SPECIFICATION

REFOND P/N

RF-A3E27-W60E-B1

□R&D

■Mass Production

0755-2967-5000
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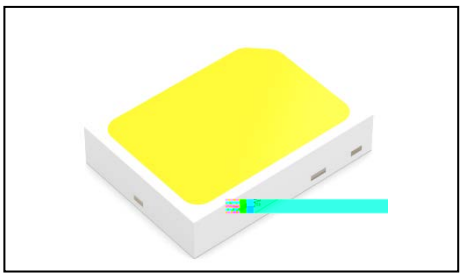
Contents

1. Description

1.1



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

Product Package:2.7mmX2.0mmX0.6mm.

LED 2.7mmX2.0mmX0.6mm

1.2Features

►EMC Package.EMC

►Extremely wide viewing angle.

►Suitable for all SMT assembly and solder process. SMT

►Available on tape and reel.

►Moisture sensitivity level: Level 2. Level2

►RoHS compliant. RoHS

►Qualifications: The product qualification test plan is based on the guidelines of AEC-Q102Stress Test Qualification for Automotive Grade Discrete Semiconductors

AEC-Q102

1.3Application

►Automotive Lighting Interior and Exterior.

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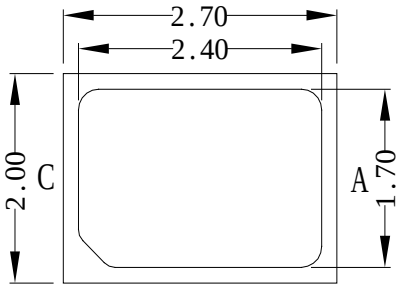
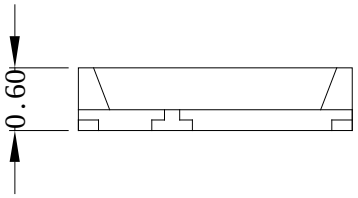
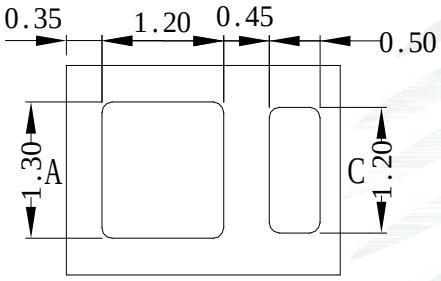
1.4Package Dimension



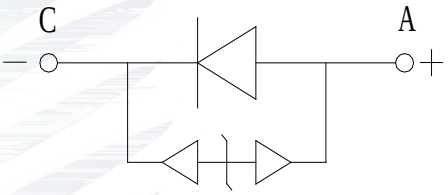
正面视图



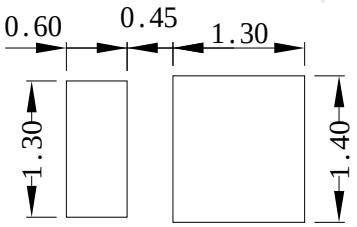
侧面视图



背面视图



极性



推荐焊盘

Notes

1. All dimensions units are millimeters.

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

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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. 10ms, 1/10.

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

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

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

8. ESD yield is over 90% at 8000V ESD (HBM). ESD protection during products handing is needed. 90% LED
ESD8000V ,

1.6 Bin Range Of Forward Voltage and Luminous Flux (IF=150mA)

BIN (IF=150mA)

Table 1-3

V_F V	G0	H0	I0	
	2.8-3.0	3.0-3.2	3.2-3.4	
φ lm	OB	PA	PB	QA
	50-55.3	55.3-61.2	61.2-67.8	67.8-75.3

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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
VM1	0.3150	0.2995	0.3115	0.3212	0.3268	0.3371	0.3282	0.3162
VM2	0.3210	0.3060	0.3190	0.3280	0.3340	0.3420	0.3340	0.3230
VM3	0.3270	0.3140	0.3270	0.3360	0.3420	0.3490	0.3410	0.3300
VM4	0.3340	0.3230	0.3340	0.3420	0.3480	0.3535		

1.7 Typical Optical Characteristics Curves

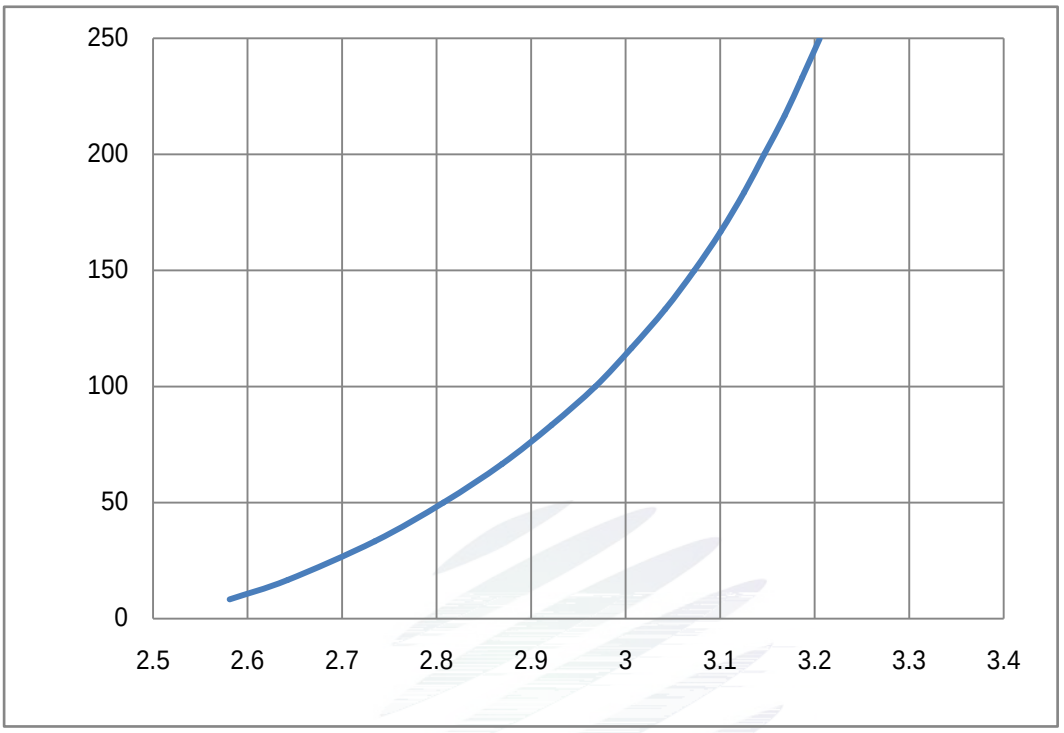

Fig. 1-7 Forward Voltage Vs Forward Current

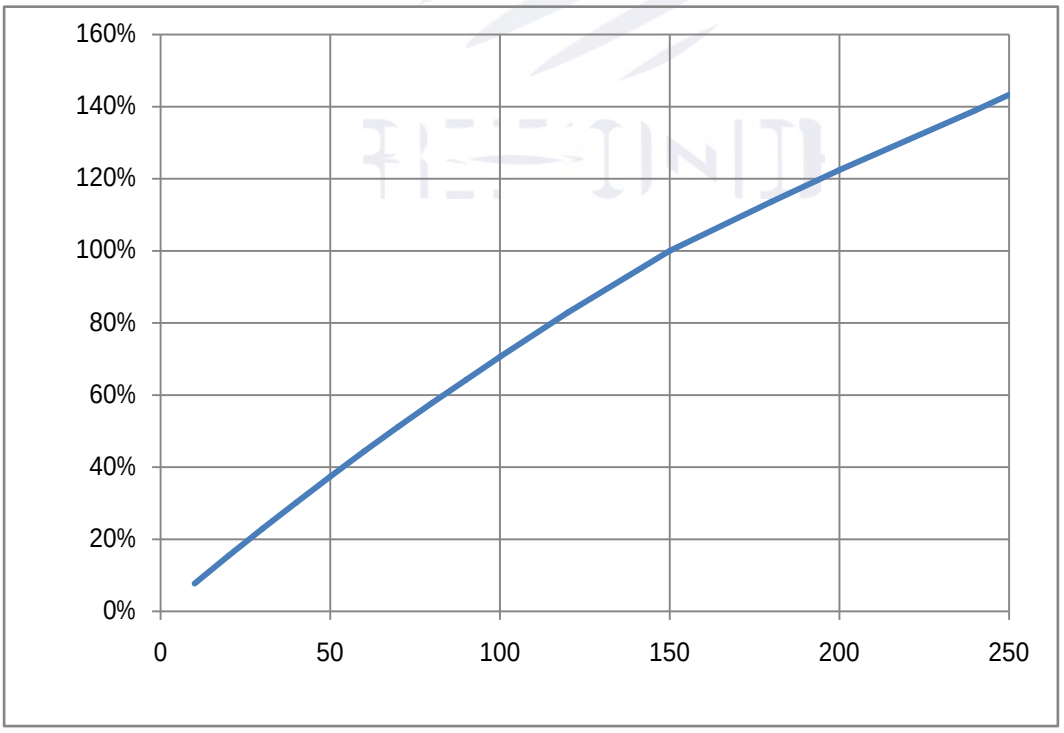

Fig. 1-8 Forward Current Vs Relative Intensity

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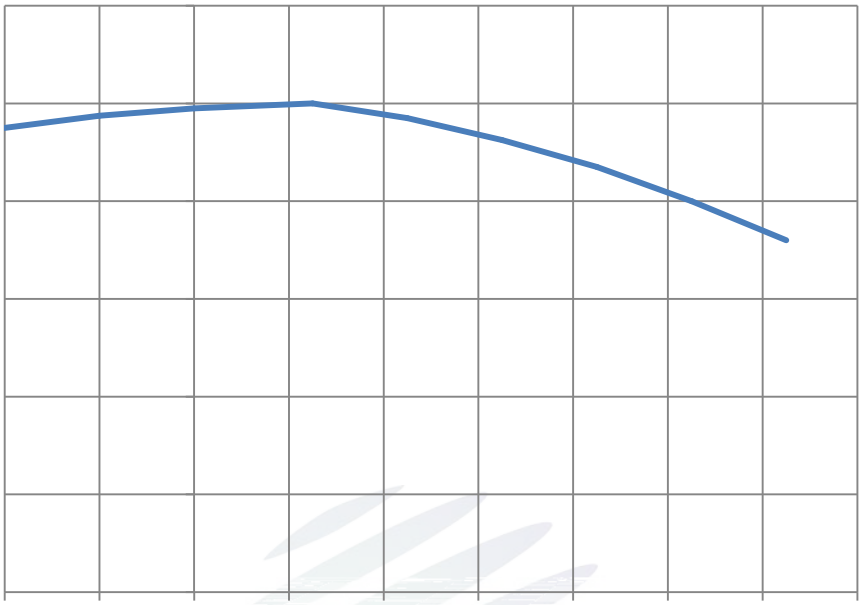

Fig. 1-9 Solder Temperature Vs Relative Intensity

Fig. 1-10 Solder Temperature Vs Forward Current

Tj ≤ 150

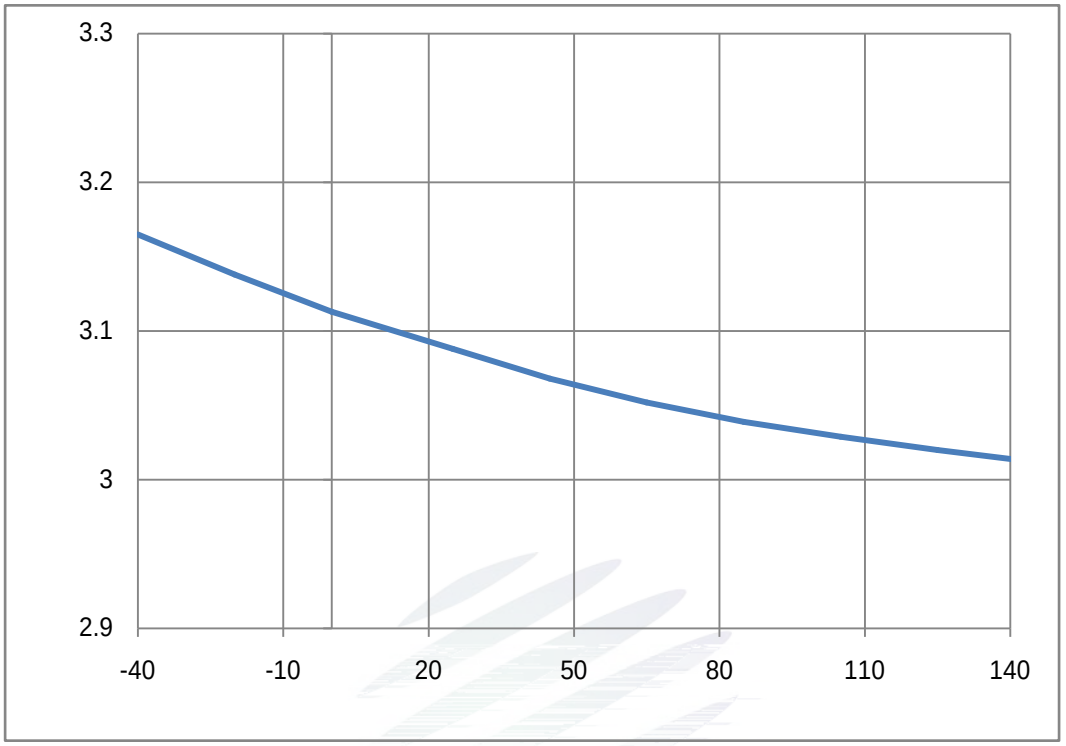

Fig. 1-11 Forward Voltage Vs Solder Temperature

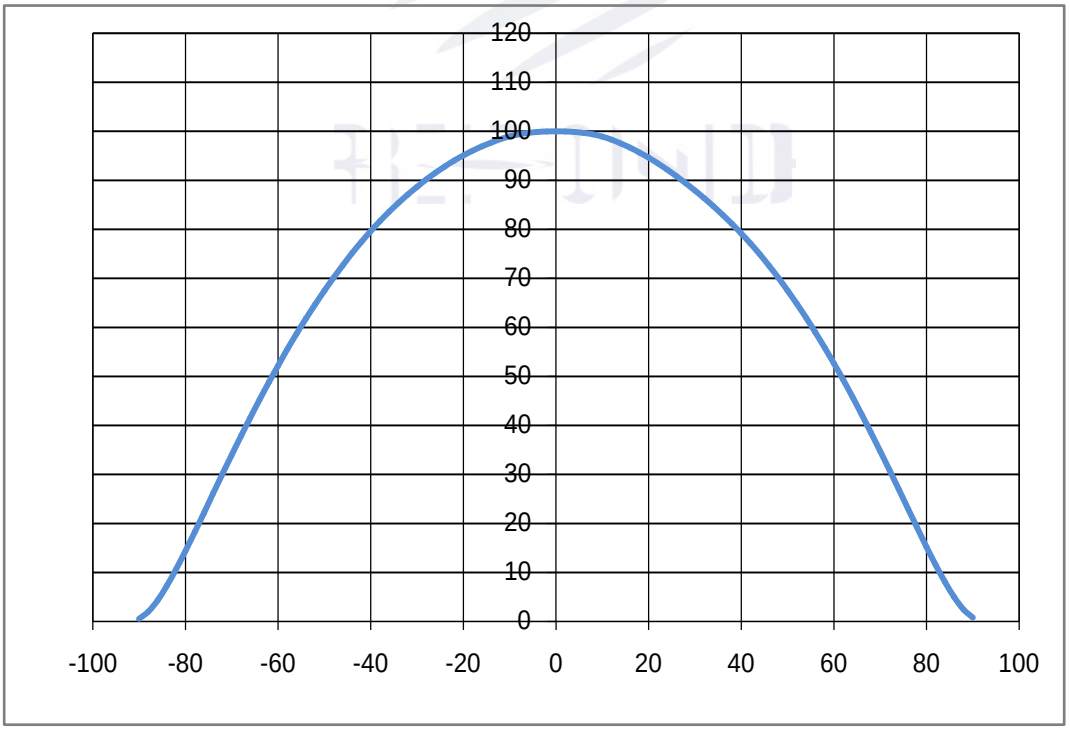

Fig. 1-12 Radiation diagram

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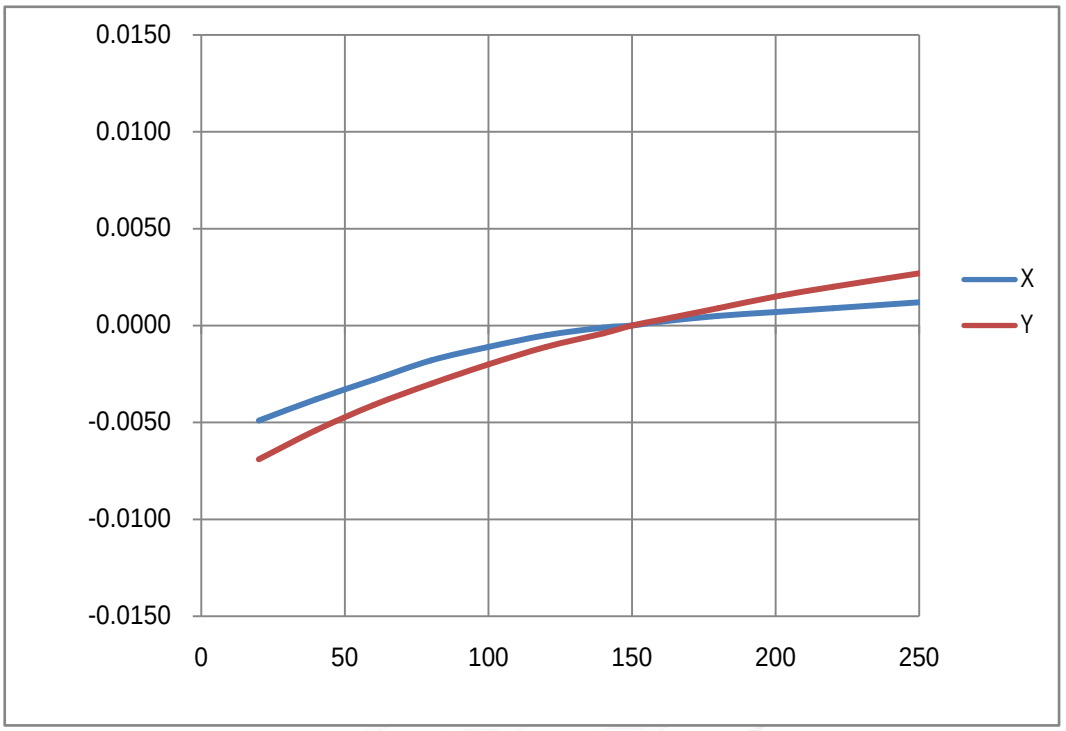

Fig. 1-13 Chromaticity Coordinate Vs Forward Current

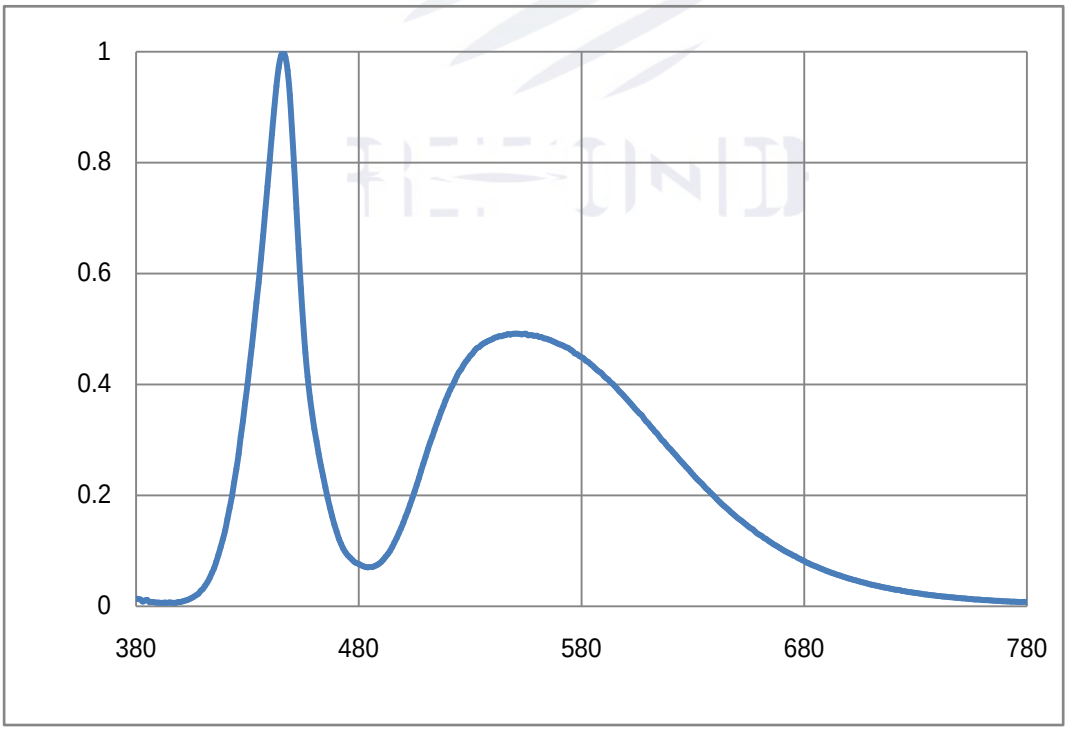

Fig. 1-14 Spectrum Distribution

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2.1.3Label Form Specification

able 2-2 Specification

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

Fig. 2-3 Label Form Specification

2.2Moisture Resistant Packing

Fig.2-4Moisture Resistant Packing

2.3Cardboard Box

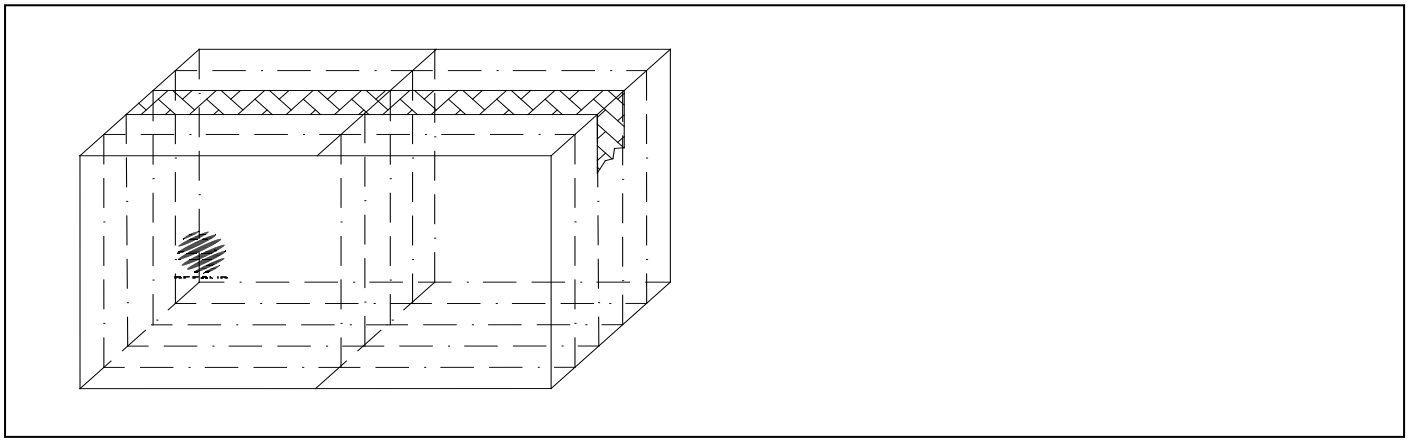

Fig.2-5Cardboard Box

2.4Reliability Test Items And Conditions

Table 2-3 Reliability Test Items And Conditions

Test Items	Ref.Standard	Test Condition	Time

2.5 Criteria For Judging Damage

Table 2-4Criteria For Judging Damage

3. SMT Reflow Soldering Instructions SMT

3.1SMT Reflow Soldering Instructions SMT

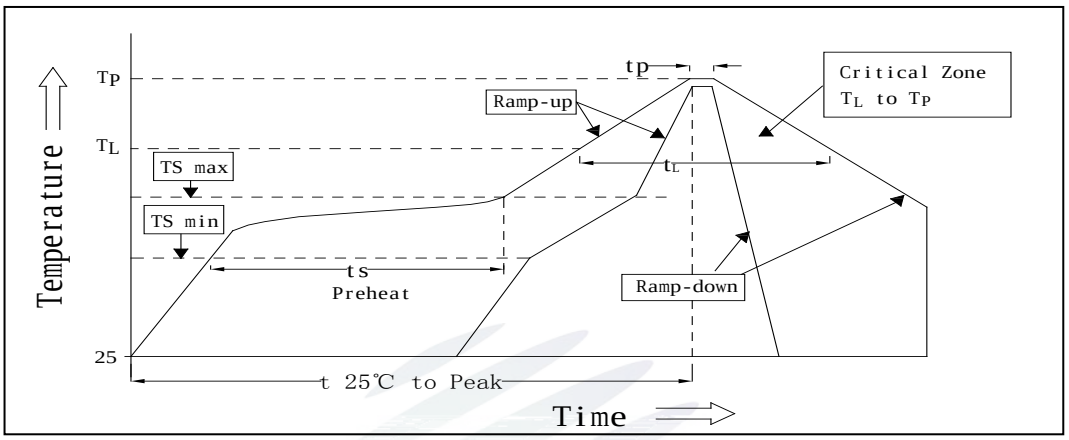

Fig.3-1SMT Reflow Soldering Instructions SMT

Table 3-1Reflow parameters 回流焊参数

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 Max 60s
Peak /Classification of temperature: / (T_P)	260 °C
Time limit classification of peak temperature time t_p	10 Max 10s
(T_P) 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

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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 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

3.1.2 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

4. Handling Precautions

4.1 Handling Precautions

(1) LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating

usage materiai65.04CN 0.98 rDe ovh04 Tw -4402 Tw 13.7474 14.71it5 EMC d <0(n C d78(r)04 Tw -44.47Tw 10.5 -0

Fig 4-1Cautions

(5) In designing a circuit,the current through each LED can not exceed the absolute maximum rating specified for each LED.In the mean while,resistors for protection should be applied,other wise 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.

L E

Table 4-1Storage

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

Version History/

Date	Revisor	Version	Verifier	Remarks
2023/10/10	Xian Zhou	E0	Zhu Yiming	New issue

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Declare

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

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