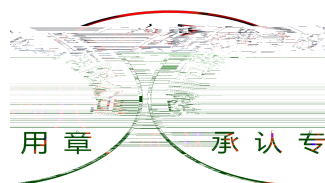
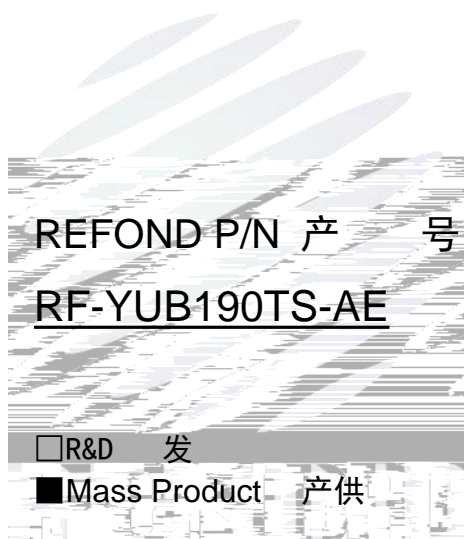
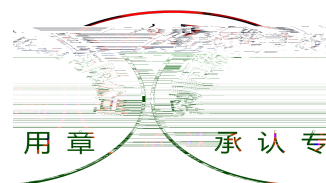
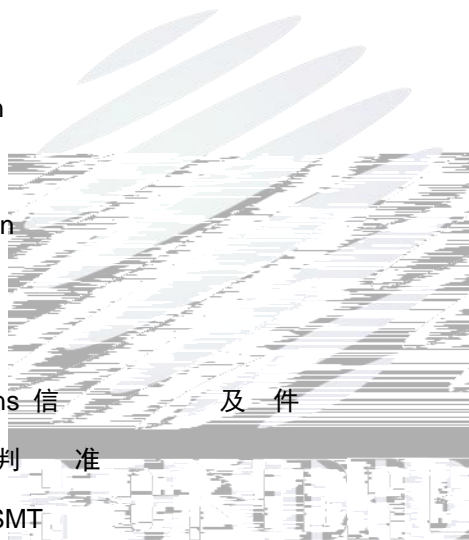


产 书



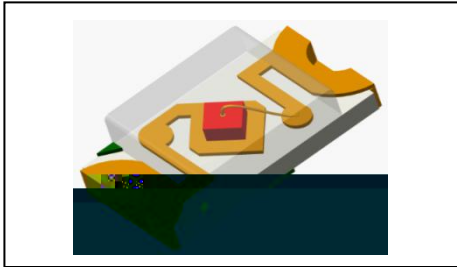
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产 介

产

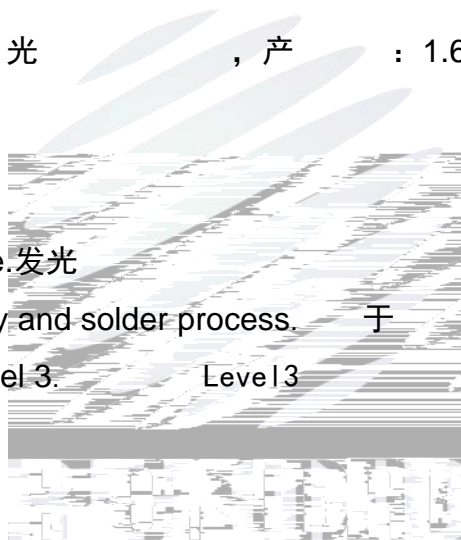


The Colour LED which was fabricated using a yellow chip, Package Dimension : 1.6mmX0.8mmX0.7mm.

产 为 光 LED, 光 , 产 : 1.6mmX0.8mmX0.7mm。

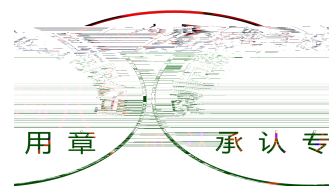
产

Extremely wide viewing angle. 发光
 Suitable for all SMT assembly and solder process. 于 SMT
 Moisture sensitivity level: Level 3. Level 3
 RoHS compliant. RoHS



产

Optical indicator. 光
 Switch and symbol, display. 关 ,
 General use. 其他



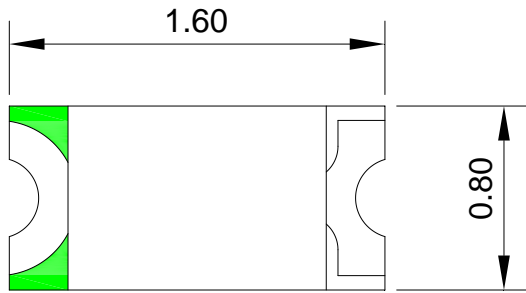


Fig.1-1 Top view

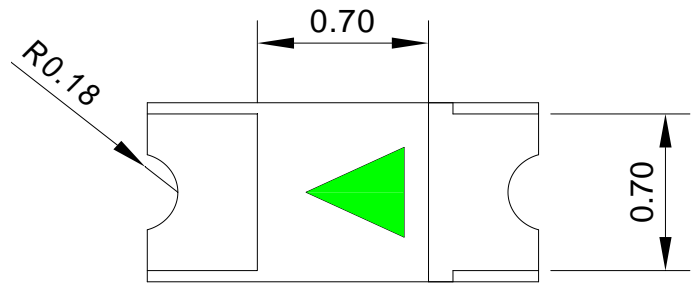


Fig.1-2 Bottom view

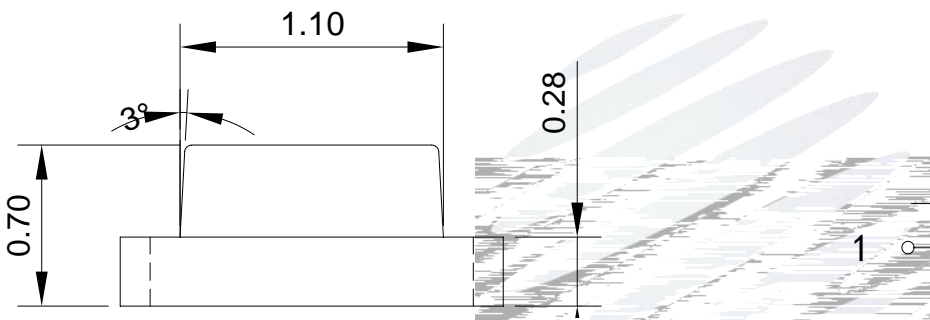


Fig.1-3 Side view 側



Fig.1-4 Polarity

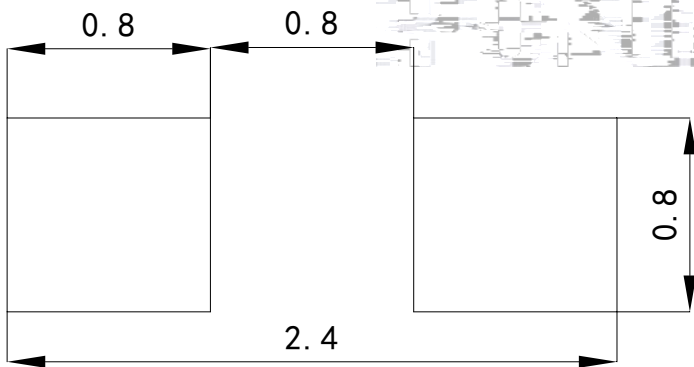
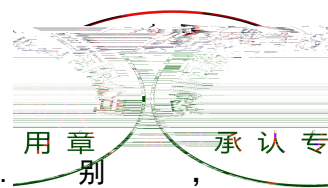


Fig.1-5 Soldering patterns

Notes :

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

单位为



别, 公 为 ± 0.2

产 参

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

Item	Test Condition 件	Symbol 号	Value			Unit 单位	
			Min. (值)	Typ. (典 值)	Max. (值)		
Spectral Half Bandwidth 半	I _F =20mA		--	15	--	nm	
Forward Voltage 向 压	I _F =20mA	V _F	B0	1.8	--	2.0	V
			C0	2.0	--	2.2	V
			D0	2.2	--	2.4	V
Dominant Wavelength 主	I _F =20mA	λ _D	2K	585	--	590	nm
			2L	590	--	595	nm
Luminous Intensity 发光	I _F =20mA	I _v	F20	80	--	100	mcd
			G10	100	--	120	mcd
			G20	120	--	150	mcd
			H10	150	--	180	mcd
			H20	180	--	230	mcd
Viewing Angle 发光	I _F =20mA	2 1/2	--	140	--	deg	
Reverse Current	V _R =5V	I _R	--	--	10	μA	
Thermal Resistance.	I _F =20mA	R _{THJ-S}	--	--	450	°C/W	

Notes : V_R=5V For test conditions. V_R=5V 为 分 件。

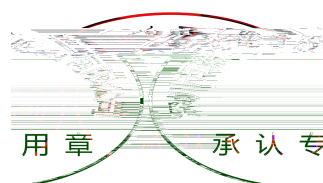
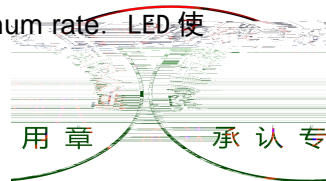


Table 1-2 Absolute Maximum Ratings at Ts=25°C 值

Parameter (参)	Symbol (号)	Rating (值)	Units (单位)
Power Dissipation (功)	P_d	72	mW
Forward Current (向)	I_F	30	mA
Peak Forward Current Of Pulse (冲值)	I_{FP}	60	mA
Electrostatic Discharge (HBM) ()	E_{SD}	2000	V
Operating Temperature (作)	T_{opr}	-40 ~ +85	
Storage Temperature (储)	T_{stg}	-40 ~ +85	
Junction Temperature ()	T_j	95	

Notes :

- 1/10 Duty cycle, 0.1ms pulse width. 0.1ms, 占 1/10.
- The above forward voltage measurement allowance tolerance is $\pm 0.1V$. 以上 压 $\pm 0.1V$.
- The above dominant wavelength measurement allowance tolerance is 2nm. 以主 $\pm 2nm$.
- The above luminous intensity measurement allowance tolerance $\pm 10\%$. 上 发光 允 公 为 $\pm 10\%$.
- Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product. 使 功 不 值。
- All measurements were made under the standardized environment of Refond. 于 丰 准 台。
- 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使 件 , 不 值。



典 光

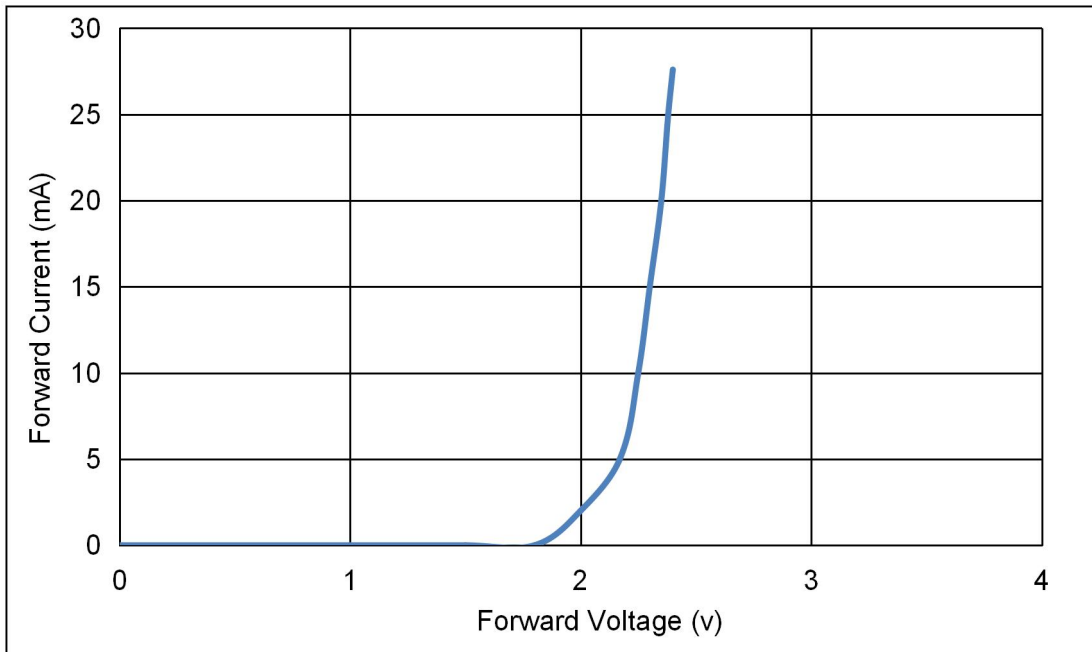


Fig 1-6 Forward Voltage Vs. Forward Current 伏

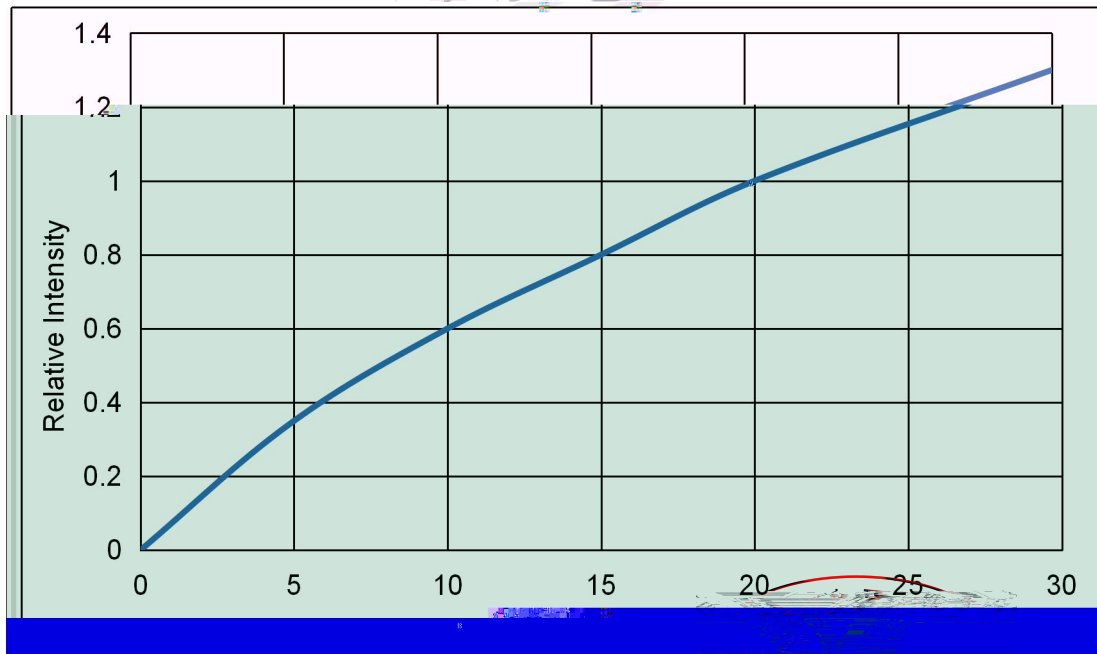


Fig 1-7 Forward Current Vs. Relative Intensity

用章与光承认专
向

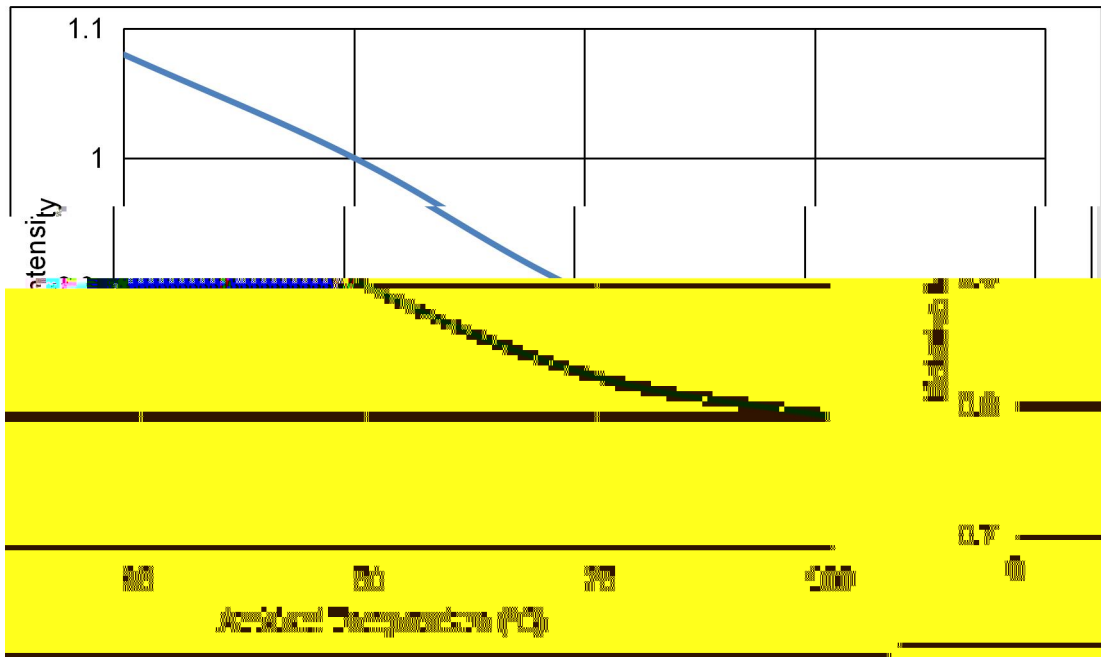


Fig 1-8 Pin Temperature Vs Relative Intensity 与 光

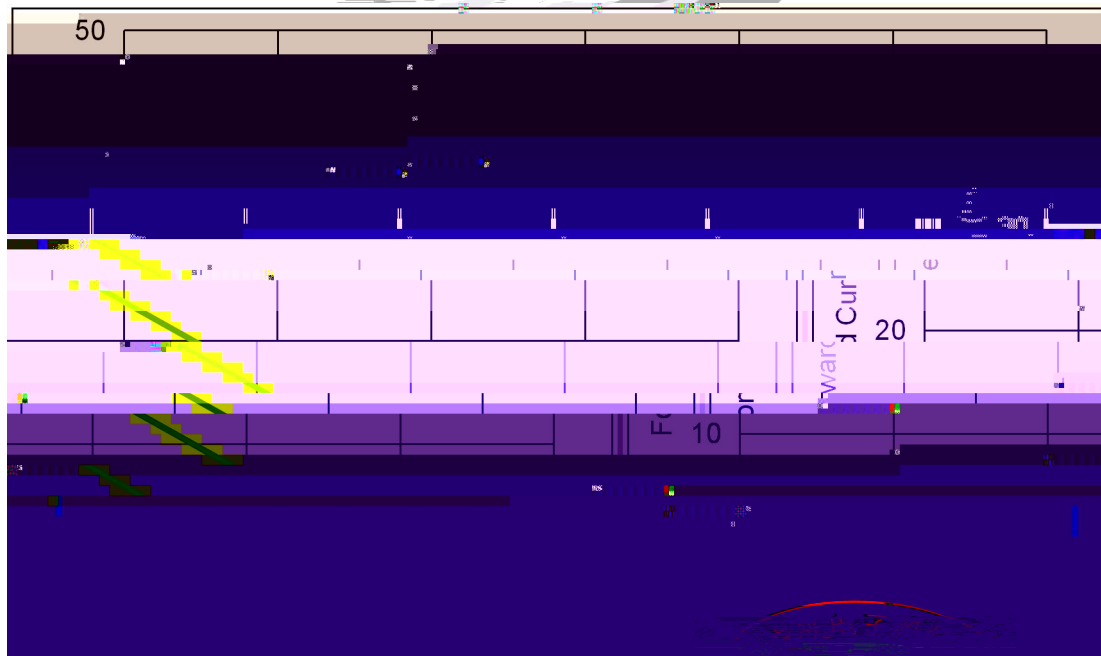


Fig 1-9 Pin Temperature Vs Forward Current 用章与向承认专

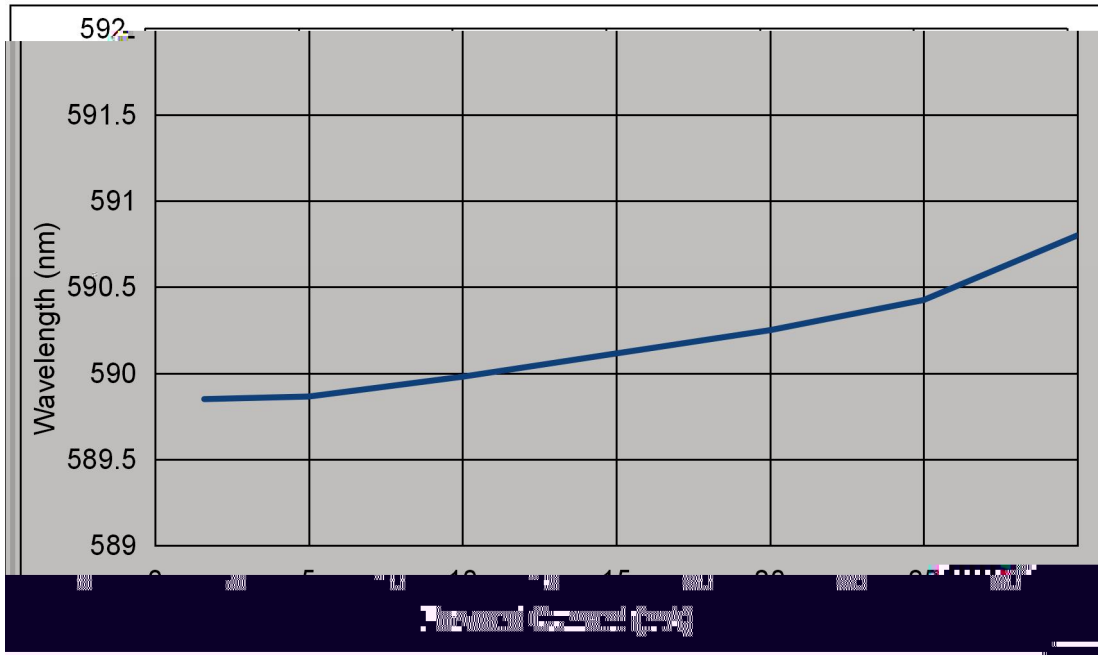


Fig 1-10 Forward Current Vs. Dominate Wavelength (Ta=25) 向 与 主 关

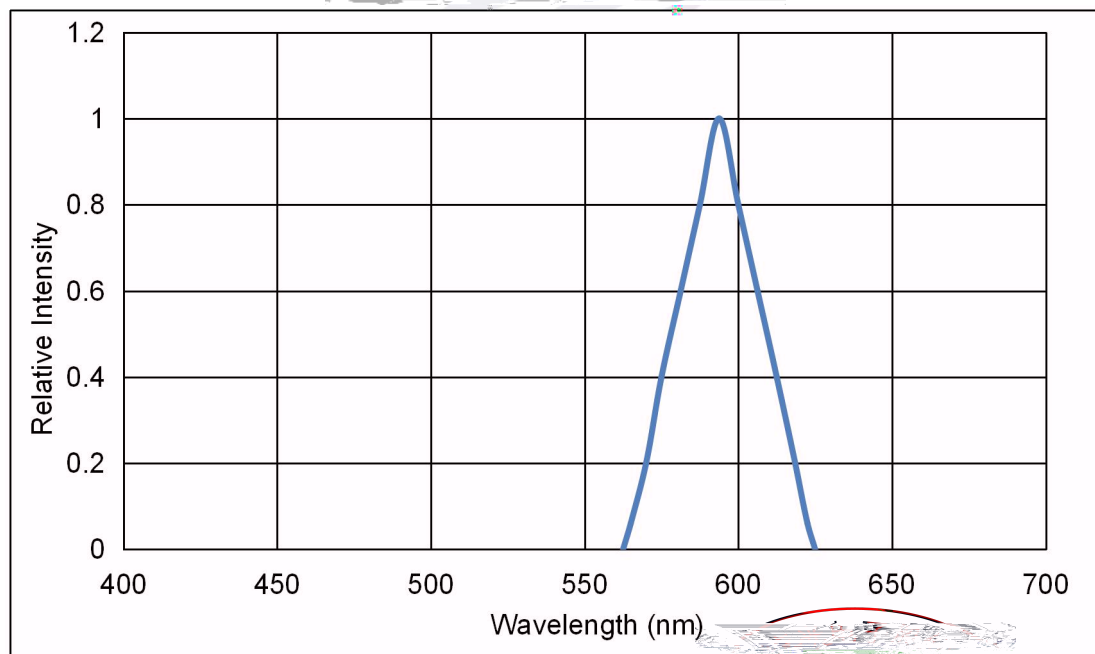


Fig 1-11 Relative Intensity Vs. Wavelength (Ta=25) 用 章 光 与 承 获 专

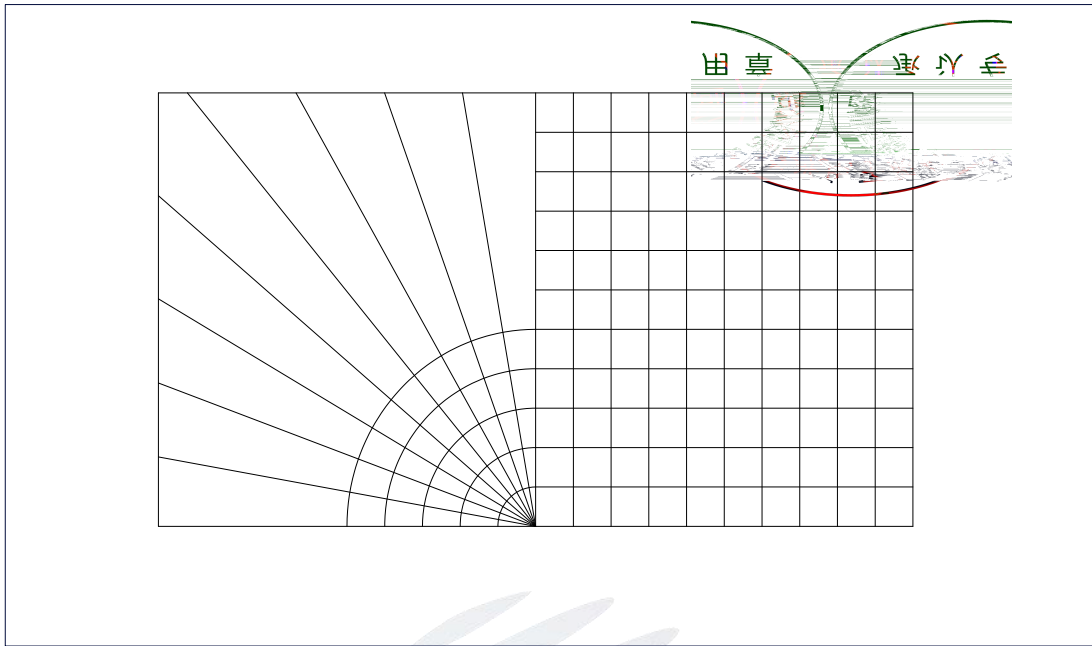
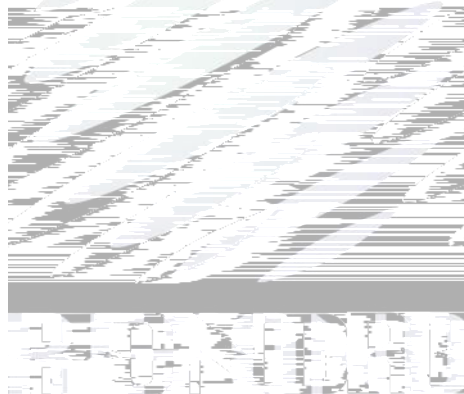


Fig 1-12 Diagram characteristics of radiation



产包

包

Package:4000pcs/reel.包 卷 4000pcs。

2.1.1 Carrier Tape Dimension

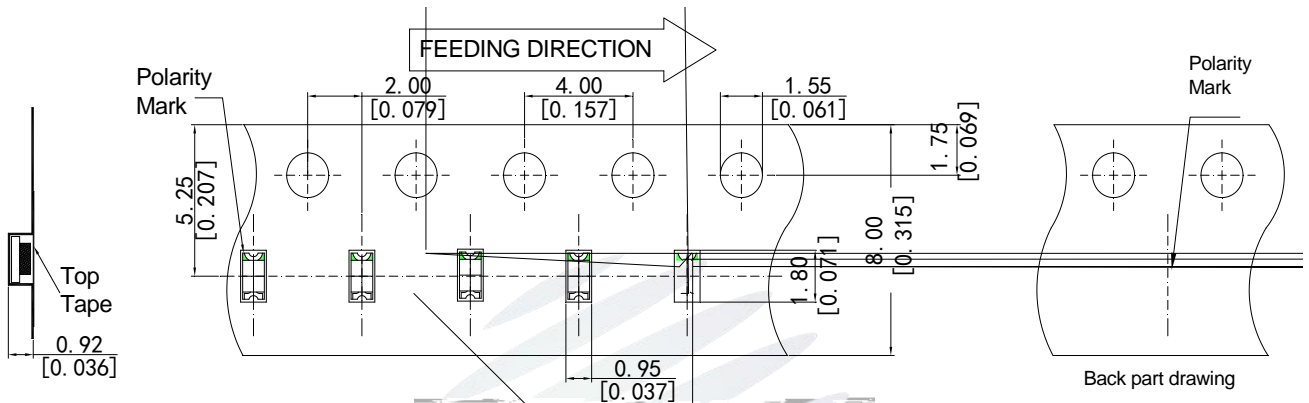


Fig.2-1 Carrier Tape Dimension

2.1.2 Reel Dimension 卷

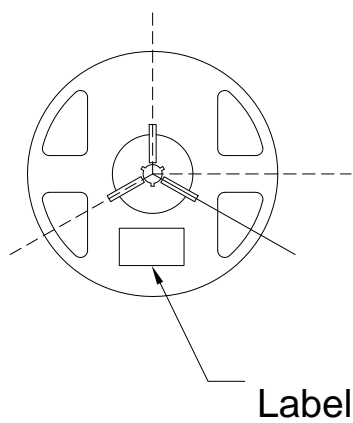


Fig.2-2 Reel Dimension 卷

Table 2-1 Dimension

A	8.0±0.1mm
B	178±1mm
C	60±1mm
D	13.0±0.5mm

Notes :

The tolerances unless mentioned ±0.1mm. Unit : mm : 公 为 ±0.1 , 单位: 。

2.1.3 Label Form Specification



Fig. 2-3 Label Form Specification



Fig.2-

包

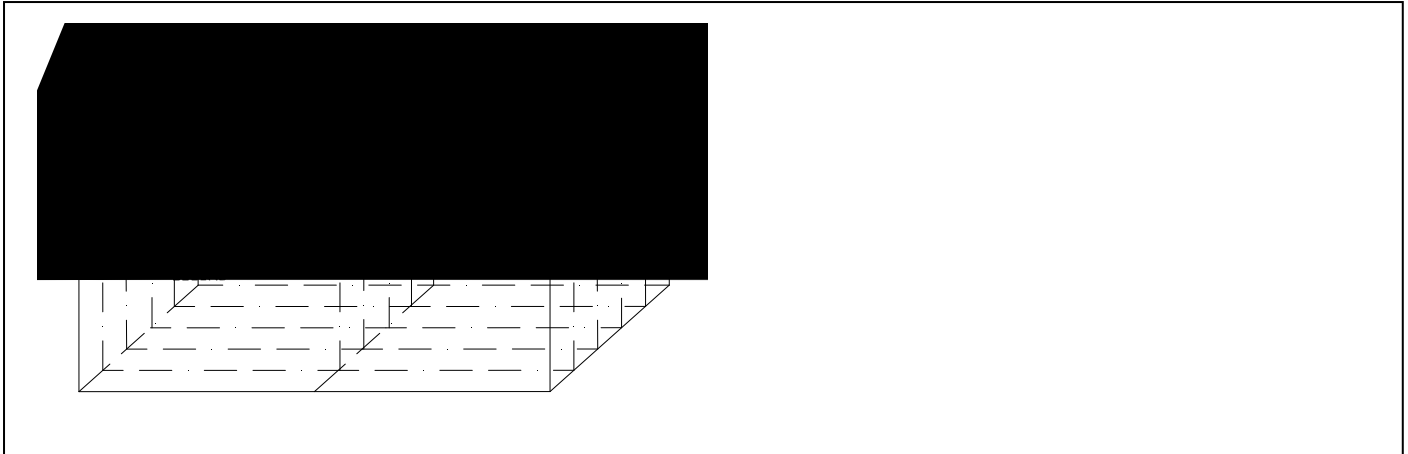


Fig.2-5 Cardboard Box 包

信 及 件

Table 2-3 Reliability Test Items And Conditions 信 及 件

Test Items	Ref. Standard 参 准	Test Condition 件	Time	Quantity	Ac/Re /
Reflow	JESD22-B106	T _{emp} :260°Cmax T=10 sec	2 times	22Pcs.	0/1
Temperature Cycle	JESD22-A104	100°C 30 min 5 min -40°C 30 min	100 cycles	22Pcs.	0/1
Thermal Shock 冷 冲击	JESD22-A106	-40°C 15min 100°C 15min	300 cycles	22Pcs.	0/1
High Temperature Storage 保	JESD22-A103	T _{emp} :100°C	1000 hrs.	22Pcs.	0/1
Low Temperature Storage 低 保	JESD22-A119	T _{emp} :-40°C	1000 hrs.	22Pcs.	0/1
Life Test	JESD22-A108	T _a =25°C I _F =20mA	1000 hrs.	22Pcs.	0/1

用章 承认专

判 准

Table 2-4 Criteria For Judging Damage 判 准

Test Items	Symbol 号	Test Condition 件	Criteria For Judgement 判 准	
			Min.	Max.
Forward Voltage 向 压	V_F	$I_F=20mA$	-	U.S.L*)x1.1
Reverse Current	I_R	$V_R= 5V$	-	U.S.L*)x2.0
Luminous Flux 光		$I_F=20mA$	L.S.L*)x0.7	-

Notes :

1.U.S.L: Upper standard level 上 L.S.L: Lower standard level 下

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. 以上可 于 丰 台单 / LED 件 下 。 LED 于串、 , 估 、 压分 、 。

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. 以上 仅为产 典 值, 只作为参 , 不作为任何 件及 保 。



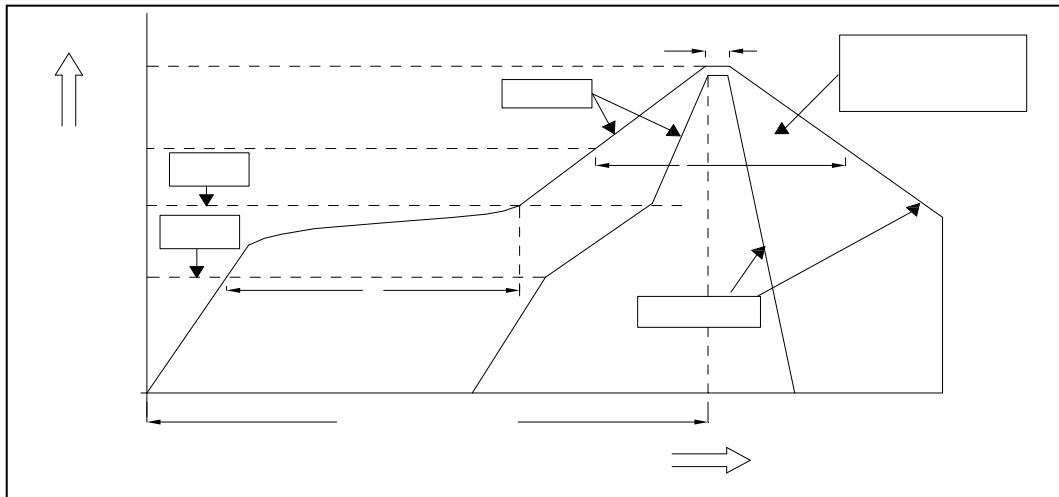


Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 Parameter 參

Average temperature rise speed	升 (T _{max} - T _P)	3 °C/ Max 3 °C/ s
Preheating: minimum temperature	: 低 (T _{min})	150 °C
Preheating: Max temperature	: (T _{max})	200 °C
Preheating: Time	: (T _{min} - T _{max})	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: 值 / 分 (T _P)		260 °C
Time limit classification of peak temperature time 值分	: (t _p)	10 Max 10s
Hold time within 5 ° C with the actual peak temperature (TP) 与 值 (T _P) 5 °C 以内 保		30 Max 30s
Cooling speed		6 °C/ Max 6 °C/ s
Needed time from 25 ° C to T _p 25 °C 升 值		8分 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. 不可以 两 , 两 24 , LED可 于

(2)When soldering , do not put stress on the LEDs during heating. , 不 受 力压 体 。

3.1.1 Soldering Iron

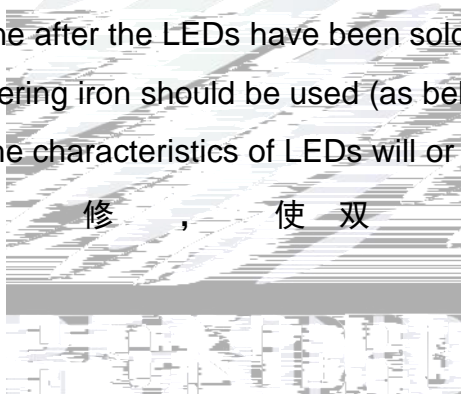
(1) When do soldering by hand, keep the temperature of iron below less 300 less than 3 seconds , 于300°C, 不可 3 。

(2) Soldering by hand should be done only one time. 只可 一 。

3.1.2 Repairing 修

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.

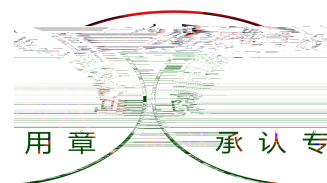
LED 后不 修 , 修 , 使 双 , 且事先 会不 会 LED 。



3.1.3 Cautions 事

(1) Components should not be mounted on warped (non coplanar) portion of PCB. After soldering, do not warp the circuit board.LED 不 PCB 上, 之后, 也不 。

(2) Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering. Do not rapidly cool device after soldering. 之后冷却 中, 不 加 力, 也不 动, 后, 不 剧冷却 。



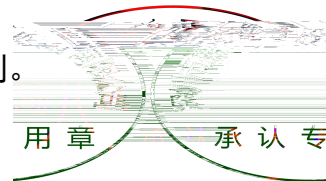
产 使 事

产 使 事

(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 作 及与 LED 中 元 及化合 份不可 100PPM. 只 一个 , 不作任何 保。

(2) In order to prevent external 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. 为了 入 LED 内 以 LED 伤, 及 件 , 单一 元 于 900PPM, 单一 元 于 900PPM, 元 与 元 于 1500PPM. 只 一个 , 不作任何 保。

(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. 件中 发 会 到 LED 内 , 产 光 及 件下, 会 LED 变 , 严 光 , 前了 件 免产 些 。 丰反 使 任何 LED 件 可 , 不 些 了 仅仅 。 使 , 丰 LED 候, 不 使 产 发 体 剂。



(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.

不 值, 同 , 使 保 , 则, 压变化 会 变化, 可 产 。 保 只 关 候出 向 压 变化, 不 加反压, 则会 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 为 发

变 变, 升 会 低 LED 发光 , 发光 , 以 充分

(6) Storage



Table 4-1 Storage 储

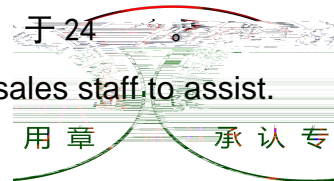
Conditions		Temperature	Humidity	Time
Storage 储	Before Opening Aluminum Bag 包前	≤30°C	≤75%	Within 1 Year From Date 一 内
	After Opening Aluminum Bag 包后	≤30°C	≤60%	168hours 168
Baking		60±5°C	-	≥24hours 于24

(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. 剂 包 , 产 不 合以上

储 件, 包后 , 件: 60±5°C, 于 24 。

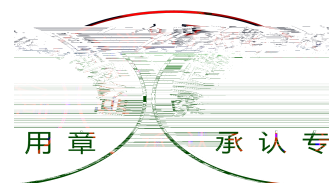
If the package is flatulence or damaged, please notify the sales staff to assist. 包

, 人 协助 。



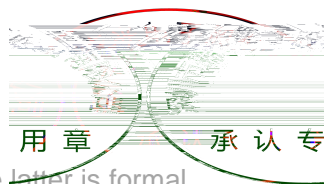
(8) Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS). 像其他 半 体 件一 , LED 击 , 做 。

(9) Other points for attention, please refer to our relevant information.其 事 参 丰 关 。





www.refond.com



Declare

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

产 书以中 书写, 冲 以中 为准。