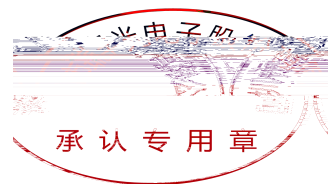


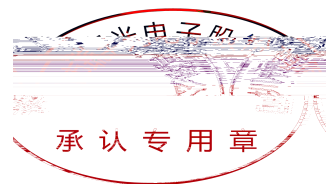
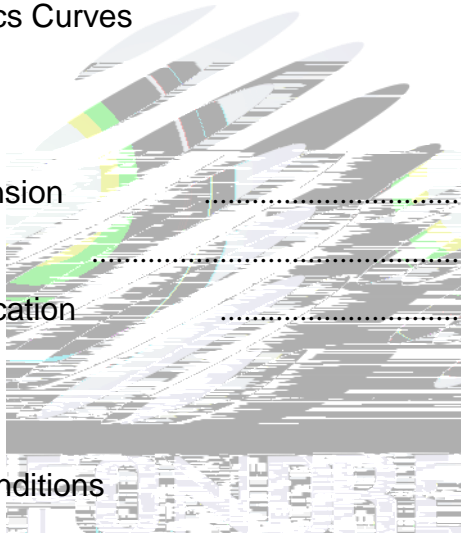
# SPECIFICATION





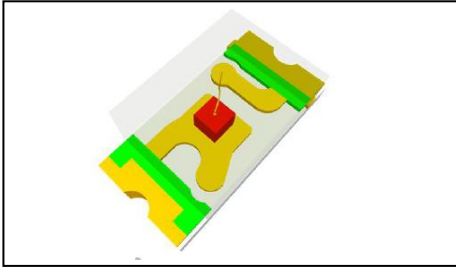
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# 1. Description

## 1.1 General Description



The Colour LED which was fabricated using a yellow chip Package Dimension :  
1.6mmX0.8mmX0.7mm.

LED

1.6mmX0.8mmX0.7mm

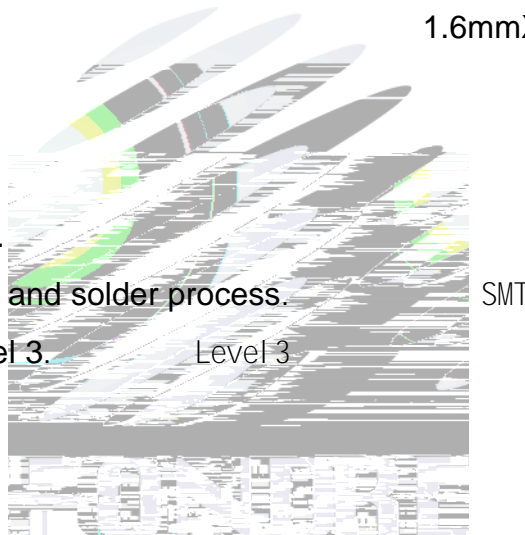
## 1.2 Features

Extremely wide viewing angle.

Suitable for all SMT assembly and solder process.

Moisture sensitivity level: Level 3.

RoHS compliant. RoHS

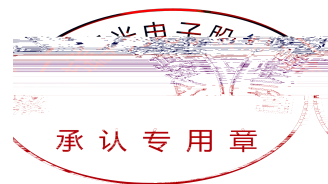


## 1.3 Application

Optical indicator.

Switch and symbol, display.

General use.



## 1.4 Package Dimension

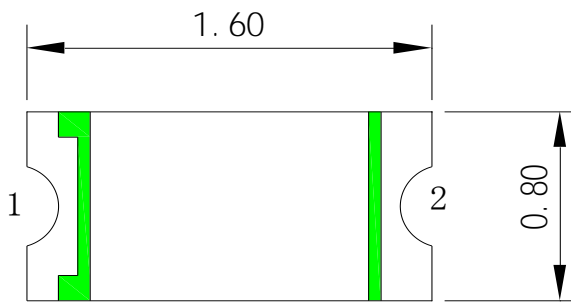


Fig.1-1 Top view

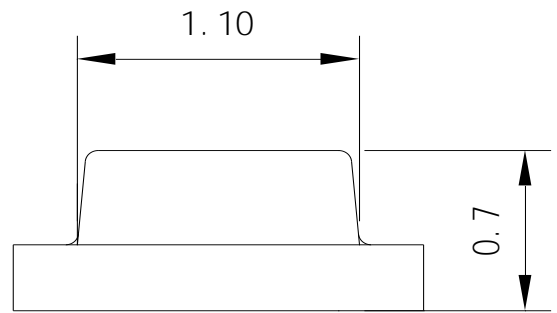


Fig.1-2 Side view

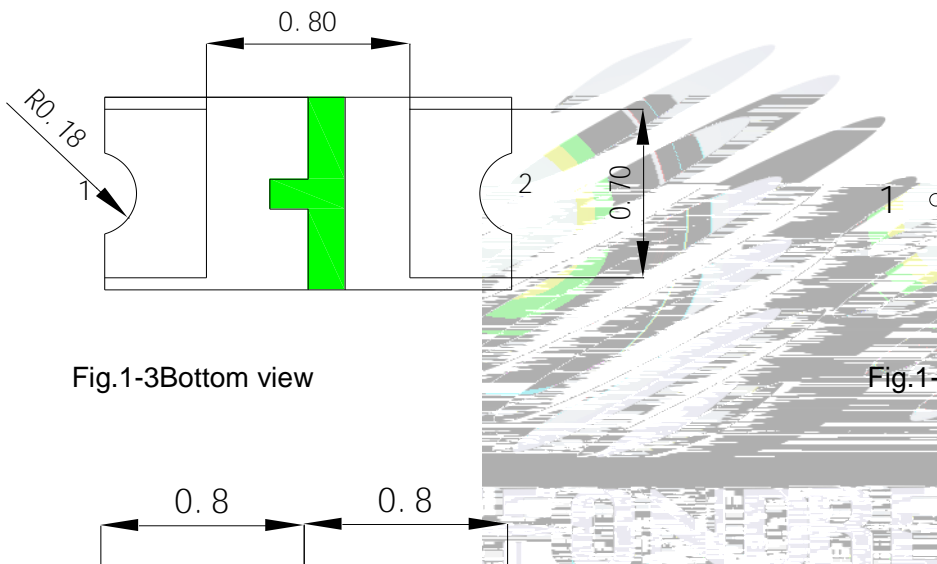


Fig.1-3 Bottom view

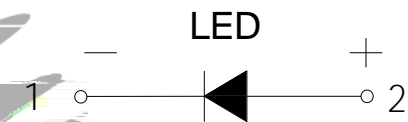


Fig.1-4 Polarity

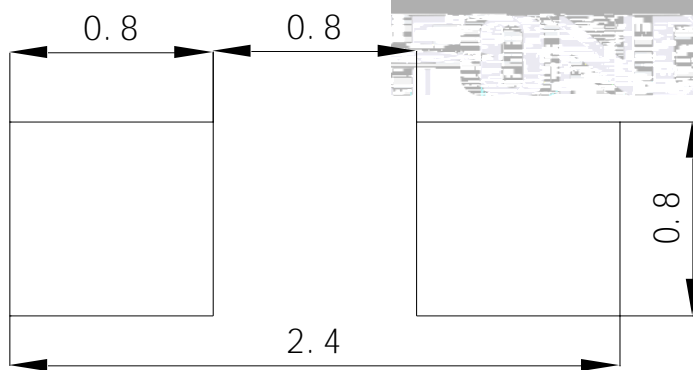
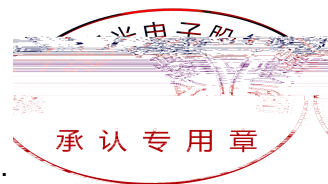


Fig.1-5 Soldering patterns

### Notes

1. All dimensions units are millimeters.

All dimensions tolerances are  $\pm 0.2$ mm unless otherwise noted.

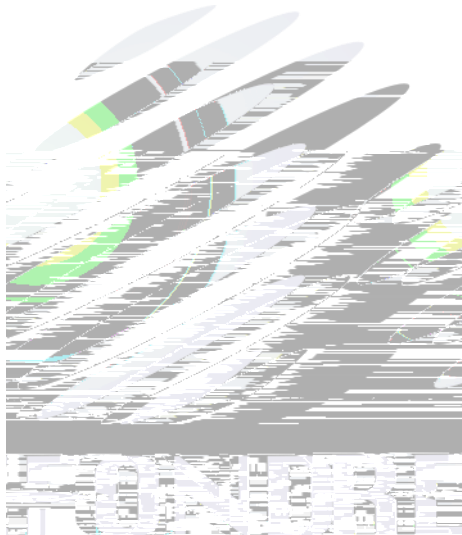


$\pm 0.2$

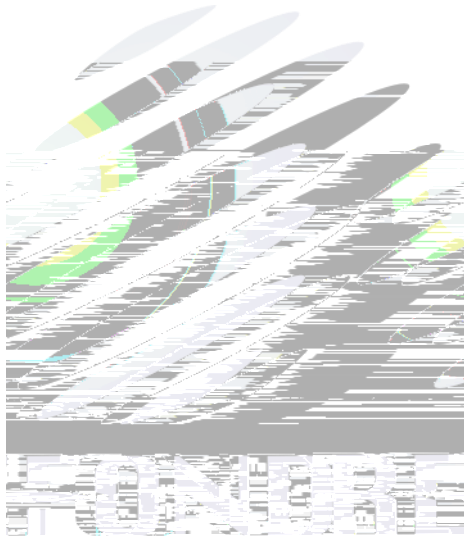
## 1.5 Product Parameters

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

Item	Test Condition	Symbol	Value			Unit
			Min. ( )	Typ.	Max.	
Spectral Half Bandwidth	$I_F=5mA$					



Notes :  $V_R=5V$  For test conditions.  $V_R=5V$



## 1.6 Typical Optical Characteristics Curves

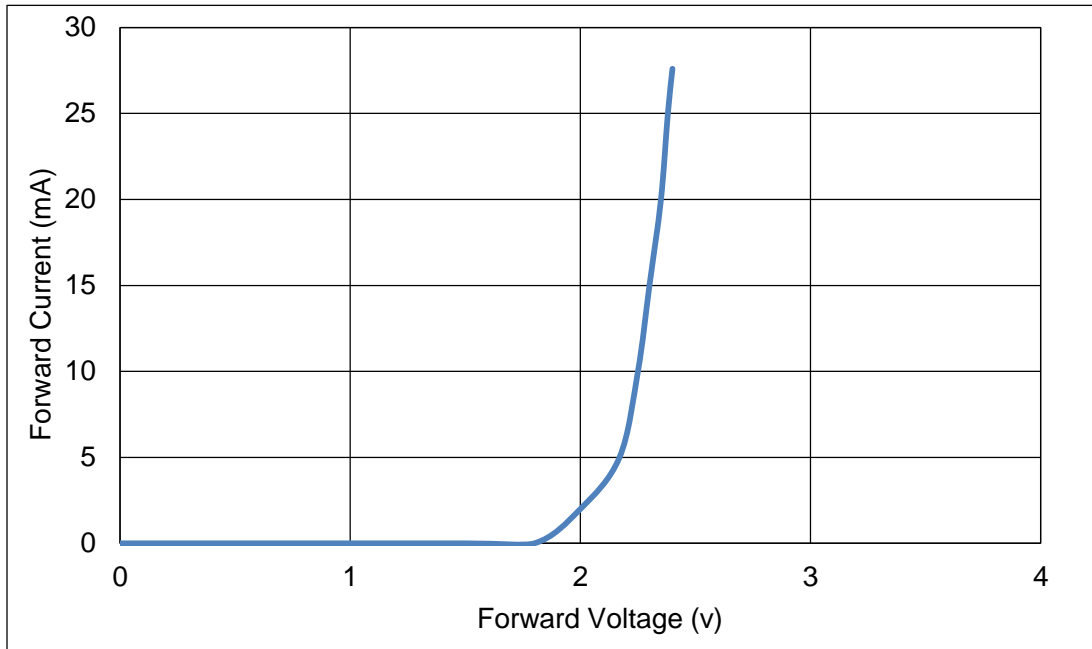


Fig 1-6 Forward Voltage Vs Forward Current

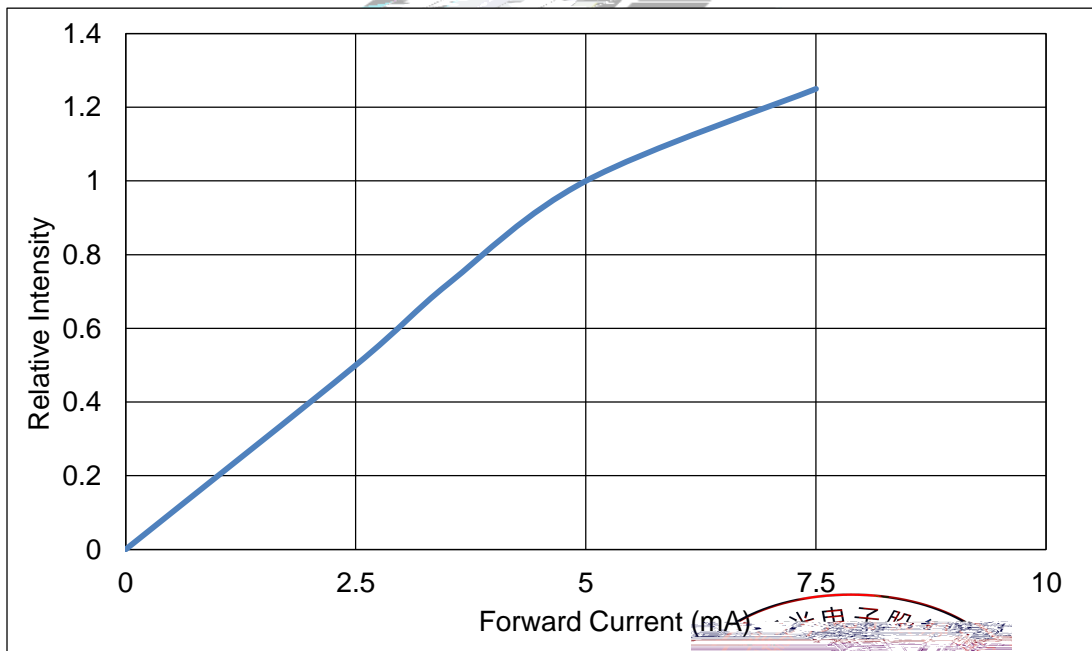
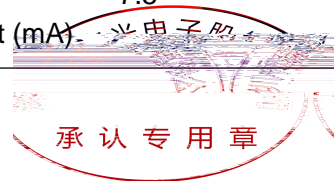


Fig 1-7 Forward Current Vs Relative Intensity



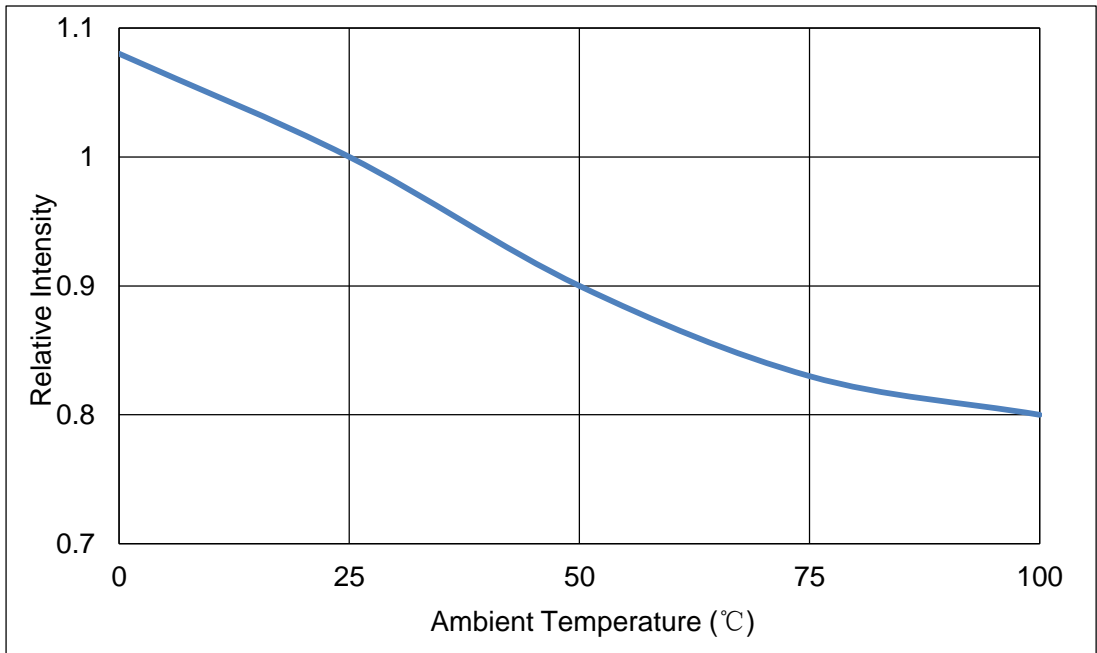


Fig 1-8 Pin Temperature Vs Relative Intensity

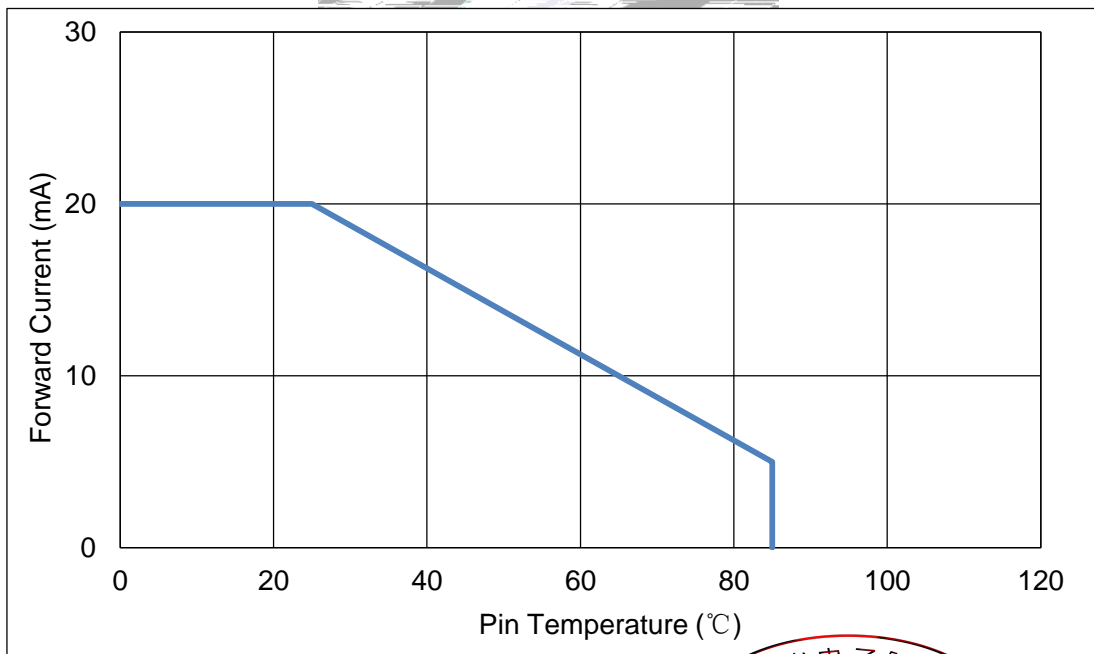
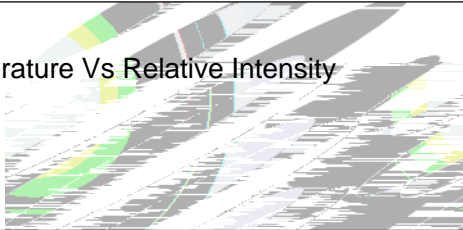


Fig 1-9 Pin Temperature Vs Forward Current





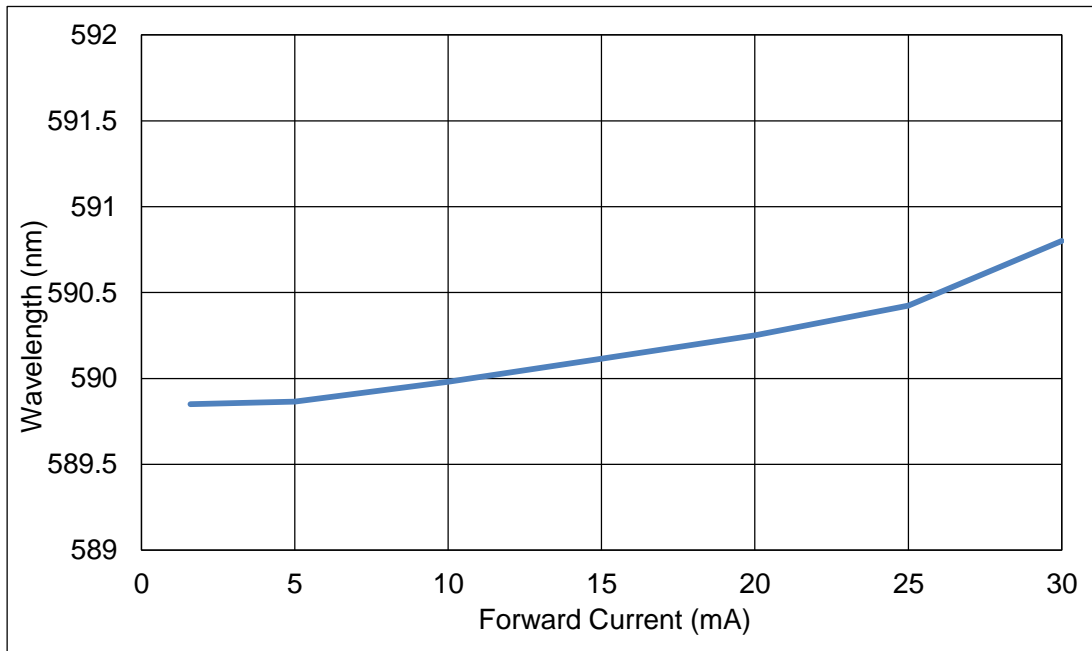


Fig1-10 Forward Current Vs Dominate Wavelength (Ta=25°C)

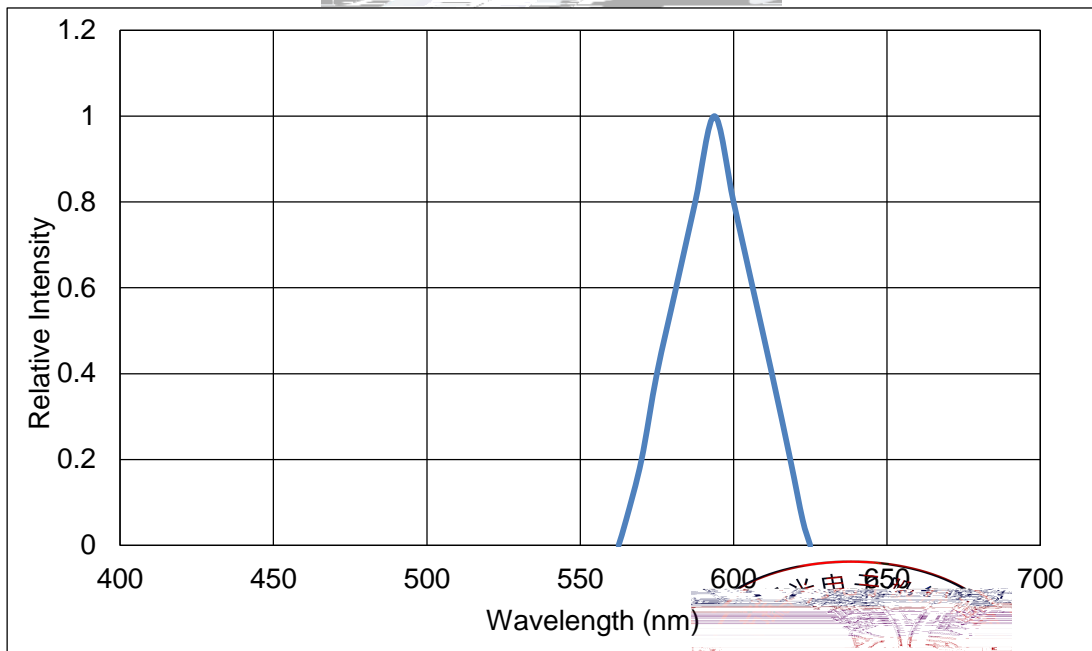
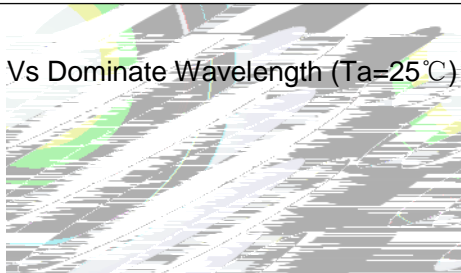
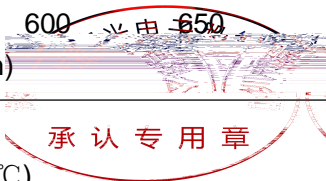


Fig 1-11 Relative Intensity Vs Wavelength (Ta=25°C)



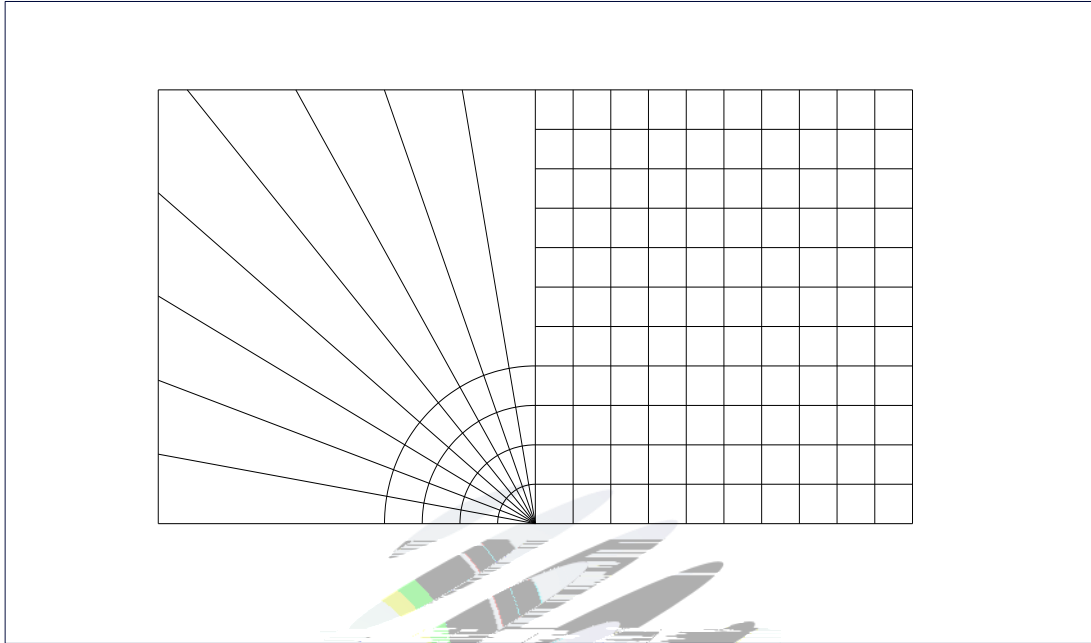
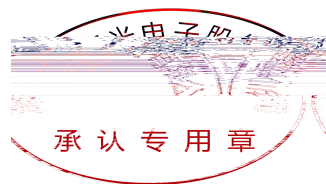
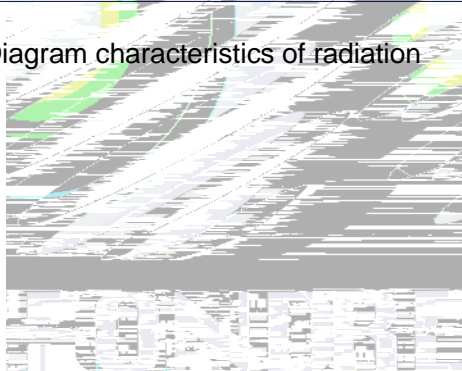


Fig 1-12 Diagram characteristics of radiation



## 2. Packaging

### 2.1 Packaging Specification

Package: 4000pcs/reel.      4000pcs

#### 2.1.1 Carrier Tape Dimension

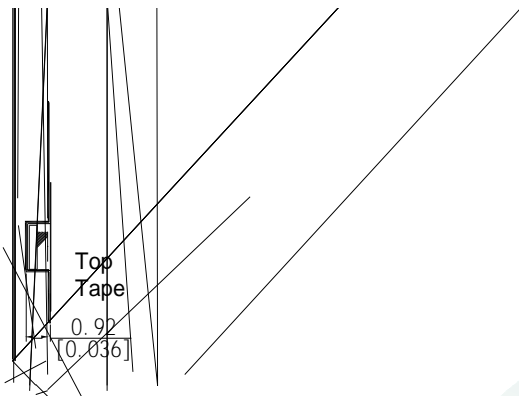


Fig.2-1 Carrier Tape Dimension

#### 2.1.2 Reel Dimension

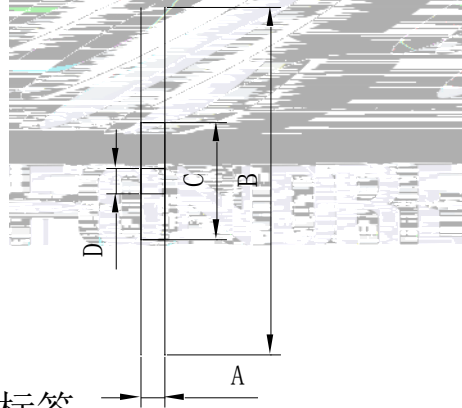
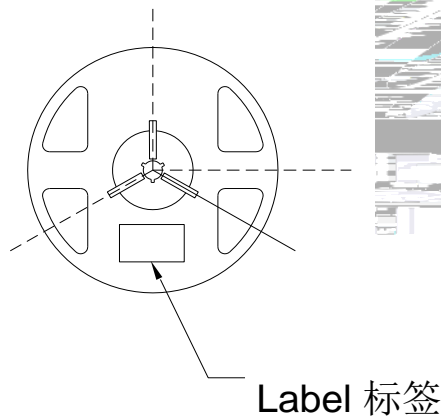


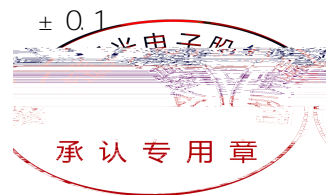
Table 2-1 Dimension

A	8.0± 0.1mm
B	178± 1mm
C	60± 1mm
D	13.0± 0.5mm

Fig.2-2 Reel Dimension

#### Notes

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





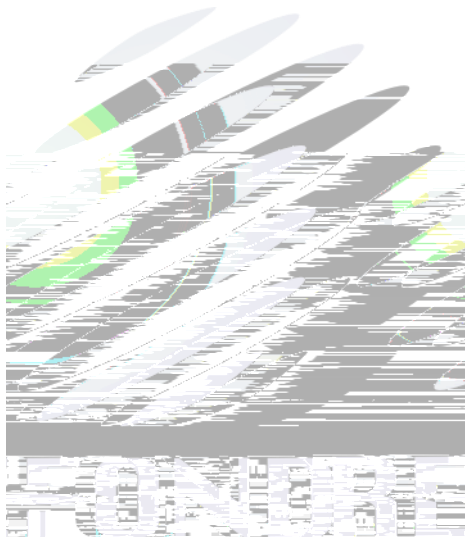
## 2.3 Cardboard Box

Fig.2-5 Cardboard Box

## 2.4 Reliability Test Items And Conditions

Table 2-3 Reliability Test Items And Conditions

Test Items	Ref. Standard	Test Condition	Time	Quantity	Ac/Re /
Reflow	JESD22-B106	Temp:260 max T=10 sec	2 times	22Pcs.	0/1
Temperature Cycle	JESD22-A104	100 30 min 5 min -40 30 min	50 cycles	22Pcs.	0/1
Thermal Shock	JESD22-A106	-40 15min 100 15min	150 cycles	22Pcs.	0/1
High Temperature Storage	JESD22-A103	Temp:100	500 hrs.		



### 3. SMT Reflow Soldering Instructions SMT

#### 3.1 SMT Reflow Soldering Instructions SMT

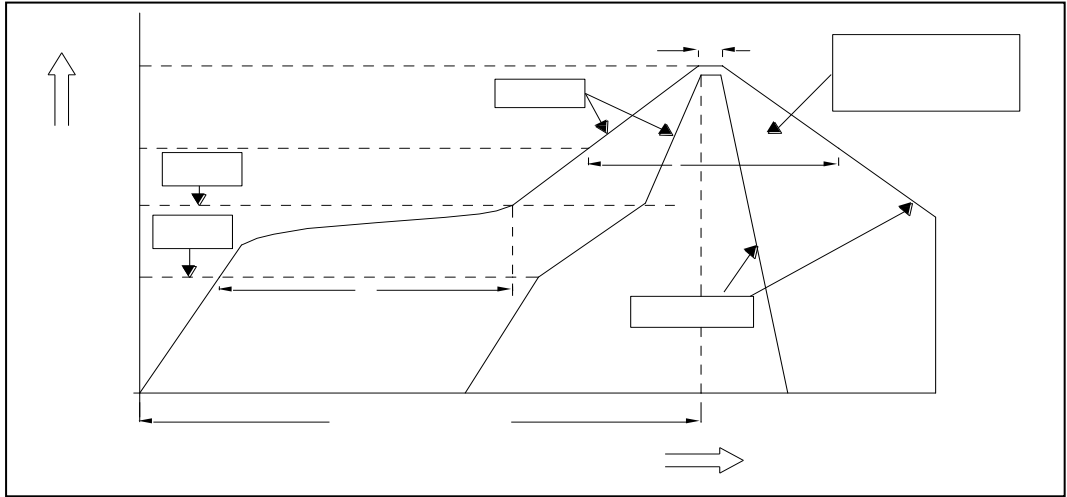


Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 Parameters

Average temperature rise speed	$T_{smax}$	$T_P$	3 °C/	Max 3 °C/ s
Preheating: minimum temperature	(T <sub>sm</sub> )		150 °C	
Preheating: Max temperature	(T <sub>smax</sub> )		200 °C	
Preheating: Time	T <sub>sm</sub>	T <sub>smax</sub>	60 - 120	60s-120s
Time limited to maintain high temperature: the temperature (T <sub>L</sub> )	217 °C			
Time limited to maintain high temperature: The Time (t <sub>L</sub> )	60 Max 60s			
Peak /Classification of temperature: / (T <sub>P</sub> )	260 °C			
Time limit classification of peak temperature time t <sub>p</sub>	10 Max 10s			
(T <sub>P</sub> ) 5 °C	Hold time within		30	Max 30s
5 ° C with the actual peak temperature (TP)				
Cooling speed			6 °C/	Max 6 °C/ s

25 °C	Needed time from 25 °C to T <sub>p</sub>	8	Max 8 minutes
-------	--	---	---------------

#### Notes

(1) Reflow soldering should not be done more than twice. If more than 24 hours between the two solderings, LED will be damaged.

24 LED

(2) When soldering, do not put stress on the LEDs during heating.

#### 3.1.1 Soldering Iron

(1) When do soldering by hand, keep the temperature of iron below less 300°C less than 3 seconds.

300 3

(2) Soldering by hand should be done only one time.

#### 3.1.2 Repairing

Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed in advance whether the characteristics of LEDs will or not be damaged by repairing.

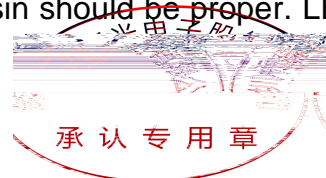
LED

LED

#### 3.1.3 Cautions

(1) The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be impacted on the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the silicone resin should be proper. LED

LED





(2) Components should not be mounted on warped (non coplanar) portion of PCB. After soldering, do not warp the circuit board. LED PCB

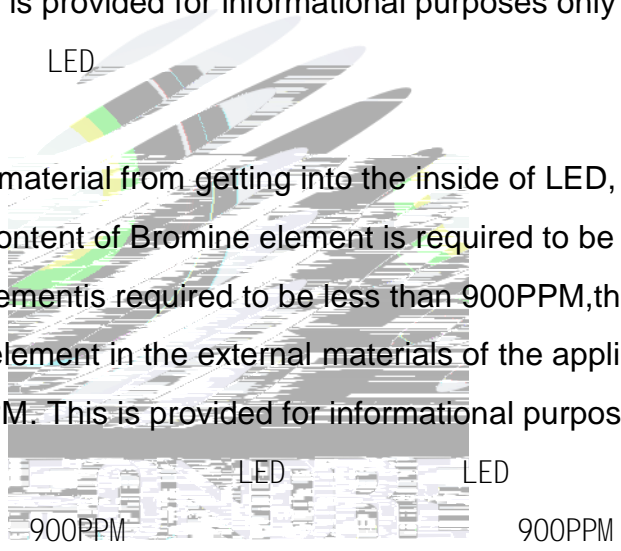
(3) Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering. Do not rapidly cool device after soldering.

## 4. Handling Precautions

### 4.1 Handling Precautions

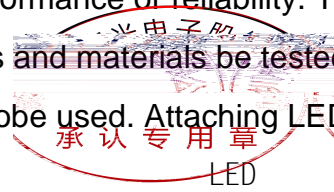
(1) LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material. This is provided for informational purposes only and is not a warranty or endorsement. LED 100PPM.

(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.

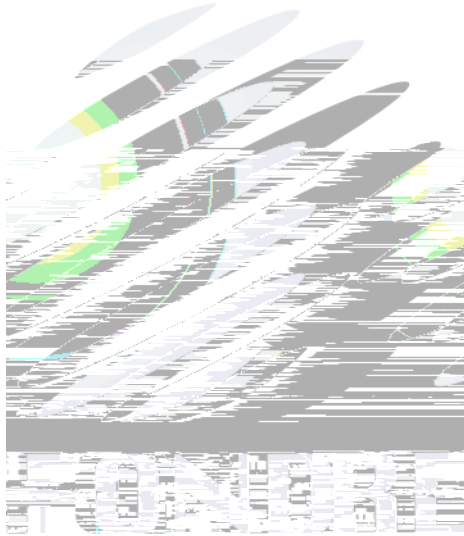


1500PPM.

(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. 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.



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. Refond suggests 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	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.

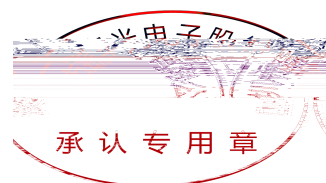
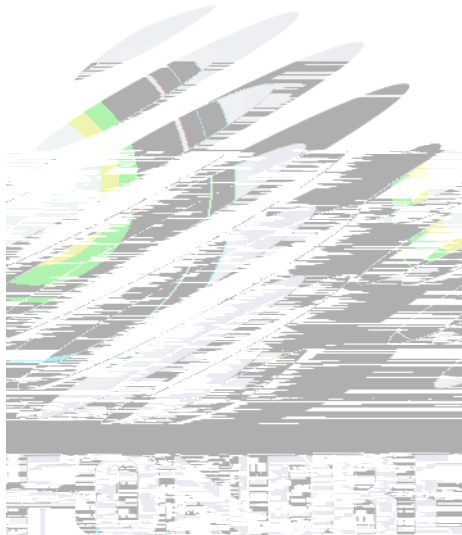
60± 5

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.







Declare

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

