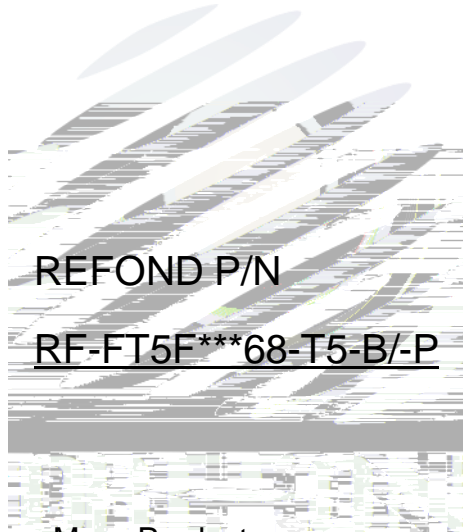


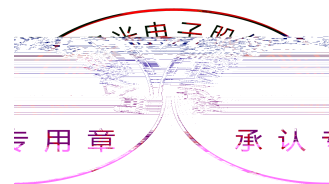
# SPECIFICATION



REFOND P/N

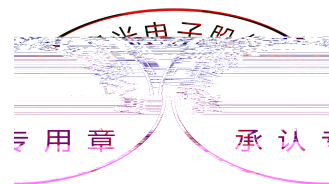
RF-FT5F\*\*\*68-T5-B/-P

Mass Product



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## 1. Description

### 1.1

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

Product Package:53.0mm×1.5mm×2.2mm.



53.0mm×1.5mm

### 1.4 Package Dimension

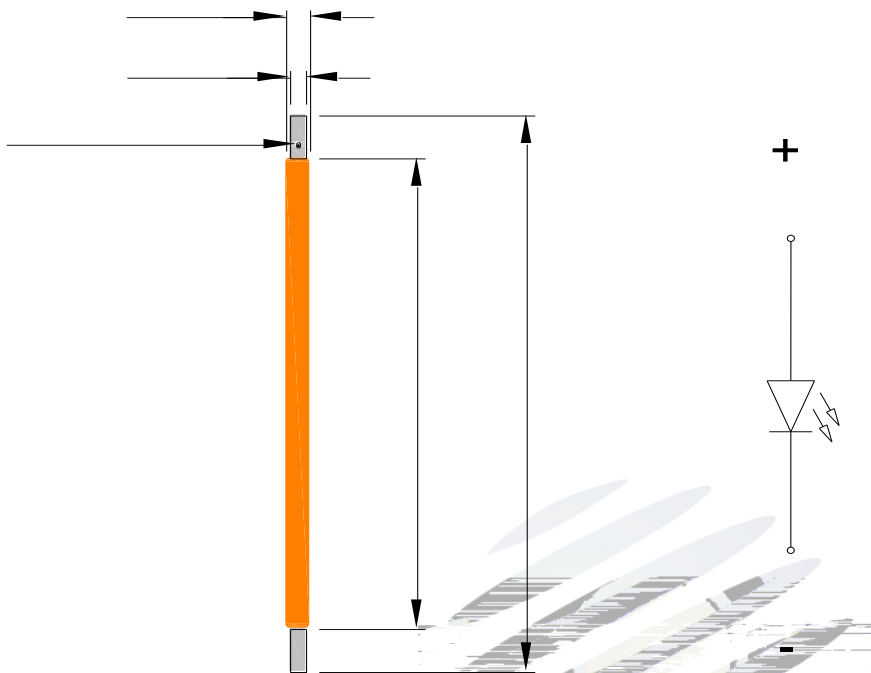


Fig.1-1 Top View

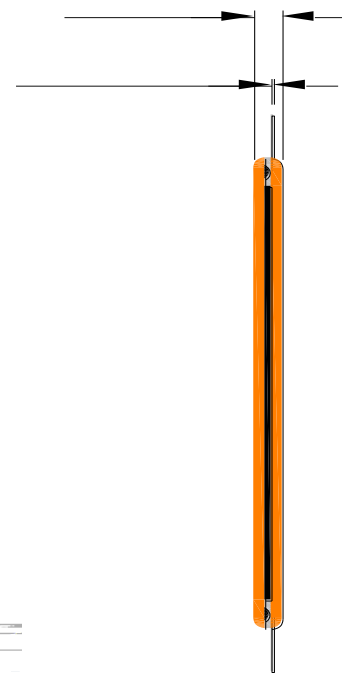


Fig.1-2 Side View

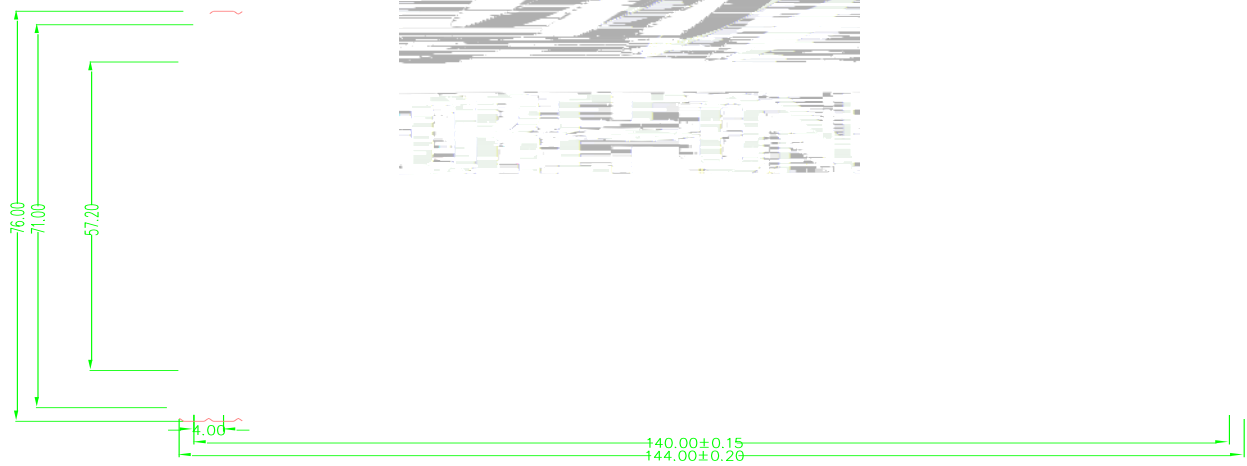
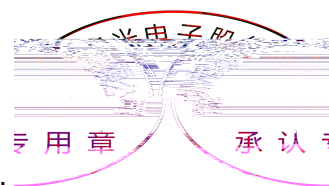


Fig.1-3 Whole Line View

#### Notes

All dimensions units are millimeters.

All dimensions tolerances are  $\pm 0.1$  mm unless otherwise noted.



## 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	$V_F$	$I_F=20mA$	68	---	72	V
Leakage Current	$V_F$	$I_F=5\mu A$	50	---	---	V
Luminous Flux		$I_F=20mA$	230	---	280	lm
Viewing Angle		$I_F=20mA$	---	---	360	deg
Solder Temperature	$T_s$	$I_F=20mA$	---	---	105	

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

Parameter	Symbol	Rating	Units
Power			

Notes



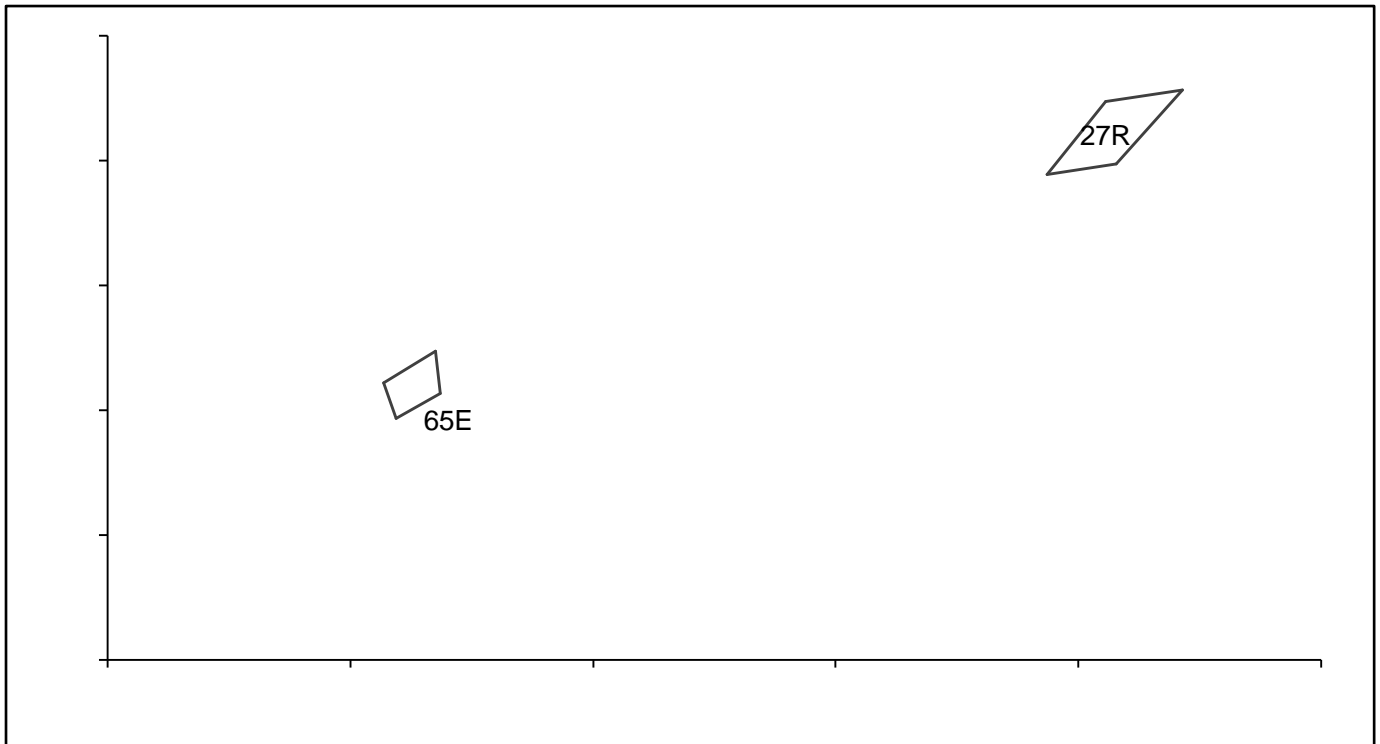


Fig. 1-6 The C.I.E Chromaticity Diagram CIE

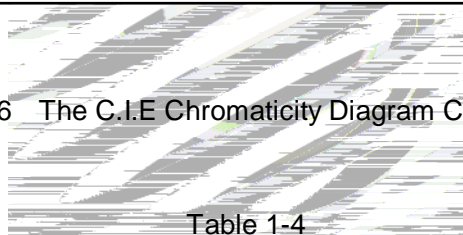
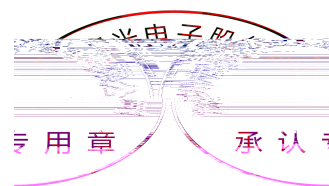


Table 1-4

BIN CODE	CIE-X1	CIE-Y1	CIE-X2	CIE-Y2	CIE-X3	CIE-Y3	CIE-X4	CIE-Y4
27R	0.4556	0.4289	0.4715	0.4327	0.4578	0.4088	0.4435	0.4055
65E	0.3094	0.3272	0.3069	0.3387	0.3176	0.3487	0.3186	0.3354







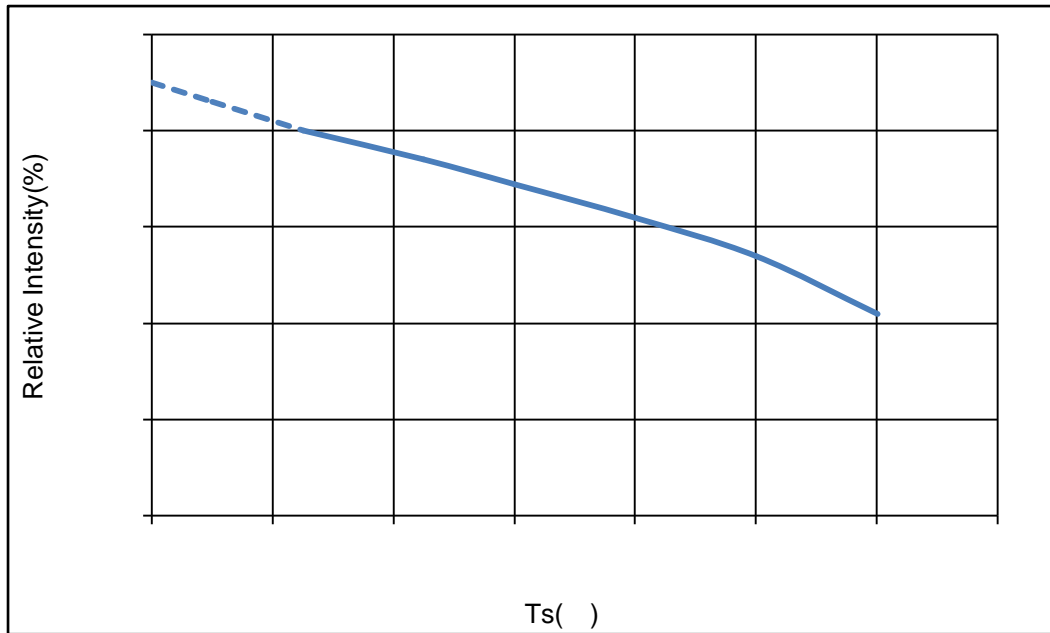


Fig. 1-9 Solder Temperature Vs Relative Intensity

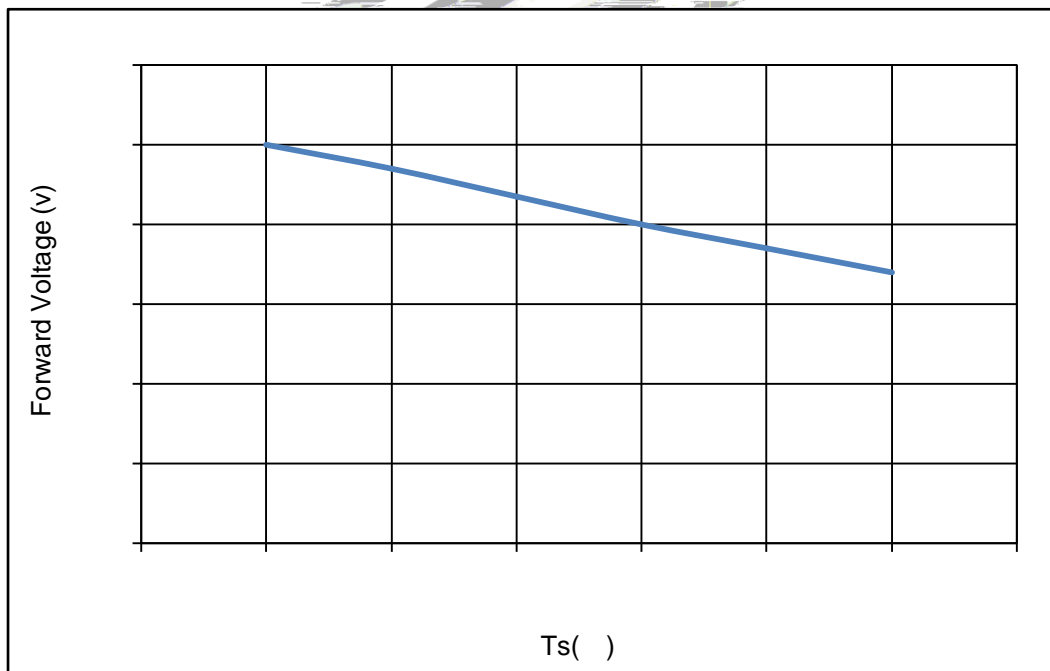
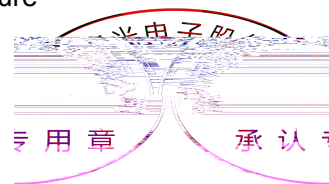


Fig. 1-10 Forward Voltage Vs Solder Temperature



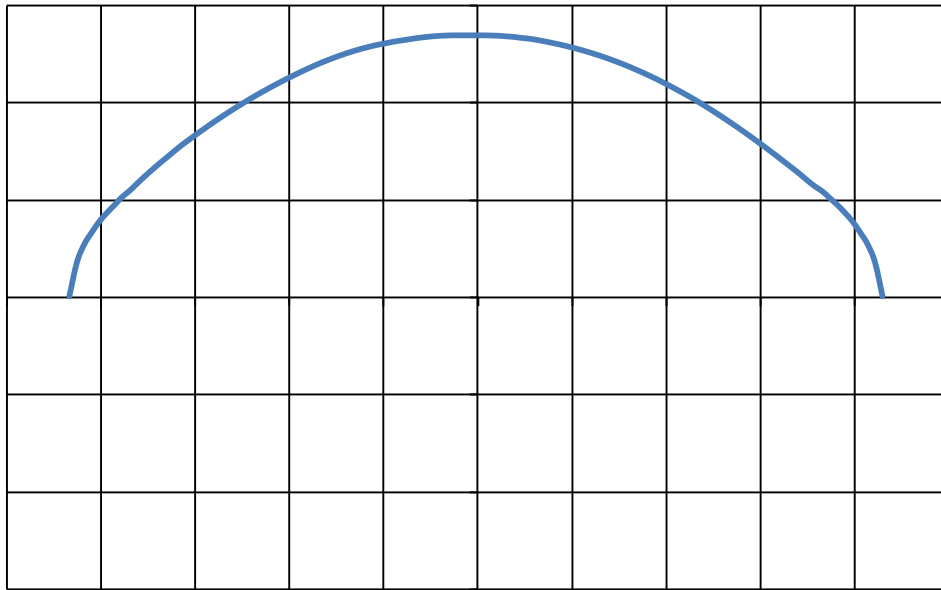


Fig. 1-11 Radiation diagram

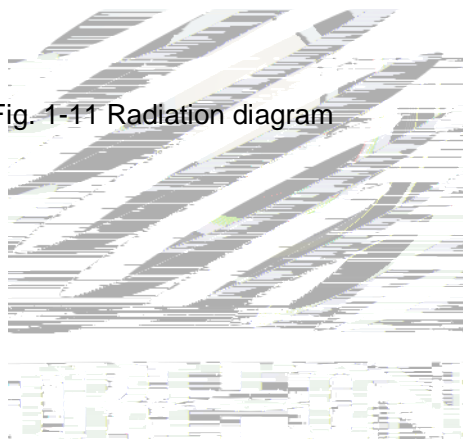
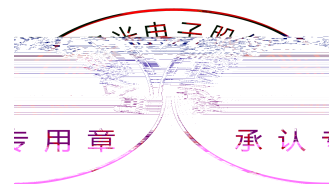


Fig. 1-12 Spectrum Distribution



## 2. Packaging

### 2.1 Packaging Specification

Single :720pcs/box	720pcs
Whole Row: 4320pcs/box	4320pcs

#### 2.1.1 Suction box Dimension

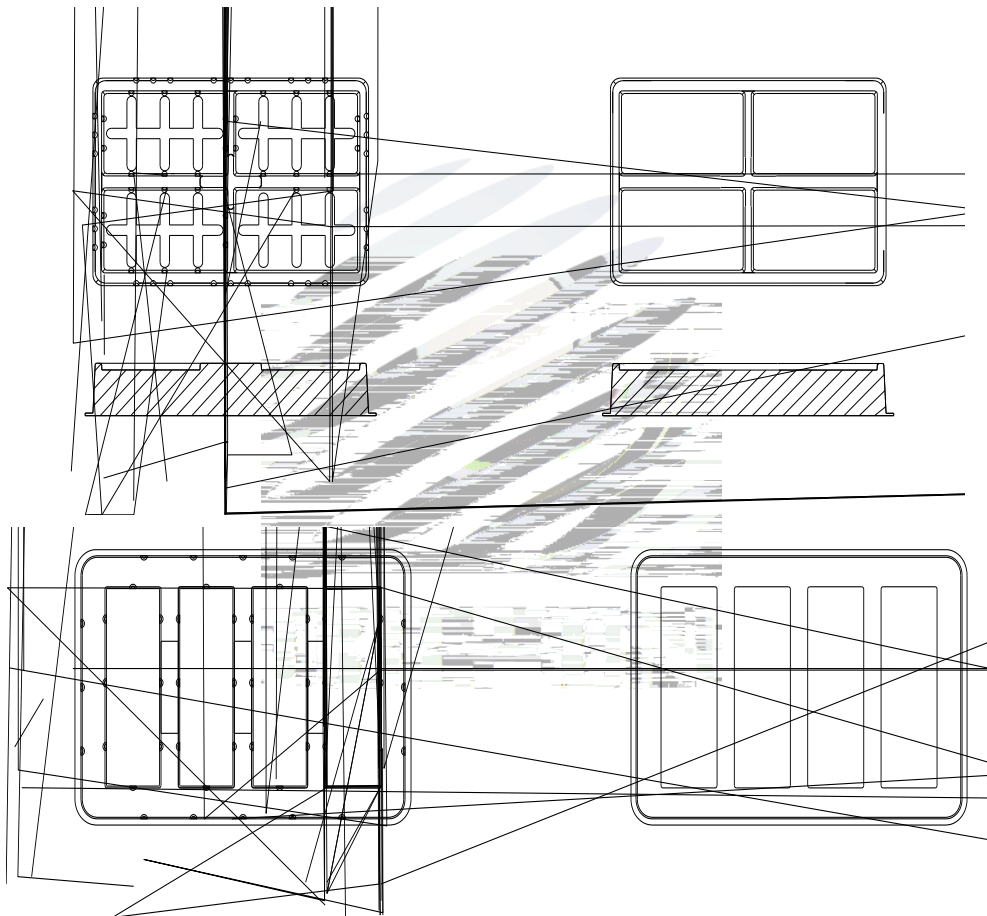
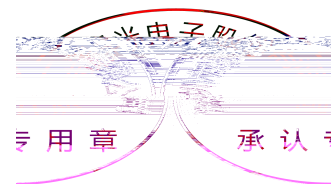


Fig.2-1 Suction box Dimension

#### Notes

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



### 2.1.2 Label Form Specification

PART NO.	Part Number
SPEC NO.	Spec Number
LOT NO.	Lot Number
BIN CODE	

Fig. 2-2 Label

### 2.2 Moisture Resistant Packing

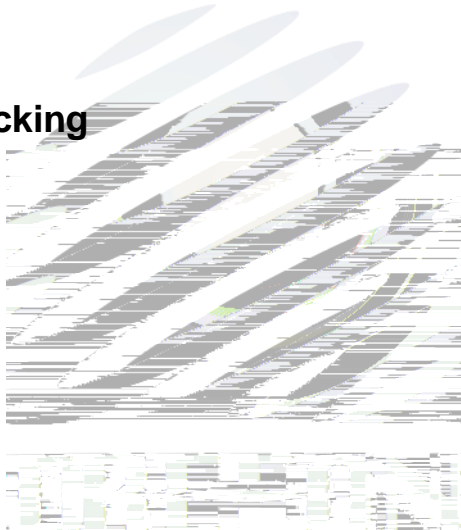


Fig.2-3 Moisture Resistant Packing

### 2.3 Cardboard Box

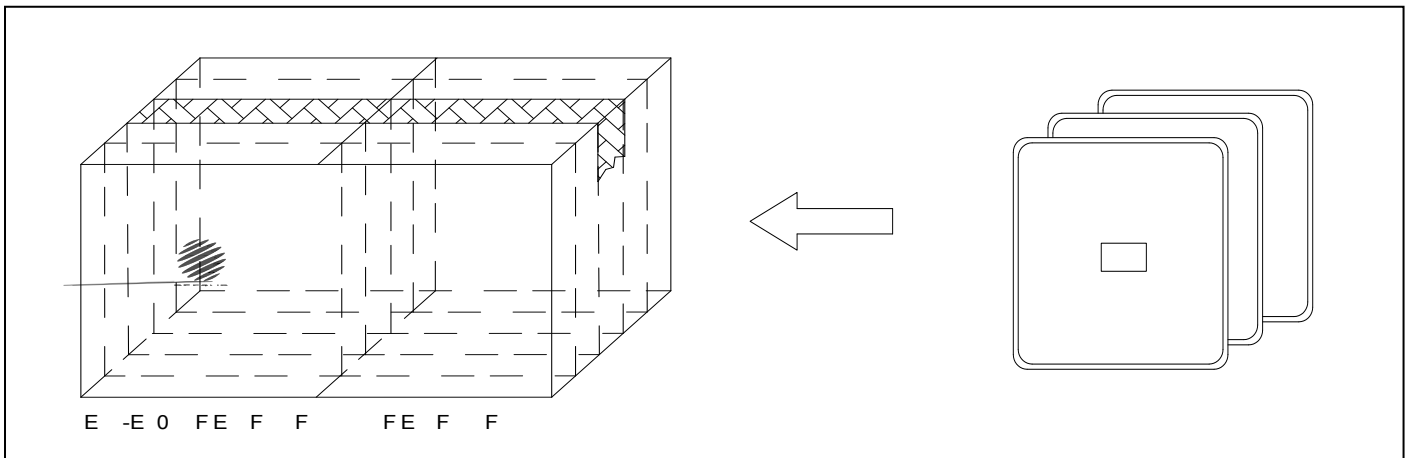


Fig.2-4 Cardboard Box

### 2.4 Reliability Test Items And Conditions

Table 2-2 Reliability Test Items And Conditions

Test Items	Ref.Standard	Test Condition	Time	Quantity	Ac/Re /
Thermal Shock	JEITAED-4701 300307	-40 15min 10s 100 15min	100 cycle	20pcs	0/1
Switching Test	/	25 , On 2.5min Off 2.5min	2500cycle	20pcs	0/1
Life Test	JESD22-A108	Ta=25 If=20mA	1000hrs	10pcs	0/1
High Temperature High Humidity Life Test	JESD22-A101	60 / 90%RH If=20mA	500hrs	10pcs	0/1

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## 2.5 Criteria For Judging Damage

Table 2-3 Criteria For Judging Damage

Test Items	Symbol	Test Condition	Criteria For Judgement	
			Min.	Max.
Forward Voltage	$V_F$	$I_F=20mA$	-	Forward Voltage
Luminous Flux		$I_F=20mA$	L.S.L*)x0.7	Luminous Flux

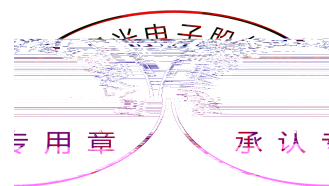
### Notes

1.U.S.L: Upper standard level

L.S.L: Lower standard level

2. The above reliability tests is based on the verification of a single/strip LED of Refond's existing experimental platform, the reliability experiment was taken under good heat dissipation conditions. when customers applies the LED to the series and parallel circuit, should take consideration of all the factors such as the current, voltage distribution, heat dissipation and others.

3.The technical information shown in the data sheets is limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

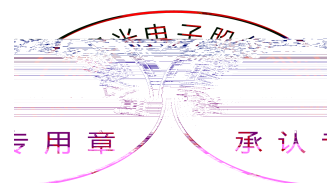


### 3. Handling Precautions

(1) LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material. This is provided for informational purposes only and is not a warranty or endorsement. LED D

(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.

(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. Refond advises against the use of any chemicals or materials that have been found or are suspected to have an adverse affect on device performance or reliability. To verify compatibility, Refond recommends 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.



(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.

(5) In designing a circuit, the current through each LED can 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.

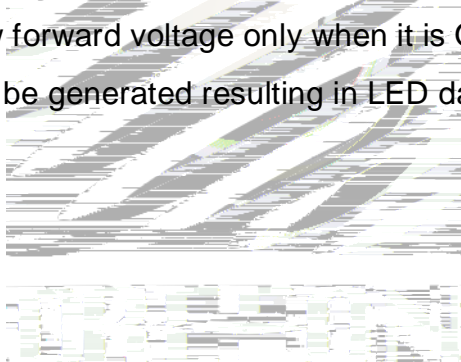




Table 4-1 Storage

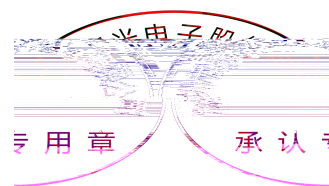
Conditions		Temperature	Humidity	Time
Storage	Before Opening Aluminum Bag	30	75%	Within 1 Year From Date
	After Opening Aluminum Bag	30	60%	24hours 24
Baking		60 ± 5	-	24hours 24

(8) If the moisture absorbent material ( silica gel ) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed after unpacking and based on the following condition ( 65±5 ) °C for above 24 hours.

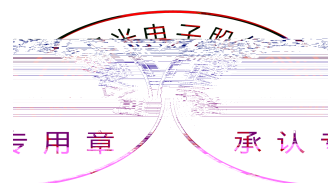
If the package is flatulence or damaged, please notify the sales staff to assist.

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

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







Declare

This specification is written both in English and in Chinese and the latter is formal.