



Customer Part No:

Brighttek Part No:

1Z5064AW37FUDQN4

1Z5064AW57FUDDN4

1Z5064AW57FUDLN4

Specification:

Documents No:

Prepared By: Huan Huan Yi

Checked By:

Time: 2012/04/07

Customer Confirmation:

### Features

- § Forward current 350mA
- § Wide viewing angle:120°
- § Operating Temperature -30~80℃
- § Storage temperature-40~100℃
- § ROHS and REACH-compliant
- § outline(LxWxH) of 6.4\*5.0\*1.35mm
- § Qualified according to JEDEC moisturevity Level 2
- § PACKAGE:1000 PCS/REEL.
- § Reverse Voltage:5V

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## Part Number Matrix

Color	Emitter
Cool white	1Z5064AW37FUDQN4
Natural white	1Z5064AW57FUDLN4
Warm white	1Z5064AW57FUDDN4

## ◆Cool --white

Parameter	Symbol	Value			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>f</sub>	3.0		3.7	V	I <sub>f</sub> =350mA
Reverse Current	I <sub>r</sub>	---	---	10	μA	V <sub>r</sub> =5V
Viewing angle	2θ <sub>1/2</sub>	---	120	---	Deg	I <sub>f</sub> =350mA
Chromaticity coordinate	X	---	0.3176	---	---	I <sub>f</sub> =350mA
	Y	---	0.3261	---	---	
Color Temperature	CCT	---	6000	---	K	I <sub>f</sub> =350mA
Luminous Flux	Φ <sub>v</sub>	---	90	---	Lm	I <sub>f</sub> =350mA

1. Luminous intensity (I<sub>v</sub>) ±10%, Forward Voltage (VF) ±0.1V

2. IS Standard Test CRI &gt;70

## ◆Natural --white

Parameter	Symbol	Value			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>f</sub>	3.0		3.7	V	I <sub>f</sub> =350mA
Reverse Current	I <sub>r</sub>	---	---	10	μA	V <sub>r</sub> =5V
Viewing angle	2θ <sub>1/2</sub>	---	120	---	Deg	I <sub>f</sub> =350mA
Chromaticity coordinate	X	---	0.3791	---	---	I <sub>f</sub> =350mA
	Y	---	0.3798	---	---	
Color Temperature	CCT	---	4000	---	K	I <sub>f</sub> =350mA
Luminous Flux	Φ <sub>v</sub>	---	80	---	Lm	I <sub>f</sub> =350mA

1. Luminous intensity (I<sub>v</sub>) ±10%, Forward Voltage (VF) ±0.1V

2. IS Standard Test CRI &gt;70

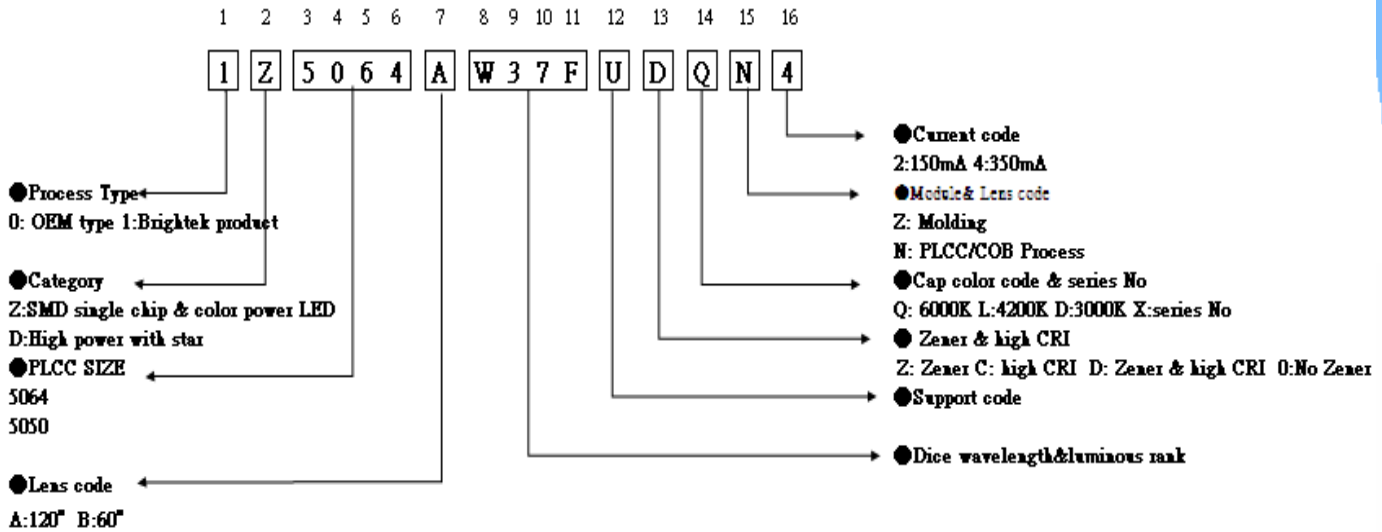
## ◆Warm --white



Parameter	Symbol	Value			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>f</sub>	3.0		3.7	V	I <sub>f</sub> =350mA
Reverse Current	I <sub>r</sub>	---	---	10	μA	V <sub>r</sub> =5V
Viewing angle	2θ <sub>1/2</sub>	---	120	---	Deg	I <sub>f</sub> =350mA
Chromaticity coordinate	X	---	0.4403	---	---	I <sub>f</sub> =350mA
	Y	---	0.4047	---	---	
Color Temperature	CCT	---	3000	---	K	I <sub>f</sub> =350mA
Luminous Flux	Φ <sub>v</sub>	---	65	---	Lm	I <sub>f</sub> =350mA

- Luminous intensity (I<sub>v</sub>) ±10%, Forward Voltage (VF) ±0.1V
- IS Standard Test CRI >80

### High Power Product Identification Code



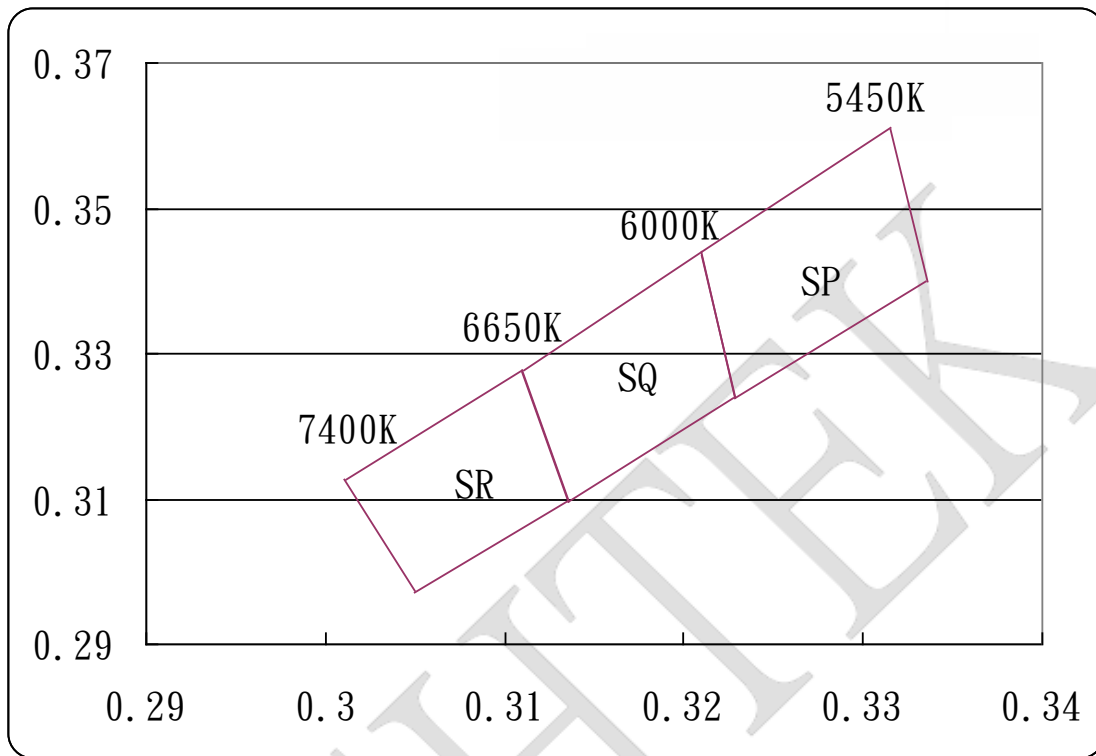
### Range of bins

Bin	E	F	G					
VF(v)	3.0-3.25	3.25-3.5	3.5-3.75					
Bin	26	27	28	29	30	31	32	33
Flux(lm)	55-60	60-65	65-70	70-75	75-80	80-90	90-100	100-110
Bin	34							
Flux(lm)	110-120							

# Color Coordinate Comparison

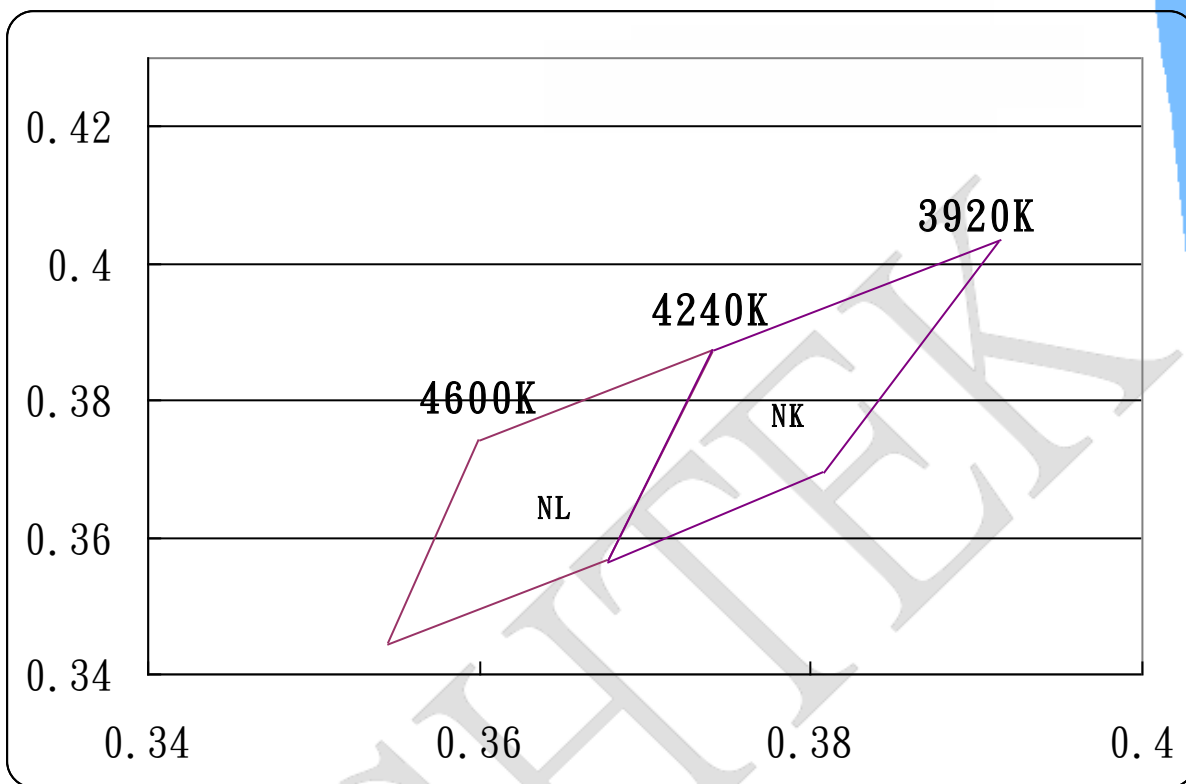
DAIGUEN OPTOELECTRONICS CO., LTD

1Z5064AW37FUDQN4

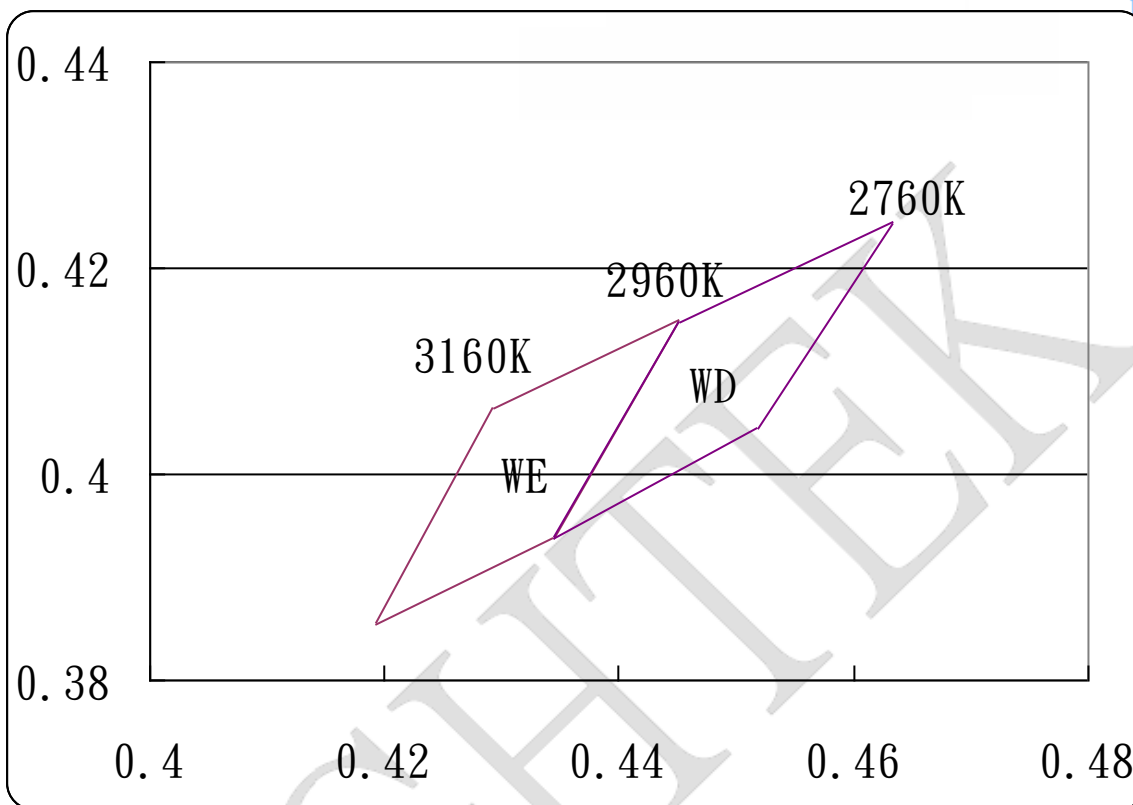


SPECIFICATION FOR APPROVAL

Bin Code	X	Y	X	Y	X	Y	X	Y
SR	0.3011	0.3127	0.305	0.2972	0.3136	0.3095	0.311	0.3276
SQ	0.311	0.3276	0.3136	0.3095	0.3229	0.324	0.3214	0.344
SP	0.3214	0.344	0.3229	0.324	0.3336	0.34	0.334	0.364



Bin Code	X	Y	X	Y	X	Y	X	Y
NL	0.3599	0.3742	0.3545	0.3443	0.3678	0.3567	0.3741	0.3872
NK	0.3741	0.3873	0.3678	0.3563	0.3808	0.3696	0.3914	0.4034



Bin Code	X	Y	X	Y	X	Y	X	Y
WE	0.4292	0.4064	0.4193	0.3855	0.4344	0.3937	0.4451	0.4149
WD	0.4451	0.4147	0.4344	0.3937	0.4519	0.4044	0.4633	0.4245



Figure 1. Relative Spectral Power  
VS Wavelength @  $T_c=25^{\circ}\text{C}$

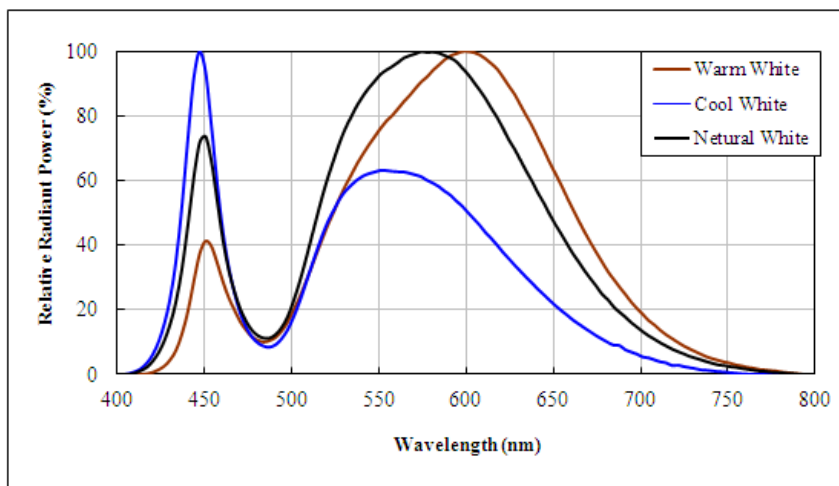


Figure 2. Relative luminous flux  
VS Forward current at  $T_j=25^{\circ}\text{C}$

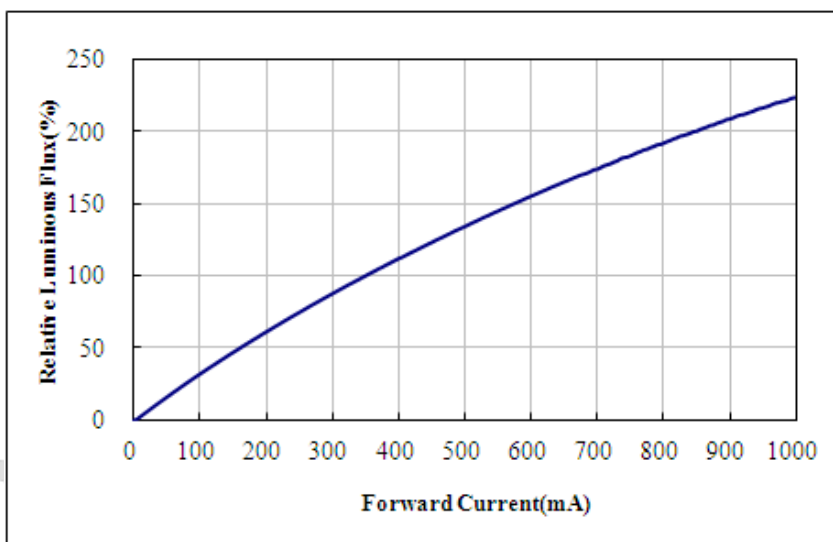


Figure 3. Relative Luminous Flux  
VS Junction temperature

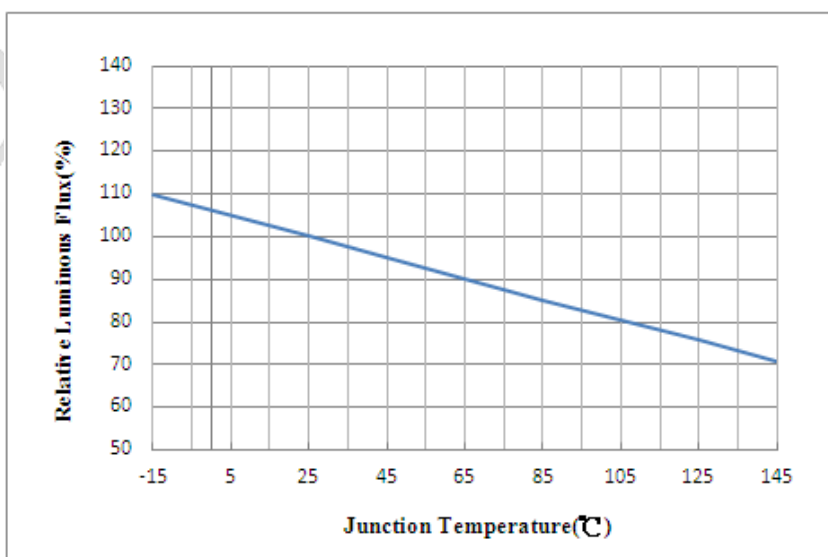




Figure 4. Forward current VS Forward voltage

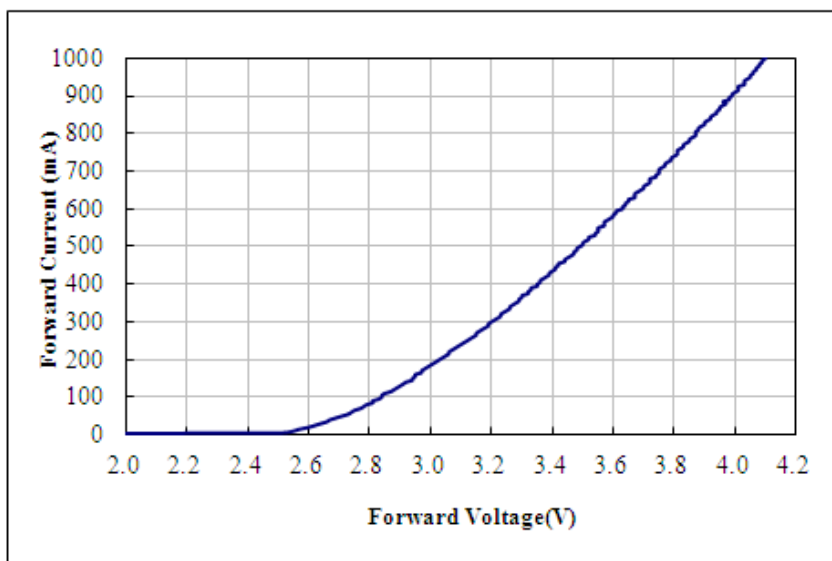


Figure 5. Forward Current VS Ambient Temperature, based on  $T_{jmax}=125^{\circ}C$

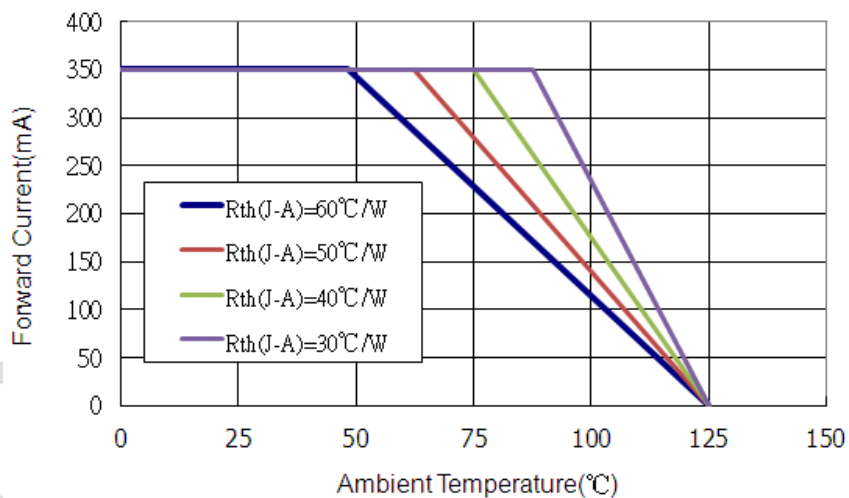
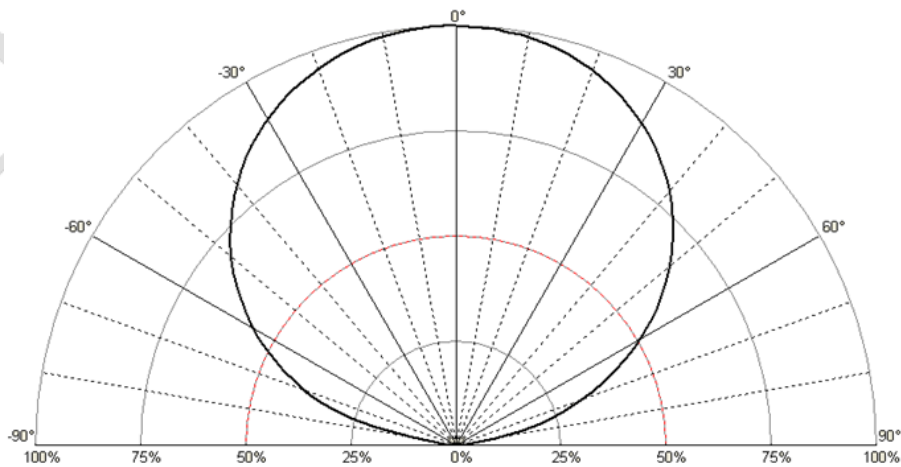
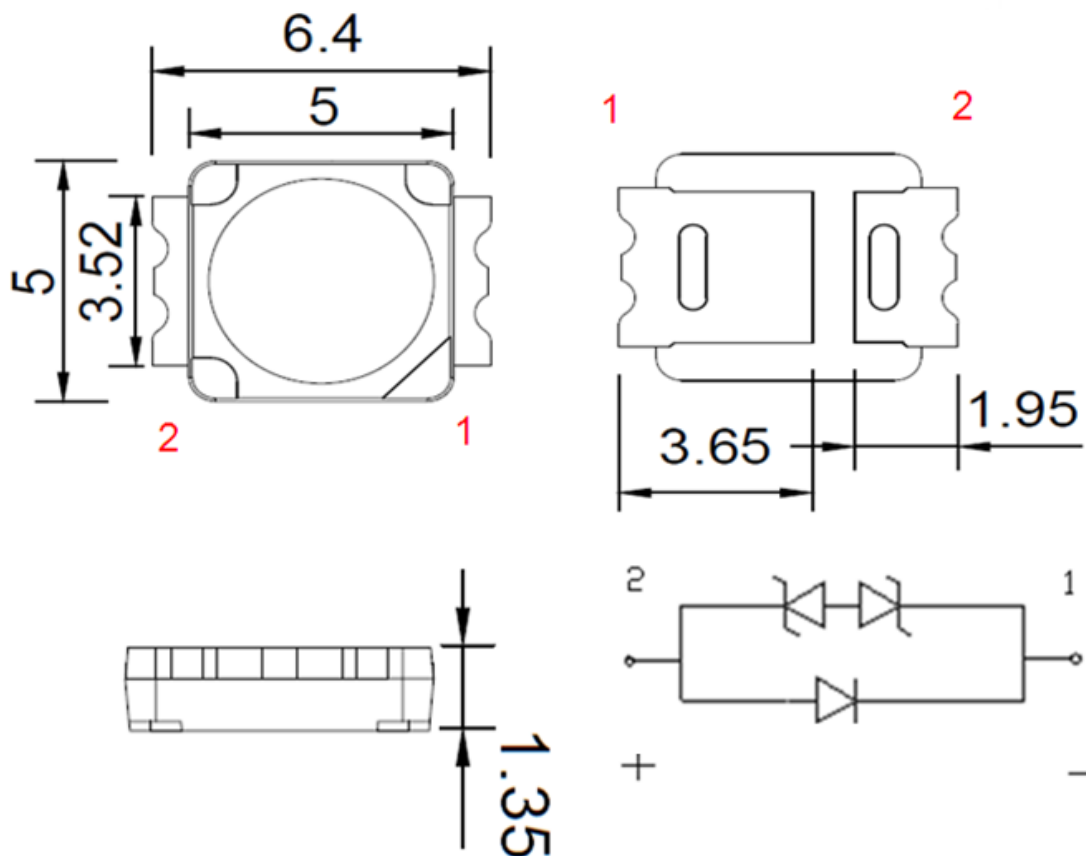


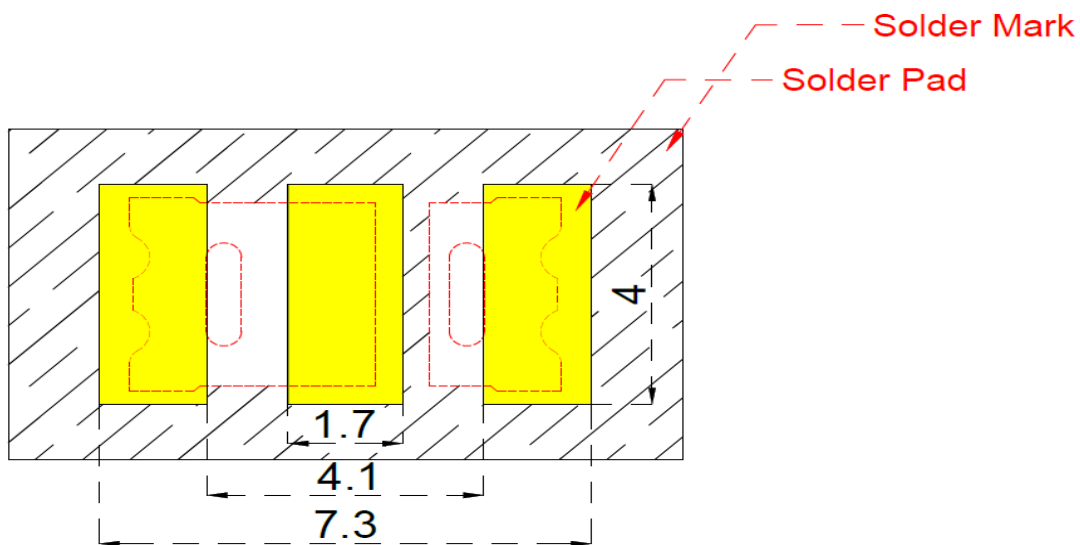
Figure 6. Radiation Angle







**RECOMMEND PADLAYOUT**



**Reflow Profile**

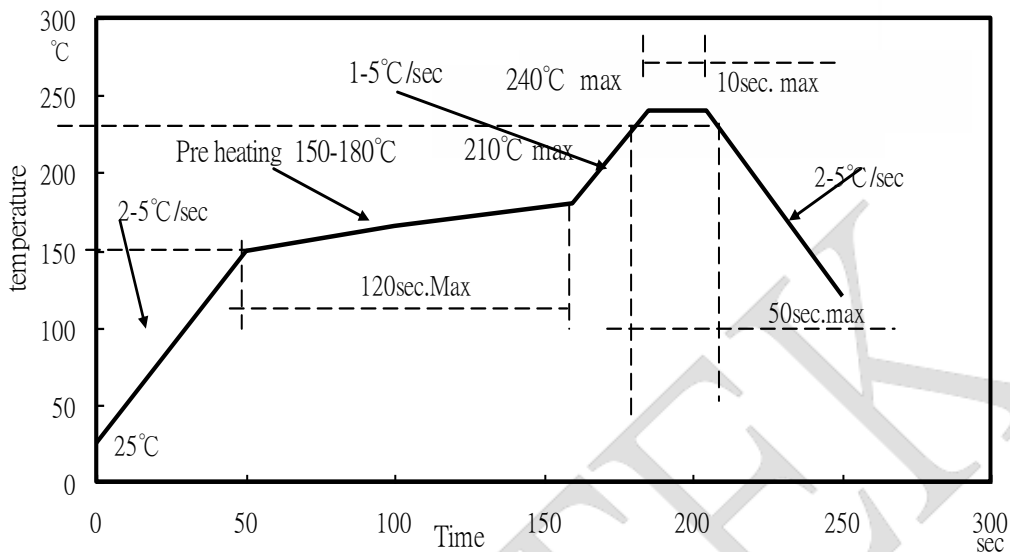
§ All dimensions are in millimeters.(inch)

§ Tolerance is  $\pm 0.1(0.004)$ mm unless other specified

§ Specifications are subject to change without notice.



IR reflow soldering Profile



**NOTES:**

1. We recommend the reflow temperature 240°C(±5°C).
2. Don't cause stress to the silicone resin while it is exposed to high temperature.
3. Number of reflow process shall be 1 time.



Test Item	Test Conditions	Duration/ Cycle	Number of Damage	Reference
Temperature Cycle	-40°C 30min ↑↓25°C (5 min) 100°C 30min	100 cycle	0/22	JEITA ED-4701 300 303
Thermal Shock	-40°C 30min ↑↓5sec 110°C 30min	100 cycle	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 IF=350mA	1000 hrs	0/22	Tested with Brightek standard
High Humidity Heat Life Test	60°C RH=90% IF=350mA	1000 hrs	0/22	Tested with Brightek standard
Low Temperature Life Test	T <sub>a</sub> =-40°C IF=350mA	1000 hrs	0/22	Tested with Brightek standard
ESD(HBM)	1KV at 1.5kΩ;100pf	3 Time	0/22	MIL-STD-883D

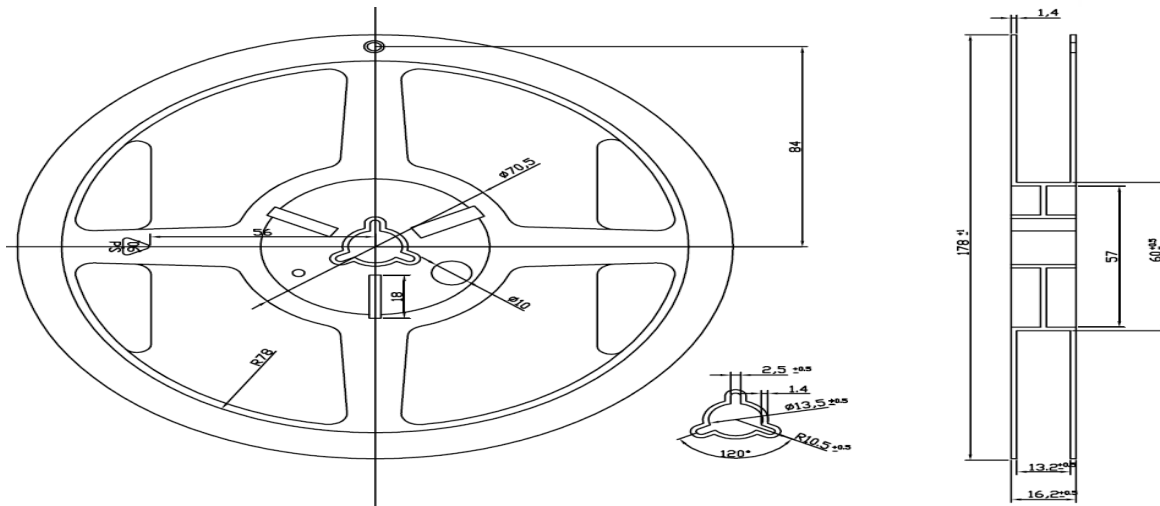
## \*Criteria for Judging the Damage

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

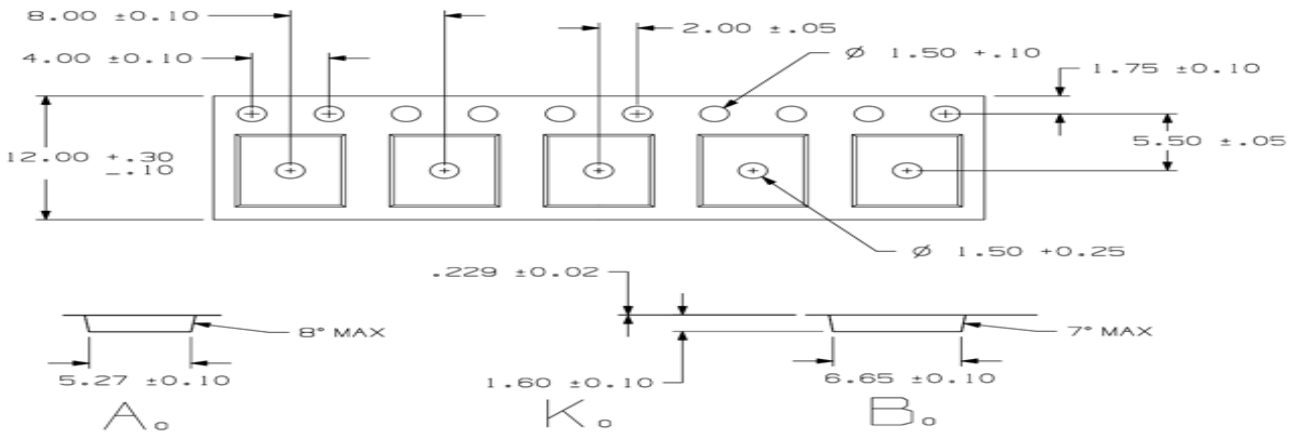
[Note]<sup>\*1</sup>USL:Upper Specification Level<sup>\*2</sup> LSL: Lower Specification Level



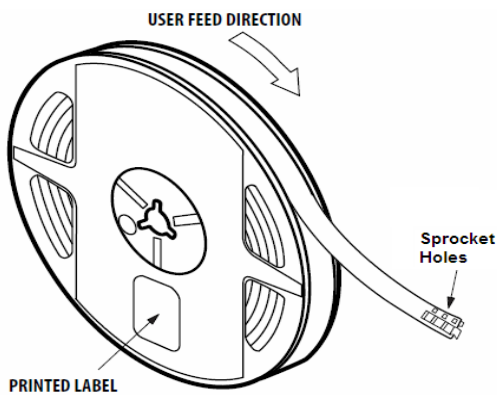
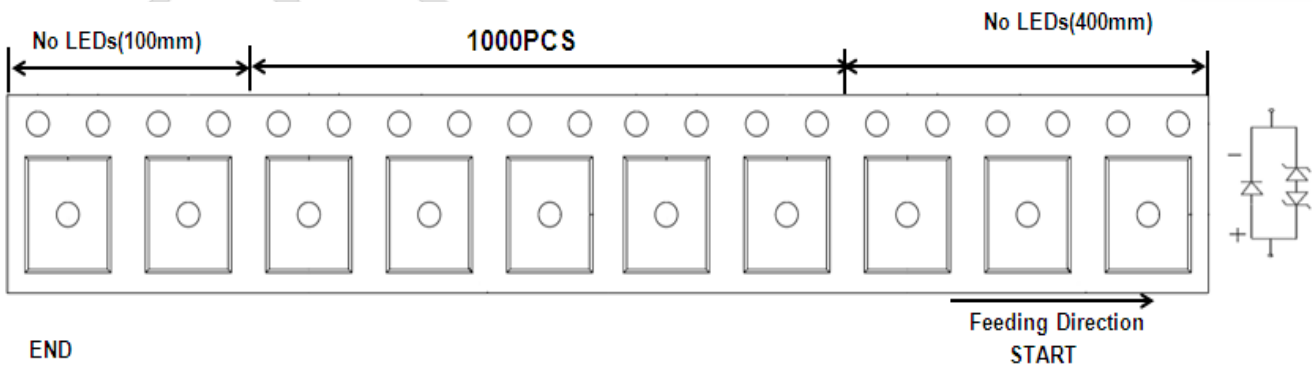
Dimensions of Reel (Unit: mm)



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



**C. Arrangement of Tape**

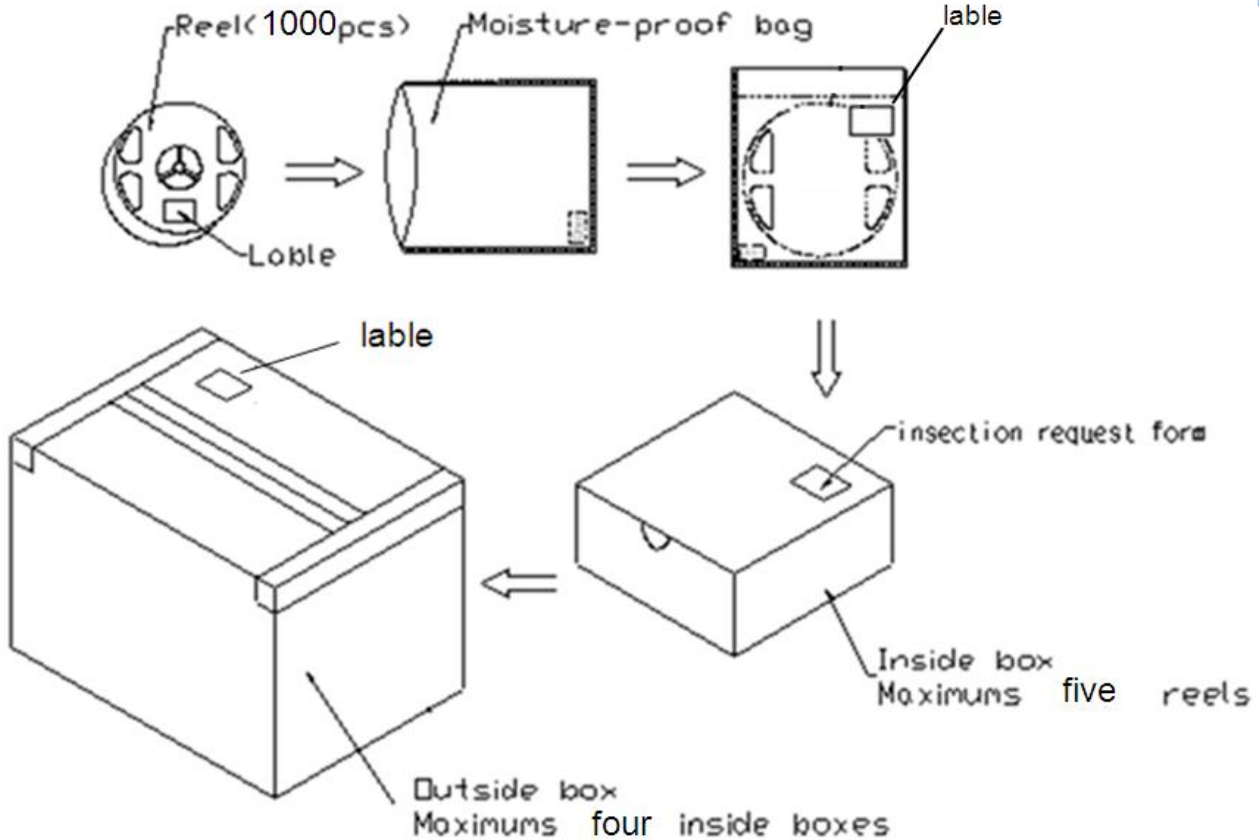


SPECIFICATION FOR APPROVAL



- 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. 1000pcs/Reel

### White Color High Power LEDs Packaging

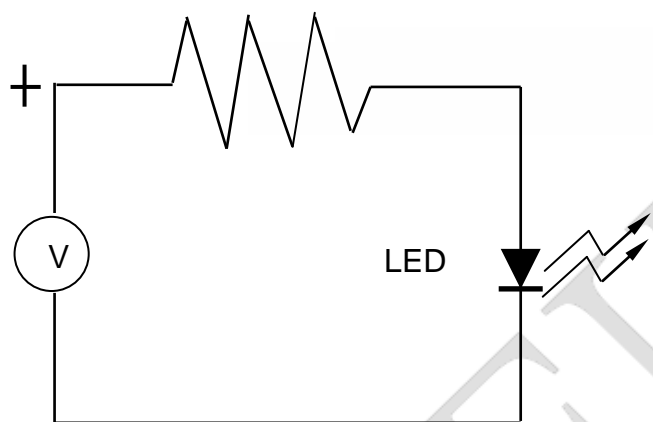


NOTES:

Reeled products (numbers of products are 1000 pcs) packed in a seal off moisture-proof bag along with a desiccant one by one, five moisture-proof bag of maximums (total maximum number of products are 5,000 pcs) packed in an inside box (size: about 240mm x about 195mm x about 100mm) and four inside boxes of maximums are put in the outside box (size: about 410mm x about 255mm x about 240mm) 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.) .



## ■ 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 <60% 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



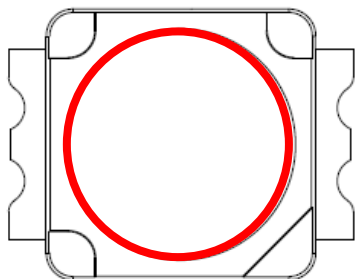
## 1 - Abnormal situation caused by improper setting of collet

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

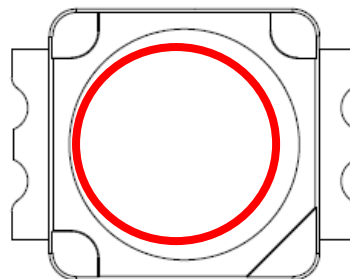
During SMT, please choose the collet that has larger outer diameter than the lighting area of lens, in case that improper position of collet will damage the gold wire inside the LED. Different collets fit for different products, please refer to the following pictures cross out:

Outer diameter of collet should be larger than the lighting area



Picture 1 (✓)

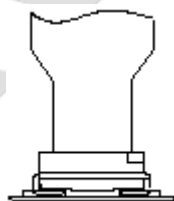
Outer diameter of collet



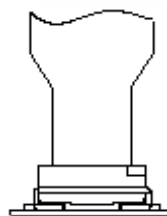
Picture 2 (✗)

## 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.

