

**Part No:**

**Documents No:**

**Prepared By: Kenny Cheng / Time: 2015/05/26**

**Checked By: Ethan Chen / Time: 2015/05/26**

**Customer Confirmation:**

## Features

- § Eutectic chip bonding process
- § Forward maximum pulse current 700mA
- § Low thermal resistance: 8°C/W
- § Wide viewing angle: Typ.145°
- § Operating temperature -30~80°C
- § Storage temperature-40~100°C
- § ROHS and REACH-compliant
- § Outline (L x W x H) of 14.5\*8.0\*5mm
- § Qualified according to JEDEC moisture Level 2
- § Reverse voltage: 5V

## Catalog

Electrical-Optical Characteristics .....	2-3
High Power Product Identification Code .....	3
Color coordinate Comparison .....	4
Optical Characteristics .....	5-6
Outline Dimensions .....	7
Reflow Profile .....	8
Test items and results of reliability .....	9
Packing .....	10
Test circuit and handling precautions .....	11
SMT Collets .....	12

## ➤ Part Number Matrix

Color	Emitter
Cool White	

## ➤ Electrical-Optical Characteristics ( Ta=25°C )

### Cool--White

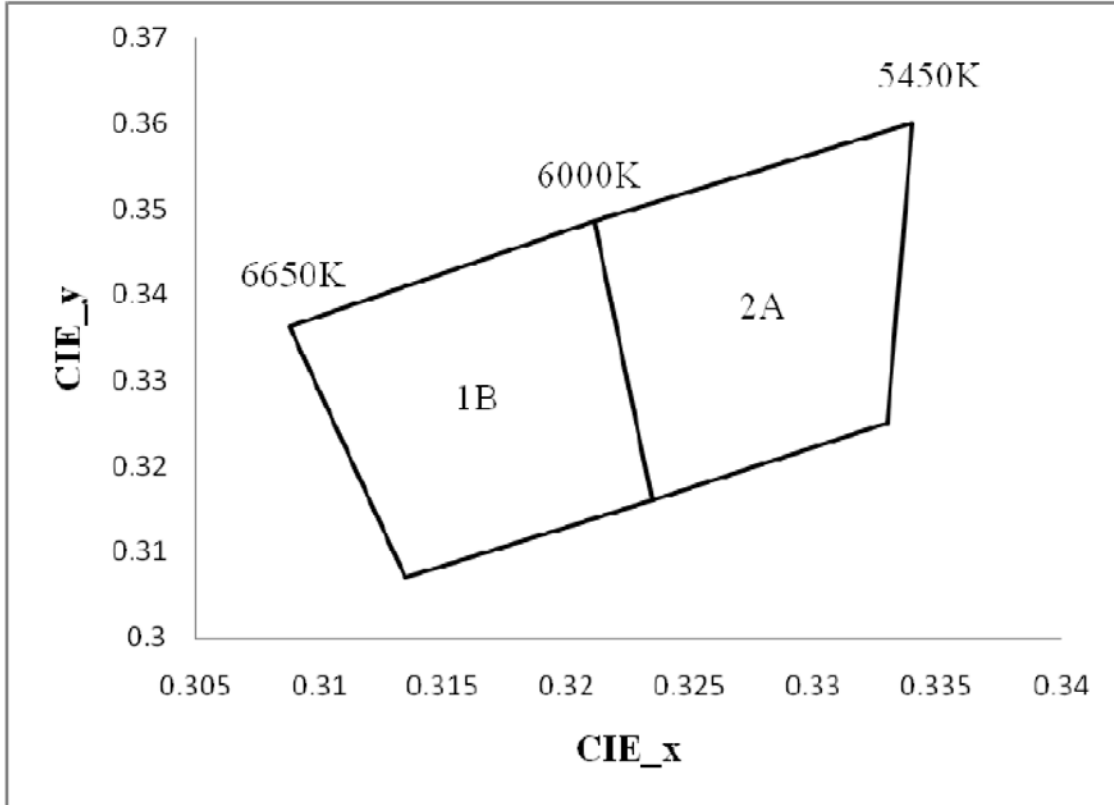
Parameter	Symbol	Value			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>f</sub>	---	3.3	3.4	V	I <sub>f</sub> =350mA
DC Forward Current	I <sub>f</sub>		350	700	mA	
Reverse Current	I <sub>r</sub>	---	---	10	μA	V <sub>r</sub> =5V
Viewing angle	2θ <sub>1/2</sub>	---	145	---	Deg	I <sub>f</sub> =350mA
Chromaticity coordinate	X	---	0.3220	---	---	I <sub>f</sub> =350mA
	Y	---	0.3310	---	---	I <sub>f</sub> =350mA
Color Temperature	CCT	---	6000	---	K	I <sub>f</sub> =350mA
Luminous Flux	Φ <sub>v</sub>	---	125	---	Lm	I <sub>f</sub> =350mA

1. Luminous intensity (Iv) ±10%, Forward Voltage (VF ) ±0.05V, CIE x.y ±0.007

2. CRI >70

3. Electrical-Optical Characteristics ( Ta=25°C )

➤ **Color Coordinate (CIE-1931)**



➤ **Performance Group - Chromaticity**

Bin	Cie-X	Cie-Y	Bin	Cie-X	Cie-Y
1B	0.3211	0.3485	2A	0.334	0.36
	0.3088	0.3363		0.3211	0.3485
	0.3135	0.307		0.3235	0.316
	0.3235	0.316		0.333	0.325

➤ **Range of Bins**

Region	Bin Code	
CW	2A	1B

➤ **Performance Group – Forward Voltage**

Bin	E	F
Vf(V)	3.0-3.2	3.2-3.4

➤ **Performance Group – Brightness**

Bin	34	35	36
Flux(lm)	110-120	120-130	130-140

## ➤ Optical Characteristics

Figure 1. Relative Radiant Power VS Wavelength @Ta=25°C

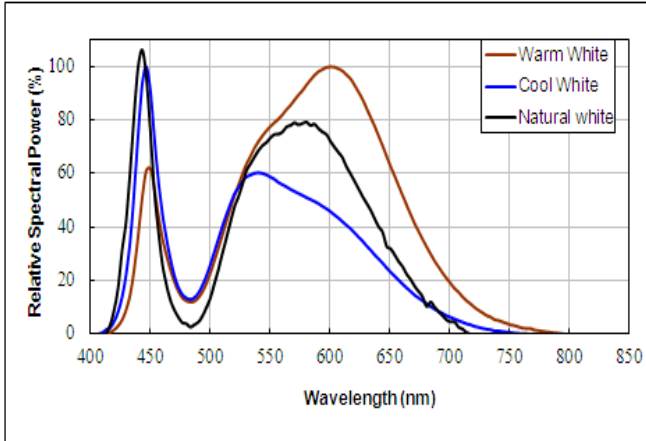


Figure 2. Forward Current VS Forward Voltage

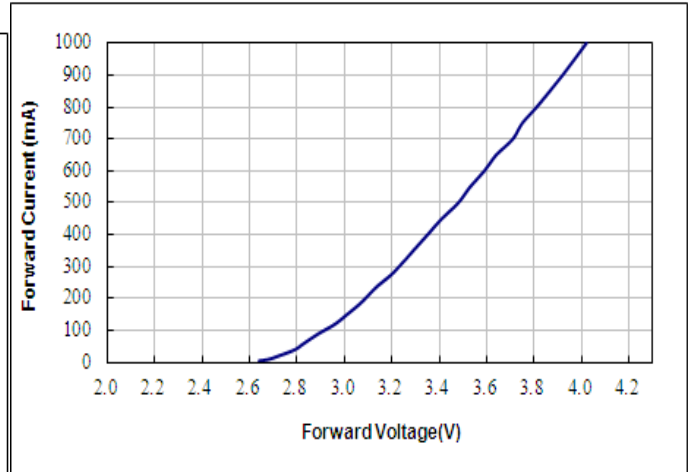


Figure 3. Relative Luminous Flux VS Forward Current @Ta=25°C

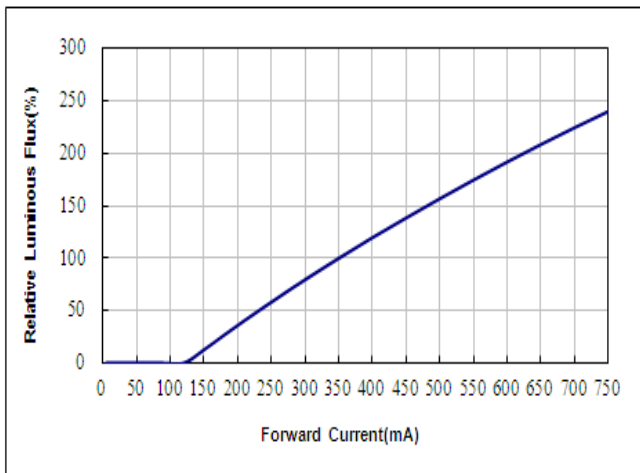


Figure 4. Relative Light Output VS Junction Temperature

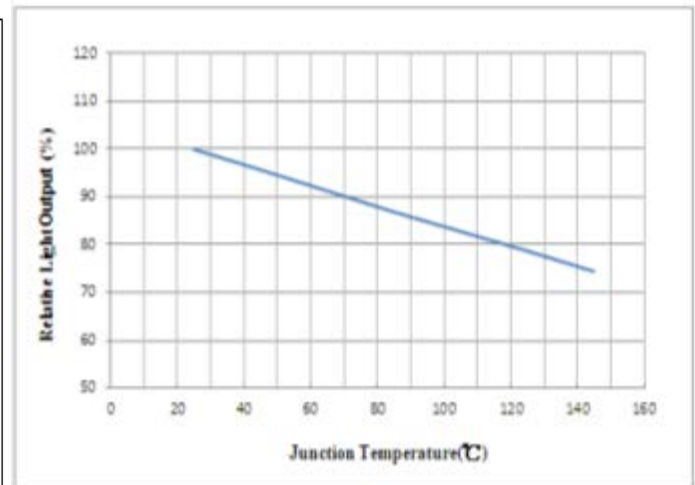


Figure 5. Forward Current VS Ambient Temperature @Tj=125°C

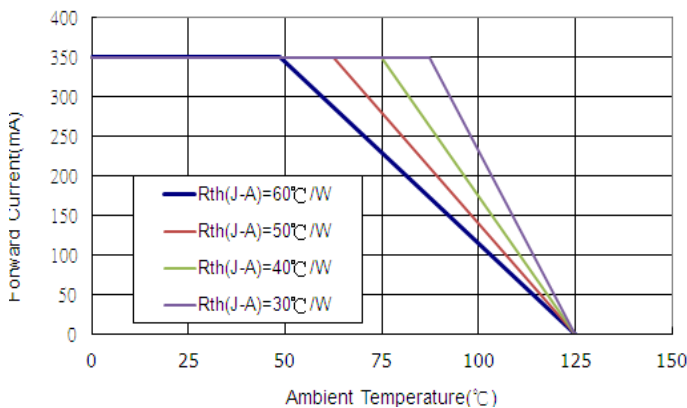
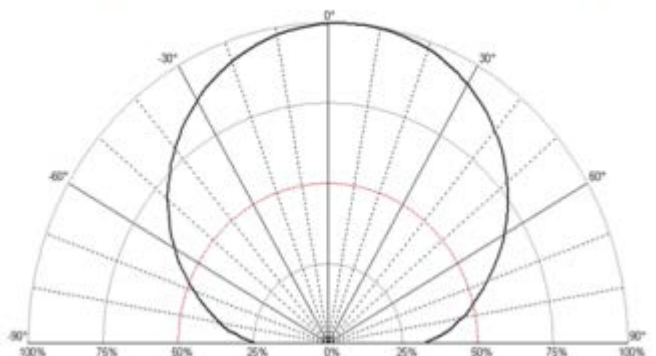
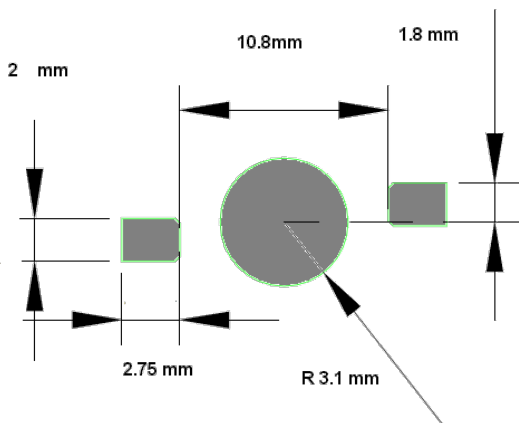
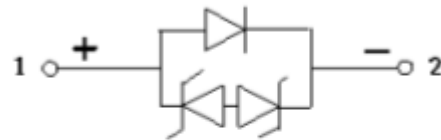
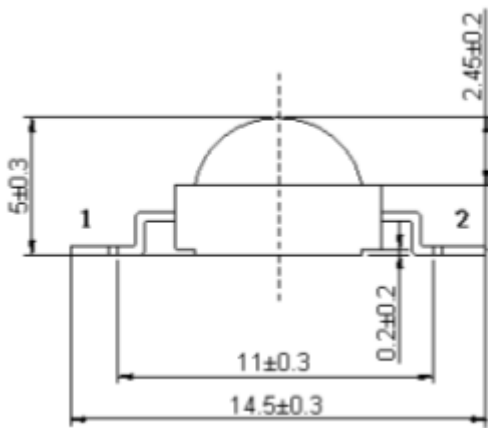
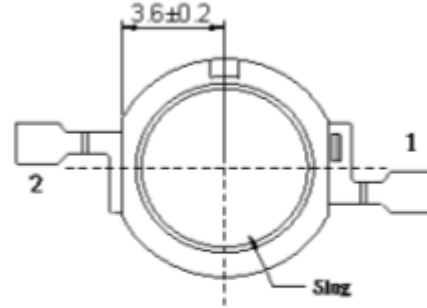
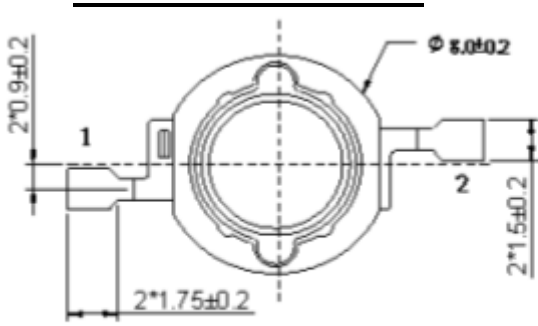


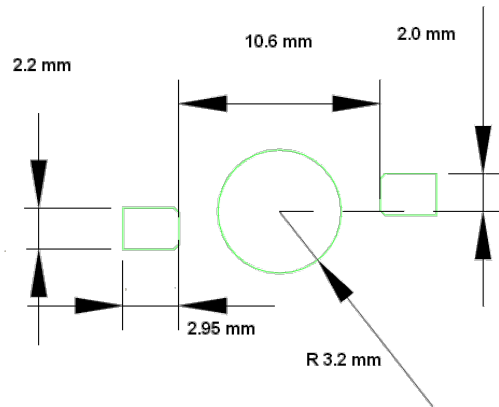
Figure 6. White Color Radiation Angle



## ➤ Outline Dimensions



灰色部分為鋼板開口

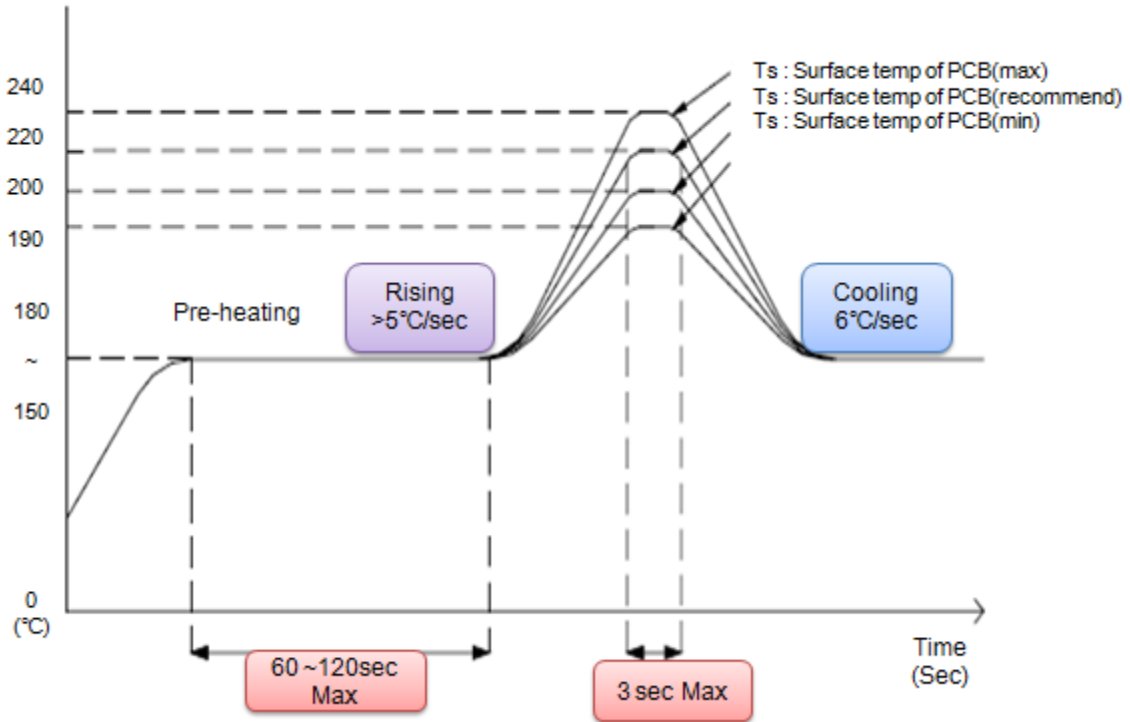


綠圈部分為 PCB 或鋁基板 Pad 尺寸

## ➤ Reflow Profile

### IR reflow soldering Profile

#### Lead Free solder



### NOTES:

1. We recommend the reflow temperature 220°C (±10°C). the maximum soldering temperature should be limited to 230°C.
2. Don't stress the silicone resin while it is exposed to high temperature.
3. Number of reflow process shall be 1 time.
4. **Recommend Solder: TAMURA-TLF-401-11**

➤ Test items and results of rereliability

Test Item	Test Conditions	Duration/ Cycle	Number of Damage	Reference
Temperature Cycle	-40°C 30min ↑↓25°C (5 min) 100°C 30min	100 cycles	0/22	JEITA ED-4701 300 303
Thermal Shock	-40°C 30min ↑↓5sec 110°C 30min	100 cycles	0/22	JEITA ED-4701 200 303
High Temperature Storage	T <sub>a</sub> =85°C	1000 hrs	0/22	EIAJED-4701 200 201
Humidity Heat Storage	T <sub>a</sub> =85°C RH=85%	1000 hrs	0/22	EIAJED-4701 100 103
Low Temperature Storage	T <sub>a</sub> =-40°C	1000 hrs	0/22	EIAJED-4701 200 202
Life Test	T <sub>a</sub> =25°C I <sub>f</sub> =500mA	1000 hrs	0/22	Tested with UVT standard
High Humidity Heat Life Test	60°C RH=90% I <sub>f</sub> =500mA	1000 hrs	0/22	Tested with UVT standard
Low Temperature Life Test	T <sub>a</sub> =-40°C I <sub>f</sub> =500mA	1000 hrs	0/22	Tested with UVT standard
ESD(HBM)	1KV at 1.5kΩ;100pf	3 Times	0/22	MIL-STD-883D

\*Criteria for Judging the Damage

Item	Symbol	Condition	Criteria for Judgement	
			MIN	MAX
Forward Voltage	VF	I <sub>f</sub> =350mA	—	USL* <sup>1</sup> ×1.1
Reverse Current	IR	VR=5V	—	100μA
Luminous Intensity	Iv	I <sub>f</sub> =350mA	LSL* <sup>2</sup> ×0.7	—

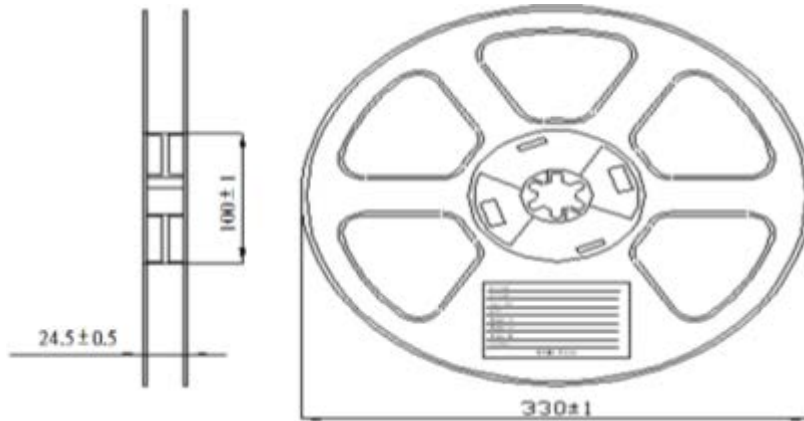
[Note]\*<sup>1</sup>USL: Upper Specification Level

\*<sup>2</sup>LSL: Lower Specification Level

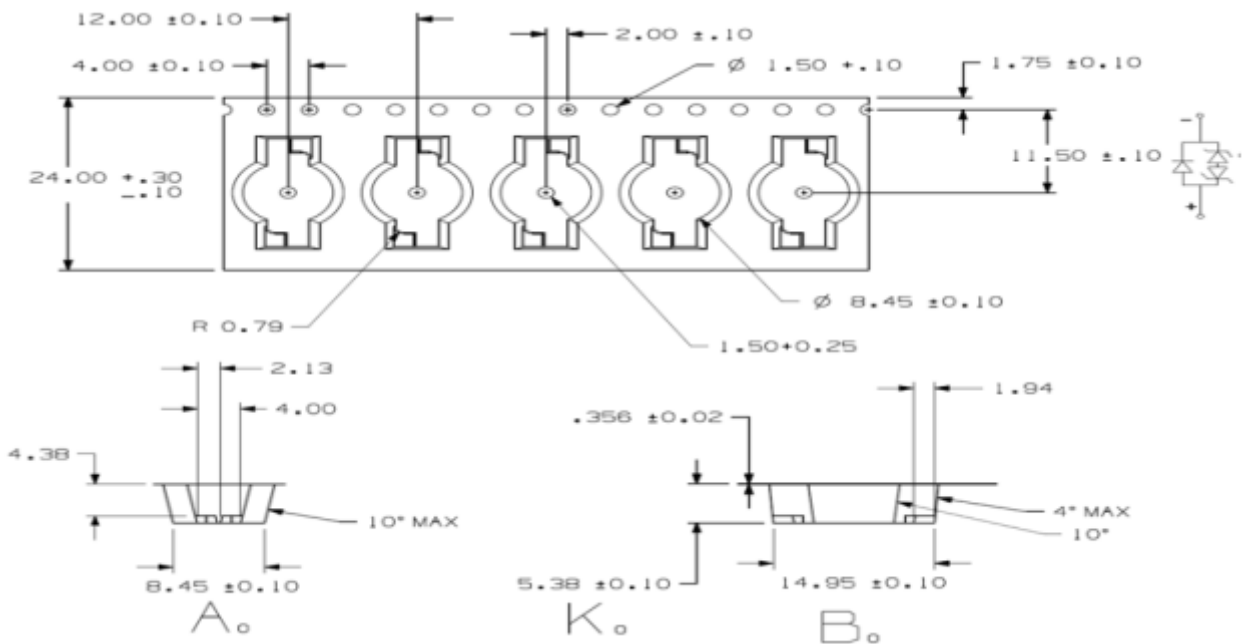


## ➤ Packing

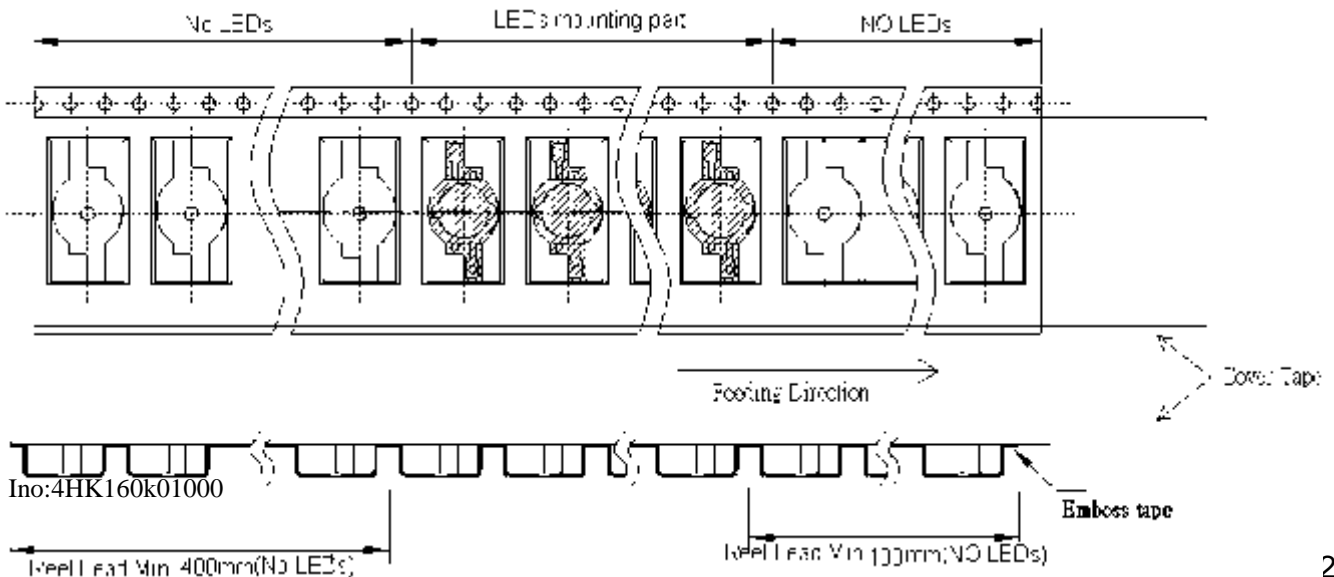
### A. Dimensions of Reel (Unit: mm)



### B. Dimensions of Tape (Unit: mm)



### C. Arrangement of Tape

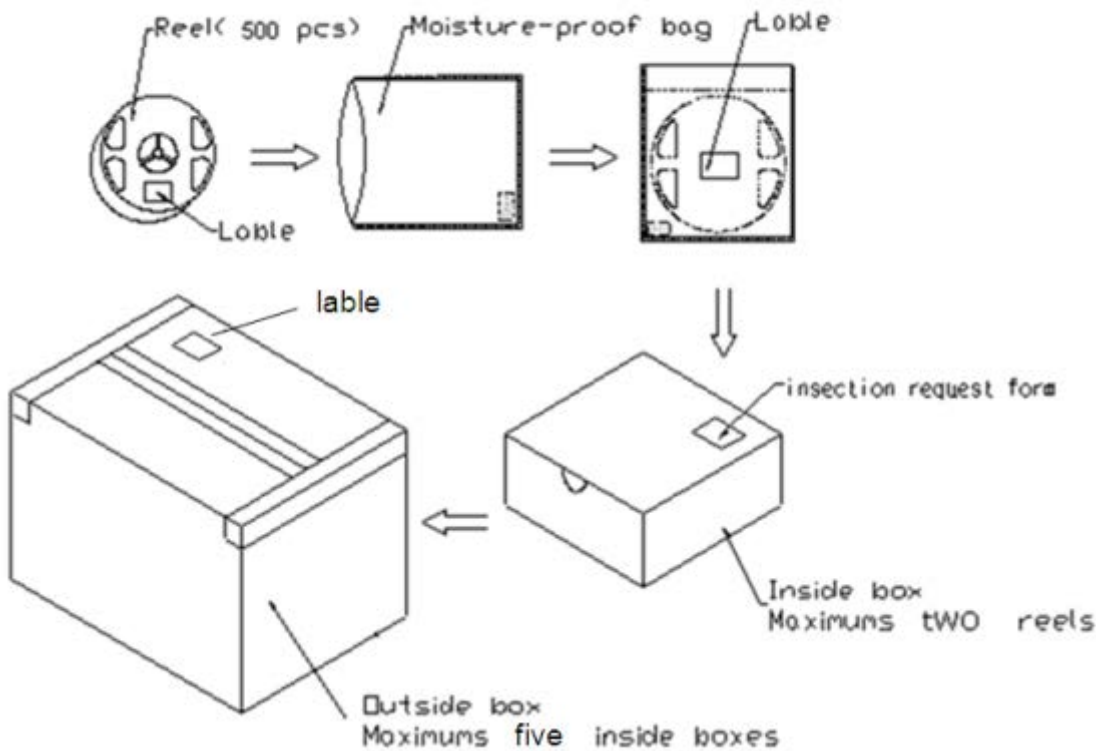


## NOTES

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing smds is two;
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications;
4. 500pcs/Reel

## White Color High Power LEDs Packaging Specifications

### Packaging specifications 1



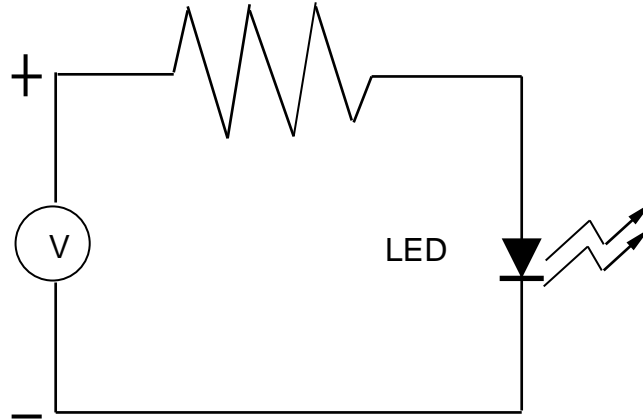
## NOTES:

Reeled products (numbers of products are 500 pcs) packed in a seal off moisture-proof bag along with a desiccant one by one, Two moisture-proof bag of maximums (total maximum number of products are 1,000 pcs) packed in an inside box (size: about 350mm x about 350mm x about 60mm) and five inside boxes of maximums are put in the outside box (size: about 375mm x about 360mm x about 360mm) Together with buffer material, and it is packed. (Part No., Lot No., quantity should appear on the label on the moisture-proof bag, part No. And quantity should appear on the insertion request form on the cardboard box.) .

Ino:4HK160k01000

## ➤ Test circuit and handling precautions

### Test circuit



## ➤ Handling precautions

### 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 It is recommended to store the products in the following conditions:

Humidity: 60% R.H. Max.

Temperature : 5°C~30°C (41°F~86°F)

2.2 Shelf life in sealed bag: 12 month at <5°C~30°C and <30% R.H. after the package is Opened, the products should be used within a week or they should be keeping to stored at  $\leq 20$  R.H. with zip-lock sealed.

### 3. Baking

It is recommended to baking before soldering when the pack is unsealed after 24hrs. The Conditions are as followings:

3.1 70±3°C x 24hrs and <5%RH, taped reel type

3.2 100±3°C x 2hrs , bulk type

## ➤ SMT Collets

### 1、Abnormal situation caused by improper setting of collet

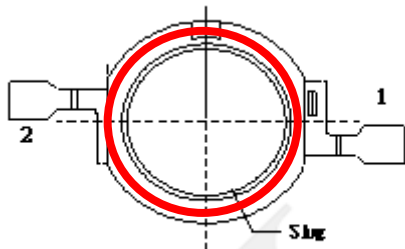
To choose the right collet is the key issue in improving the product's quality. LED is different from other electronic components, which is not only about electrical output but also for optical output. This characteristic made LED more fragile in the process of SMT. If the collet's lowering down height is not well set, it will bring damage to the gold wire at the time of collet's picking up and loading which will cause the LED fail to light up, light up now and then or other quality problems

### 2、How to choose the collet

During SMT, please choose the collet that has larger outer diameter than the lighting area of lens, in case that improper position of collet will damage the gold wire inside the LED.

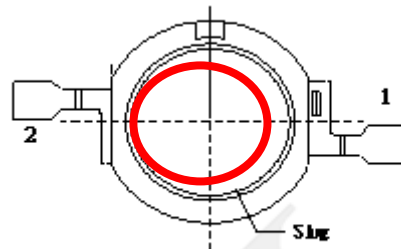
Different collets fit for different products, please refer to the following pictures cross out:.

Outer diameter of collet should be larger than the lighting area



Picture 1 (✓)

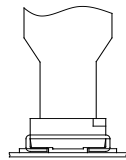
Outer diameter of collet



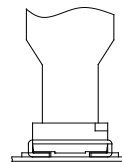
Picture 2 (✗)

### 3、How to set the height of collet

The reason why for top view SMD, the height of collet before it presses downward will directly affect the quality of products during SMT is that if the collect go down too much, it will press lens and cause the distortion or breaking of gold wire. The setting of collet position should follow the pictures belowed.



Picture 3 (✓)



Picture 4 (✗)

### 4、Other points for attention

- No pressure should be exerted to the epoxy shell of the SMD under high temperature.
- Do not scratch or wipe the lens since the lens and gold wire inside are rather fragile and cross out easy to break.
- LED should be used as soon as possible when being taken out of the original package, and should be stored in anti-moisture and anti-ESD package.
- This usage and handling instruction is only for your reference.