SPECIFICATION

REFOND P/N

RF-RSRA30TS-CD-G

Mass Production

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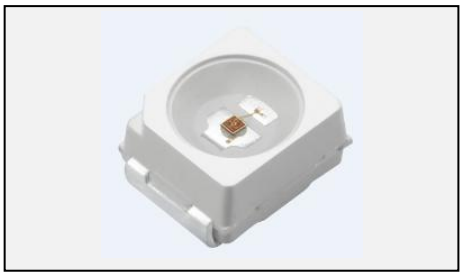
1. Description

1.1



The source color devices are made with AlGaInp on Substrate Light Emitting Diode .

Product Package:3.50mmX2.80mmX1.85mm.

D 9 ：3.50mmX2.80mmX1.85mm。

1.2Features

PLCC4 Package. D ,

Extremely wide viewing angle.

Suitable for all SMT assembly and solder process. EL

Available on tape and reel.

Moisture sensitivity level: Level 2. D

Compliance with RoHS and REACH. 符合RoHS和REACH要求

Qualifications: The product qualification test plan is based on the guidelines of AEC-Q101Stress Test Qualification for Automotive Grade Discrete Semiconductors

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1.3Application

Automotive Interior Lighting.汽 内 照明

Switches.开关

1.4Package Dimension

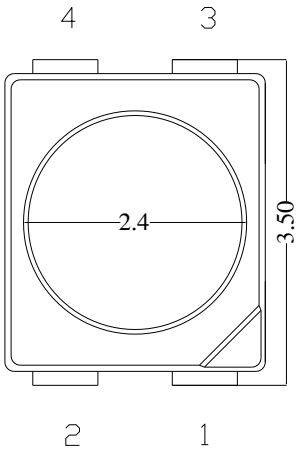


Fig.1-1 Top View

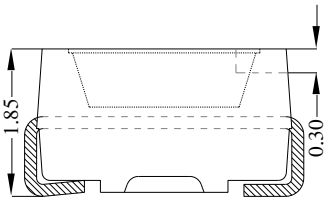


Fig.1-2SideView

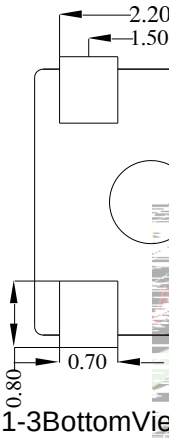


Fig.1-3BottomView

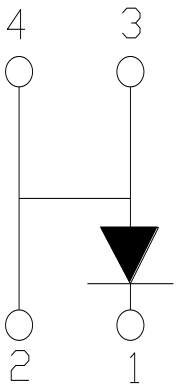


Fig.1-4Polarity

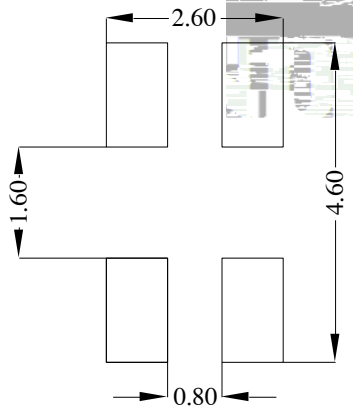


Fig.1-5Soldering Patterns

Notes

All dimensions units are millimeters.

All dimensions tolerances are ±0.2mm unless otherwise noted.

1.5Product Parameters

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

Item Symbol

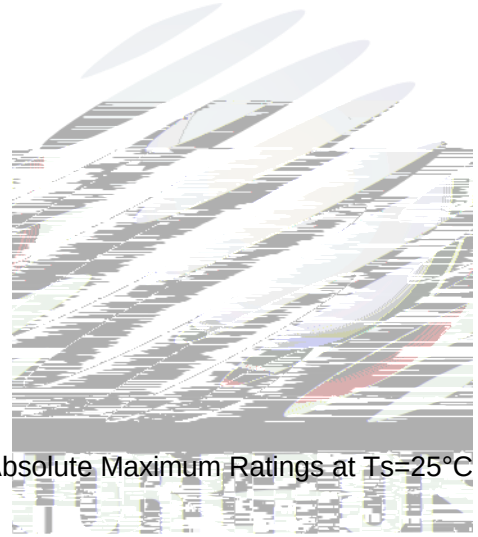


Table 1-2 Absolute Maximum Ratings at Ts=25°C

Notes

1. 1/10 Duty cycle, 10ms pulse width.

2. The above forward voltage measurement allowance tolerance is ±0.1V.

3. The above color coordinates measurement allowance tolerance is ±0.005. ± -

4. The above luminous intensity measurement allowance tolerance ±10%.

5. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product.

6. All measurements were made under the standardized environment of Refond.

7.When the LEDs are in operation the maximum current should be decided after measuring the package temperature, junction temperature should not exceed the maximum rate D

8. ESD yield is over 90% at 2000V ESD (HBM). ESD protection during products handing is needed. 1 D N

1.6Bin Range Of Forward Voltage and Luminous Intensity and Dominant wavelength (IF=50mA) BIN (IF=50mA)

Table 1-3

V_F V	B1	B2	C1	C2	D1	D2
	1.8-1.9	1.9-2.0	2.0-2.1	2.1-2.2	2.2-2.3	2.3-2.4
IV mcd	M1	M2	N1	N2		
	1200-1500	1500-1800	1800-2300	2300-2800		
WD(nm)	F2	G1	G2	H1		
	627.5-630	630-632.5	632.5-635	635-637.5		

1.7 Typical Optical Characteristics Curves

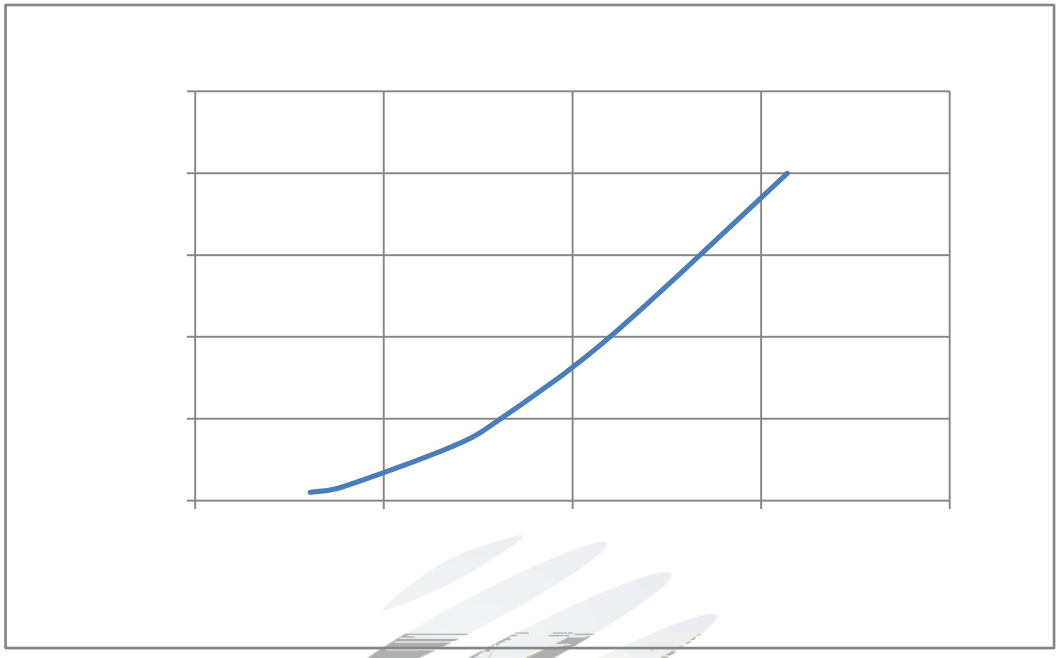


Fig. 1-7 Forward Voltage Vs Forward Current

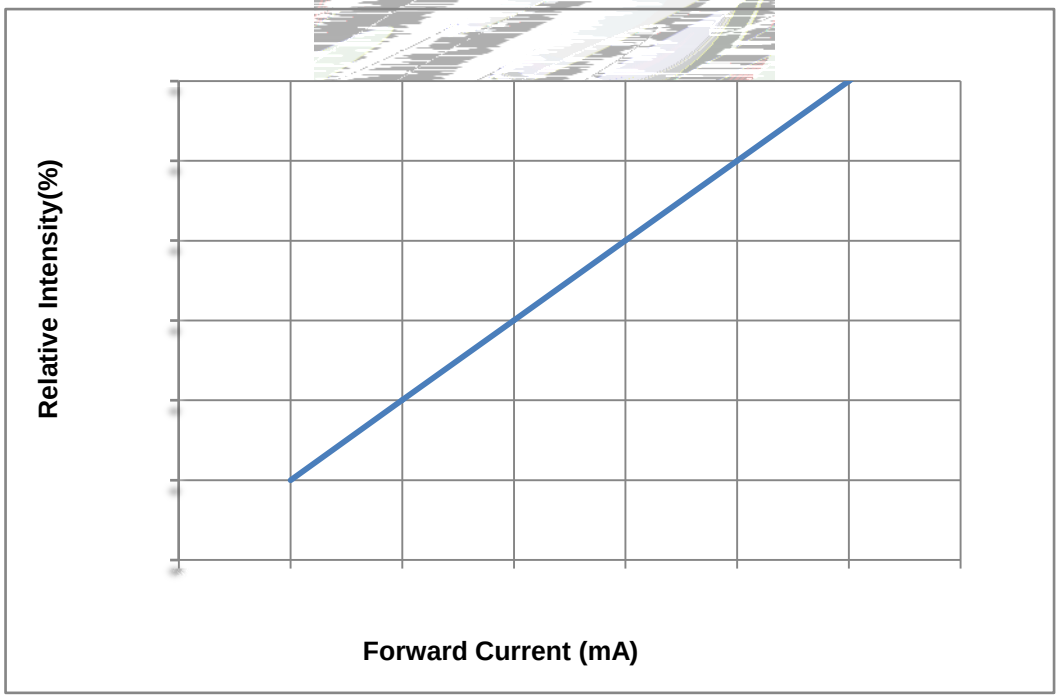


Fig. 1-8 Forward Current Vs Relative Intensity

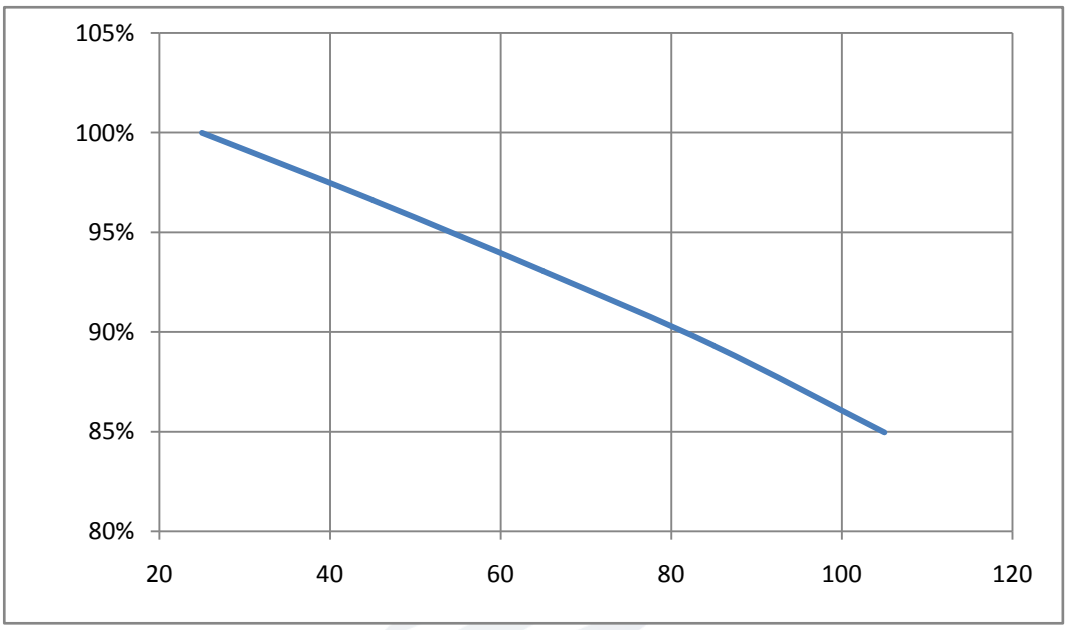


Fig. 1-9 Solder Temperature Vs Relative Intensity

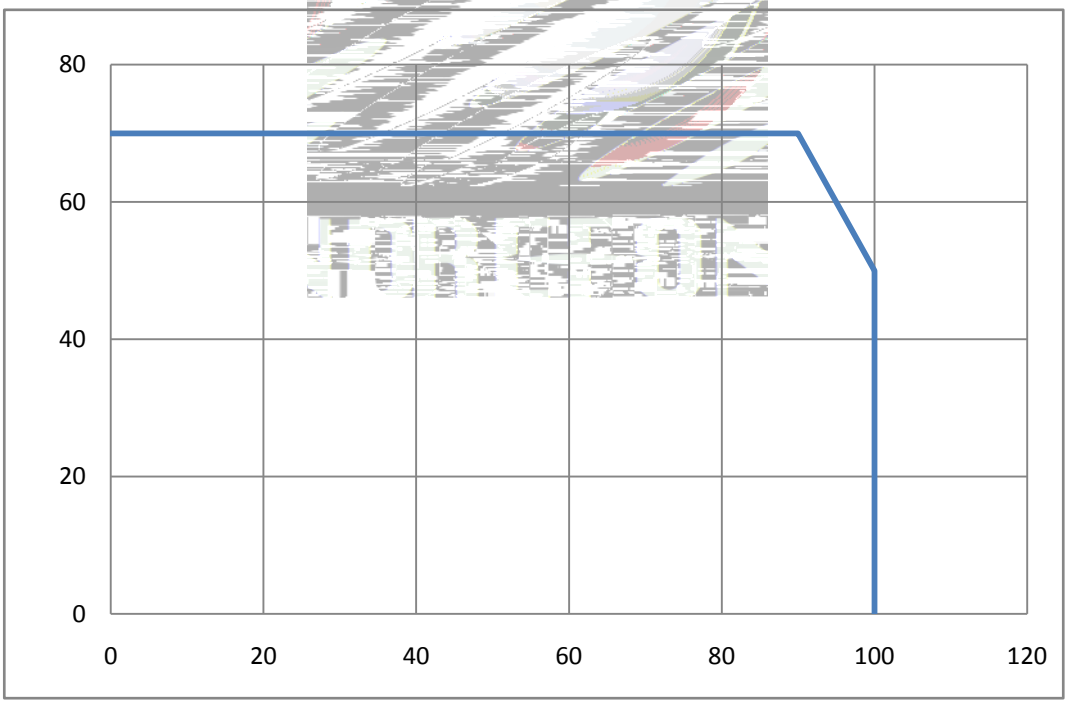


Fig. 1-10 Solder Temperature Vs Forward Current

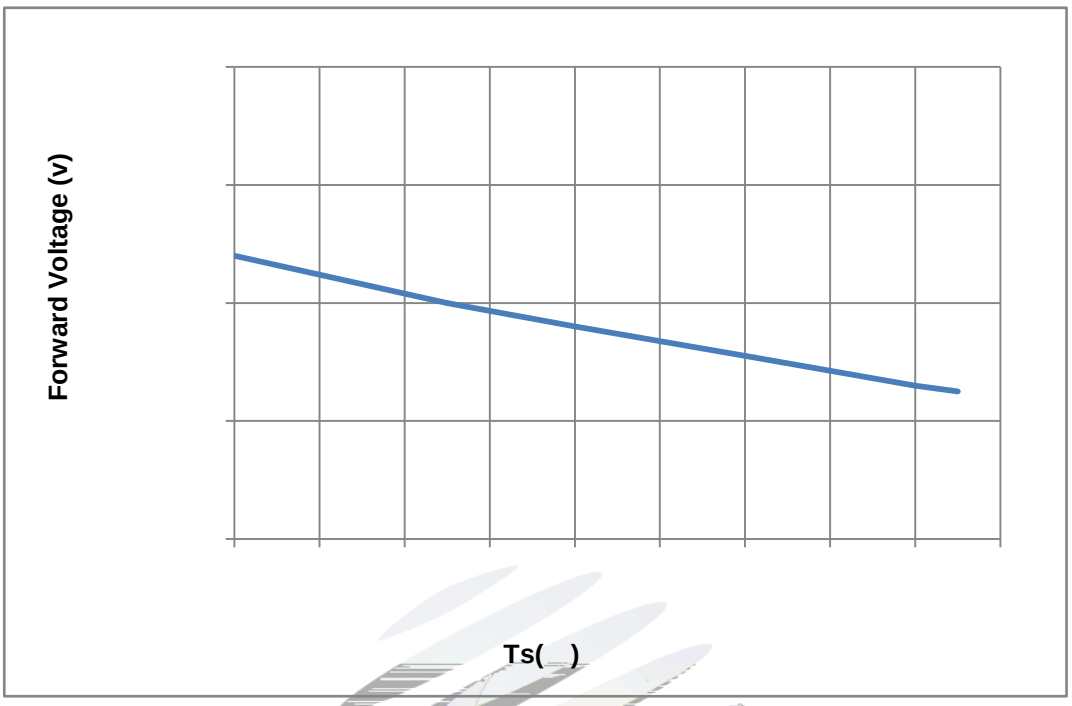


Fig. 1-11 Forward Voltage Vs Solder Temperature

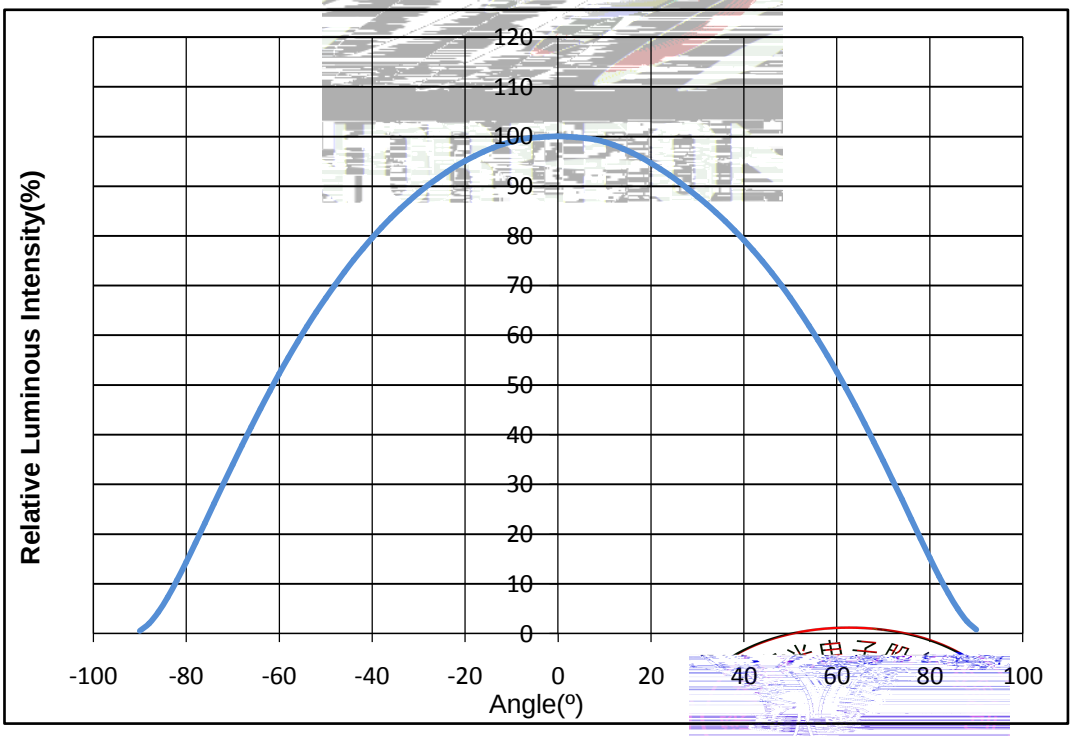


Fig. 1-12 Radiation diagram

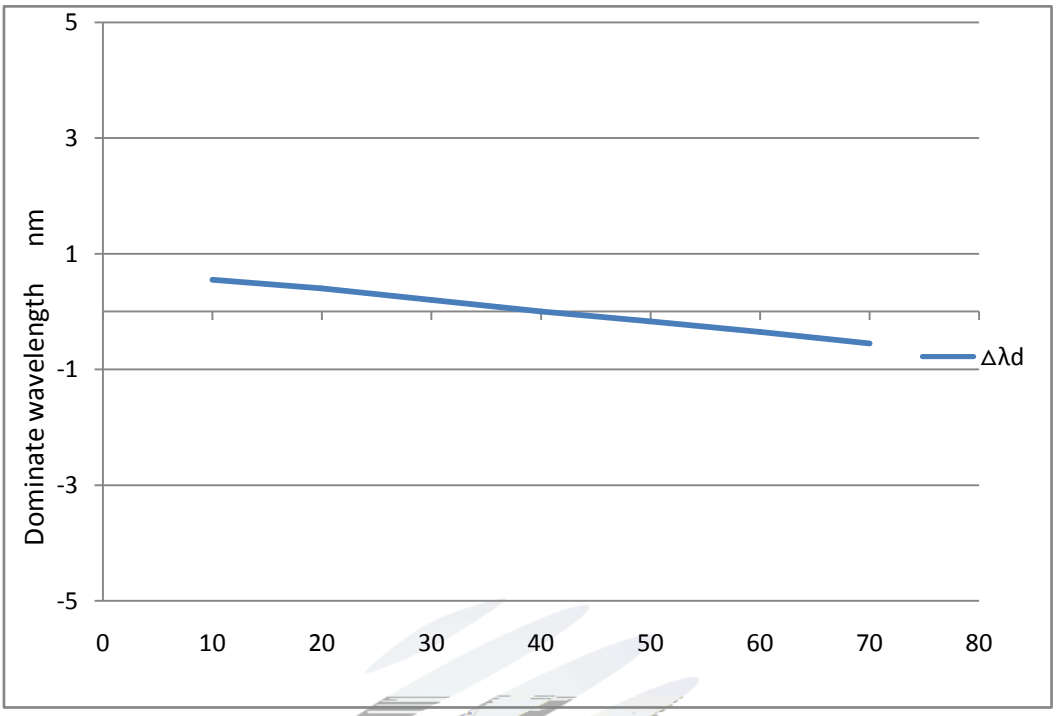


Fig. 1-13 Forward current vs. Dominate wavelength (Ts=25°C)

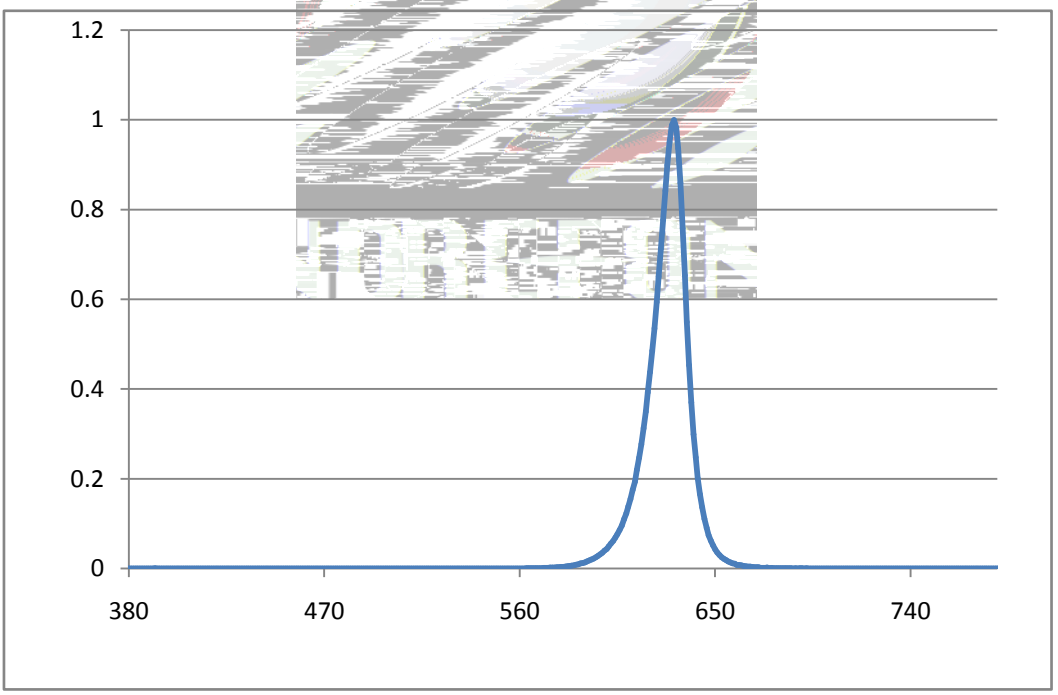


Fig. 1-14 Spectrum Distribution

2. Packaging

2.1 Packaging Specification

Package:2000pcs/reel. 2000pcs

2.1.1Carrier Tape Dimension

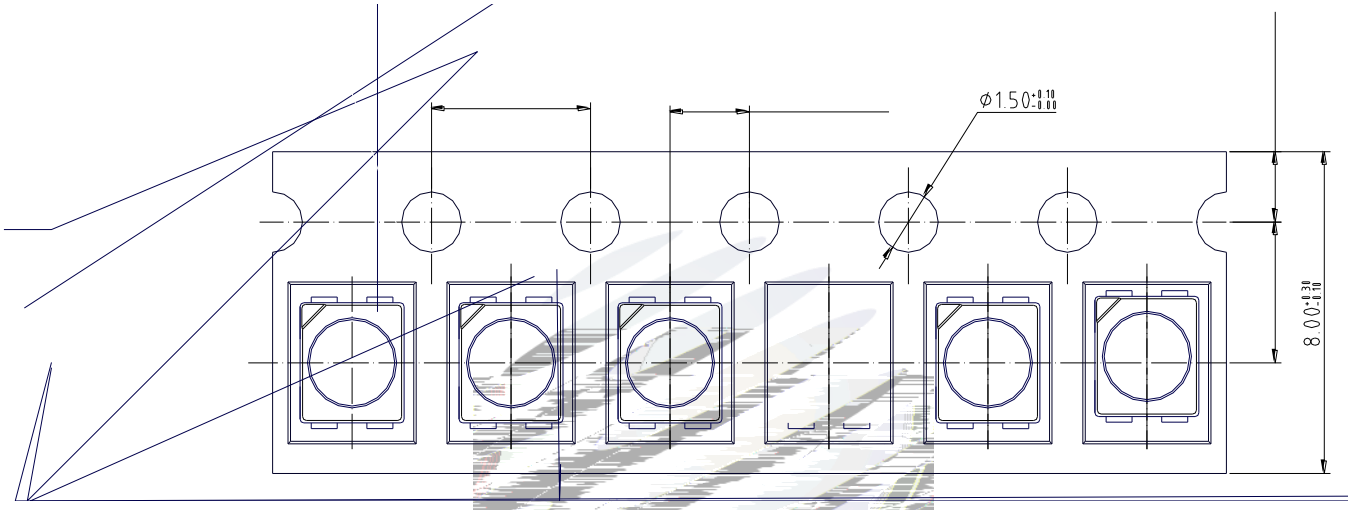
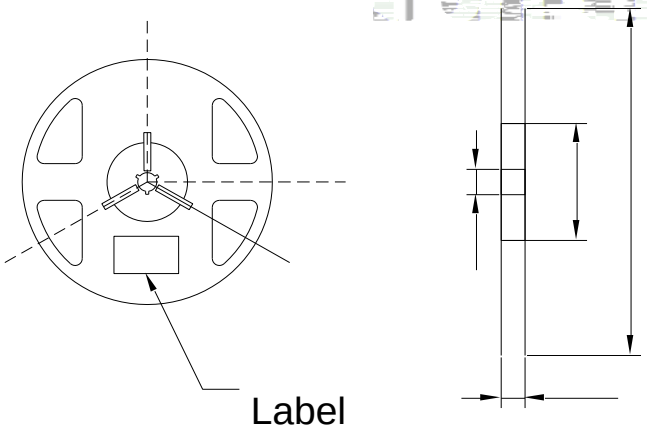


Fig.2-1 Carrier Tape Dimension

2.1.2Reel Dimension



L Z Reel Dimension

A	8.0 0.1mm
B	330 1mm
C	100 1mm
D	13.0 0.5mm

Fig.2-2Reel Dimension

Notes

The tolerances unless mentioned ±0.1mm. Unit : mm

2.1.3Label Form Specification

Fig. 2-3 Label

L Z	Specification
PART NO.	Part Number
SPEC NO.	Spec Number
LOT NO.	Lot Number
BIN CODE	Bin Code
	Luminous flux
XY	Chromaticity Bin
V_F	Forward Voltage
WLD	Wavelength
QTY	Packing Quantity
DATE	Made Date

2.2Moisture Resistant Packing

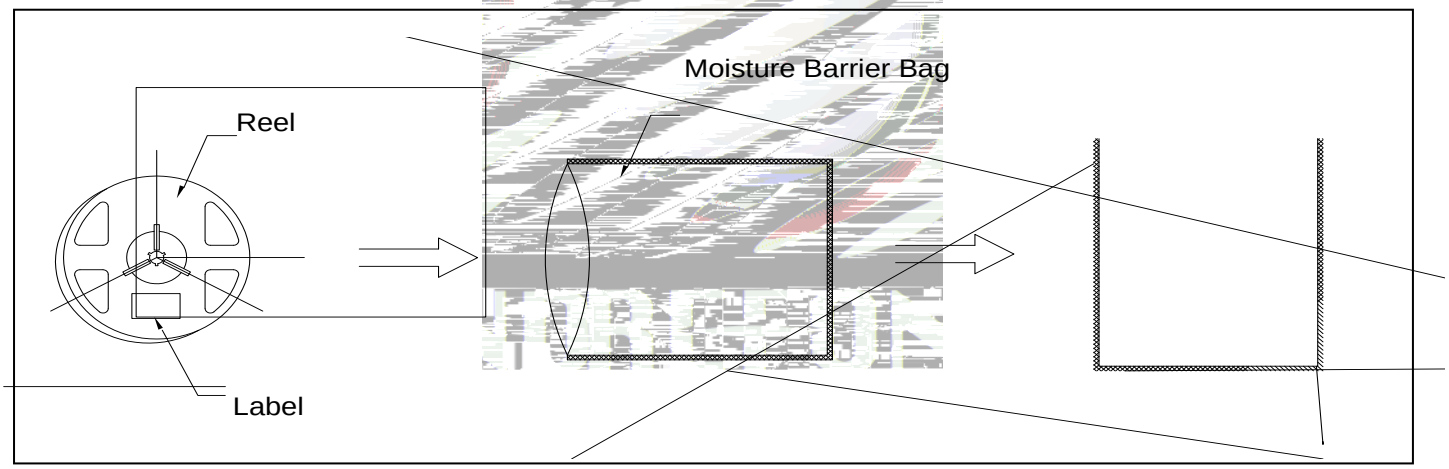
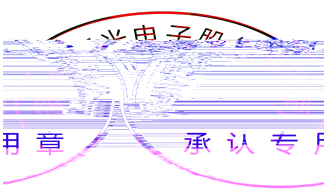


Fig.2-4Moisture Resistant Packing



High Temperature

High Humidity Life Test

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. SMT Reflow Soldering Instructions SMT

3.1SMT Reflow Soldering Instructions SMT

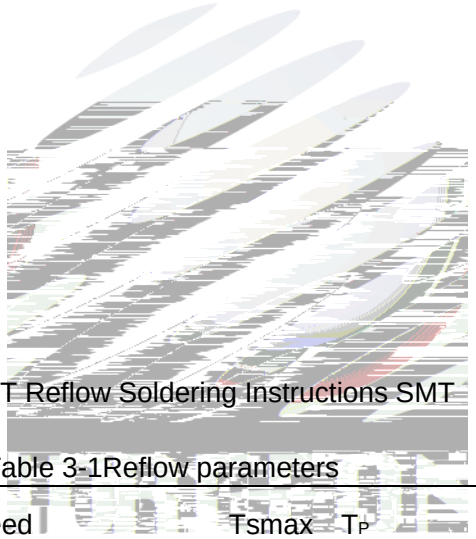
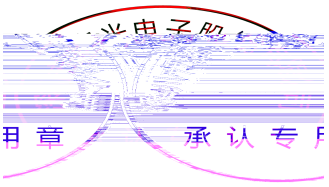


Fig.3-1SMT Reflow Soldering Instructions SMT

Table 3-1Reflow parameters

Average temperature rise speed Tsmax T_P	3 °C/ Max 3 °C/ s
Preheating: minimum temperature (Tsmin)	150 °C
Preheating: Max temperature (Tsmax)	200 °C
Preheating: Time Tsmin Tsmax	60 - 120 60s-120s
Time limited to maintain high temperature: the temperature (T_L)	217 °C
Time limited to maintain high temperature: The Time (t_L)	60



(TP) 5 °C Hold time within 5 C with the actual peak temperature (TP)	30 Max 30s
Cooling speed	6 °C/ Max 6 °C/ s
25 °C Needed time from 25 °C to Tp	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. , D

(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℃ less than 3 seconds

(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

D

3.1.3 Cautions

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

D

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

(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 D E

(2) In order to prevent ex-ternal 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 elementis 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. D D

1 E 1 E

- E

(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. D

D

D

(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.

D

Table 4-1Storage

Conditions		Temperature	Humidity	Time
Storage	Before Opening Aluminum Bag	30	75%	Within 1 Year From Date
	After Opening Aluminum Bag	30	60%	Recommended for use within 24 hours 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）℃ 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). D

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

Version History/

Date	Revisor	Version	Verifier	Remarks
2021/3/13	DA	E0	R	F

Declare

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