

# SPECIFICATION

RF-G9CW\*\*1J-TB2

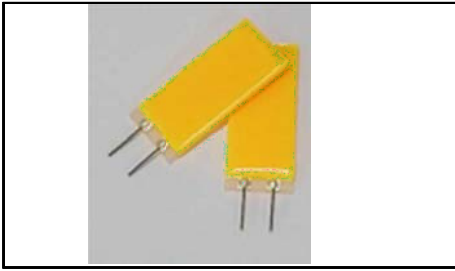
R&D

Mass Product

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## 1. Description

### 1.1 General Description



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

09mmX20mmX2.3mm

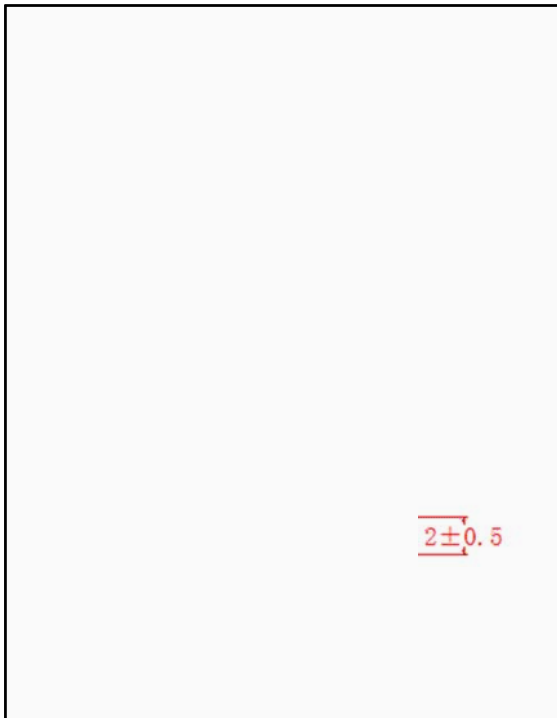
### 1.2 Features

- y Integrated Package.
- y 360° Full Angle Luminescence.
- y Suitable for spot welding process.
- y Moisture sensitivity level: Level 5.
- y RoHS compliant.

### 1.3 Application

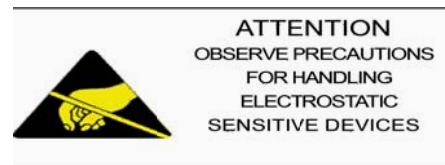
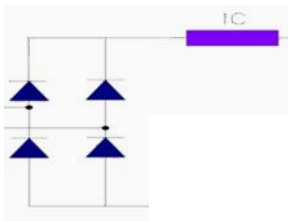
- y LED halogen lamp.
- y Decorative applications.
- y Indoor Lighting.
- y General use.

## 1.4 Package Dimension



W

ReversedDrawing



### Notes

1. All dimensions units are millimeters.
2. All dimensions tolerances are  $\pm 0.5\text{mm}$  unless otherwise noted.

$\pm 0.5$

## 1.5 Product Parameters

Table 1-1 Electrical / Optical Characteristics at Ts=25°C

Item	Symbol	Test Condition	Value			Unit
			Min.	Typ	Max.	
Forward Voltage	AC	AC230v	225	---	235	V
Luminous Flux	-	AC230v	180	---	300	lm
Viewing Angle	2 1/2	AC230v	---	---	360	deg
Color Rendering Index	Ra	AC230v	80	---	---	/
Color Rendering Index	R9	AC230v	0	---	---	/
Power	P	AC230v	1.7	1.9	2.1	W

Table 1-2 Absolute Maximum Ratings at Ts=25°C

Parameter	Symbol	Rating	Units
Power Dissipation	P <sub>D</sub>	2.31	W
Frequency (Hz)hE+Bh9C/	Hz	50	Hz
Electrostatic Discharge (HBM)	E <sub>SD</sub>	2000	V
Operating Temperature	T <sub>OPR</sub>	-40 ~ +85	
Storage Temperature	T <sub>OPR</sub>	-40 ~ +85	
Junction Temperature	T <sub>J</sub>	125	

### Notes

- 1/10 Duty cycle, 0.1ms pulse width. 0.1ms, 1/10.
2. The above forward voltage measurement allowance tolerance is ±1V. ±1V.
3. The above color coordinates measurement allowance tolerance is 0.005. 0.005.

4. The above luminous intensity measurement allowance tolerance  $\pm 10\%$ .
5. Care is to be taken that power dissipation does not exceed the absolute maximum
6. All measurements were made under the standardized environment of Us.
7. When the LEDs are in operation the maximum current should be decided after measuring the junction temperature. The junction temperature should not exceed the maximum rate. LED
8. ESD yield is over 90% at 2000V ESD (HBM). ESD protection during products handling is ESD2000V.
9. The filament is a non-spectroscopic product, and the commitment batch meets the color range of more than 90 %.

### 1.5 Bin Range Of Luminous Flux and The Chromaticity Diagram BIN (AC=230V)

Table 1-3

RF-G9CW2C1J-TB2 2200K	Rank210		RF-G9CW2H1J-TB2 2400
	190	230	
RF-G9CW2R1J-TB2 2700K	Rank250		RF-G9CW: 270
	230	270	
RF-G9CW3E1J-TB2 3000K	Rank260		RF-G9CW: 300
	240	280	
RF-G9CW4E1J-TB2 4000K	Rank270		RF-G9CW: 400
	250	290	
RF-G9CW5E1J-TB2 5000K	Rank280		RF-G9CW: 500
	260	300	
RF-G9CW6E1J-TB2	Rank280		RF-G9CW:

6500K	260	300	6500K	260	300
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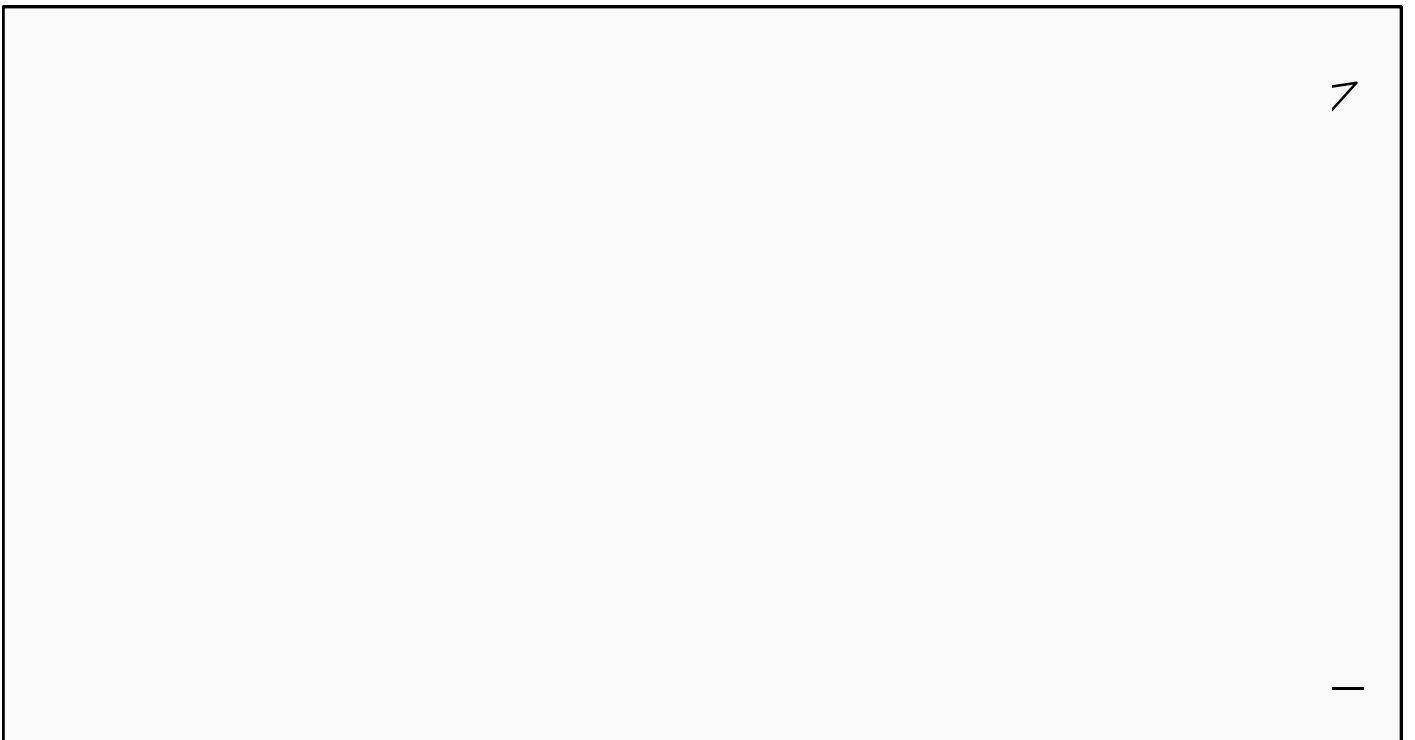
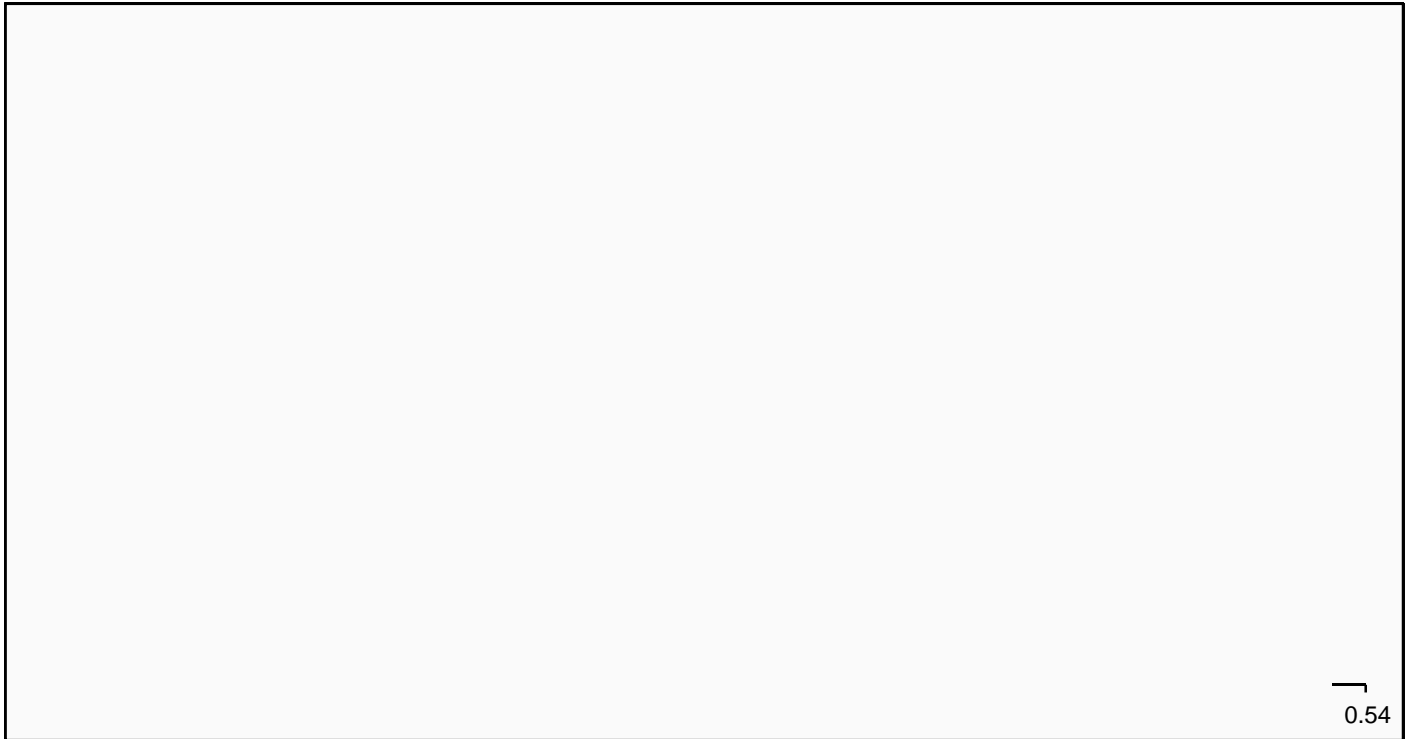


Fig 1-3 The C.I.E Chromaticity Diagram CIE

BIN CODE	CIE-X1	CIE-Y1
22C	0.4845	0.4065
24H	0.4675	0.4060
27R	0.4395	0.4016
30E	0.4227	0.3845
40E	0.3649	0.3595
50E	0.3360	0.3383
65E	0.3068	0.3208
27K	0.4394	0.3914
30S	0.4169	0.3842
40S	0.3671	0.3583
50S	0.3358	0.3355
65S	0.3067	0.3119

068 53.76 .47998 ref210.4.187 2c.76 .47998 ref210.4.187 2c.76 .47998 re ref210

### 1.6 Typical optical

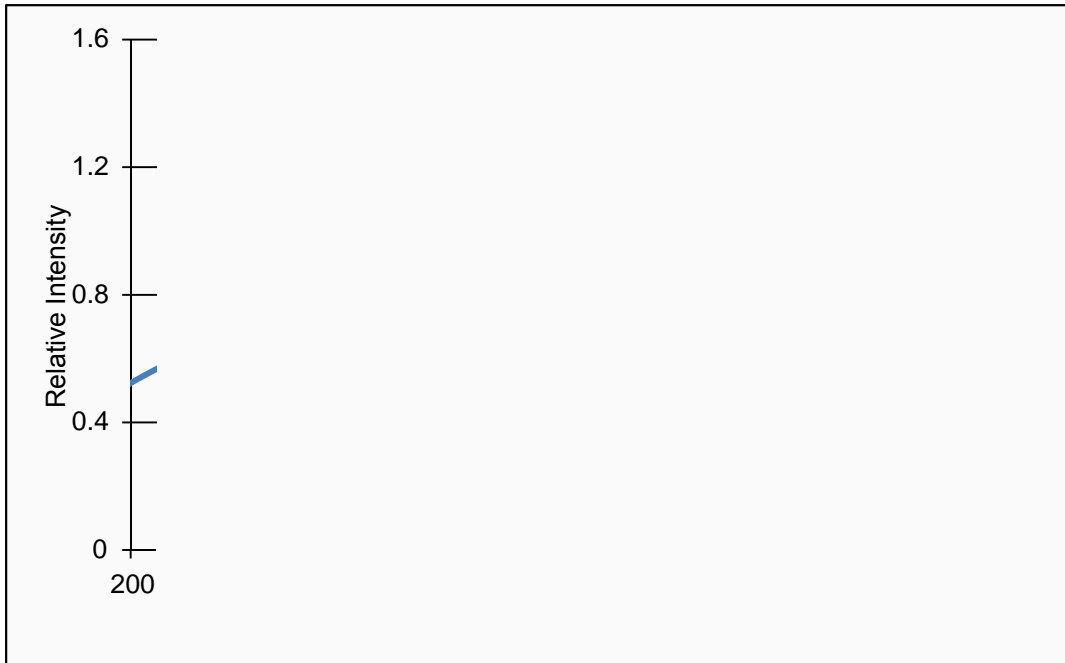


Fig 1-1F

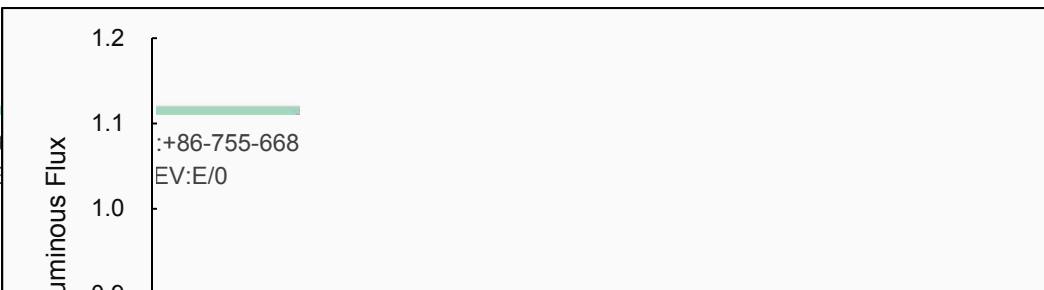




Fig 1-2 Ambient Temperature Vs.

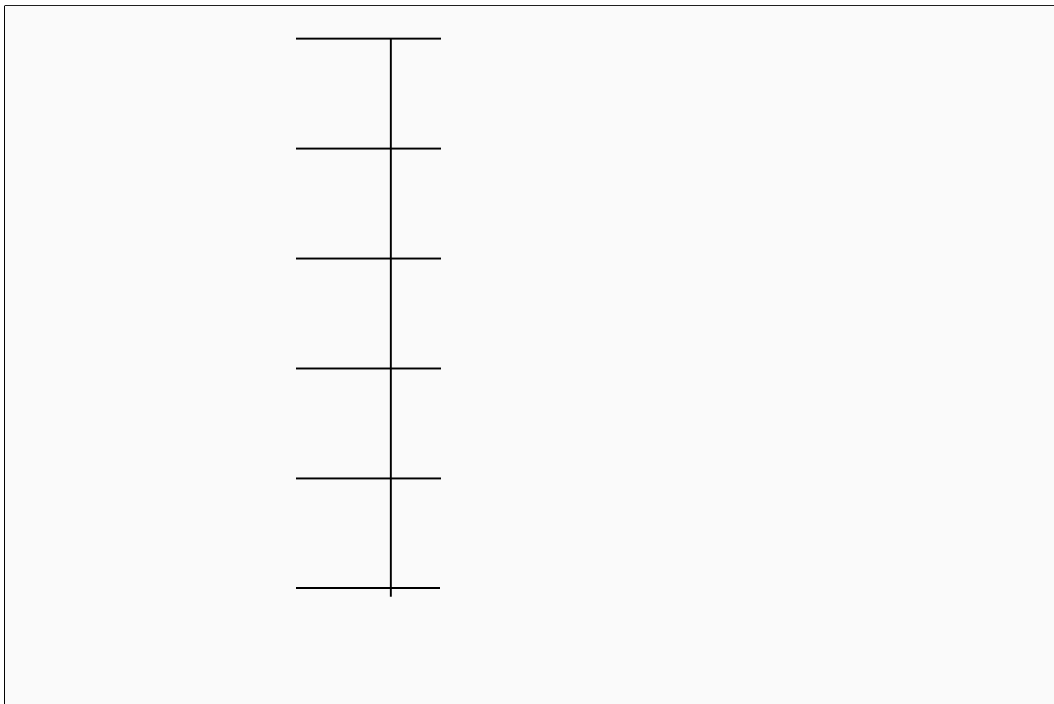


Fig 1-3 Central surface temperature Vs

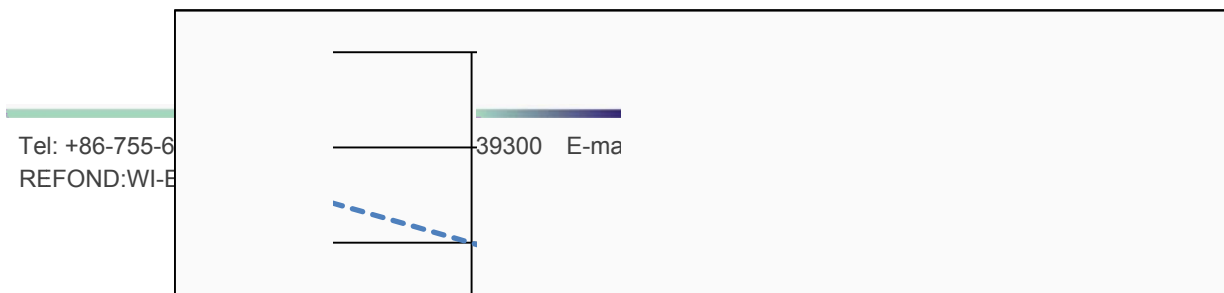


Fig 1-4 Forward Voltage Vs Central surface temperature

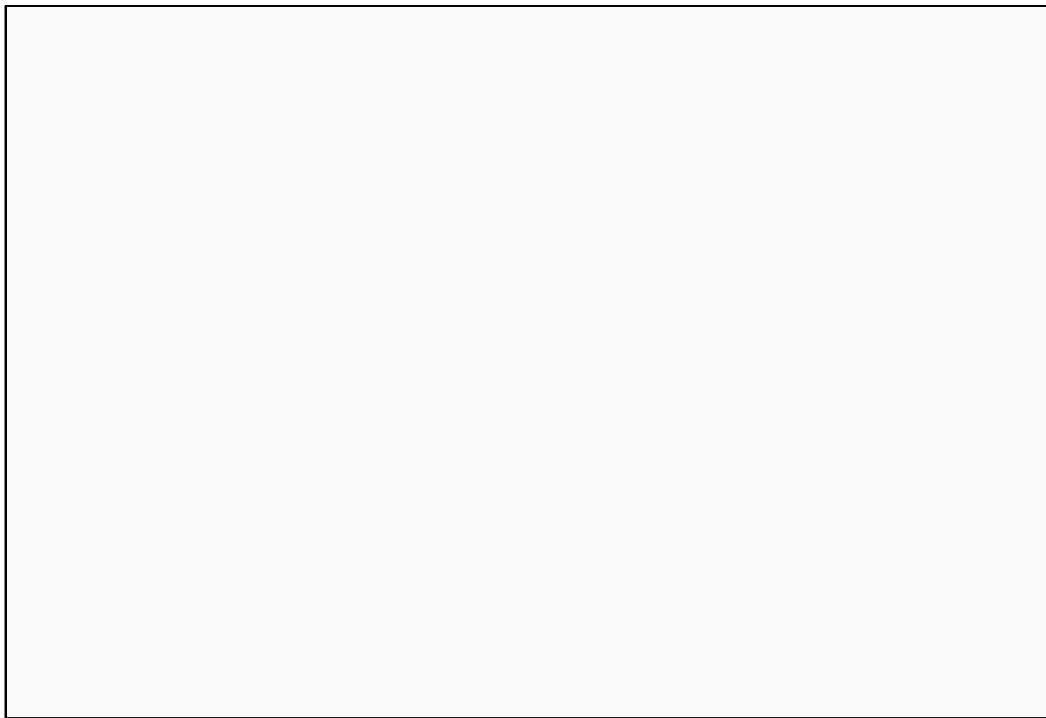
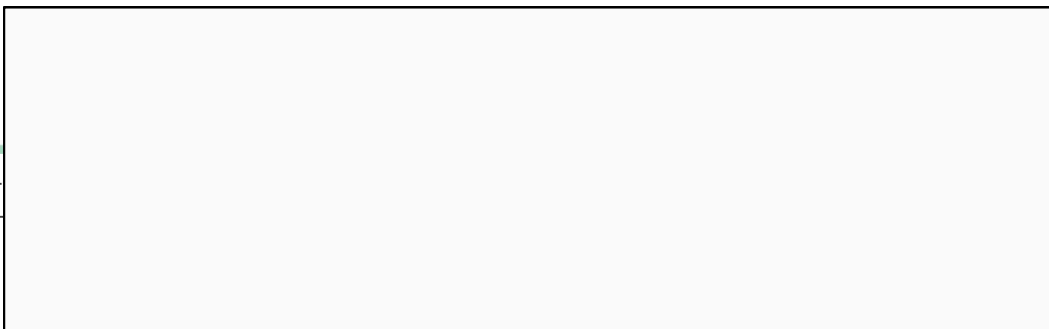


Fig 1-5 Central surface temperature Vs Forward Current



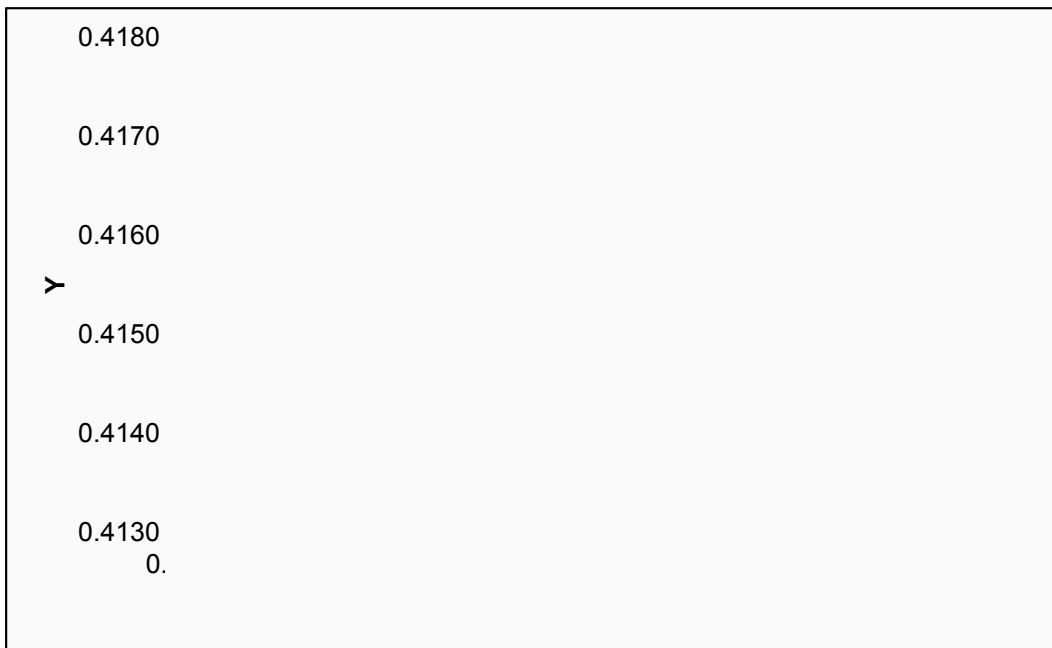


Fig 1-7Chromaticit

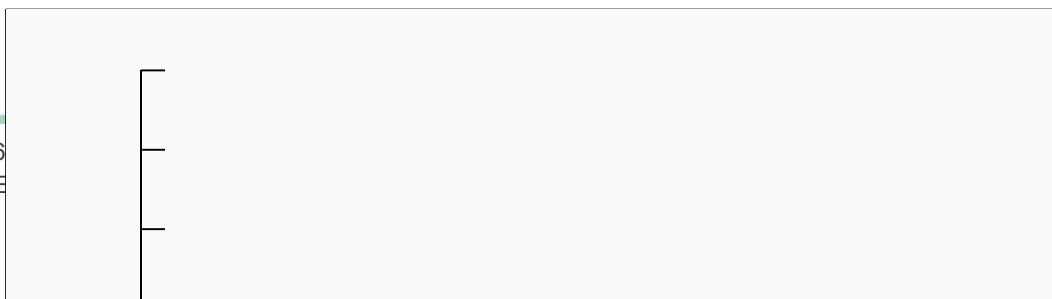


Fig 1-8 Spectrum Distribution

## 2. Packaging

### 2.1 Packaging Specification

Package: 50pcs/box. 50pcs

#### 2.1.1 Suction box Dimension

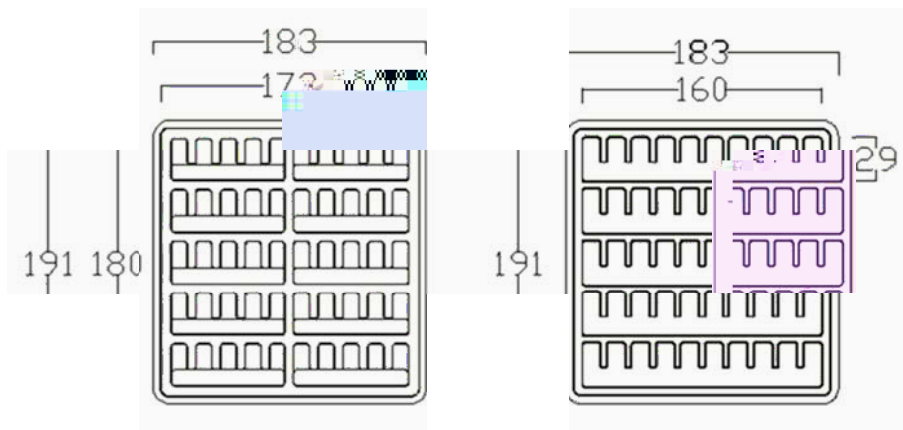



Fig.2-1 Suction box Dimension

#### Notes

The tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit : mm

### 2.1.2 Label Form Specification :- N \S:Ë

Table 2-2 label :-N

xñ=0 P/N Ö		
Bom ' S/N:		
©IQ' L/N		
Bin Code:	8çj X/Y Ö	
yFJGÿ -:	n7 Ra:	
+e » Vf Ö	Gÿ QTY:	
	o DATE:	
Web:www.refond.com		

P/ N	Part Number !6'P&œL•
S/N	Spec Number \S:Ë
L/N	Lot Number 5 =°&†
Bin Code	Bin Code &Qÿ!rJ•
N	Luminous flux #Øb©d^
X/Y	Chromaticity Bin U %É
V <sub>F</sub>	Forward Voltage =ò& G&A
Ra	Color Rendering Index 8Í 5-
QTY	Packing Quantity 7ÿd^
DATE	Made Date G©8t9©

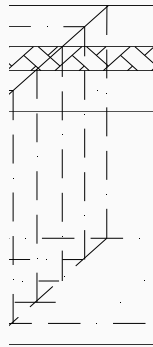
Fig 2-2 label :- N

### 2.2 Moisture Resistant Packing hÁÁÿ%"[T



Fig.2-3Moisture Resistant Packing hÁÁÿ%"[T

### 2.3 Cardboard Box %"[TQ©(



## 2.4 Reliability Test Items A1

Table 2-3 Reliability Test Items

Test Items	Ref.
Thermal Shock	JEIT/3
Switching Test	
Life Test	JESD

High Temperature  
High Humidity Life Test

## 2.5 Criteria For Judgment

Test Items
Power I <sub>a</sub>
Luminous Flux y FJGy

### Notes

- 1.U.S.L: Upper
  - 2.The Reliability
  - 3.The technical
- examples of the  
of any license.

## 3.1 Handling

- (1) LED operation
- LED mating use

or endorsement.LED

LED

100PPM.

(2) In order to prevent external material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM,the single content of Chlorine element is required to be less than 900PPM,the total content of Bromine element and Chlorine element in the external materials of the application products is required to be less than 1500PPM. This is provided for informational purposes only and is not a warranty or endorsement.

LED

LED

900PPM

900PPM

1500PPM.

(3) VOCs (Volatile organic compounds) emitted from materials used in the construction of fixtures can penetrate silicone encapsulants of LEDs and discolor when exposed to heat and photonic energy. The result can be a significant loss of light output from the fixture. Knowledge of the properties of the materials selected to be used in the construction of fixtures can help prevent these issues. We advise against the use of any chemicals or materials that have been found or are suspected to have an adverse effect on device performance or reliability. To verify compatibility, We recommend that all chemicals and materials be tested in the specific application and environment for which they are intended to be used. Attaching LEDs, do not use adhesives that outgas organic vapor.

LED

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LED

LED

(4) Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.

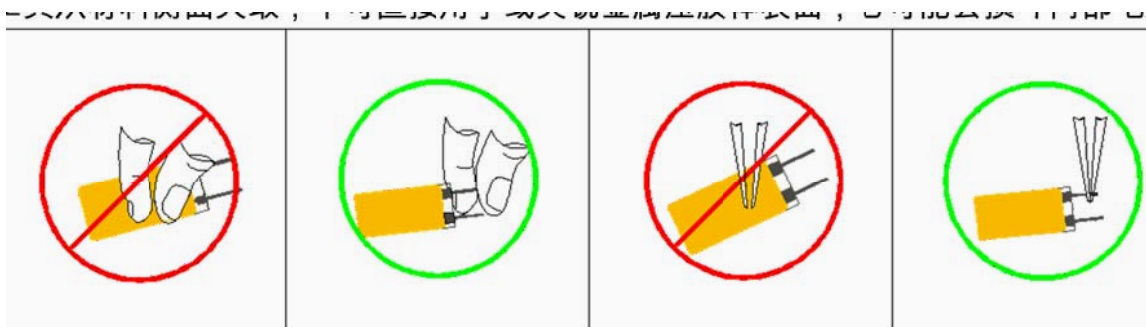




Fig 4-1 Clip filament specification

(5) 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. The driving circuit must be designed to allow forward voltage only when it is ON or OFF. If the reverse voltage is applied to LED, migration can be generated resulting in LED damage.

LED

LED

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

LED

(7) Compared to standard encapsulants, silicone is generally softer, and the surface is more likely to attract dust requiring special care during processing. In cases where a minimal level of dirt and dust particles cannot be guaranteed, a suitable cleaning solution must be applied to the surface after the soldering of components. We suggest using isopropyl alcohol for cleaning. In case other solvents are used, it must be assured that these solvents do not dissolve the package or resin. Ultrasonic cleaning is not recommended. Ultrasonic cleaning may cause damage to the LED.

LED

Table 4-1 Storage

Conditions	Temperature	Humidity	Time

Storage Ø ^	Before Opening Aluminum Bag	30	75%	Within 1 Year From Date
	After Opening Aluminum Bag	30	60%	24hours 24
Baking		60±5	-	24hours 24

(8) If the moisture absorbent materialp· silica gelp, has faded away or the LEDs have exceeded the storage timep»baking treatment should be performed after unpacking and based on the following conditionp· 65 ²5p, W for above 24 hours.

60±5                      24

If the package is flatulence or damaged,please notify the sales staff to assist.

(9)Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS).                      LED

(10) Other points for attention, please refer to our relevant information.

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