产品　　书

REFOND P/N 产品型号

RF-OUB190TS-CF

☐R&D　　发

■Mass Product　产供

认 专 用 章

Contents 录

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

产品为 光 LED， 光 封 形 ，产品尺寸：1.6mmX0.8mmX0.7mm。

产品 征

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

封　尺寸

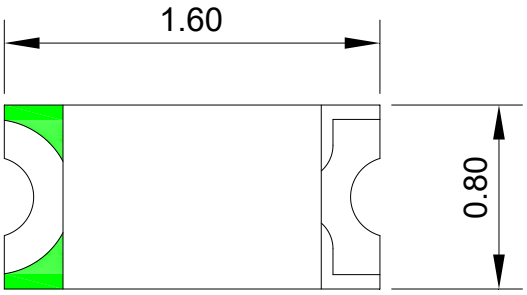


Fig.1-1 Top view　　图

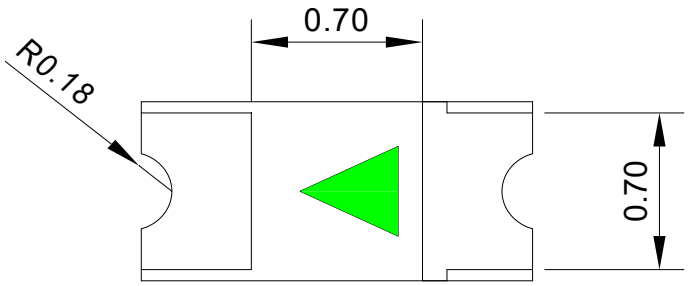


Fig.1-2 Bottom view　　图

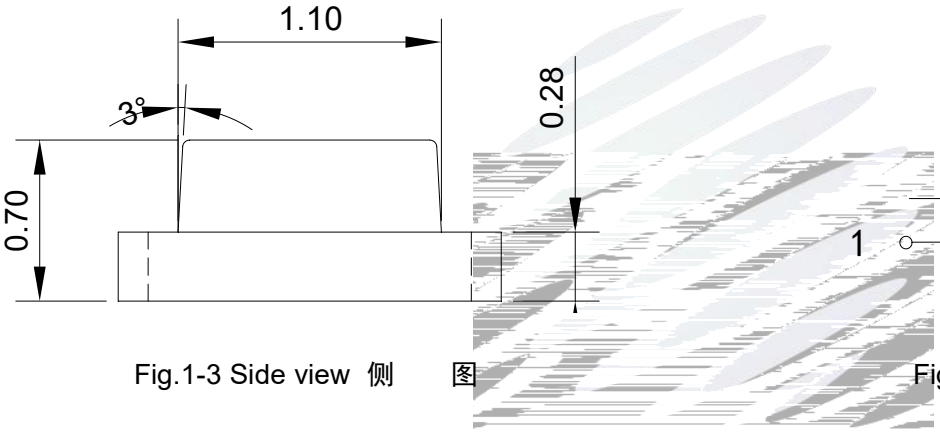


Fig.1-3 Side view 侧　　图

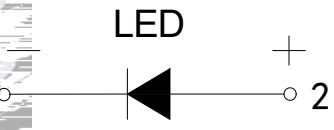


Fig.1-4 Polarity

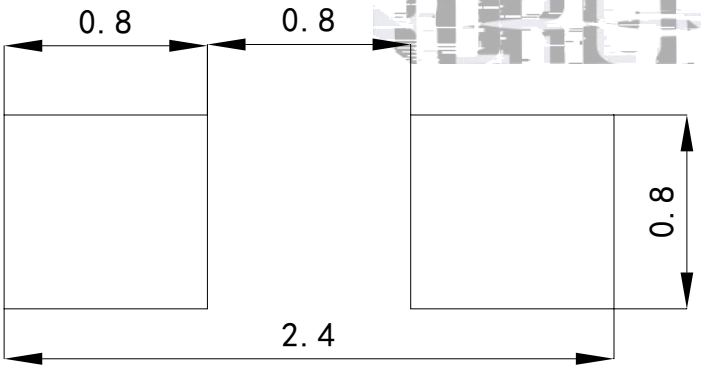


Fig.1-5 Soldering patterns

Notes 备　：

1. All dimensions units are millimeters.　　尺寸　　单位为

   All dimensions tolerances are ±0.2mm unless otherwise noted.　　别　　外，　　尺寸公差为±0. 2

产品参

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

Item	Test Condition 件	Symbol 号	Value	Unit

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

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

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 （ 冲峰值 ）	I_{FP}	60	mA
Electrostatic Discharge (HBM)（ ）	E_{SD}	2000	V
Operating Temperature （ 作 度）	T_{opr}	-40 ~ +85	
Storage Temperature （储存 度）	T_{stg}	-40 ~ +85	
Junction Temperature （ ）	T_j	95	

Notes 备 ：

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

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

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

4. The above luminous intensity measurement allowance tolerance ±10%. 上 发光强度 允 公差为±10%.

5. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product. 使 功 不 定 大值。

6. All measurements were made under the standardized environment of Refond. 基于 丰 准 平台。

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使 大 件 定， 不 大值。

典型光学

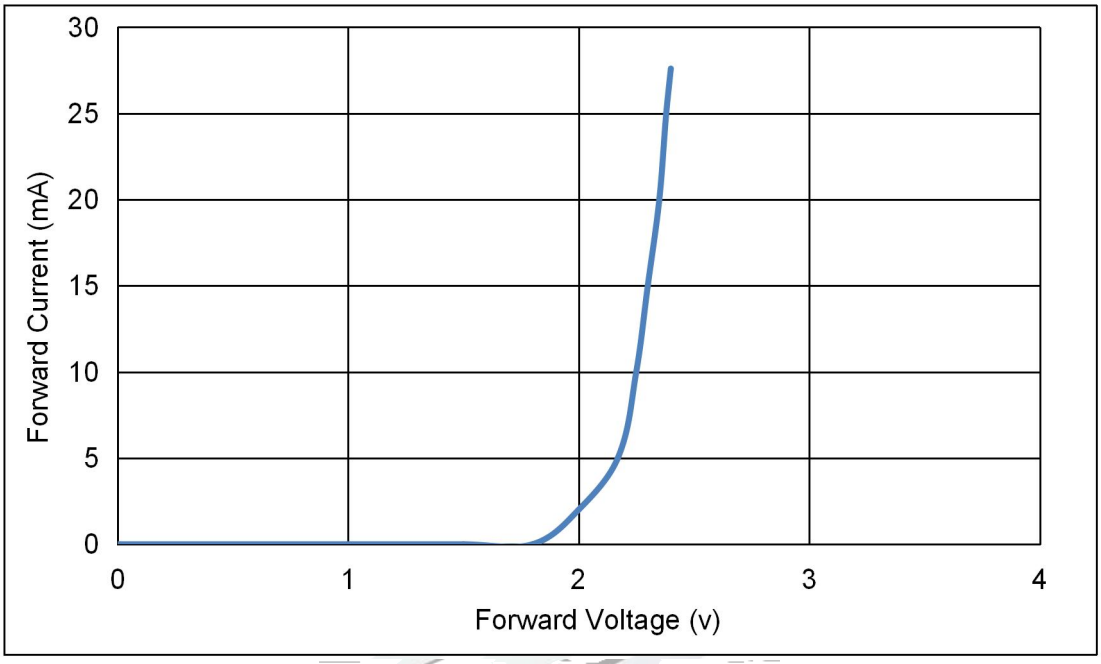


Fig 1-6 Forward Voltage Vs. Forward Current 伏安

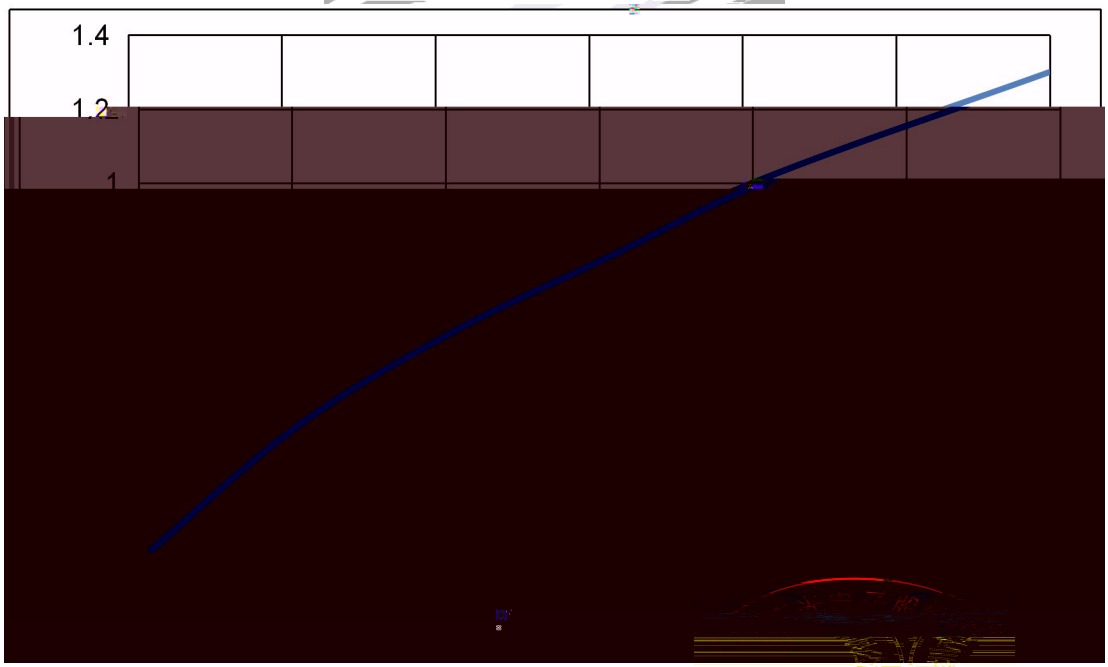


Fig 1-7 Forward Current Vs. Relative Intensity 向 与 对光强

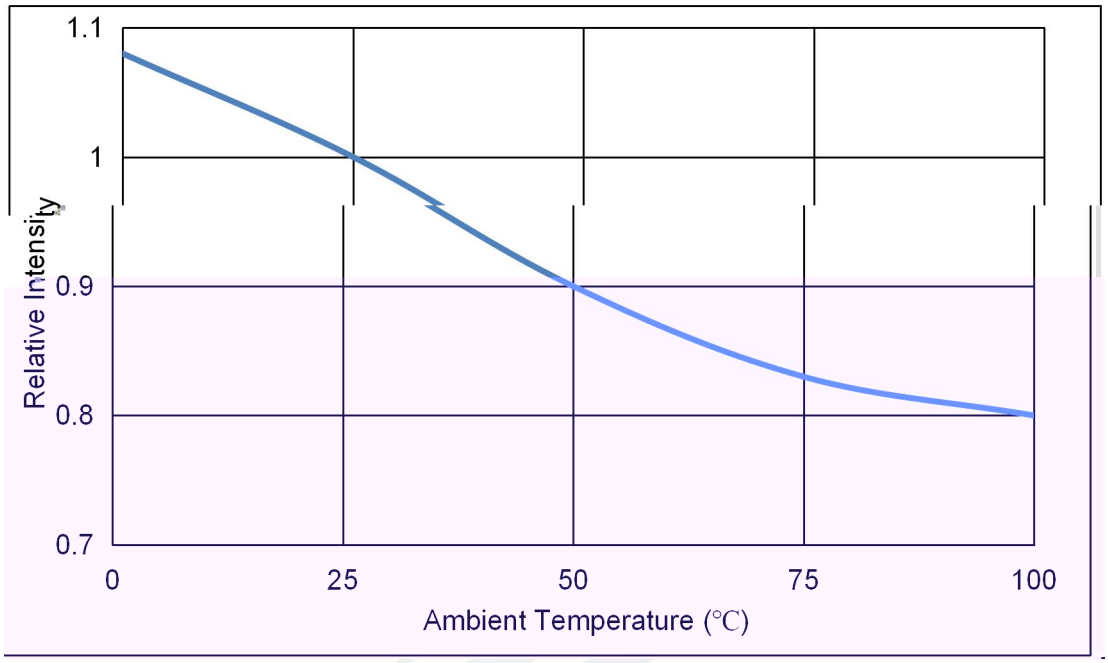


Fig 1-8 Pin Temperature Vs Relative Intensity 引　　度与　对光强

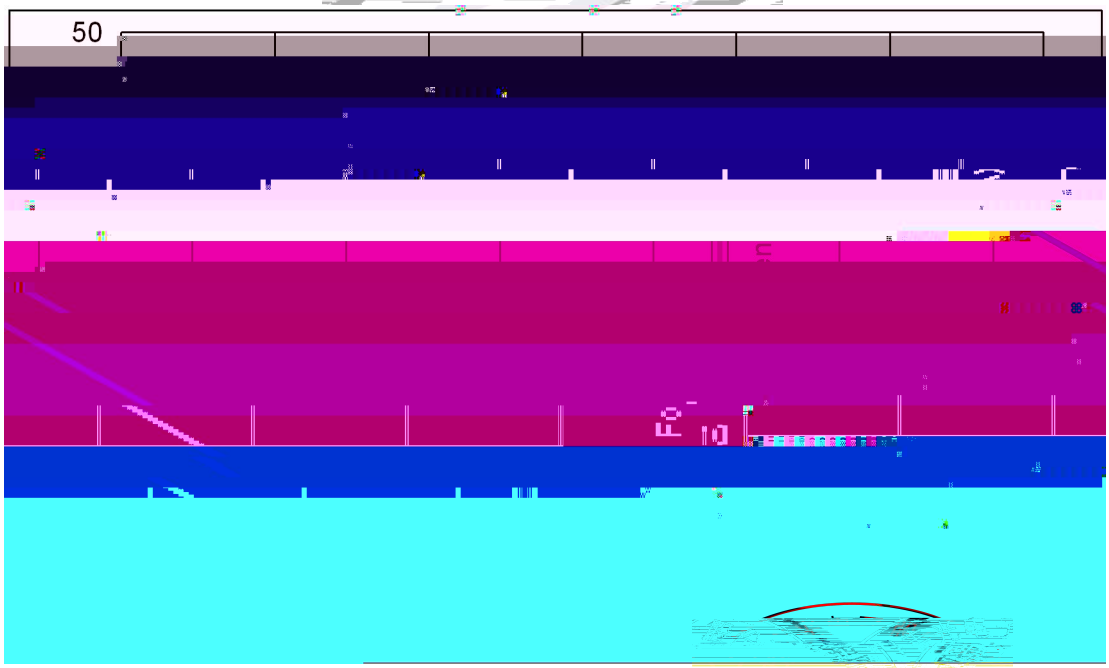


Fig 1-9 Pin Temperature Vs Forward Current 引　　度与　向

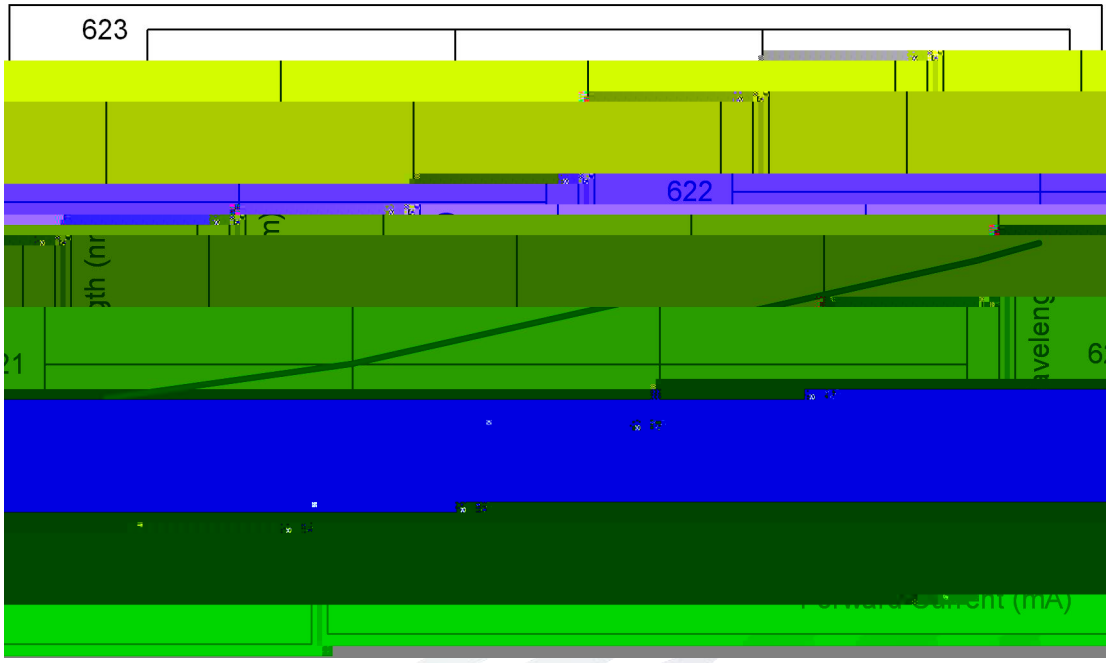


Fig 1-10 Forward Current Vs. Dominate Wavelength (Ta=25) 向 与主 关

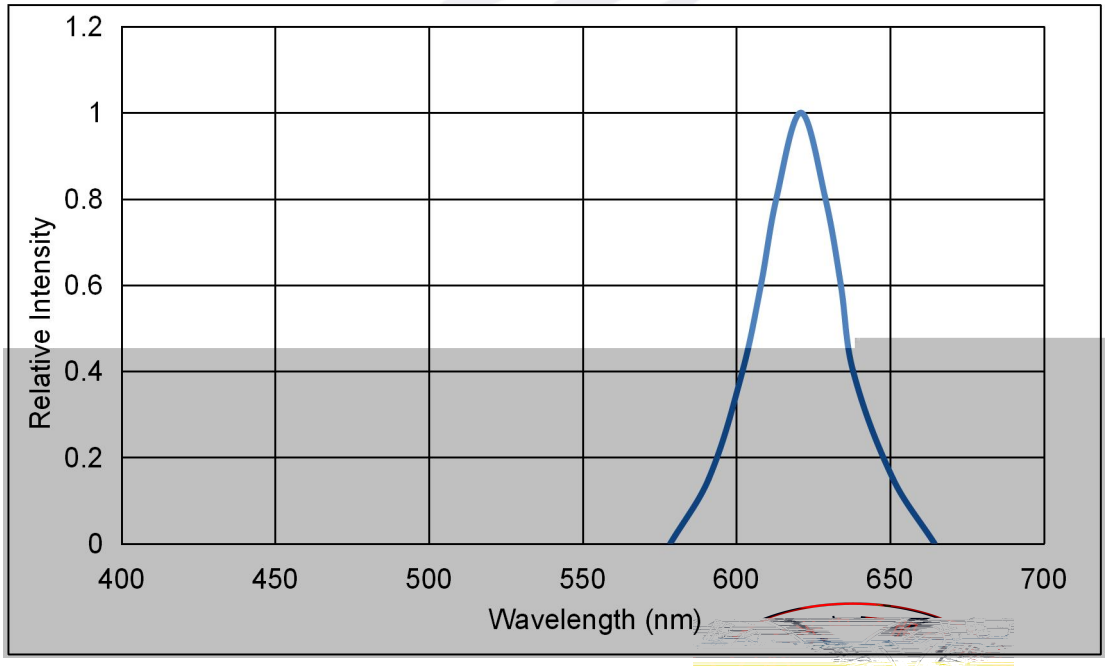


Fig 1-11 Relative Intensity Vs. Wavelength (Ta=25) 对光强与 关

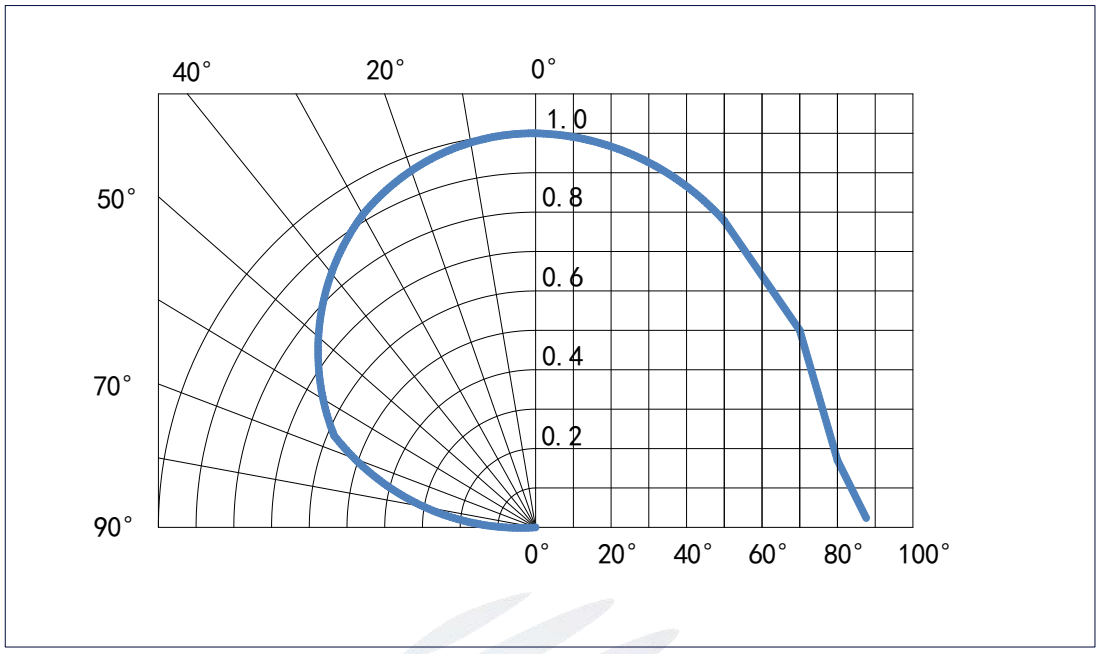


Fig 1-12 Diagram characteristics of radiation 射

产品包

包

Package:4000pcs/reel.包　　卷 4000pcs。

2.1.1 Carrier Tape Dimension　带尺寸

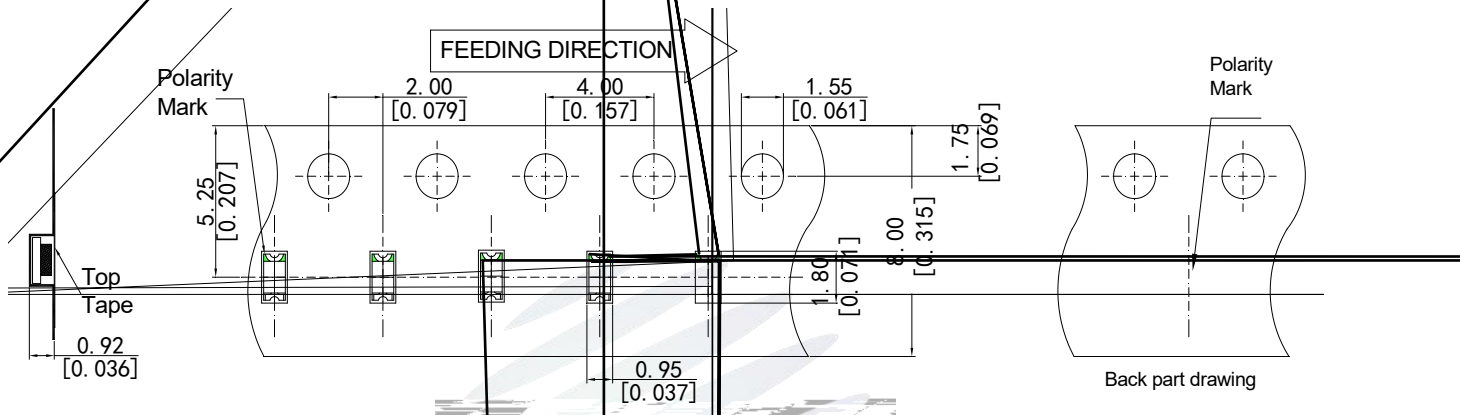


Fig.2-1 Carrier Tape Dimension　带尺寸

2.1.2 Reel Dimension 卷　尺寸

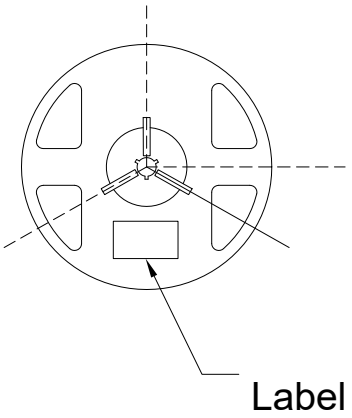


Fig.2-2 Reel Dimension 卷　尺寸

Table 2-1 Dimension 尺寸

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

Notes 备　：

The tolerances unless mentioned ±0.1mm. Unit : mm　：　公差为±0. 1　，尺寸单位：　。

2.1.3 Label Form Specification

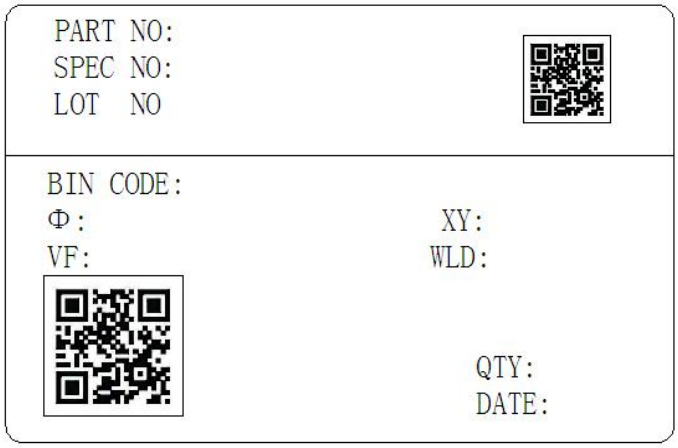


Fig. 2-3 Label Form Specification

Table 2-2 Parameter 参

PART NO.	Part Number 品名
SPEC NO.	Spec Number
LOT NO.	Lot Number 号
BIN CODE	Bin Code 参 代
Φ	Luminous flux 光
XY	Chromaticity Bin 区
V_F	Forward Voltage 向 压
WLD	Wavelength 代
QTY	Packing Quantity
DATE	Made Date 产

包

Fig.2-4 Moisture Resistant Packing 包

包

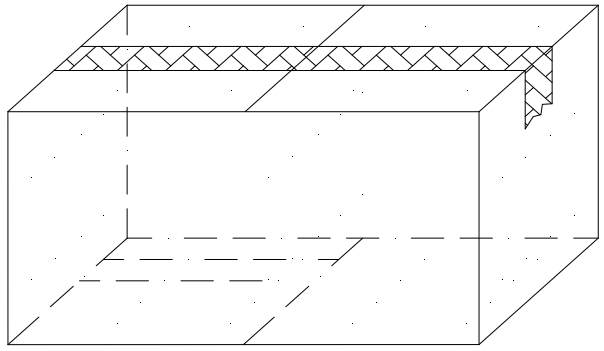


Fig.2-5 Cardboard Box 包

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 回	JESD22-B106	T_{emp}:260℃max T=10 sec	2 times	22Pcs.	0/1
Temperature Cycle 度循	JESD22-A104	100℃ 30 min ↑↓5 min -40℃ 30 min	100 cycles	22Pcs.	0/1
Thermal Shock 冷 冲击	JESD22-A106	-40℃ 15min ↑↓ 100℃ 15min	300 cycles	22Pcs.	0/1
High Temperature Storage 保存	JESD22-A103	T_{emp}:100℃	1000 hrs.	22Pcs.	0/1
Low Temperature Storage 低 保存	JESD22-A119	T_{emp}:-40℃	1000 hrs.	22Pcs.	0/1
Life Test 常	JESD22-A108	T_a=25℃ I_F=20mA	1000 hrs.	22Pcs.	0/1

失　判定　准

Table 2-4 Criteria For Judging Damage 失　判定　准

Test Items	Symbol 号	Test Condition 件	Criteria For Judgement 判定　准	
				Max.　大
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	Φ	I_F=20mA	L.S.L*)x0.7	-

Notes 备　：

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　　基于　丰　　实　平台单　/　LED 在　好　　件　　下　　。客　　将 LED 应　于串、并　　，　　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　　仅为产品　典型值，只作为参　，不作为任何应　　件及应　　式　保　。

回

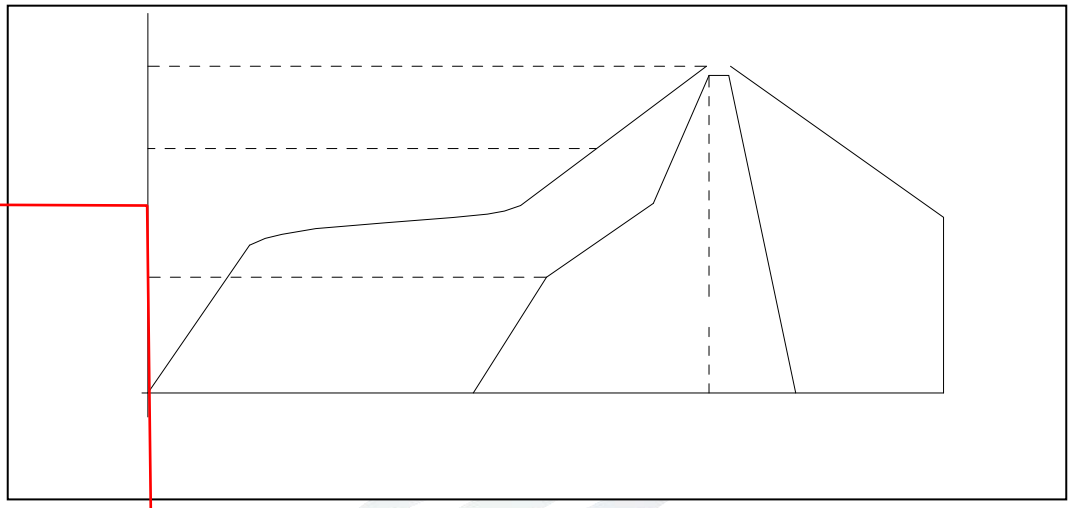


Fig.3-1 SMT Reflow Soldering Instructions SMT 回

Table 3-1 Parameter 参

Average temperature rise speed平均升 度（Tsmax Tp）	3 °C/ Max 3 °C/ s
Preheating: minimum temperature ： 低 度 (Tsmin)	150 °C
Preheating: Max temperature ： 度 (Tsmax)	200 °C
Preheating: Time ： （Tsmin Tsmax）	60 - 120 60s-120s
Time limited to maintain high temperature: the temperature ： 度(TL)	217 °C
Time limited to maintain high temperature: The Time ： (tL)	多60 Max 60s
Peak /Classification of temperature:峰值 / 分 度 (Tp)	260 °C
Time limit classification of peak temperature time 峰值分 度： （tp）	多10 Max 10s
Hold time within 5 ° C with the actual peak temperature (TP) 与实 峰值 度 (Tp) 差 5 °C 以内 保	多30 Max 30s
Cooling speed 度	6 °C/ Max 6 °C/ s
Needed time from 25 °C to Tp 25 °C 升 峰值 度	多8分 Max 8 minutes

Notes 备 ：

(1)Reflow soldering should not be done more than twice. If more than 24 hours between the two solderings , LED will be damaged. 回 不可以 两 ，两 回 如 24小 ，LED可 于吸坏。

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

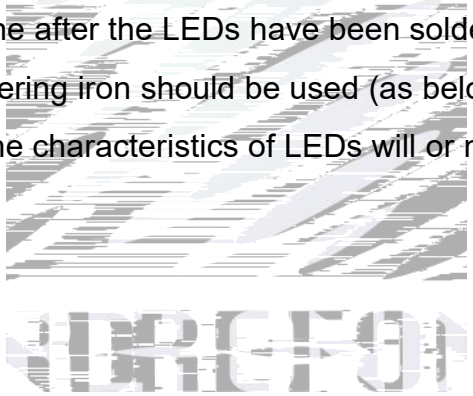
3.1.1 Soldering Iron

(1) When do soldering by hand, keep the temperature of iron below less 300 less than 3 seconds 当 工 ， 度必 小于300℃， 不可 3 。

(2) Soldering by hand should be done only one time. 工 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



产品使　　事

产品使　　事

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

(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.为了　外　　入 LED 内　以　LED　伤，　处　境及　套件　，单一　元　含　小于 900PPM，单一　元　含　小于 900PPM，　元　与　元　含　必　小于 1500PPM.　只　一个建　，不作任何品　　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 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. 应　套件中　发　会　到 LED 内　，在　产　光子及　件下，会导　LED 变　，　严　光　，　前了　套件　够　免产　些　。　丰反对使　任何对 LED 器件　可　害　，不　些　已　实了　仅仅怀　害。　对　定　和使　境，　丰建　对　和　容　。在　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. ， LED 不 定 大值，同 ， 使 保 ，否则，微小 压变化将会引 大变化，可 导 产品 。 必 保 只 在开启 关 候出 向 压 变化，不 加反压，否则会 坏 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 容 因为 发 和 境 度 变 变， 度升 会 低 LED 发光 ，影响发光 ， 以在 应充分 。

(6) Storage

Table 4-1 Storage 储存

Conditions		Temperature 度	Humidity 度	Time
Storage 储存	Before Opening Aluminum Bag 包前	≤30℃	≤75%	Within 1 Year From Date 一年内
	After Opening Aluminum Bag 包后	≤30℃	≤60%	168hours 168小
Baking		60±5℃	-	≥24hours 大于24小

(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.如 干 剂 包 失 ， 产品不 合以上 储存 件， 包后 ， 件：60±5℃，大于 24 小 。 化变

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

(8) Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS). 像其他　半导体　子器件一　，LED 对　　击　　常　　，做好　　。

(9) Other points for attention, please refer to our relevant information.其它　　事　　参　　丰关　　。

Version History/修　历史

Date	Revisor修	Version	Verifier审	Remarks备
2019.07.08	彬	E2	宋	制定

Declare
This specification is written both in English and in Chinese and the latter is formal.
产品　　书以中　　式书写，　　冲　以中　　为准。