

# SPECIFICATION

REFOND P/N

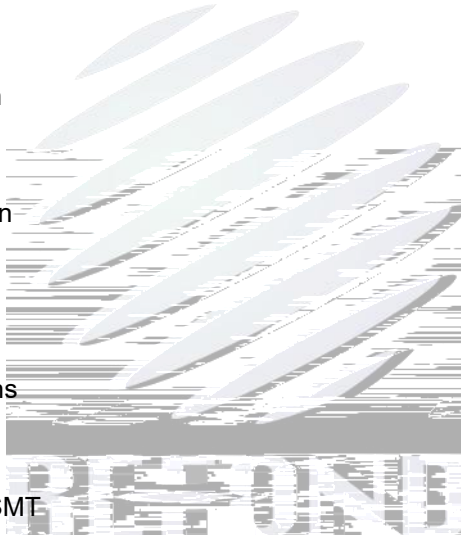
RF-IPD4428TS-14-G-P

R&D

Mass Product

## Contents

- 1. Description
  - 1.1 General Description
  - 1.2 Features
  - 1.3 Application
  - 1.4 Package Dimension
  - 1.5 Product Parameters
  - 1.6 Typical Optical Characteristics Curves
- 2. Packaging
  - 2.1 Packaging Specification
    - 2.1.1 Carrier Tape Dimension
    - 2.1.2 Reel Dimension
    - 2.1.3 Label Form Specification
  - 2.2 Moisture Resistant Packing
  - 2.3 Cardboard Box
  - 2.4 Reliability Test Items And Conditions
  - 2.5 Criteria For Judging Damage
- 3. SMT Reflow Soldering Instructions SMT
  - 3.1 SMT Reflow Soldering Instructions SMT
- 4. Handling Precautions
  - 4.1 Handling Precautions



# 1.1 General Description

This product uses the E package, it has a high reliability.

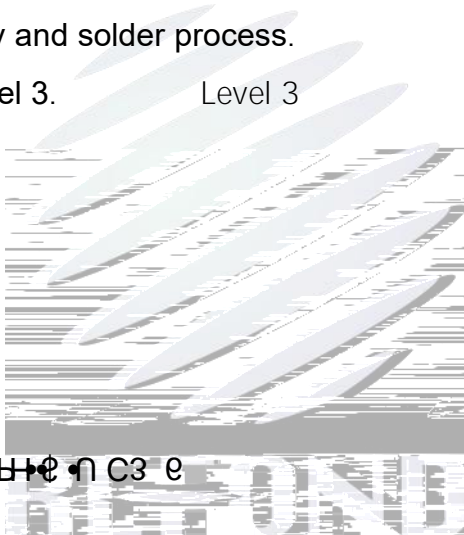
Size(mm): 4.42mmX2.76mmX3.74mm.

BT

4.42mmX2.76mmX3.74mm.

# 1.2 Features

- ▶ Low forward voltage.
- ▶ Peak wavelength  $\lambda_p=940\text{nm}$ .
- ▶ Suitable for all SMT assembly and solder process.
- ▶ Moisture sensitivity level: Level 3.
- ▶ RV s



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## 1.4 Package Dimension

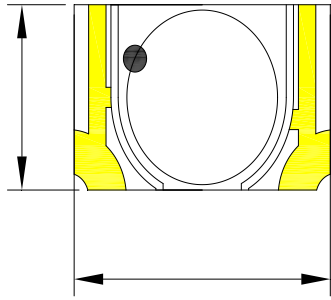


Fig.1-1 Top view

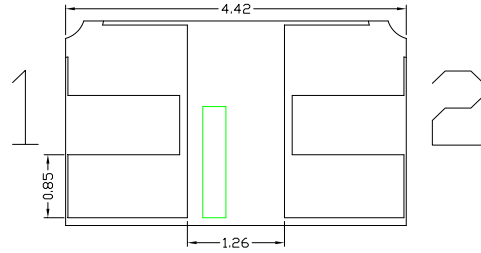


Fig.1-2 Bottom view

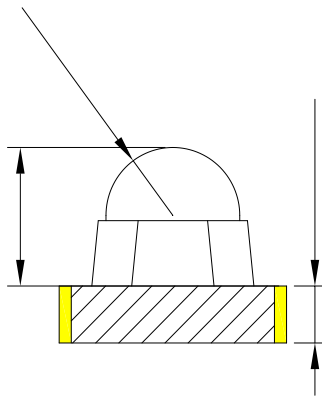


Fig.1-3 Side view

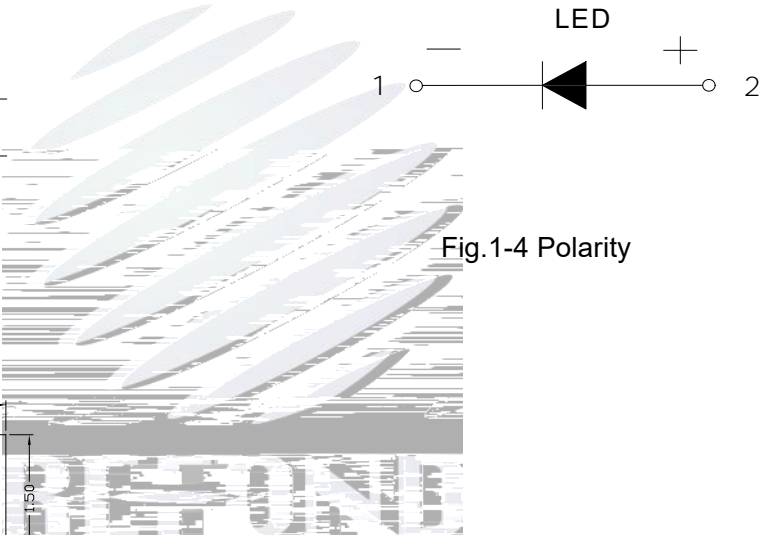


Fig.1-4 Polarity

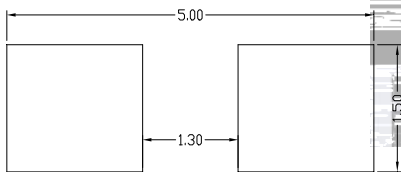


Fig.1-5 Soldering patterns

### Notes

1. All dimensions units are millimeters.

All dimensions tolerances are  $\pm 0.2\text{mm}$  unless otherwise noted.

$\pm 0.2$

## 1.5 Product Parameters

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

Item	Symbol	Test Condition	Value			Unit
			Min.	Typ	Max.	
Reverse Current	$I_R$	$V_R=5V$	---	---	5	uA
Forward Voltage	$V_F$	$I_F=50mA$	1.1	1.3	1.6	V
Peak Wavelength ( )	$\lambda_p$	$I_F=50mA$	---	940	---	nm
Spectrum Radiation Bandwidth	$\Delta\lambda$	$I_F=50mA$	---	45	---	nm
Radiant Intensity	$\Phi_e$	$I_F=50mA$	60	---	---	mW/sr
Viewing Angle	2θ1/2	$I_F=50mA$	---	30	---	deg
Thermal Resistance.	$R_{THJ-S}$	$I_F=50mA$	---	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, 1ms pulse width, 0.1ms, 1/10.
2. The above forward voltage measurement allowance tolerance is  $\pm 0.1V$ .
3. The above dominant wavelength measurement allowance tolerance is  $\pm 2nm$ .
4. The above luminous intensity measurement allowance tolerance  $\pm 10\%$ .
5. Caution 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.  $LE2^k$

## 1.6 Typical Optical Characteristics Curves

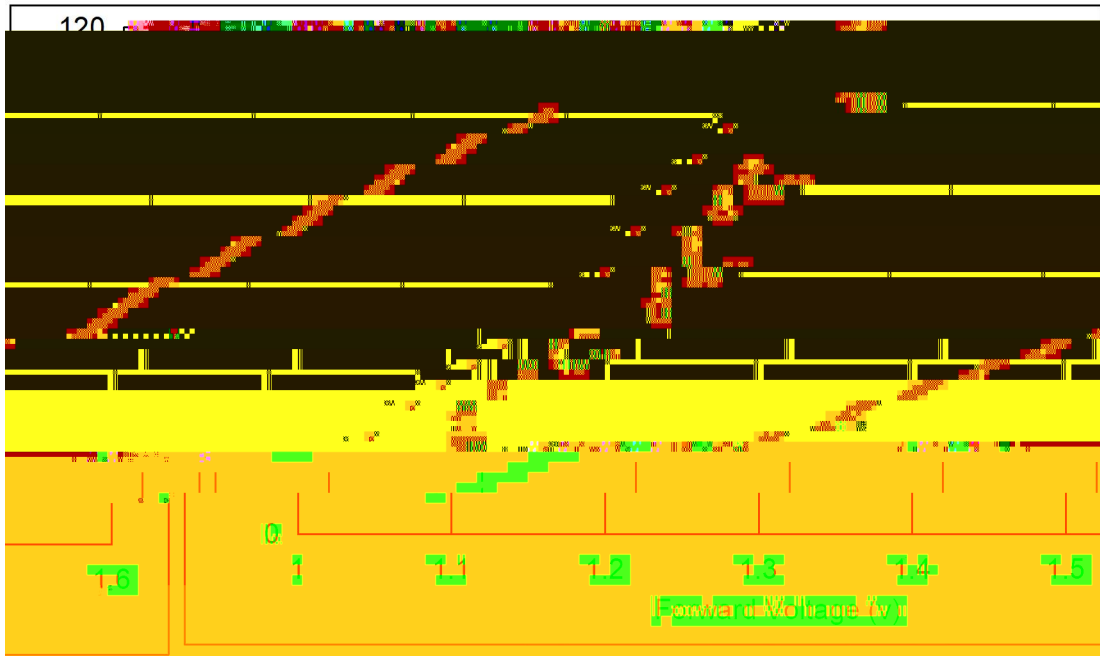


Fig 1-6 Forward Voltage Vs Forward Current

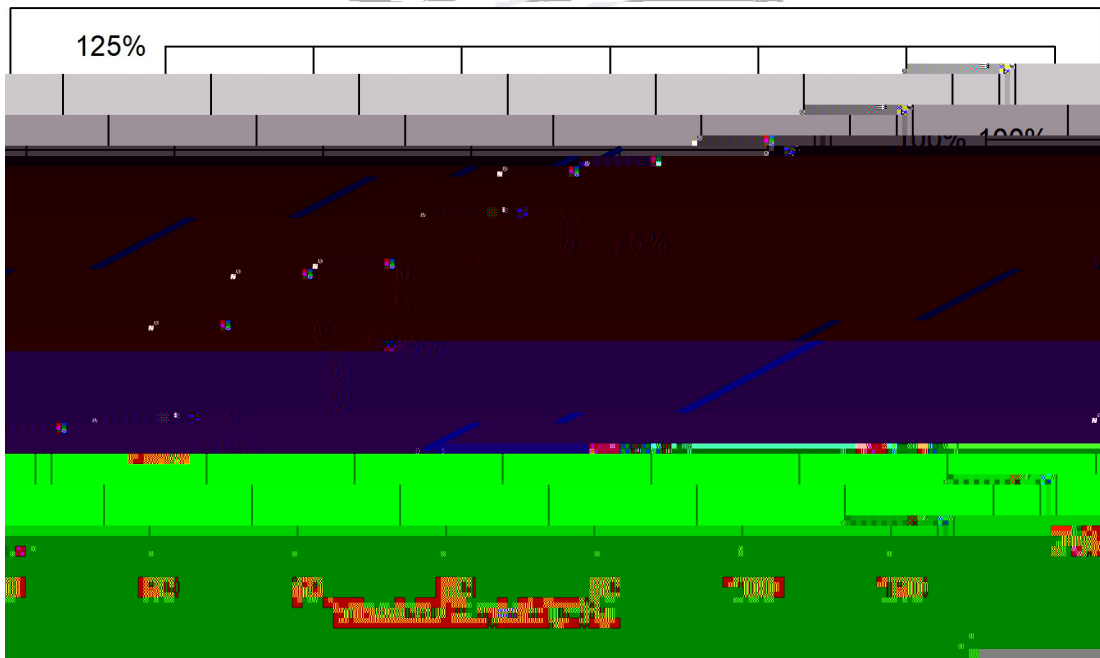


Fig 1-7 Forward Current Vs Relative Intensity

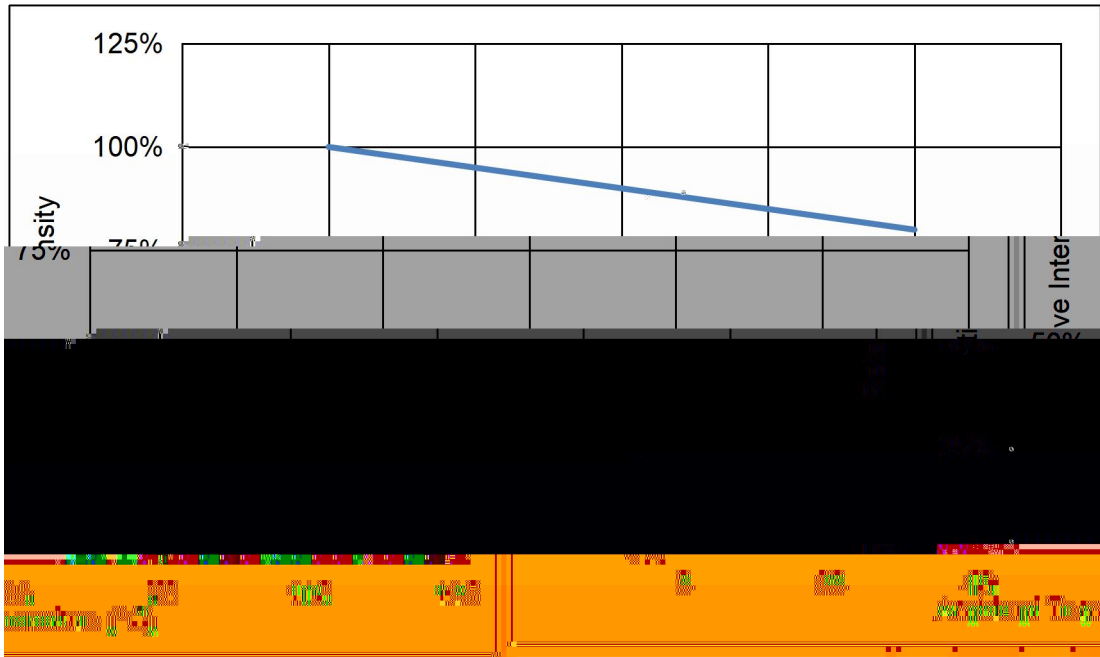


Fig 1-8 Pin Temperature Vs Relative Intensity

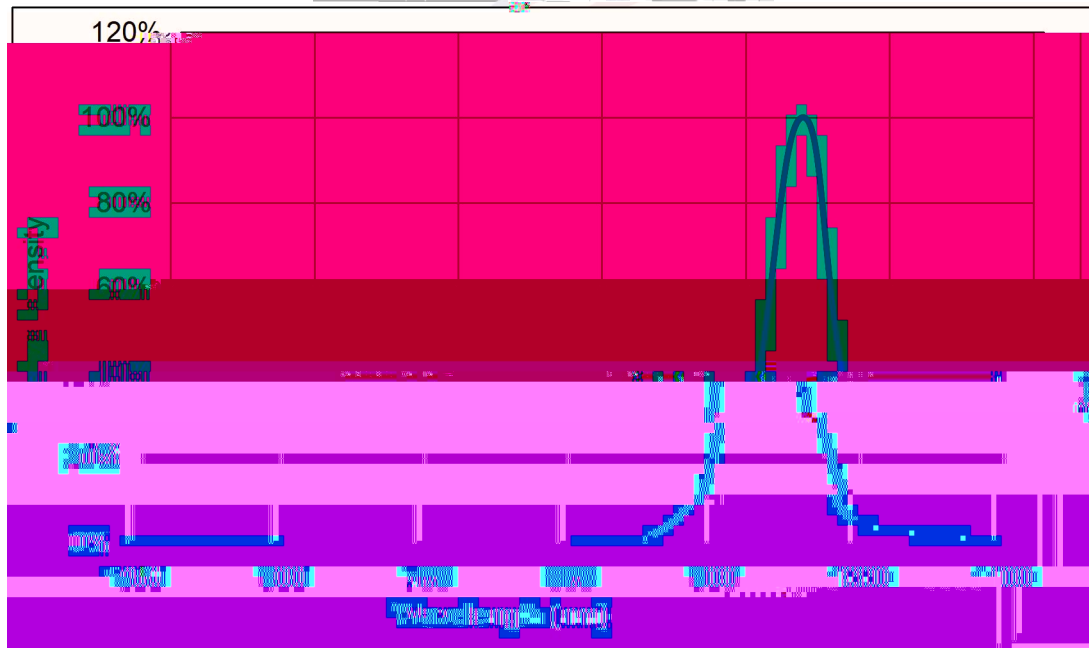
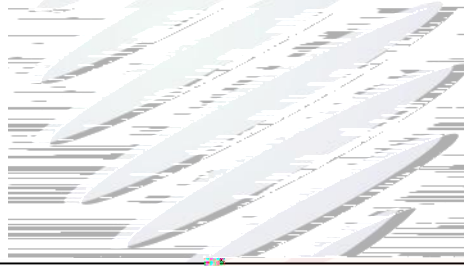
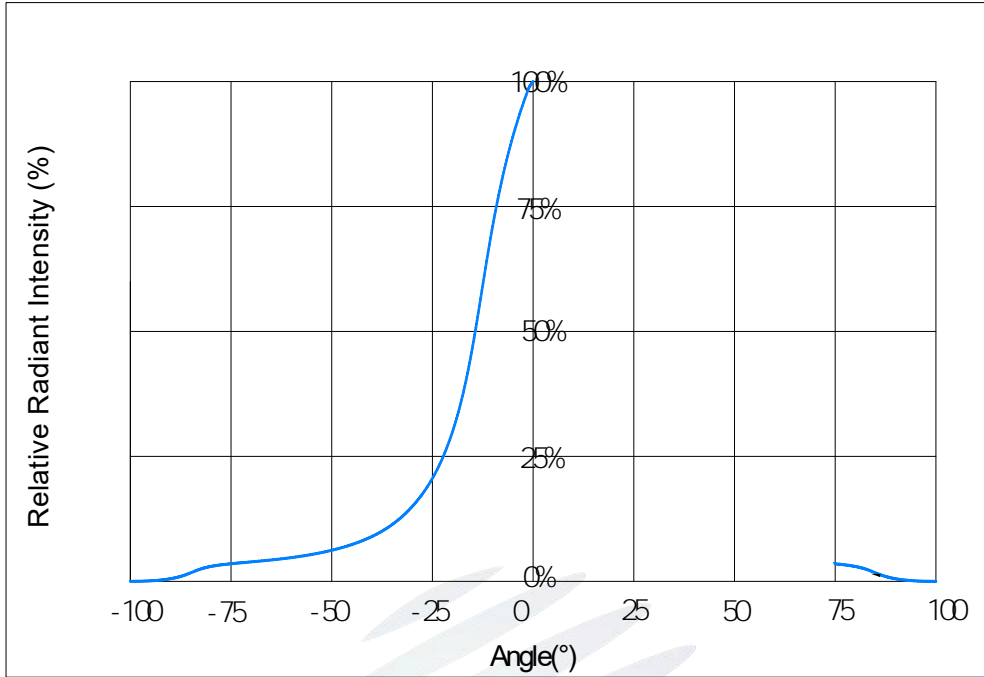


Fig 1-9 Spectrum Distribution



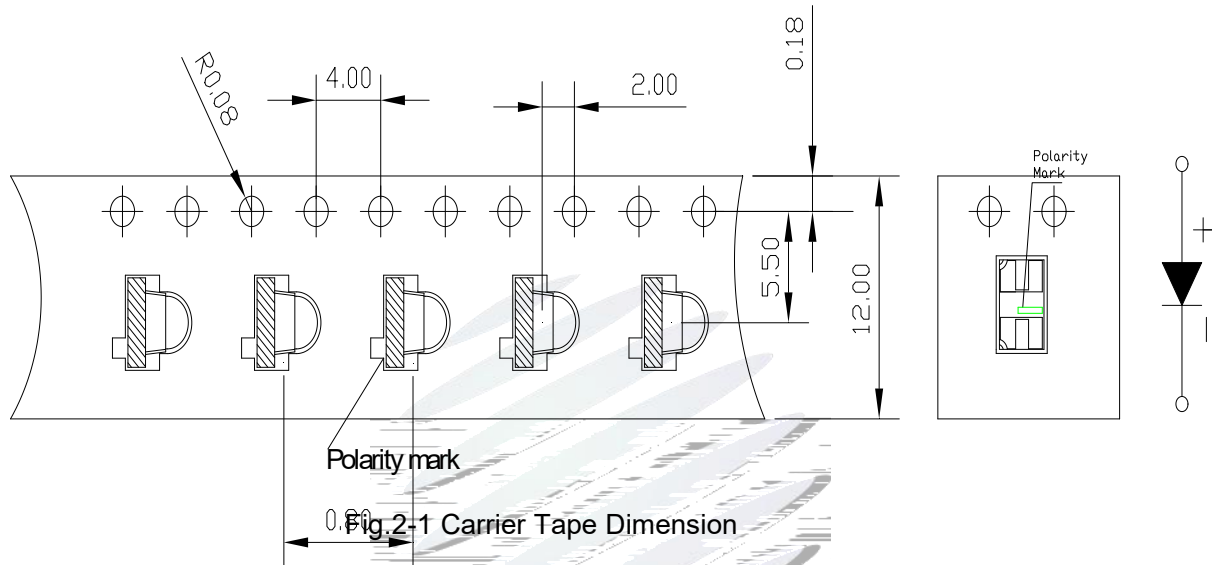


## 2. Packaging

### 2.1 Packaging Specification

Package: 2500pcs/reel.      2500pcs

#### 2.1.1 Carrier Tape Dimension



#### 2.1.2 Reel Dimension

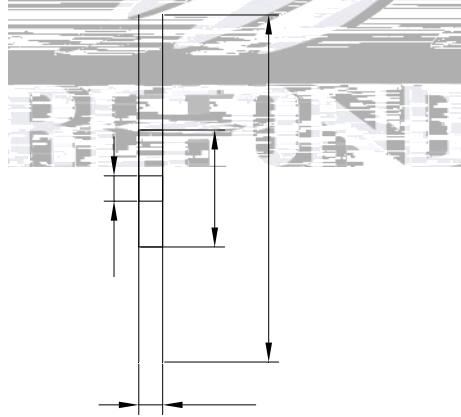
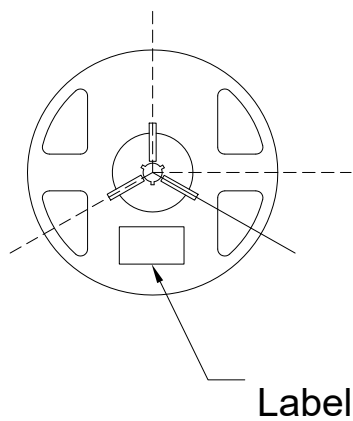


Table 2-1 Dimension

A	12.7 ±0.3mm
B	330.2±2mm
C	79.5±1mm
D	14.3±0.2mm

Fig.2-2 Reel Dimension

#### Notes

The tolerances unless mentioned  $\pm 0.1$ mm. Unit : mm

$\pm 0.1$

### 2.1.3 Label Form Specificatio



## 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	Temp: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	Temp:100	1000 hrs.	22Pcs.	0/1
Low Temperature Storage	JESD22-A119	Temp:-40	1000 hrs.	22Pcs.	0/1
Life Test	JESD22-A108	T <sub>a</sub> =25 I <sub>F</sub> =100mA	1000 hrs.	22Pcs.	0/1



### 3. SMT Reflow Soldering Instructions SMT

#### 3.1 SMT Reflow Soldering Instructions SMT

a

! on

q

Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 Parameter

Average temperature rise speed	$T_{smax}$	$T_P$	3 °C/ s	Max 3 °C/ s
Preheating: minimum temperature	( $T_{smin}$ )		150 °C	
Preheating: Max temperature	( $T_{smax}$ )		200 °C	
Preheating: Time	$T_{smin}$	$T_{smax}$	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 6



#### 4.1 Handling Precautions

(1) LED components are sensitive to static electricity. Please use anti-static mats and anti-static wristbands when handling LED components. This is provided for informational purposes only and is not a warranty endorsement. LED components are sensitive to static electricity.

(2) In order to prevent external material from getting into the inside of the LED package and cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM, the single content of Bromine element and Chlorine element in the external material of LED products is required to be less than 1000PPM. This is provided for informational purposes only and is not a warranty endorsement.

(3) VOCs (Volatile Organic Compounds) are harmful to the environment and human health. When using LED components, please avoid using materials that contain VOCs. This is provided for informational purposes only and is not a warranty endorsement.





(8) Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS). LED

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







Declare

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