SPECIFICATION
产品规格书

REFOND P/N 产品型号

RF-OU0402TS-CE-B

□R&D 研发

■Mass Product 量产供货

深圳市瑞丰光电子股份有限公司
承认专用章

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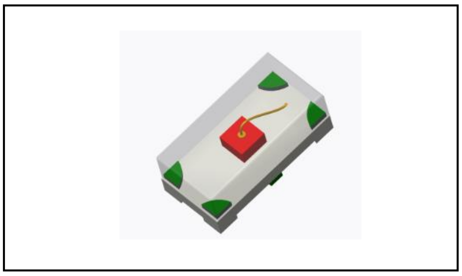
1. Description 产品介绍

1.1 General Description 产品描述



The Colour LED which was fabricated using an orange chip，Package Dimension : 1.0mmX0.5mmX0.4mm.

该产品为色光 LED，是由橙光芯片封装形成，产品尺寸：1.0mmX0.5mmX0.4mm。

1.2 Features 产品特征

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

Moisture sensitivity level: Level 3.防潮等级 Level3

RoHS compliant.满足RoHS要求

1.3 Application 产品应用

Optical indicator.光学指示

Switch and symbol, display.开关和标志，显示器等

General use.其他应用

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1.4 Package Dimension 封装尺寸

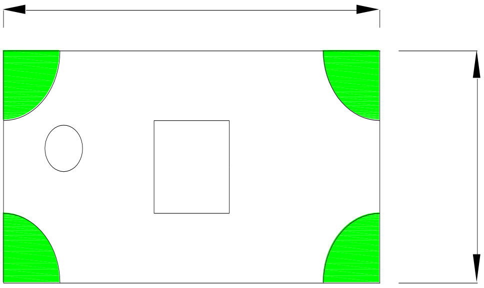


Fig.1-1 Top view 正面视图

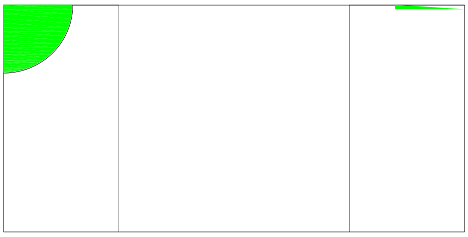


Fig.1-2 Bottom view 背面视图

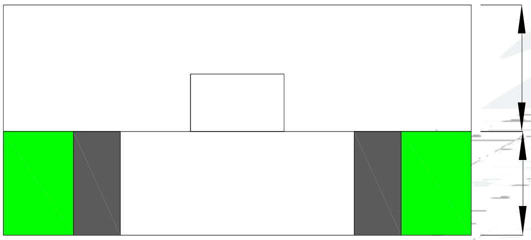


Fig.1-3 Side view 侧面视图

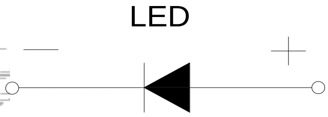


Fig.1-4 Polarity 极性

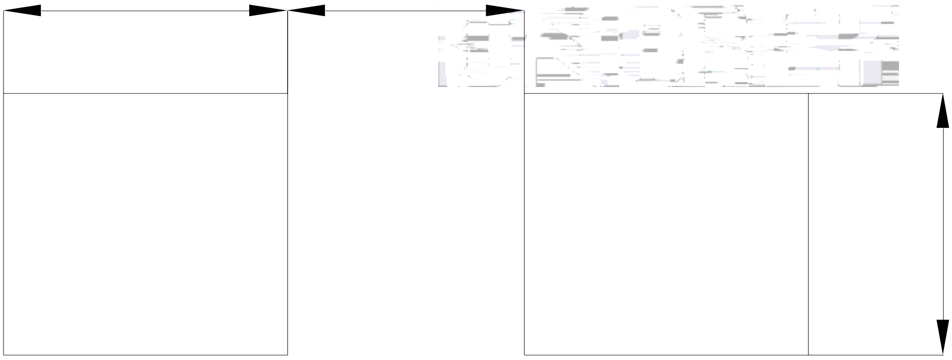
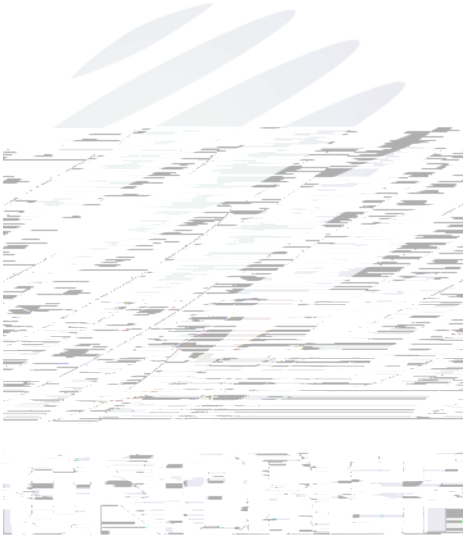


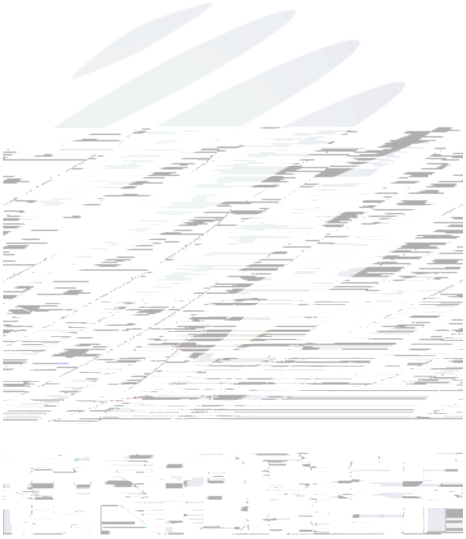
Fig.1-5 Soldering patterns 推荐焊盘

Notes 备注：

1. All dimensions units are millimeters. 所有尺寸标注单位为毫米

4 All dimensions tolerances are ±0.2mm unless otherwise noted. 除特别标注外，所有尺寸公差为±0.2 毫米





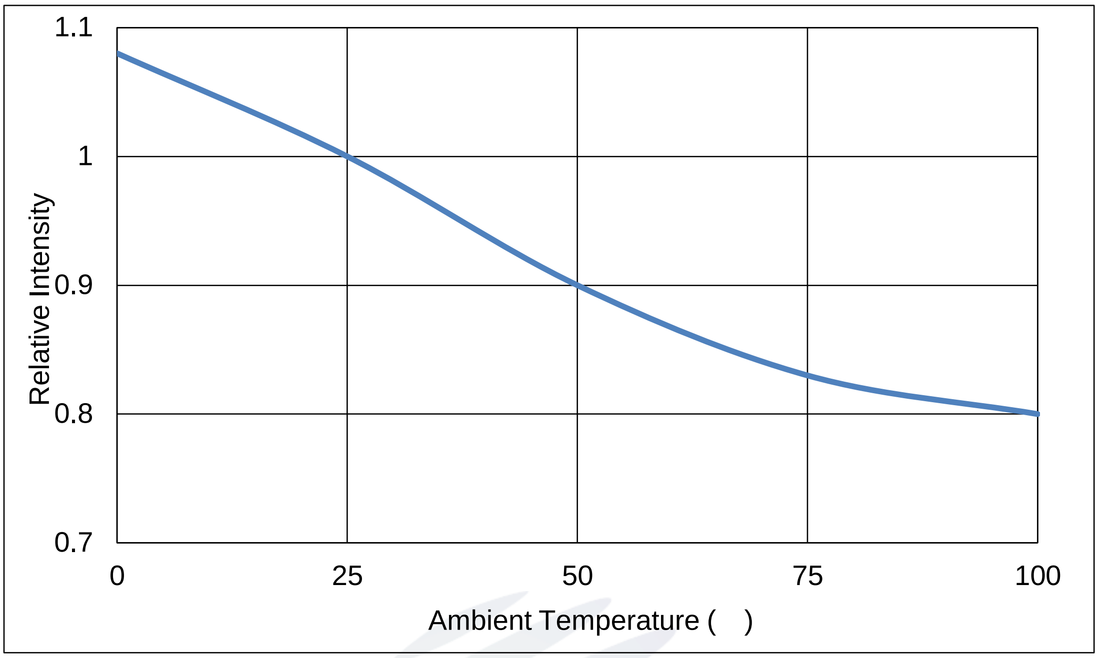


Fig 1-8 Pin Temperature Vs Relative Intensity 引脚温度与相对光强特性曲线

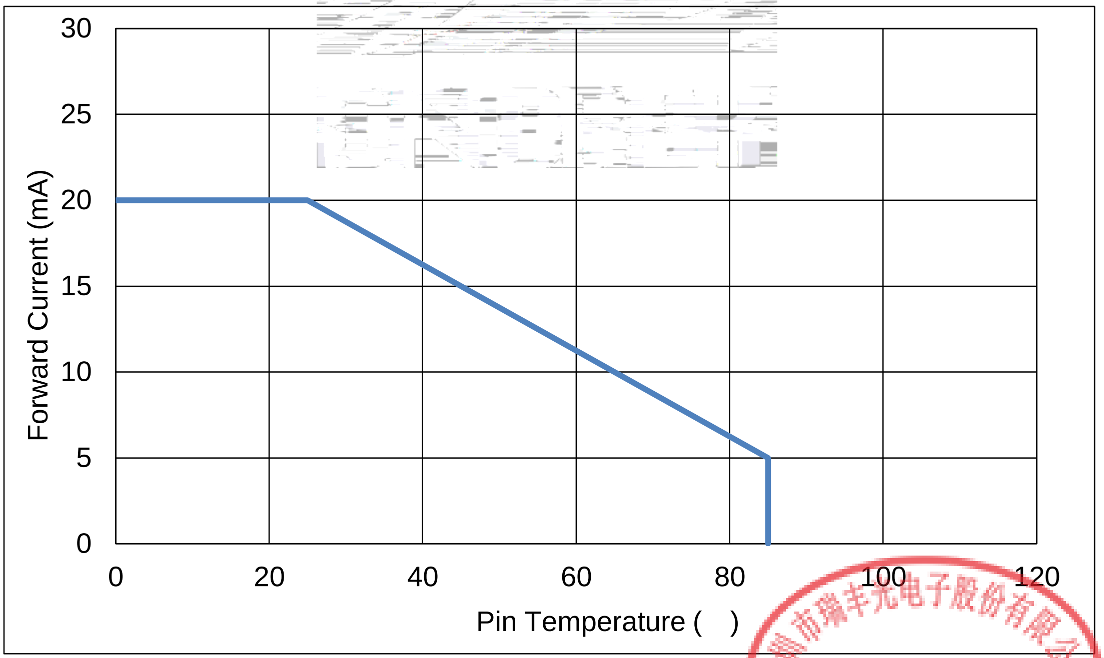


Fig 1-9 Pin Temperature Vs Forward Current 引脚温度与正向电流特性曲线

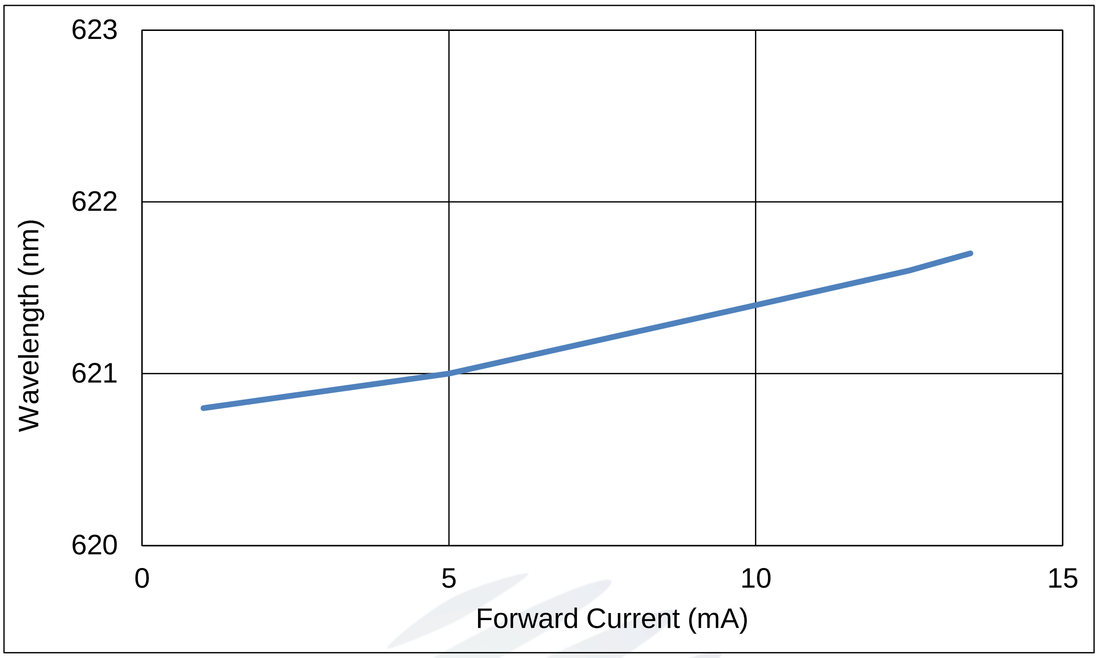


Fig 1-10 Forward Current Vs Dominate Wavelength (Ta=25) 正向电流与主波长关系曲线

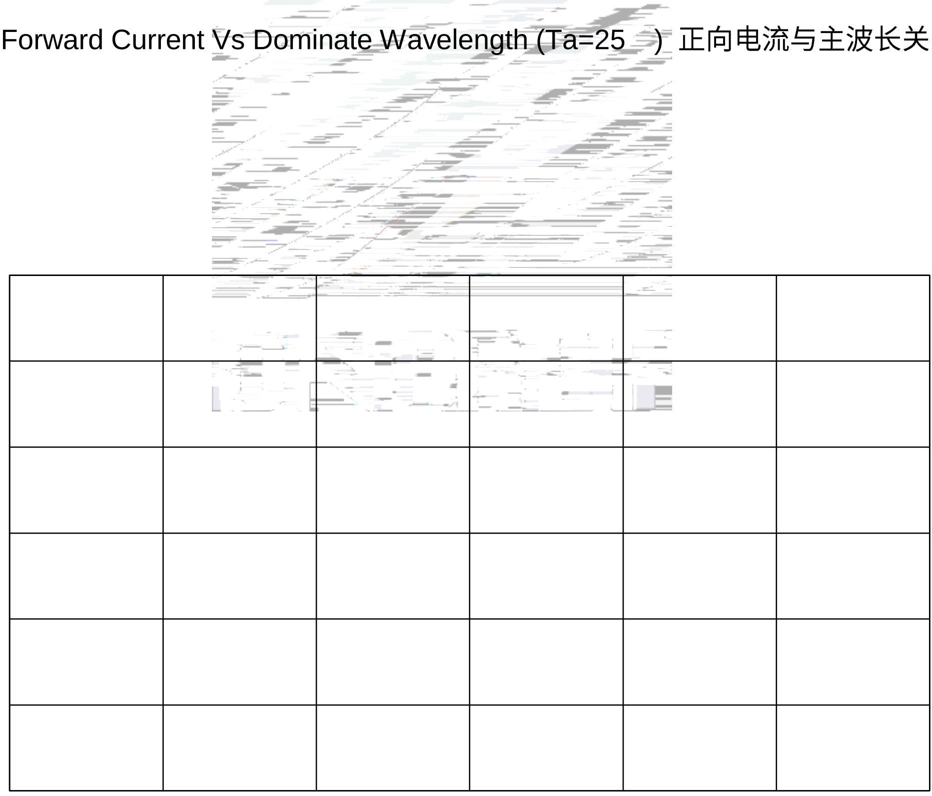


Fig 1-11 Relative Intensity Vs Wavelength (Ta=25) 相对光强与波长关系曲线

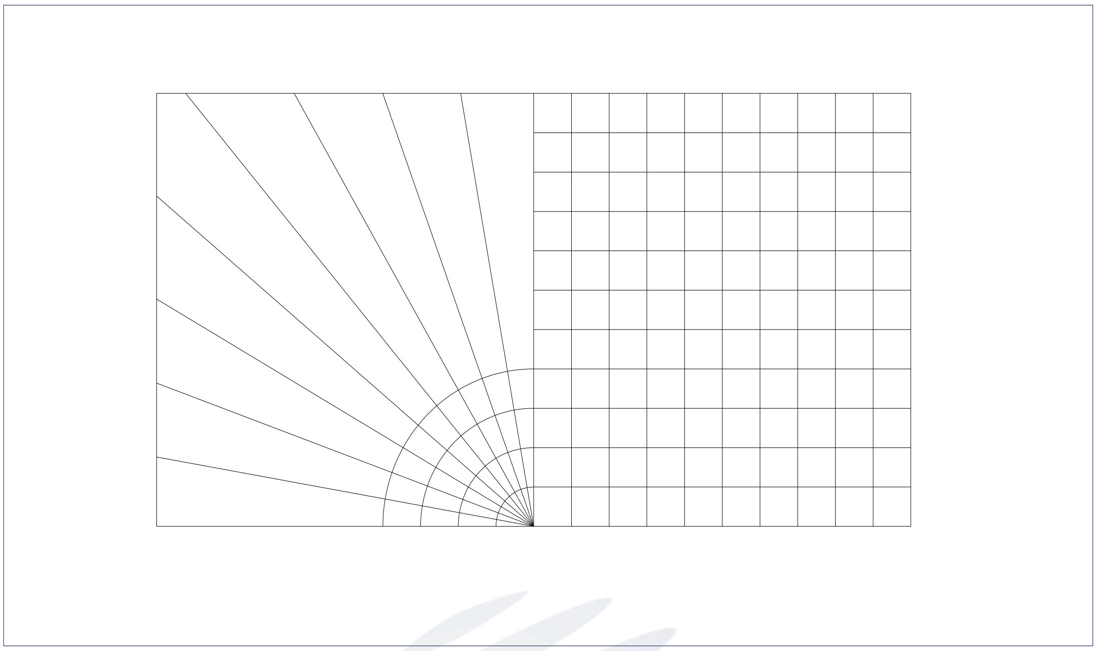


Fig 1-12 Diagram characteristics of radiation 辐射特性曲线

2. Packaging 产品包装

2.1 Packaging Specification 包装规格

Package:6000pcs/reel.包装每卷 6000pcs。

2.1.1 Carrier Tape Dimension 载带尺寸

Fig.2-1 Carrier Tape Dimension 载带尺寸

2.1.2 Reel Dimension 卷盘尺寸

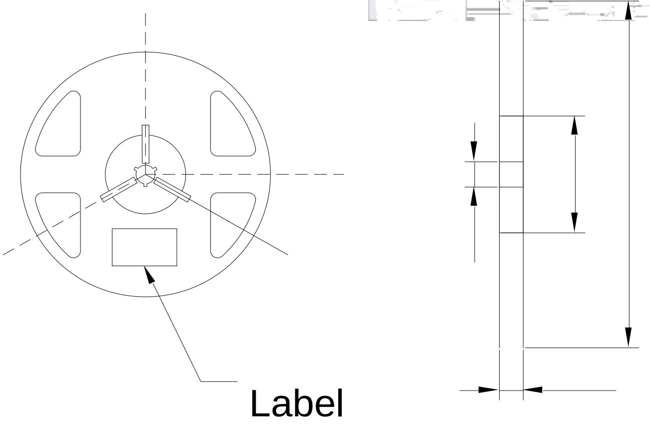


Fig.2-2 Reel Dimension 卷盘尺寸

Table 2-1 Dimension 尺寸

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

Notes 备注：

The tolerances unless mentioned ±0.1mm. Unit : mm 注：未注公差为±0.1毫米，尺寸单位：毫米。

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2.1.3 Label Form Specification 标签规格

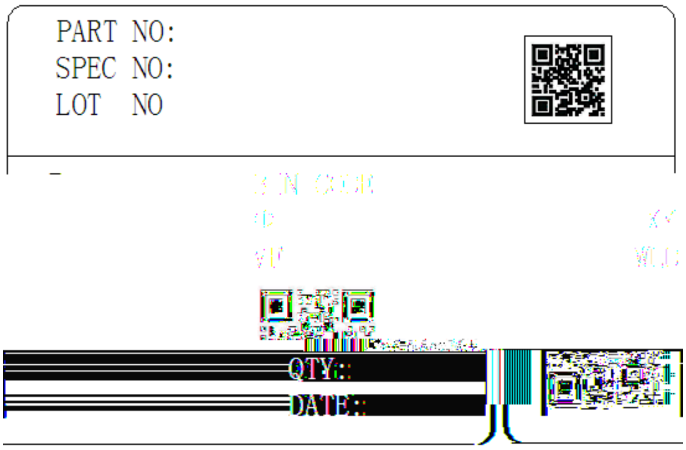

Fig. 2-3 Label Form Specification 标签规格

Table 2-2 Parameter 参数

PART NO.	Part Number 品名
SPEC NO.	Spec Number 规格
LOT NO.	Lot Number 批次号
BIN CODE	Bin Code 参数代码
	Luminous flux 光通量
XY	Chromaticity Bin 色区
V_F	Forward Voltage 正向电压
WLD	Wavelength 波长代码
QTY	Packing Quantity 数量
DATE	Made Date 生产日期

2.2 Moisture Resistant Packing 防潮包装

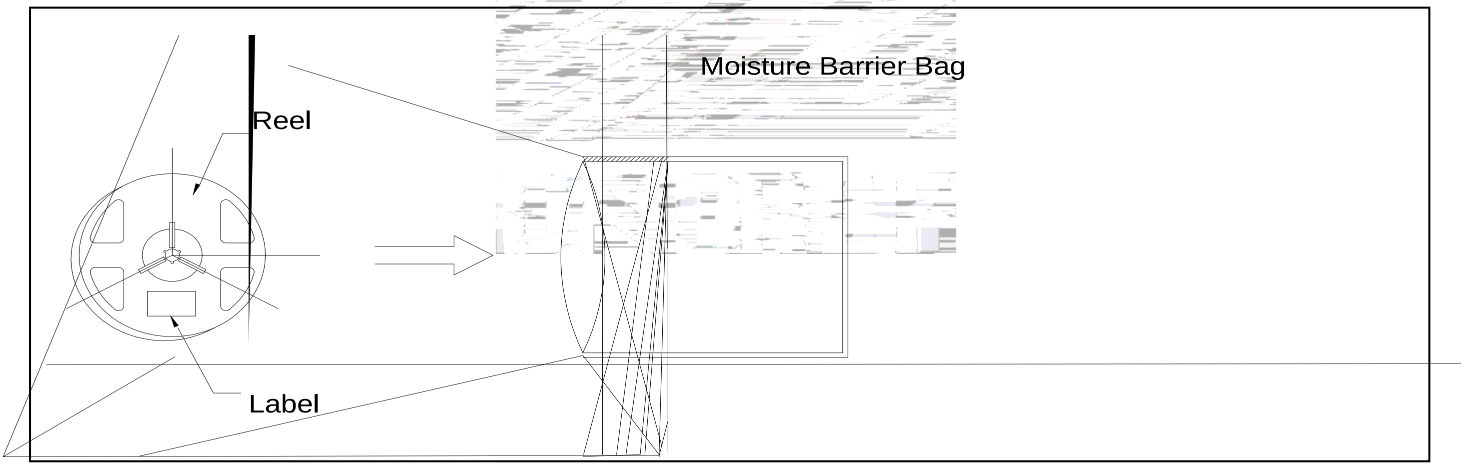

Fig.2-4 Moisture Resistant Packing 防潮包装

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2.3 Cardboard Box 包装纸箱

Fig.2-5 Cardboard Box 包装纸箱

2.4 Reliability Test Items And Conditions 信赖性测试项目及条件

Table 2-3 Reliability Test Items And Conditions 信赖性测试项目及条件

Test Items 项目	Ref.Standard 参考标准	Test Condition 测试条件	Time 时间	Quantity 数量	Ac/Re 接收/拒收
Reflow 回流焊	JESD22-B106	Temp:260℃max T=10 sec	2 times	22Pcs.	0/1
Temperature Cycle 温度循环	JESD22-A104	100℃ 30 min 5 min -40℃ 30 min	100 cycles	22Pcs.	0/1
Thermal Shock 冷热冲击	JESD22-A106	-40℃ 15min 100℃ 15min	300 cycles	22Pcs.	

2.5 Criteria For Judging Damage 失效判定标准

Table 2-4 Criteria For Judging Damage 失效判定标准

Test Items 项目	Symbol 符号	Test Condition 测试条件	Criteria For Judgement 判定标准	
			Min. 最小	Max. 最大
Forward Voltage 正向电压	V_F	I_F=5mA	-	U.S.L*)x1.1
Reverse Current 漏电流	I_R	V_R= 5V	-	U.S.L*)x2.0
Luminous Flux 光通量		I_F=5mA	L.S.L*)x0.7	-

Notes 备注:

1.U.S.L: Upper standard level 规格上限 L.S.L: Lower standard level 规格下限

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. 以上可靠性测试是基于瑞丰现有实验平台单颗/条 LED 在良好散热条件验证下的结果。客户端将 LED 应用于串、并联线路时，需自行评估电流、电压分配、散热等问题。

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. 以上技术数据仅为产品的典型值，只作为参考，不作为任何应用条件及应用方式的保证。

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3. SMT Reflow Soldering Instructions SMT 回流焊说明

3.1 SMT Reflow Soldering Instructions SMT 回流焊说明

Fig.3-1 SMT Reflow Soldering Instructions SMT 回流焊说明

Table 3-1 Parameter 参数

Average temperature rise speed平均升温速度（Tsmax 至 T_P）	最高3 °C/秒 Max 3 °C/ s
Preheating: minimum temperature预热：最低温度 (Tsmin)	150 °C
Preheating: Max temperature预热：最高温度 (Tsmax)	200 °C
Preheating: Time预热：时间（Tsmin 至 Tsmax）	60 - 120秒 60s-120s
Time limited to maintain high temperature: the temperature限时维持高温：温度(T_L)	217 °C
Time limited to maintain high temperature: The Time 限时维持高温：时间 (t_L)	60秒-150秒 60s-150s
Peak /Classification of temperature:峰值 / 分类温度 (T_P)	260 °C
Time limit classification of peak temperature time限时峰值分类温度：时间（t_p）	最多10秒 Max 10s
Hold time within 5 °C with the actual peak temperature (TP) 与实际峰值温度 (T_P) 相差 5 °C 以内的保持时间	最多30秒 Max 30s
Cooling speed 降温速度	最高6 °C/秒 Max 6 °C/ s
Needed time from 25 °C to Tp 25 °C 升至峰值温度所需时间	最多8分钟 Max 8 minutes

Notes 备注：

4. Handling Precautions 产品使用注意事项

4.1 Handling Precautions 产品使用注意事项

(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 工作环境及与 LED 适配的材料中硫元素及化合物成份不可超过 100PPM.这只是一个建议，不作任何品质担保。

(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.为了防止外界物质进入 LED 内部以造成 LED 的损伤，所处环境及所用套件等等，单一的溴元素含量要求小于 900PPM，单一氯元素含量要求小于 900PPM，溴元素与氯元素总含量必须小于 1500PPM. 这只是一个建议，不作任何品质担保。

(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. 应用套件中的挥发性物质会渗透到 LED 内部，在通电产生光子及热的条件下，会导致 LED 变色，进而造成严重光衰，提前了解套件材料能够避免产生这些问题。瑞丰反对使用任何对 LED 器件的性能或者可靠性有害的物质或材料，不管这些材料是已经证实了的还是仅仅怀疑有害。针对特定的用途和使用环境，瑞丰建议对所有的物质和材料进行相容性的测试。在贴装 LED 时候，不要使用能产生有机挥发性气体的粘结剂。

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(8) Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS). 像其他的半导体电子器件一样，LED 对静电过流击穿非常敏感，需要做好防护。

(9) Other points for attention, please refer to our relevant information.其它注意事项请参照瑞丰相关资料。

Version History/修订历史

Date日期	Revisor修订者	Version版本	Verifier审核	Remarks备注
2019.06.10	贾彬浩	E/3	宋明	新版本制定
2023.02.08	陈昱磊	E/4	刘军	修改包装数量及产品使用注意事项

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Declare 申明

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

产品规格书以中英文方式书写，若有冲突以中文版本为准。