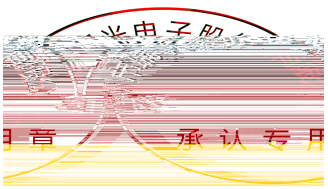
SPECIFICATION

REFOND P/N

RF-OUB190TS-CA-B

□R&D

■Mass Product



Contents

1. Description

1.1 General Description

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

LED 1.6mmX0.8mmX0.7mm

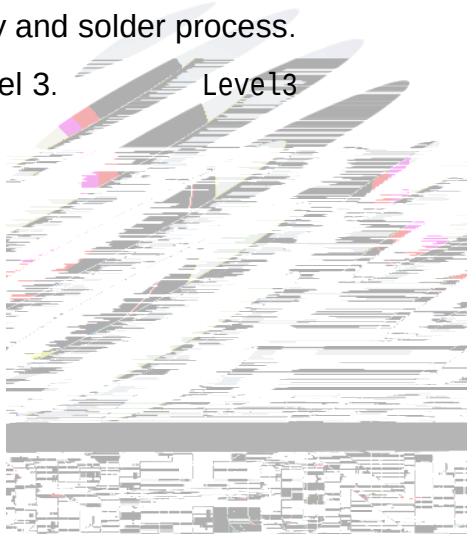
1.2 Features

Extremely wide viewing angle.

Suitable for all SMT assembly and solder process. SMT

Moisture sensitivity level: Level 3. Level3

RoHS compliant. RoHS

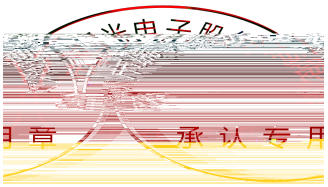


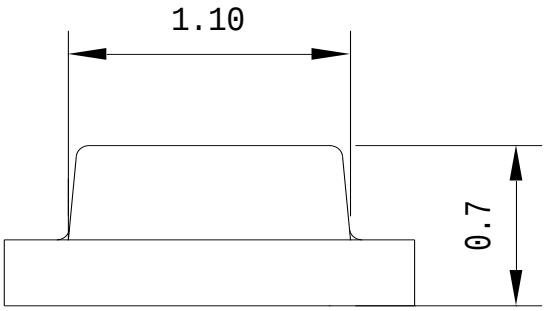
1.3 Application

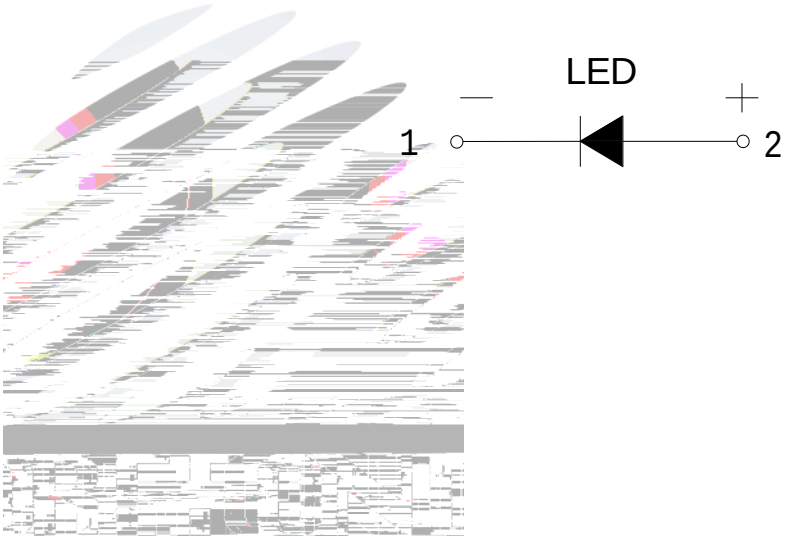
Optical indicator.

Switch and symbol, display.

General use.




1.10
0.7


LED
1
2

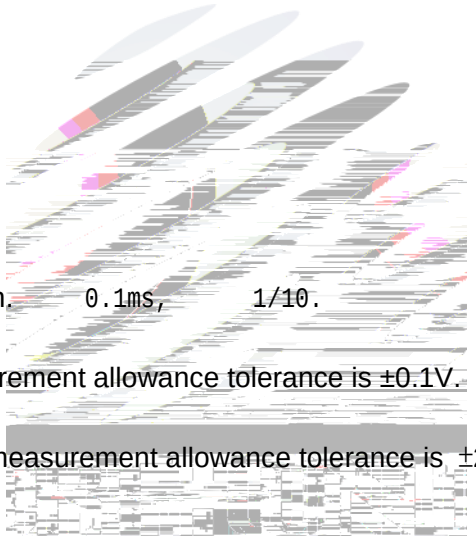
1.5 Product Parameters

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			--	15	--	nm
Forward Voltage	I_F=5mA	V_F	A1	1.6	--	1.7	V
			A2	1.7	--	1.8	V
			B1	1.8	--	1.9	V
			B2	1.9	--	2.0	V
			C1	2.0	--	2.1	V
			C2	2.1	--	2.2	V
			D1	2.2	--	2.3	V
			D2	2.3	--	2.4	V
Dominant Wavelength	I_F=5mA	$_D$	E10	620.0	--	622.5	nm
			E20	622.5	--	625.0	nm
			F10	625.0	--	627.5	nm
			F20	627.5	--	630.0	nm
Luminous Intensity	I_F=5mA	I_V	A00	8	--	12	mcd
			B00	12	--	18	mcd
			C00	18	--	28	mcd
			D00	28	--	43	mcd
			E00	43	--	65	mcd
			F00	65	--	100	mcd
Viewing Angle	I_F=5mA			--	140	--	deg
Reverse Current	V_R=5V	I_R		--	--	10	A
Thermal Resistance.	I_F=20mA	R_{THJ-S}		--		450	/W

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

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



Notes

1. 1/10 Duty cycle, 0.1ms pulse width. 0.1ms, 1/10.

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

3. The above dominant wavelength measurement allowance tolerance is ±2nm. ±2nm.

4. T

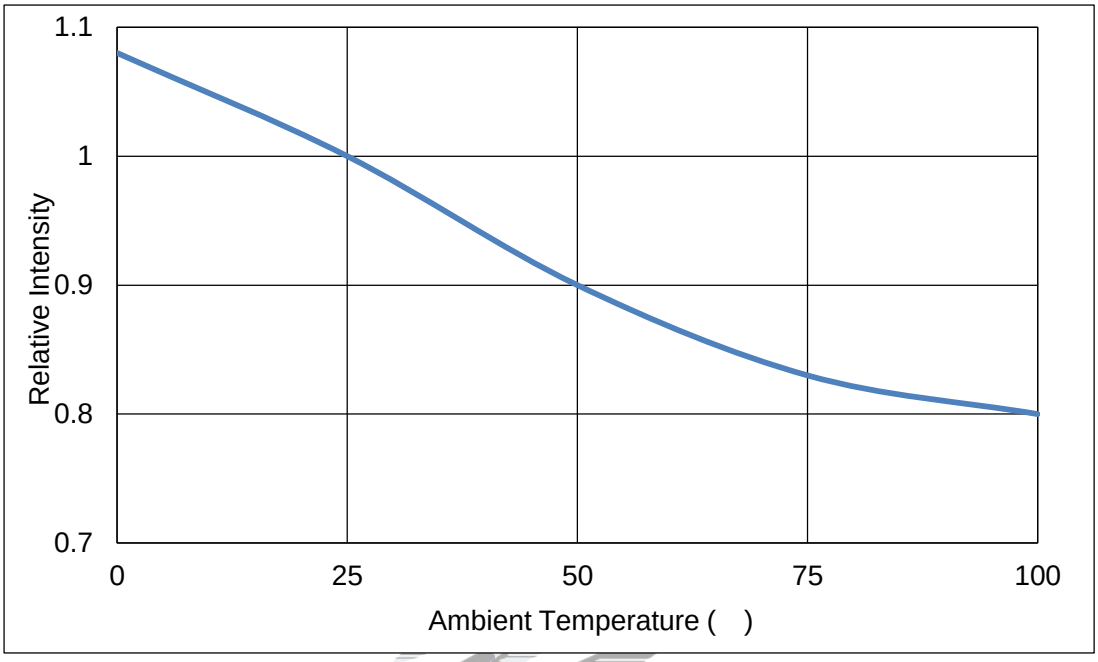


Fig 1-8 Pin Temperature Vs Relative Intensity

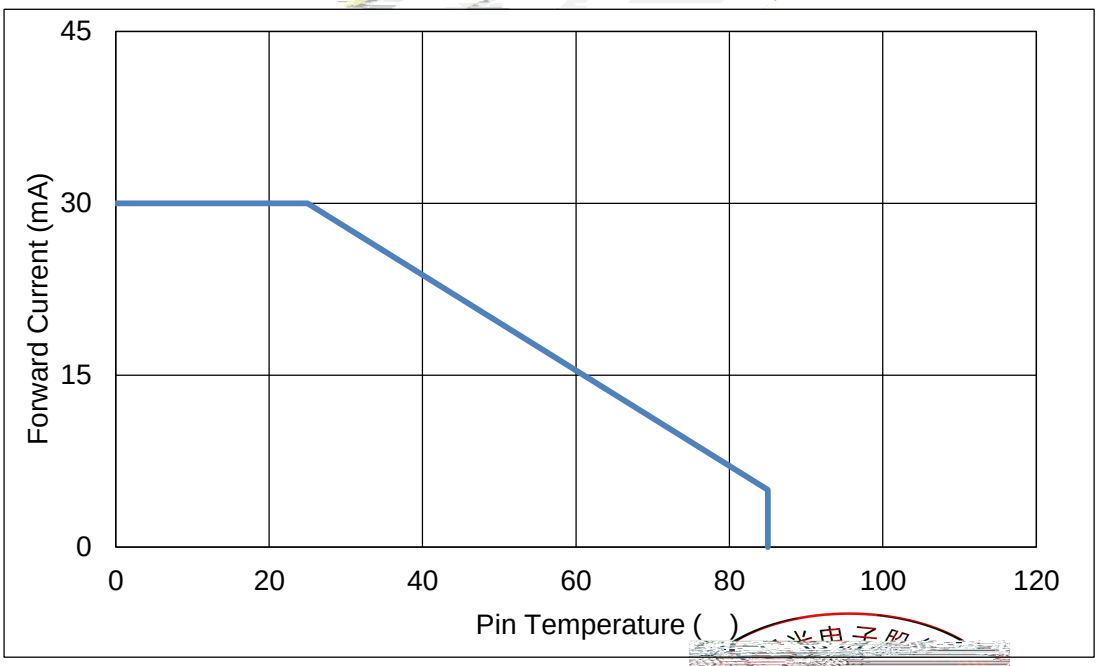


Fig 1-9 Pin Temperature Vs Forward Current

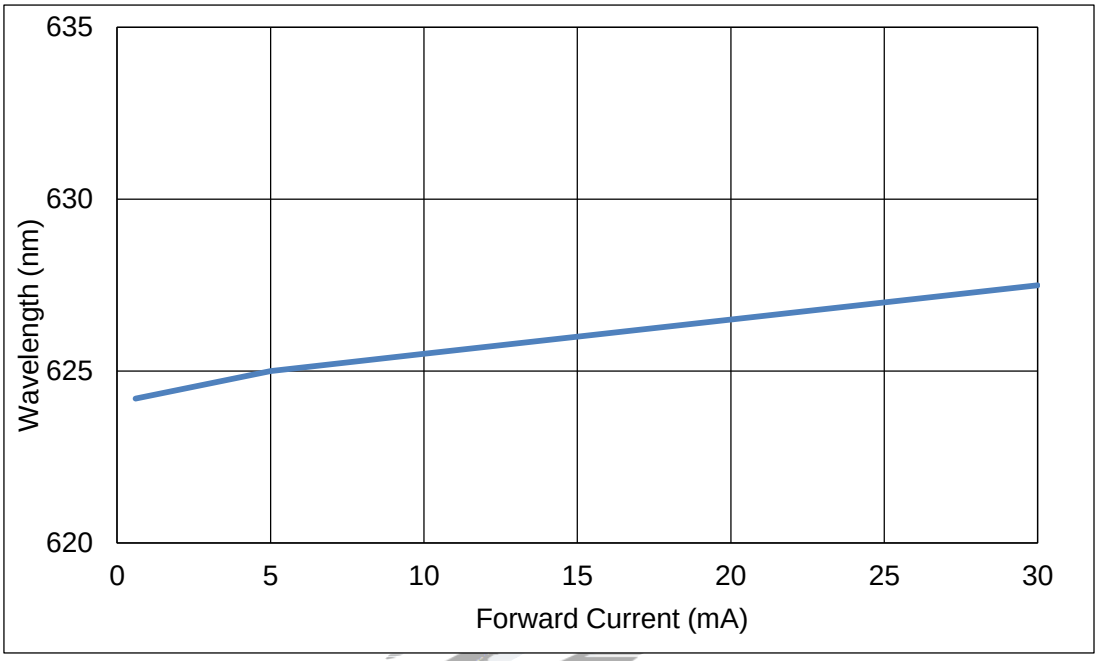


Fig 1-10 Forward Current Vs Dominate Wavelength (Ta=25)

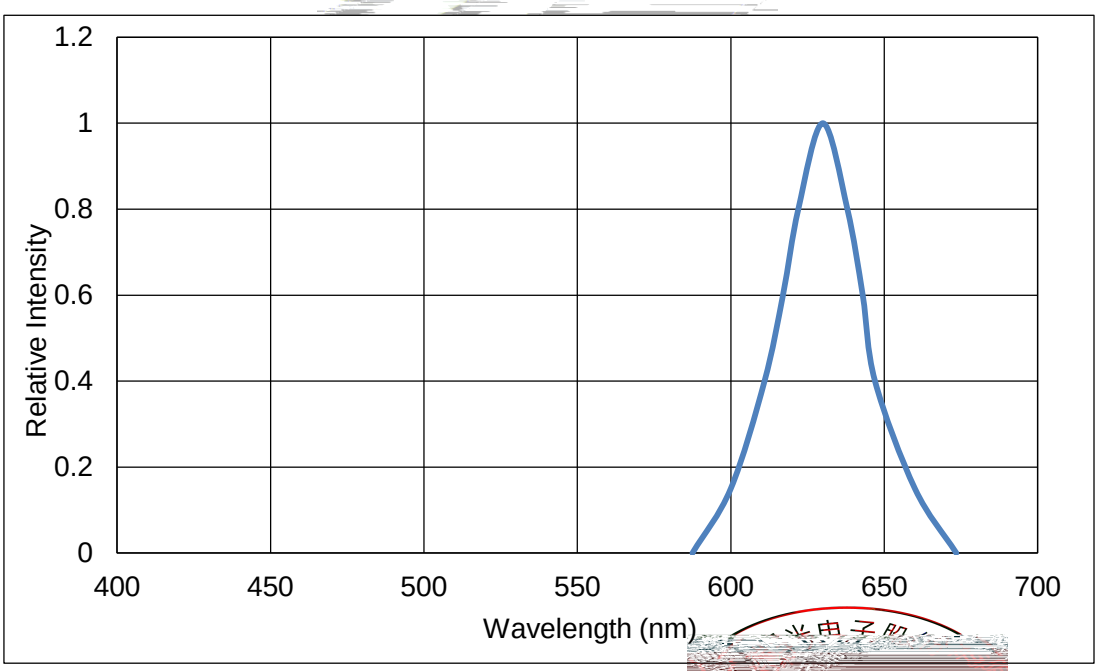


Fig 1-11 Relative Intensity Vs Wavelength (Ta=25)

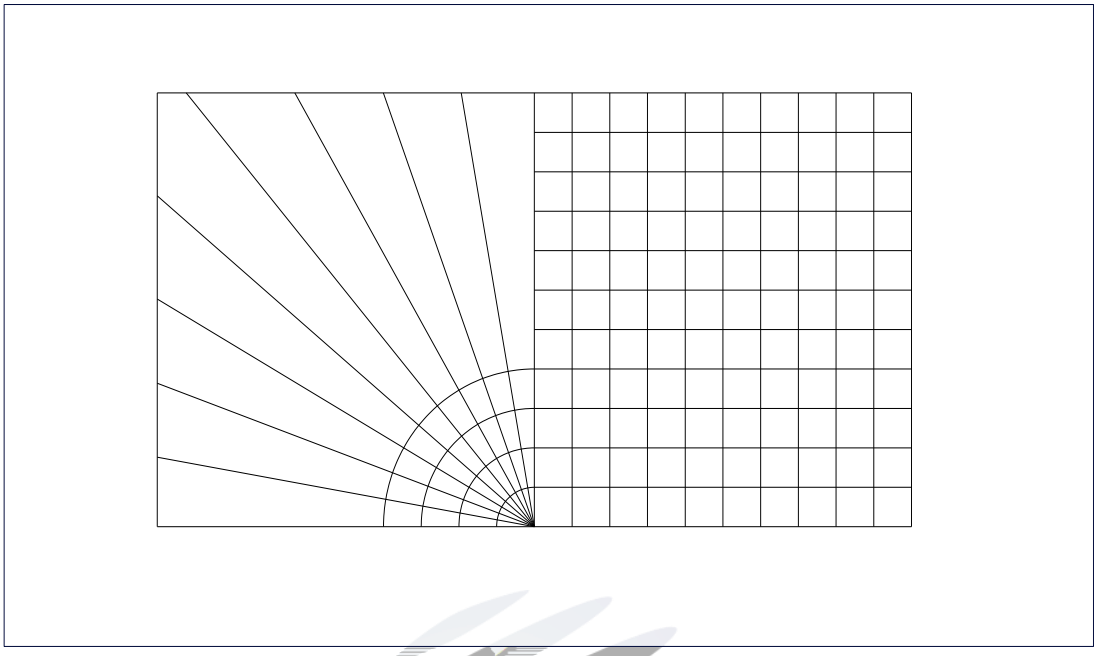
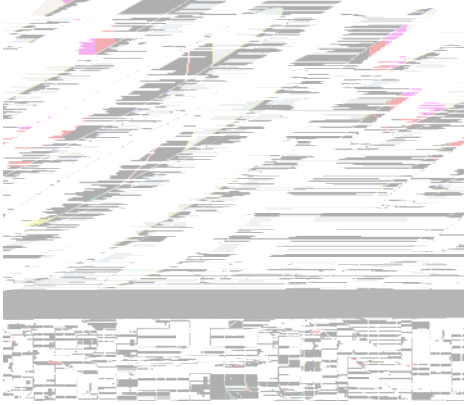
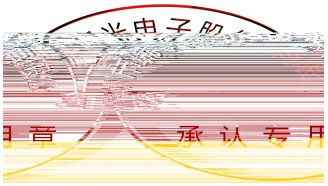


Fig 1-12 Diagram characteristics of radiation





2.1.3 Label Form Specification

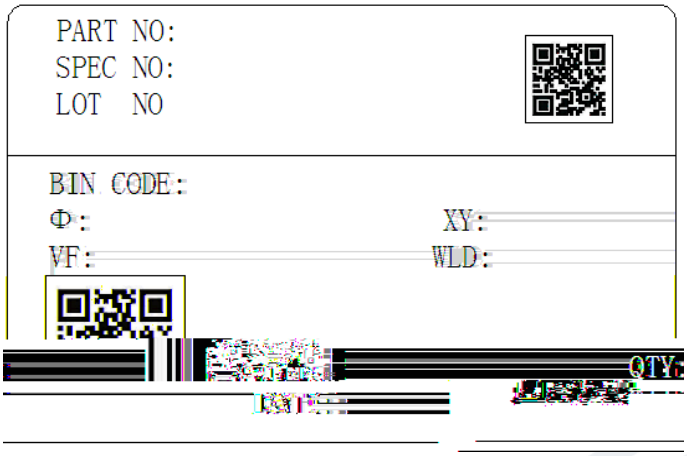


Fig. 2-3 Label Form Specification

Table 2-2 Parameter

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

2.2 Moisture Resistant Packing

Fig.2-4 Moisture Resistant Packing

2.3 Cardboard Box

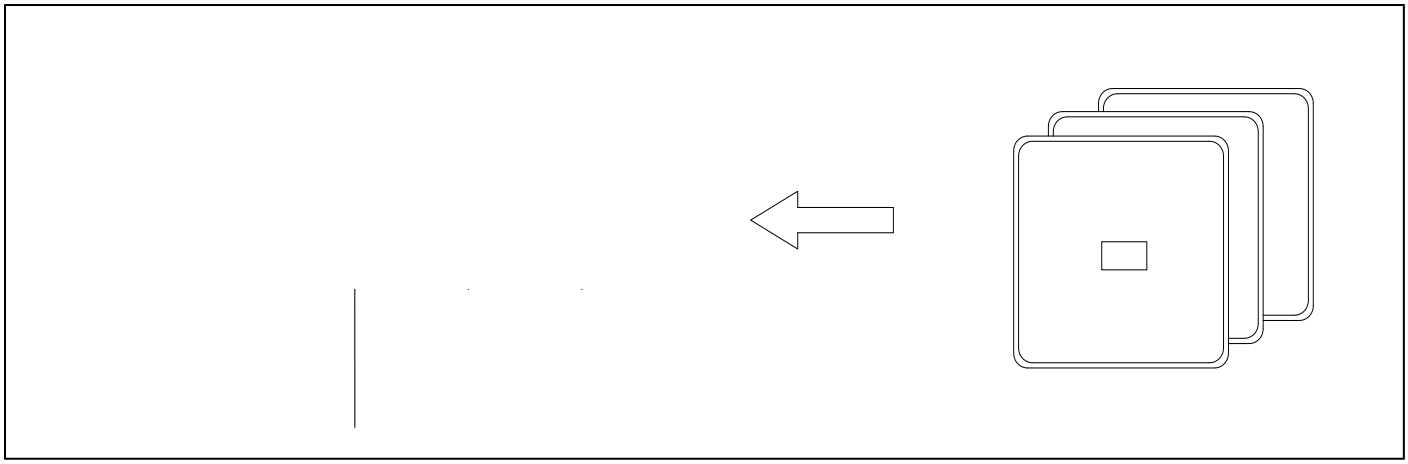


Fig.2-5 Cardboard Box

2.4 Reliability Test Items And Conditions

Table 2-3 Reliability Test Items And Conditions

Test Items	Ref.Standard	Test Condition	Time	Quantity	Ac/Re /
Reflow	JESD22-B106	T_{emp}:260 max T=10 sec	2 times	22Pcs.	0/1
Temperature Cycle	JESD22-A104	100 30 min 5 min -40 30 min	100 cycles	22Pcs.	0/1
Thermal Shock	JESD22-A106	-40 15min 100 15min	300 cycles	22Pcs.	0/1
High Temperature Storage	JESD22-A103	T_{emp}:100	1000 hrs.	22Pcs.	0/1
Low Temperature Storage	JESD22-A119	T_{emp}:-40	1000 hrs.	22Pcs.	0/1
Life Test	JESD22-A108	T_a=25 I_F=5mA	1000 hrs.	22Pcs.	0/1

2.5 Criteria For Judging Damage

Table 2-4 Criteria For Judging Damage

Test Items	Symbol	Test Condition	Criteria For Judgement	
			Min.	Max.
Forward Voltage	V_F	I_F=5mA	-	U.S.L*)x1.1
Reverse Current	I_R	V_R= 5V	-	U.S.L*)x2.0
Luminous Flux		I_F=5mA	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 th e LED to the series and parallel circuit,should take consideration of all the factors such as the current, voltage di stribution, 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.

3. SMT Reflow Soldering Instructions SMT

3.1 SMT Reflow Soldering Instructions SMT

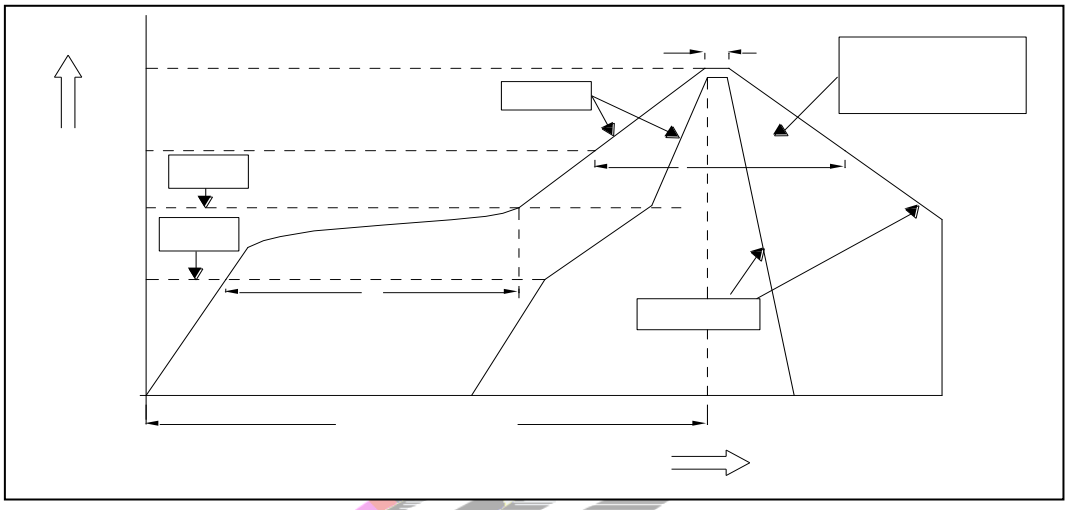


Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 Parameter

Average temperature rise speed Tsmax TP	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 (TL)	217 °C
Time limited to maintain high temperature: The Time (tL)	60 - 150 60s-150s
Peak /Classification of temperature: / (TP)	260 °C
Time limit classification of peak temperature time tp	10 Max 10s
Hold time within 5 ° C with the actual peak temperature (TP) (TP) 5 °C	30 Max 30s
Cooling speed	6 °C/ Max 6 °C/ s
Needed time from 25 °C to Tp 25 °C	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)Whensoldering , do not put stress on the LEDs during heating.

4. Handling Precautions

4.1 Handling Precautions

(1) LED operating environment and sulfur element composition cannot be over 100PPM in the LEDmating 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 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. 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 theuse of any chemicals or materials that have been found or are suspected to have an adverse affect on device performance or reliability. To verifycompatibility, Refond recommends that all chemicals and materials be tested in the specific application and environment for which they are intended tobe used. Attaching LEDs, do not use adhesives that outgas organic vapor. LED
LED
LED
LED

(4) In designing a circuit,the current through each LED can not 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

(5) 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

(6) Storage

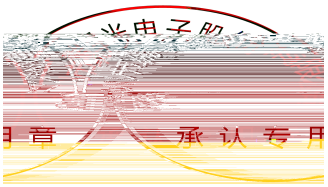
Table 4-1 Storage

Conditions		Temperature	Humidity	Time
Storage	Before Opening Aluminum Bag	≤ 30	≤ 75%	Within 1 Year From Date
	After Opening Aluminum Bag	≤ 30	≤ 60%	168hours 168
Baking		60 ± 5	-	≥ 24hours 24

(7) 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（60±5）℃ for above 24 hours.

60 ± 5 24

8 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.