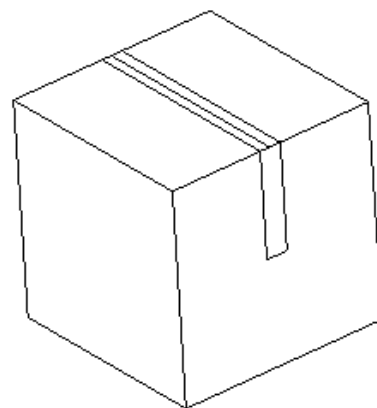
1PVC Packaging Tube: 4pcs



8Tube/ESD Shielding Bag: 32pcs



10Bags/Inner box:320pcs



Outer Box:320pcs



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## Precaution for use 1

### 1、Hand Soldering

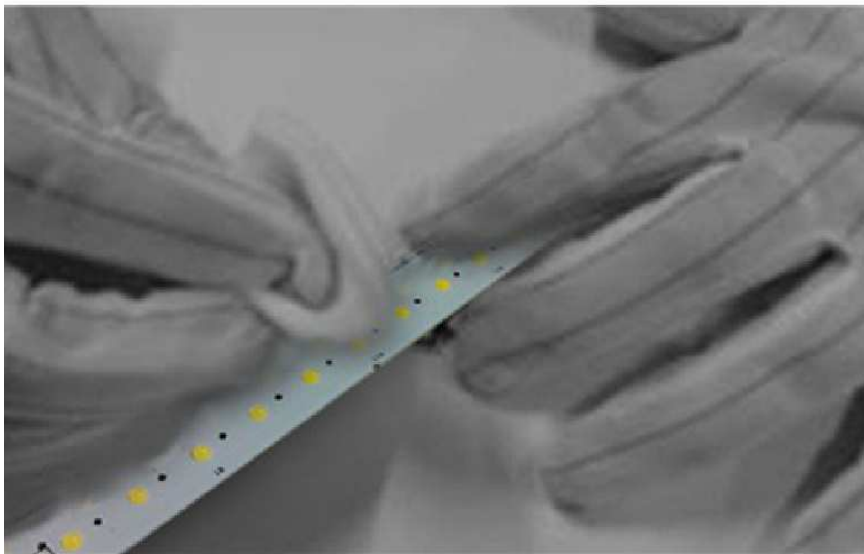
Be careful because the damage of the product is often started at the time of the hand soldering. Stress on the LEDs' lens should be avoided during heating in soldering process.

After soldering, do not deal with the product before its temperature drop down to room temperature.

### 2、Cleaning

It is recommended that alcohol be used as a solvent for cleaning after soldering. Cleaning is to go under 30°C for 3 minutes or 50°C for 30 seconds. When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the silicone or not.

Ultrasonic cleaning is also an effective way for cleaning. But the influence of Ultrasonic cleaning on LED depends on factors such as ultrasonic power. Generally, the ultrasonic power should not be higher than 300W. Before cleaning, a pre-test should be done to confirm whether any damage to LEDs will occur.



### 3、Static Electricity

Static electricity or surge voltage damages the LEDs. Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current., even not light.

All devices, equipment and machinery must be properly grounded. At the same time, it is recommended that wrist bands or anti-electrostatic gloves, anti-electrostatic containers be used when dealing with the LEDs





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## Precaution for use 2

### 4、Design Consideration

In designing a circuit, the current through each LED must not exceed the absolute maximum rating specified for each LED. In the meanwhile, resistors for protection should be applied, otherwise slight voltage shift will cause big current change, burn out may happen.

Thermal Design is paramount importance because heat generation may result in the Characteristics decline, such as brightness decreased, Color changed and so on. Please consider the heat generation of the LEDs when making the system design.

Installation: There's no need to use the screws. During the installation, you should be carefully and avoid damaging the LEDs' lens. you can use clip-type or sticky-type to install .

### 5、Storage

To avoid the moisture penetration ,we recommend storing LEDs in a dry box (or a desiccator) with a desiccant. The recommended conditions are temperature 5 to 30 degrees Centigrade. Humidity 60% maximum.

### 6、Precaution after opening packing

6.1. Soldering should be done right after opening the package (within 24Hrs).

6.2. Keeping of a fraction.

-Sealing

-Temperature: 5~30℃ Humidity: less than 30%

6.3. If the package has been opened than 1 week or the color of desiccant changed, components should be dried for 10-12 Hrs at 60±5℃.

7、Any mechanical force or any excess vibration shall not be accepted to apply during cooling process to normal temperature after soldering.

8、Please avoid rapid cooling after soldering.

9、This device should not be used in any fluid such as water, oil ,organic solvent etc. When washing is required, Isopropyl Alcohol should be used.

10、When the LEDs are illuminating, operating current should be decided after considering the package maximum temperature.

11、Avoid touching Lens parts especially by sharp tools such as pincette.



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### Precaution for use 3

- 12、Please do not force over 400g impact or pressure diagonally on the silicone lens. It will cause fatal damage on this product.
- 13、Please do not cover the silicone resin of the LEDs with other resin.
- 14、Do not use metal suction nozzle, rubber or silica gel suction nozzle is recommended.
- 15、Recommend that the area of the heat sink is larger than 50cm<sup>2</sup>/W (with thickness about 2 mm).
- 16、Viewing direct to the light emitting center of the LEDs, especially those of great Luminous Intensity, will cause great hazard to human eyes. Please be careful.

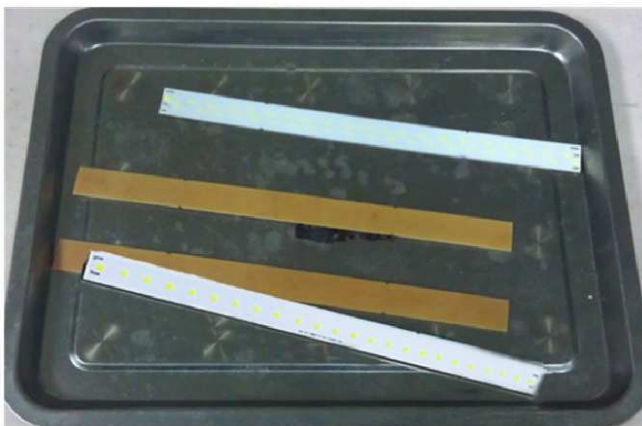


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