SPECIFICATION

REFOND P/N

RF-A3H10-W63P-E4

R&D

Mass Production

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1. Description

1.1 General Description

This product uses the ceramics package, it has a high reliability. it also be widely application for Automotive Exterior Lighting. Size(mm): 2.00X1.60X0.80mm.

1.4 Package Dimension

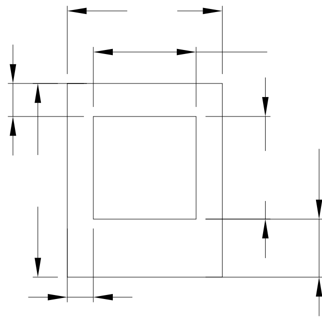

Fig.1-1 Top View

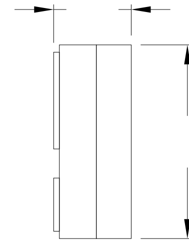

Fig.1-2 Side View

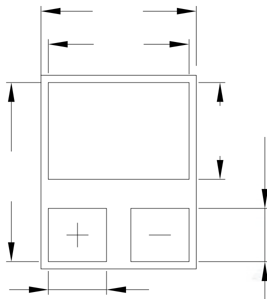

Fig.1-3 Bottom View

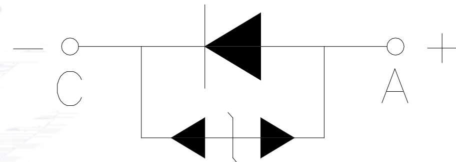

Fig.1-4 Polarity

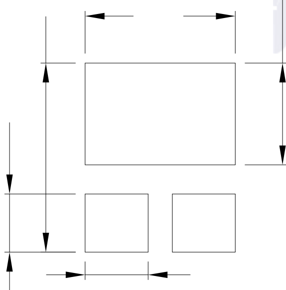

Fig.1-5 Soldering Patterns

Notes

1. All dimensions units are millimeters.

2. All dimensions tolerances are ±0.2mm unless otherwise noted.

± 0.2

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=1000mA	2.8	---	3.6	V
Reverse Current	I_R	V_R=5V	---	---	10	uA
luminous flux ( )		I_F=1000mA	300	---	380	lm
Viewing Angle		I_F=1000mA	---	120	---	deg
Thermal Resistance.	R_{THJ-S}	I_F=1000mA	---	---	4.5	/W

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

Parameter	Symbol	Rating	Units
Power Dissipation	P_D	3.23	W
Forward Current	I_F	1000	mA
Peak Forward Current	IFP	1500	mA
Reverse Voltage	V_R	5	V
Electrostatic Discharge (HBM)	E_{SD}	8000	V
Operating Temperature	T_{OPR}	-40 ~ +125	℃
Storage Temperature			

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1.7 Typical optical characteristics curves

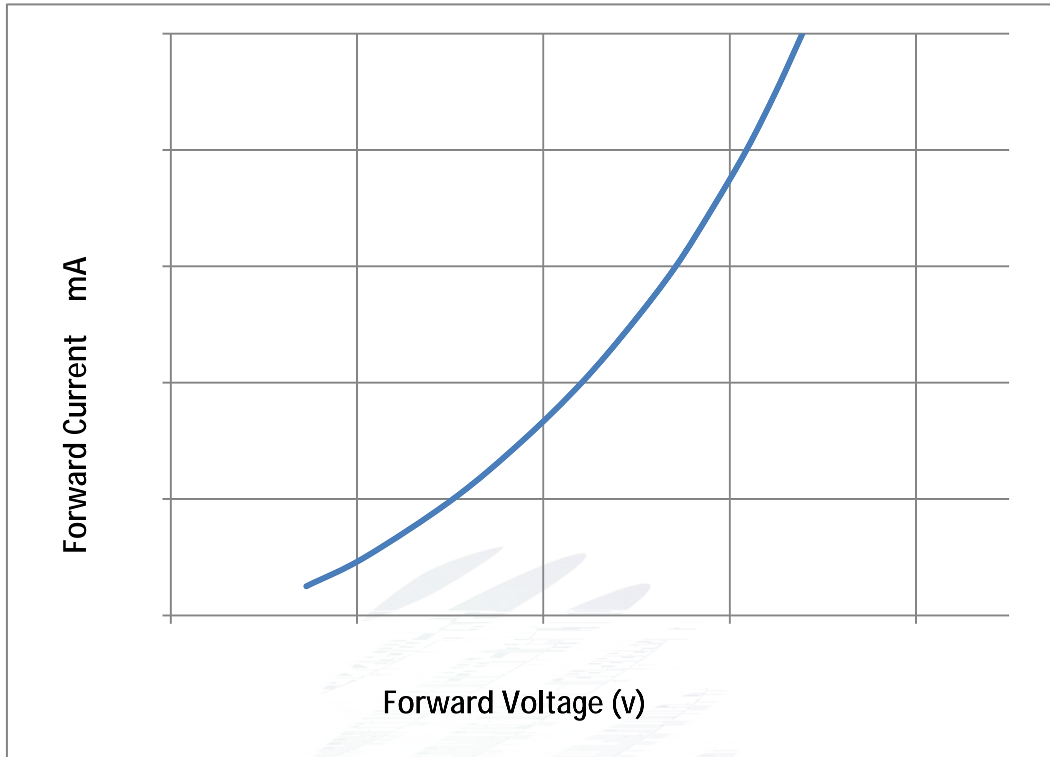

Fig 1-6 Forward Voltage Vs. Forward Current

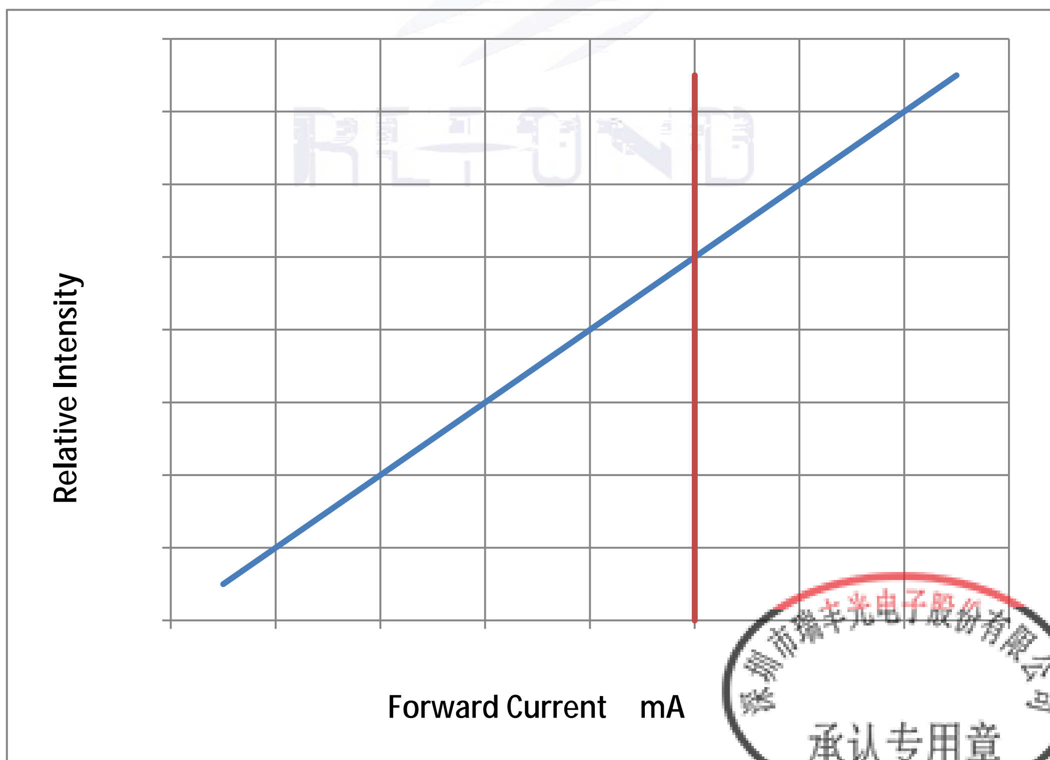

Fig 1-7 Forward Current Vs. Relative Intensity

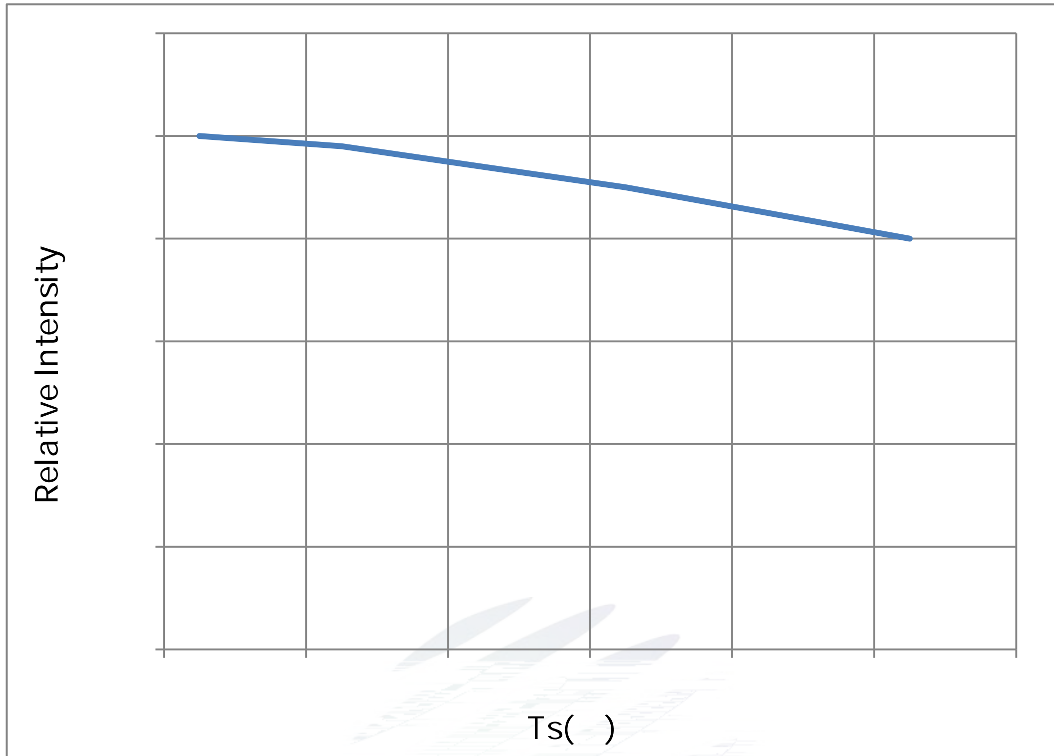

Fig 1-8 Ts Temperature Vs Relative Intensity

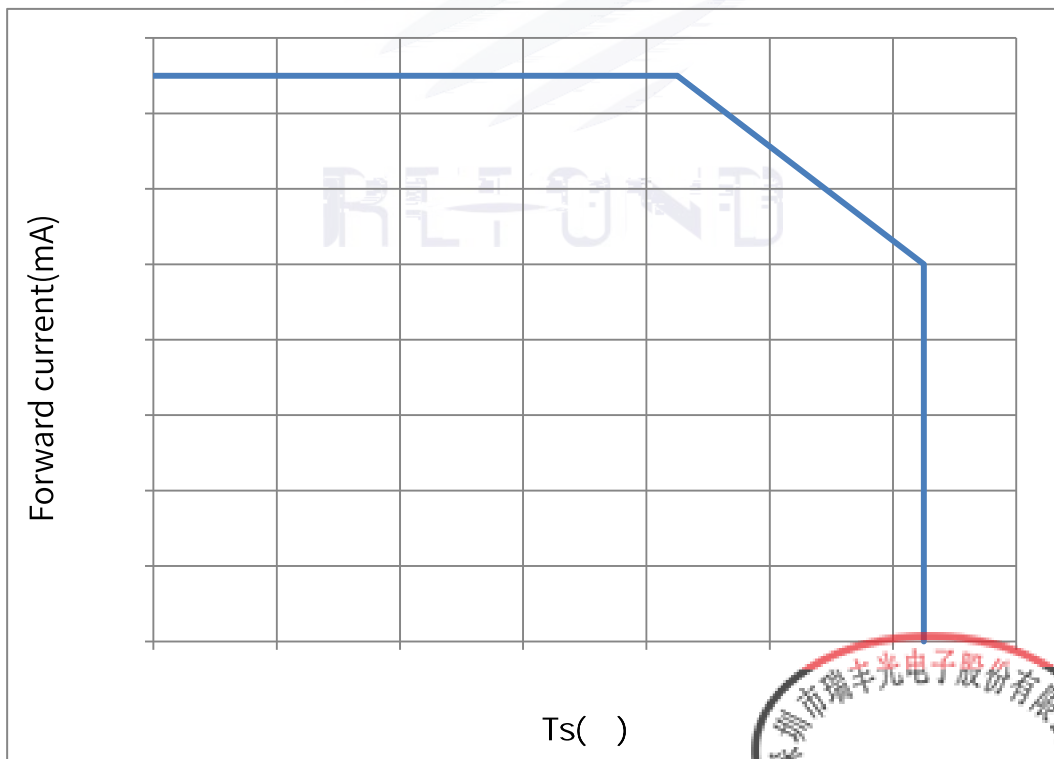

Fig 1-11 Ts Temperature Vs Forward Current

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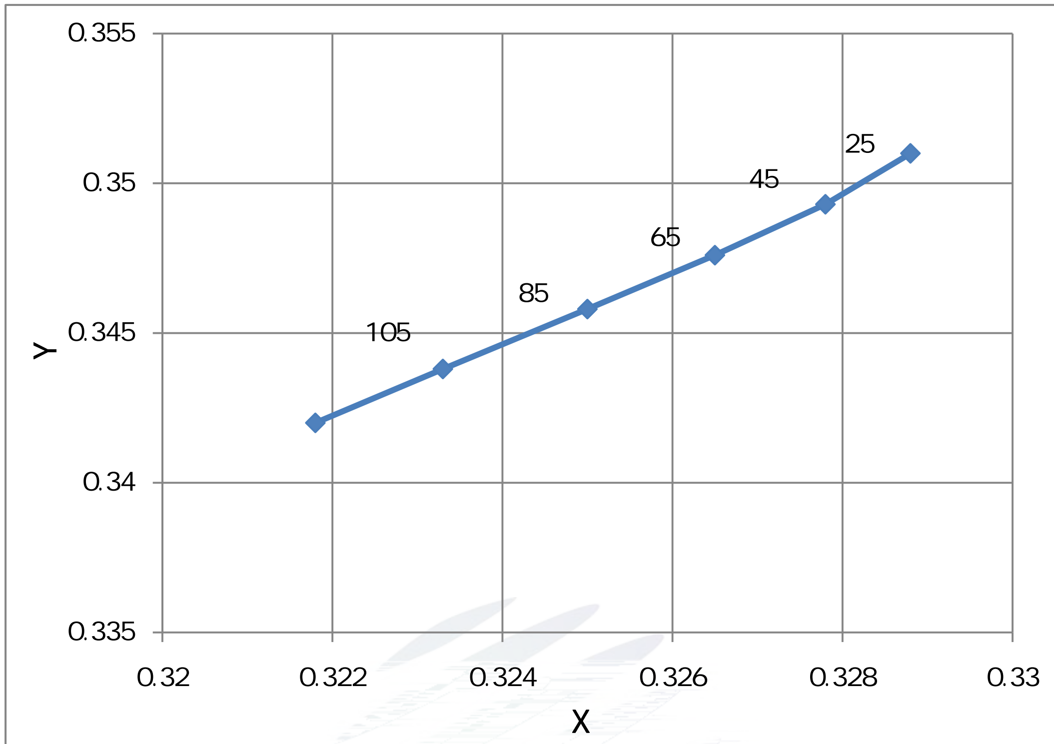

Fig. 1-13 Chromaticity Coordinate Vs Solder Temperature

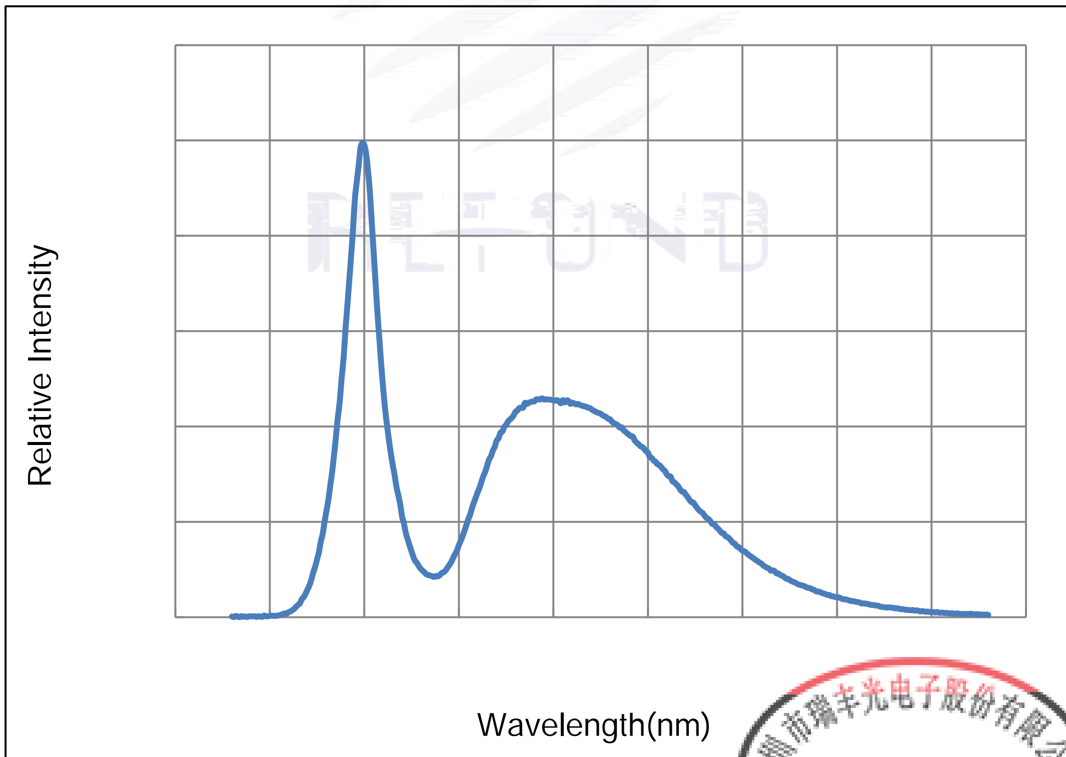

Fig 1-9 Spectrum Distribution

2. Packaging

2.1 Packaging Specification

Package:4000pcs/reel.　　　　4000pcs

2.1.1 Carrier Tape Dimension

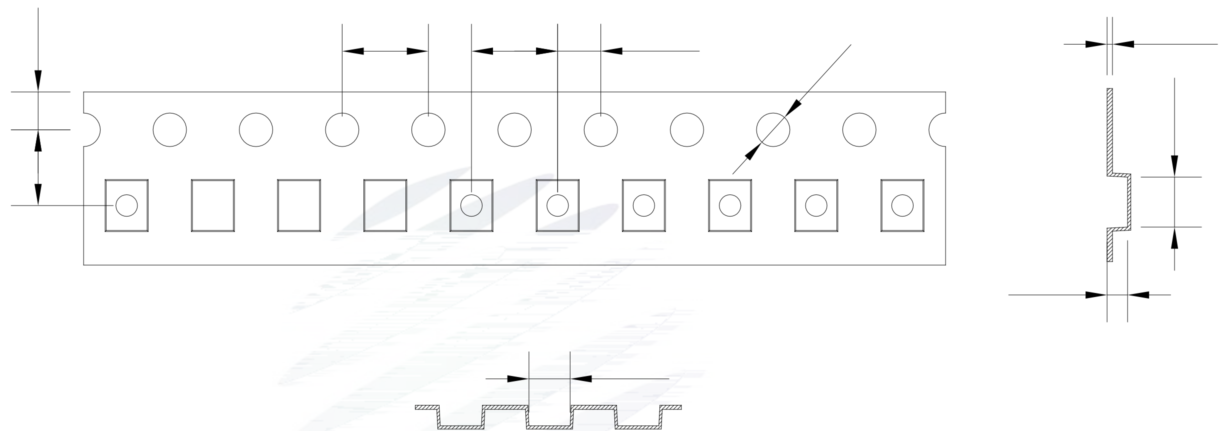

Fig.2-1 Carrier Tape Dimension

2.1.2 Reel Dimension

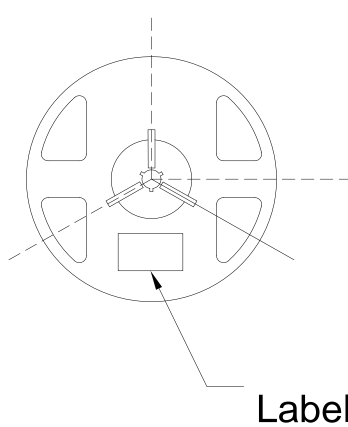

Fig.2-2Reel Dimension

Table 2-1 Dimension

A	11.4　0.3mm
B	180±2mm
C	60.0±1mm
D	13.0±0.2mm

Notes

The tolerances unless mentioned ±0.1mm. Unit : mm　　　　±0.1

2.1.3 Label Form Specification

Table 2-2 Label Form Specification

PART NO	Part Number
SPEC NO	Spec Number
LOT NO	Lot Number
BIN CODE	Bin Code Bin
	Luminous flux 流明
X/Y	Chromaticity Bin色度
V_F	Forward Voltage
QTY	Packing Quantity
DATE	Made Date

Fig 2-3 Label Form Specification

2.2 Moisture Resistant Packing

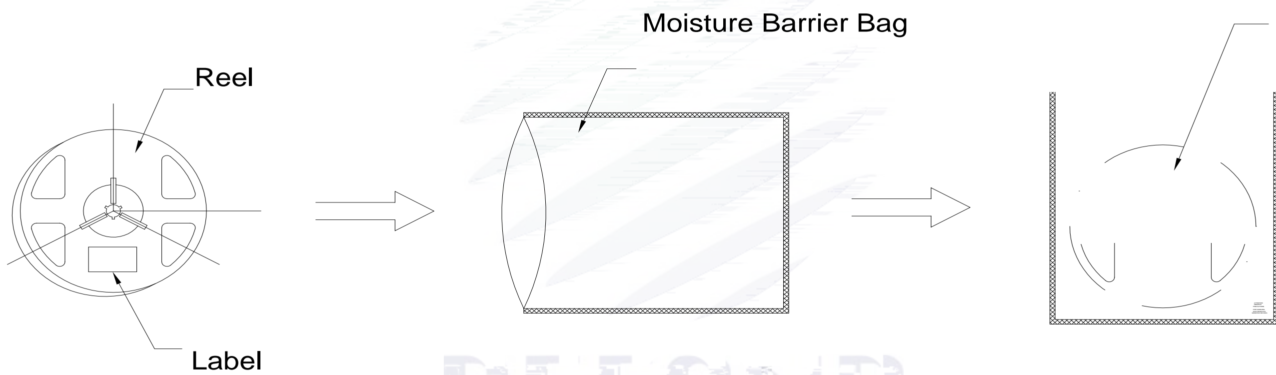

Fig.2- Moisture Resistant Packing

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

2.5 Criteria For Judging Damage

Table Criteria For Judging Damage

Test Items	Symbol	Test Condition	Criteria For Judgement	
			Min.	Max.
Forward Voltage	V_F	I_F=1000mA	-	U.S.L*)x1.1
Reverse Current	I_R	V_R = 5V	-	U.S.L*)x2.0
Luminous Flux 光通量		I_F=1000mA	L.S.L*)x0.7	-

3. SMT Reflow Soldering Instructions SMT

3.1 SMT Reflow Soldering Instructions SMT

Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 SMT Reflow Soldering Instructions SMT

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)	
Time limited to maintain high temperature: The Time (t_L)	60 Max 60s

Peak /Classification of temperature /

Notes

(1) Reflow soldering should not be done more than two times. In the case of more than 24 hours passed soldering after first, LEDs will be damaged. 24

LED

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

3.1.1 Soldering Iron

(1) When hand soldering, keep the temperature of iron below less 300 less than 3 seconds

300 3

The hand solder should be done only one time.

3.1.2 Repairing

Repair 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 will not be damaged by repairing.

LED LED

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 influence to 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 circu4.6(s)4.5( )6.35.7AD42E67B453245z.5(ng,)2(d)5.7(o not)-3.7(warp)use

4. 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

LED 100PPM.

(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 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. 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 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.

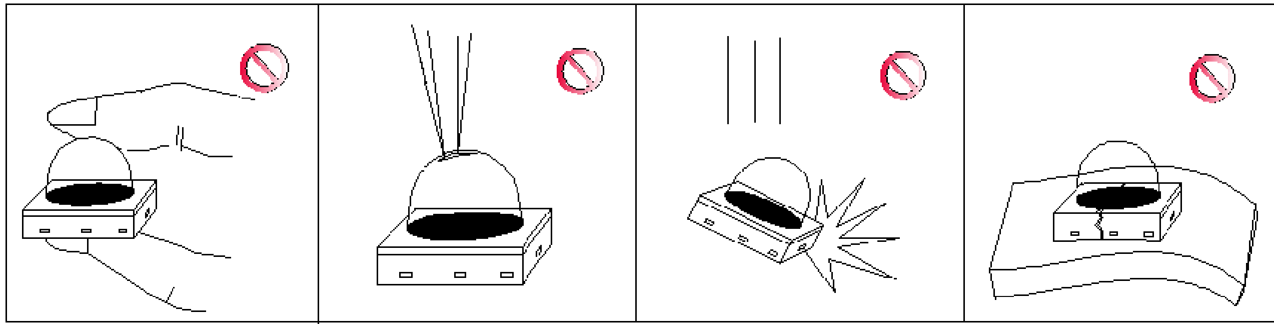

Fig 4-1

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

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Declare

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