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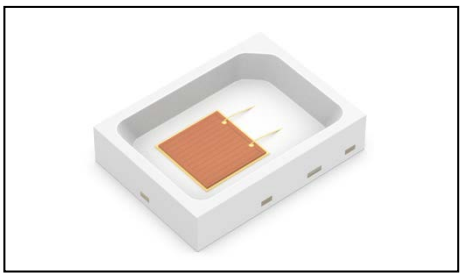
1. Description

1.1



The red source color devices are made with AlGaInP on Substrate Light Emitting Diode .Product Package:2.7mmX2.0mmX0.6mm.

该红光 LED 由 AlGaInp 四种元素芯片激发而成，产品尺寸：2.7mmX2.0mmX0.6mm.

1.2Features

EMC Package. EMC封装

Extremely wide viewing angle.发光角度大

Suitable for all SMT assembly and solder process.适用于所有的SMT组装和焊接工艺

Available on tape and reel.适用于载带及卷轴

Moisture sensitivity level: Level 2.防潮等级 Level2

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-Q102 Stress Test Qualification for Automotive Grade Discrete Semiconductors AEC-Q102

1.3Application

Automotive Lighting Interior and Exterior.汽车内饰和外饰照明

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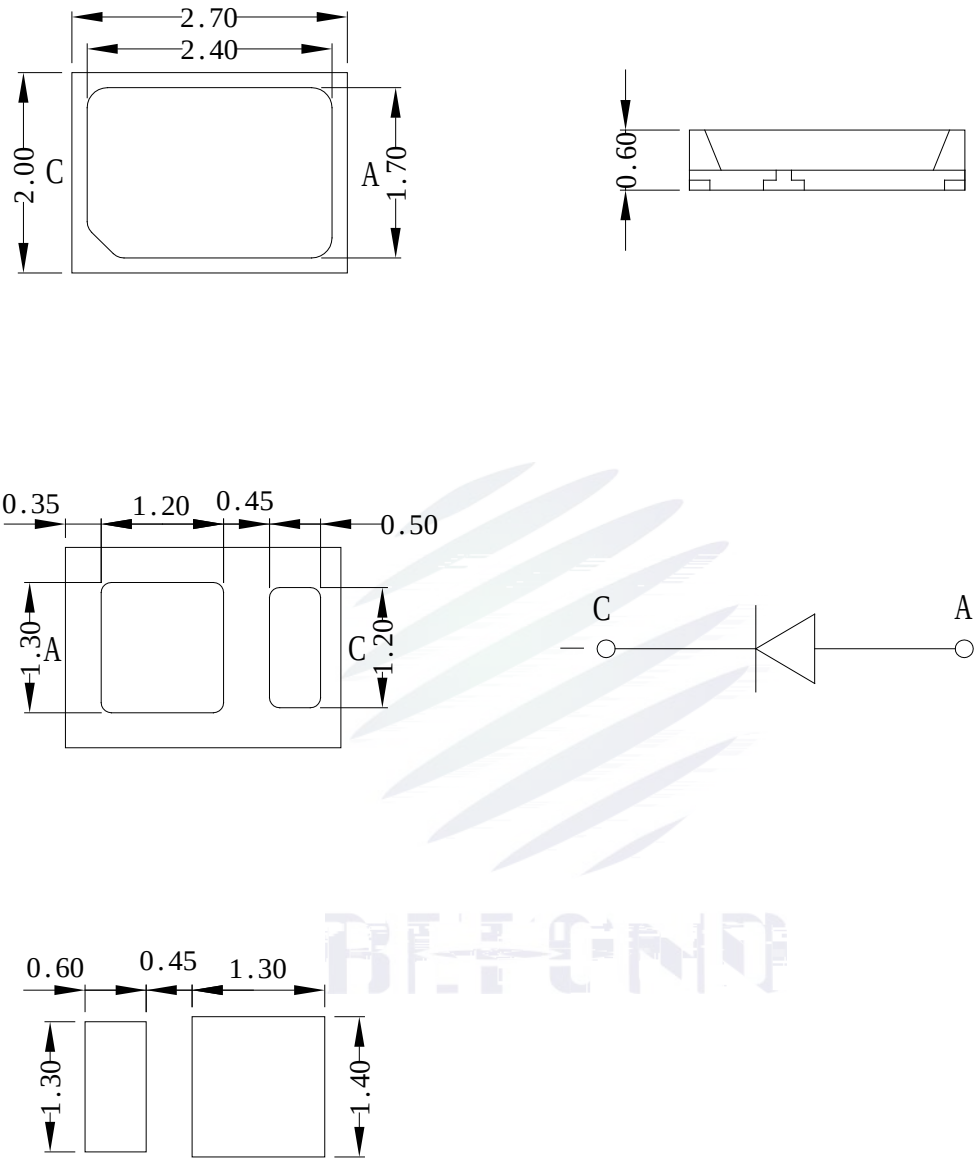
1.4Package Dimension



Notes

1. All dimensions units are millimeters.
2. All dimensions tolerances are 0.05mm unless otherwise noted. ± 0.05

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1.5Product 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=350mA	2.0	---	2.6	V
Reverse Current	I_R	V_R=5V	---	---	10	uA
Luminous Flux		I_F=350mA	61.2	---	83.7	lm
Dominant wavelength	Wd	IF=350mA	612.5	617	620	nm
Viewing Angle		I_F=350mA	---	120	---	deg
Thermal Resistance.	R_{THJ-S}	I_F=350mA	---	---	22	℃/W

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

Parameter	Symbol	Rating	Units
Power Dissipation	P_D	1092	mW
Forward Current	I_F	420	mA
Peak Forward Current	I_{FP}	700	mA
Reverse Voltage	V_R	5	V
Electrostatic Discharge (HBM)	E_{SD}	2000	V
Operating Temperature	T_{OPR}	-40 ~ +125	
Storage Temperature	T_{STG}	-40 ~ +125	
Junction Temperature	T_J	150	

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 2000V ESD (HBM). ESD protection during products handing is needed. 90% LED ESD2000V ,

1.6 Bin Range Of Forward Voltage and Luminous Flux (IF=350mA)

BIN (IF=350mA)

Table 1-3

V_F	C0	C1	C2
	2.0-2.2	2.2-2.4	2.4-2.6
（lm）	PB	QA	QB
	61.2-67.8	67.8-75.3	75.3-83.7
WD(nm)	C2	D1	D2
	612.5-615	615-617.5	617.5-620

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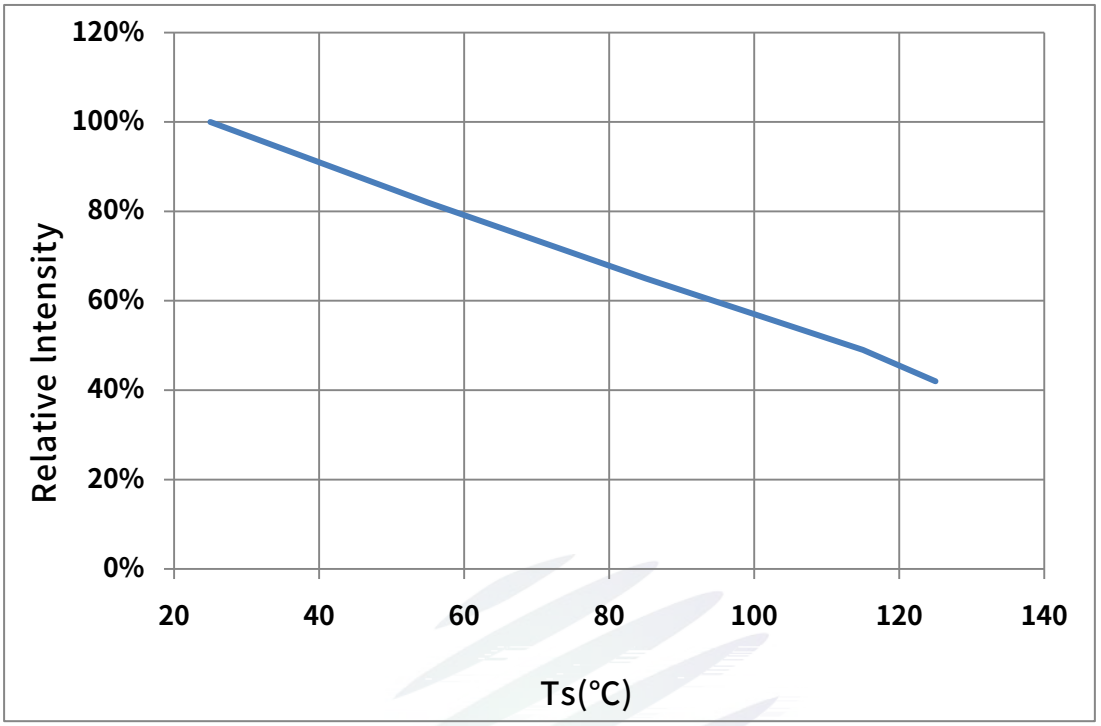


Fig. 1-9 Solder Temperature Vs Relative Intensity

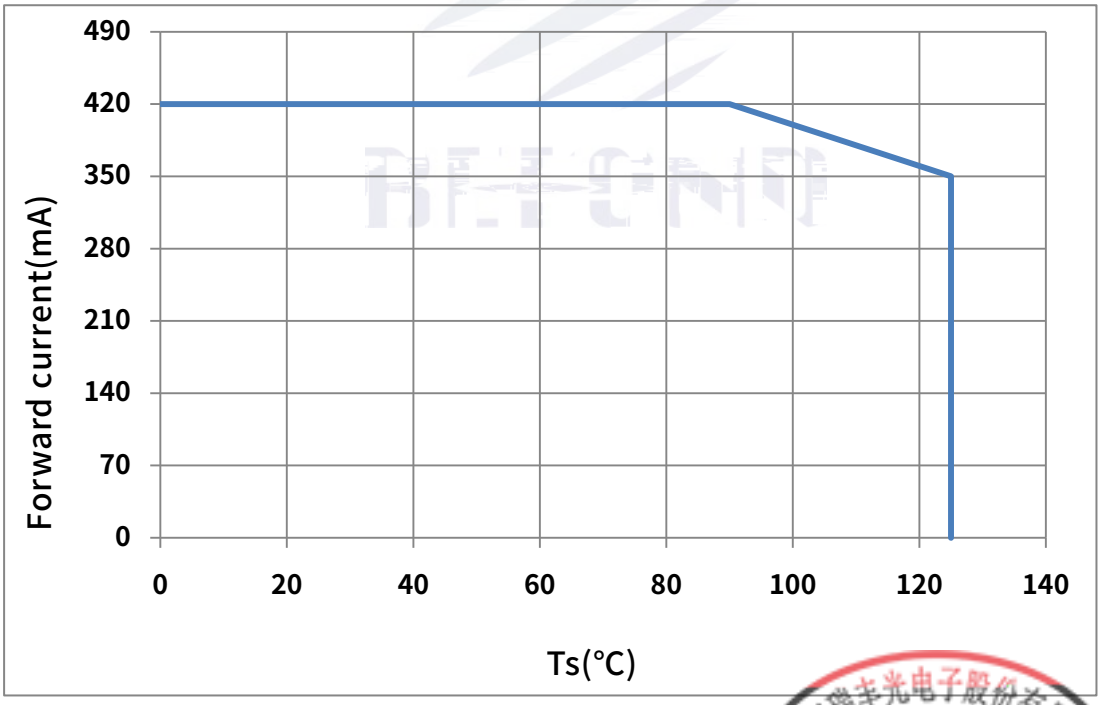


Fig. 1-10 Solder Temperature Vs Forward Current

Tj ≤ 150

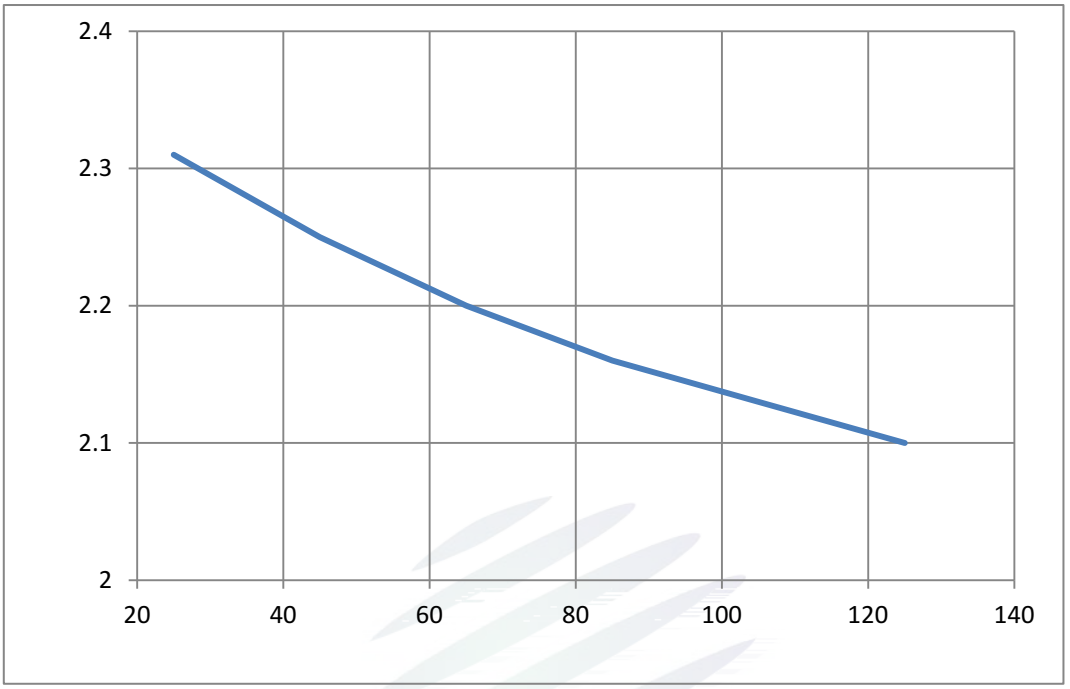


Fig. 1-11 Forward Voltage Vs Solder Temperature

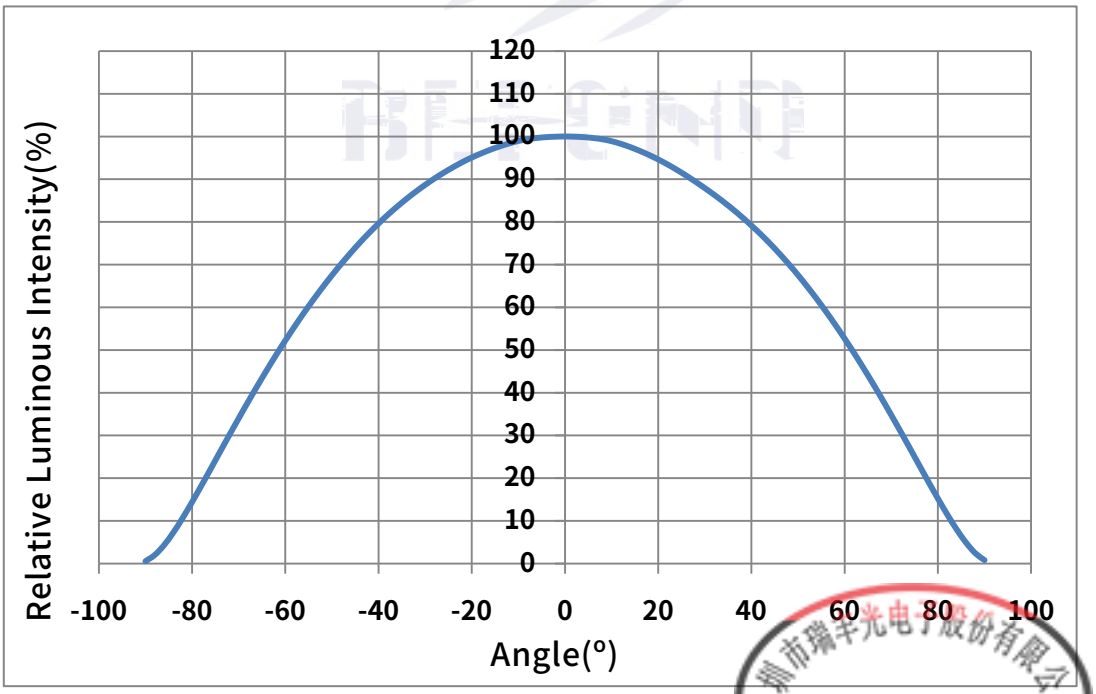


Fig. 1-12 Radiation diagram

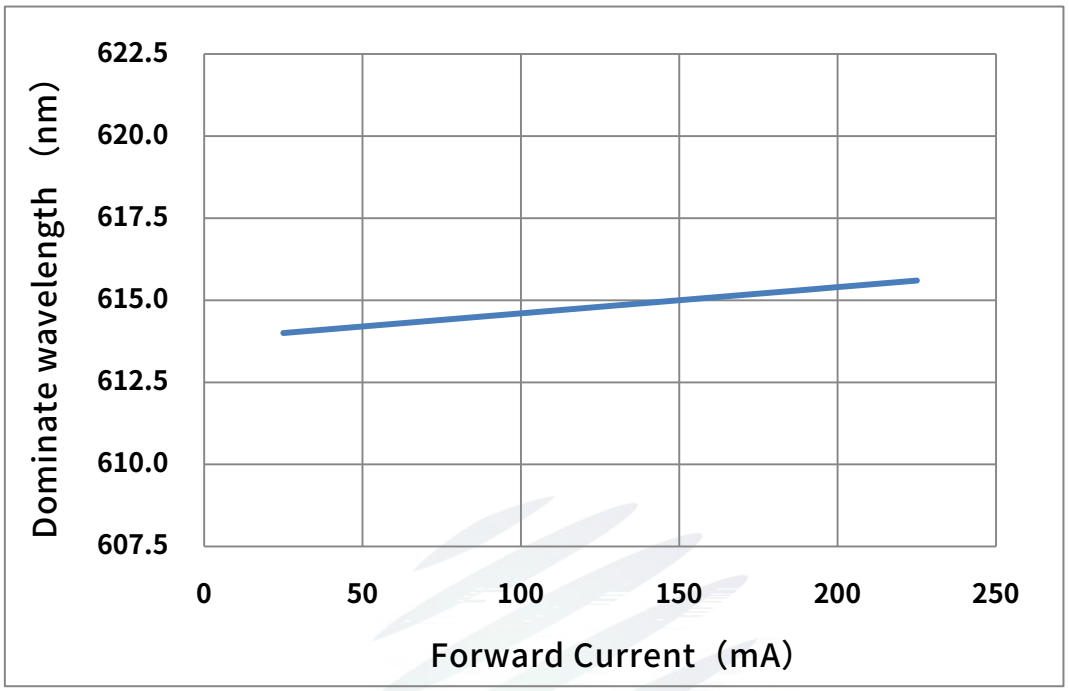


Fig. 1-13 Forward current vs. Dominate wavelength (Ts=25°C)

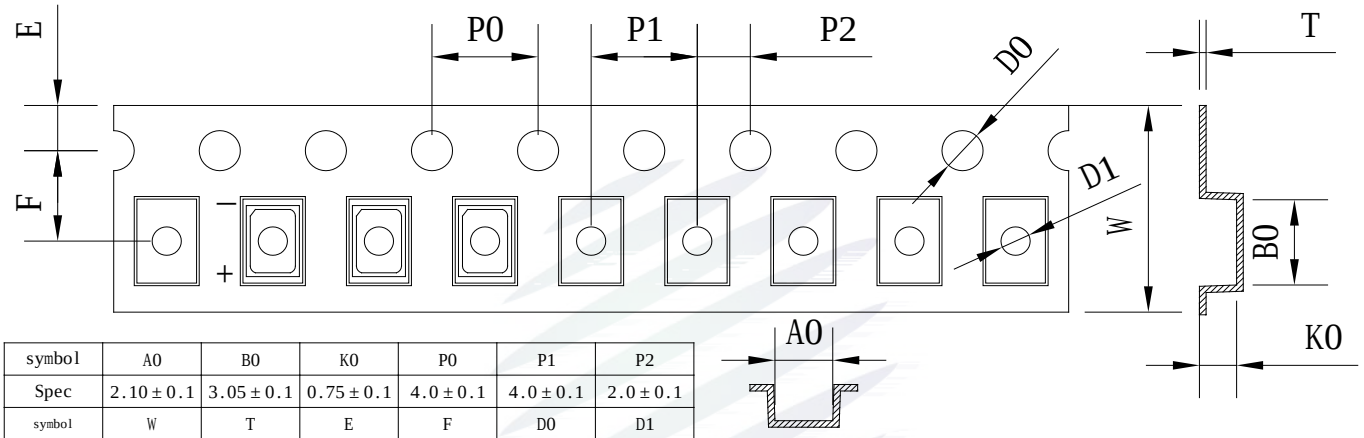
Fig. 1-14 Spectrum Distribution

2. Packaging

2.1 Packaging Specification

Package:4000pcs/reel. 4000pcs

2.1.1Carrier Tape Dimension



symbol	A0	B0	K0	P0	P1	P2
Spec	2.10±0.1	3.05±0.1	0.75±0.1	4.0±0.1	4.0±0.1	2.0±0.1
symbol	W	T	E	F	D0	D1
Spec	8.0±0.2	0.2±0.05	1.75±0.1	3.5±0.1	1.55±0.05	1.0±0.1

Fig.2-1 Carrier Tape Dimension

2.1.2Reel Dimension

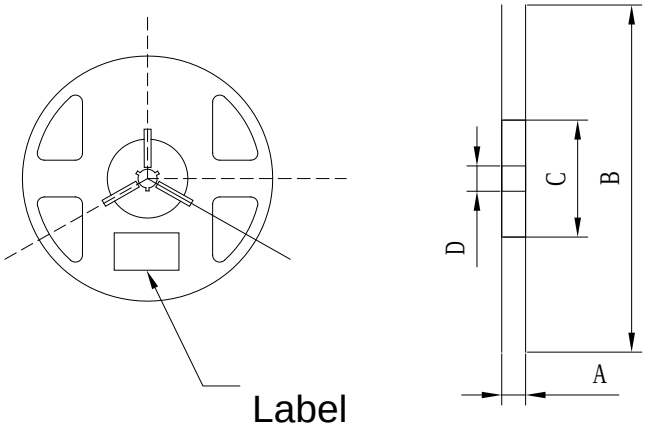


Fig.2-2Reel Dimension

Table 2-1Reel Dimension

A	12 ± 0.1mm
B	180 ± 1mm
C	60 ± 1mm
D	13.0 ± 0.5mm

Notes

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

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
	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

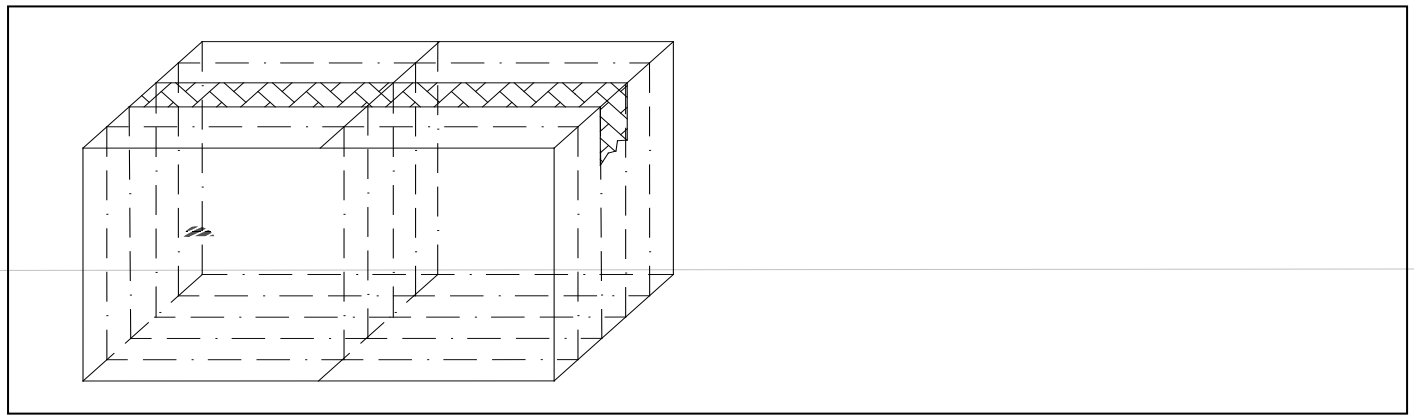


Fig.2-5Cardboard Box

2.4Reliability Test Items And Conditions

2.5 Criteria For Judging Damage

Table 2-4Criteria For Judging Damage

Test Items	Symbol	Test Condition	Criteria For Judgement	
			Min.	Max.
Forward Voltage	V_F	I_F=350mA	-	U.S.L*)x1.1
Reverse Current	I_R	V_R = 5V	-	U.S.L*)x2.0
Luminous Flux		I_F=350mA	L.S.L*)x0.7	-

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. / LED

LED

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.

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3. SMT Reflow Soldering Instructions SMT

3.1SMT Reflow Soldering Instructions SMT

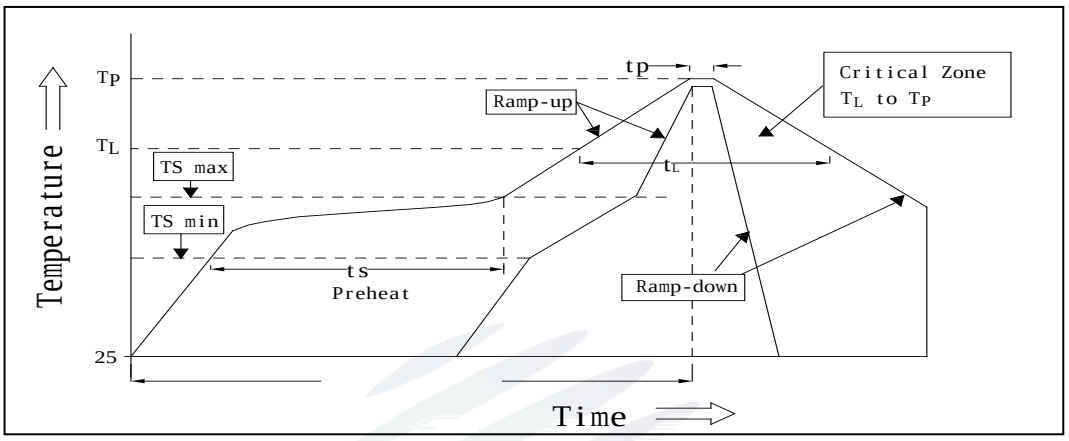

Fig.3-1SMT Reflow Soldering Instructions SMT

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 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

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 (i)-2.06.86(se)-7.al)e2a6(.)T3is7(d f)-.7(urpo-4.5(e-3()1.(orm)-3r(t)2(i ge1(an0.004 Tw -44.474)-3.8(i)0.004 To(D)]TJ 0 Tc 0)-3.8(i)nt)

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) Compadesho stand(vd)1.1(cd)-2.5(ants-3.8)(agens)-is-5(generTally.53f7erAsn98d49.0 s1uTrface uegise(7)01 TB4 0(2te2ne)-4a. u-2.097 TD [

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

Declare

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

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