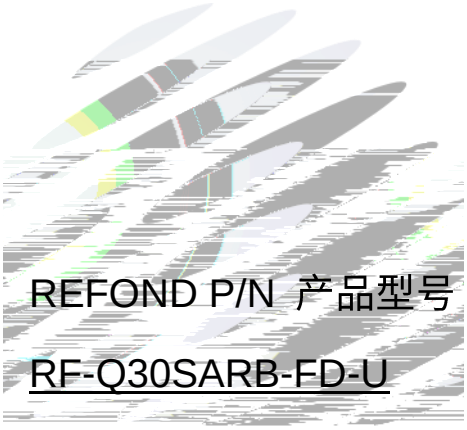
SPECIFICATION
产品规格书



REFOND P/N 产品型号

RF-Q30SARB-FD-U

□R&D 研发

■ Mass Product 量产供货

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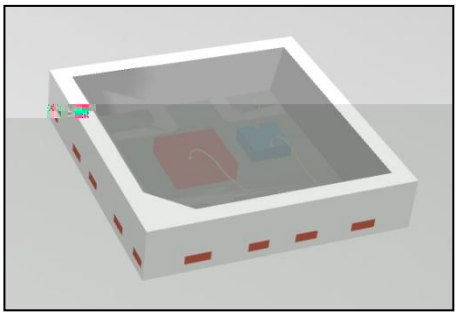
1. Description

1.1General Description 产品描述



The Red LED which was fabricated using a red chip

红光 LED 是由红光芯片激发而成

The Blue LED which was fabricated using a blue chip

蓝光 LED 是由蓝光芯片激发而成

The LED package dimension:3.0mmX3.0mmX0.65mm

产品尺寸：3.0mmX3.0mmX0.65mm。

1.2Features 产品特征

EMC Package.EMC.封装

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

Package:5000pcs/reel.包装每卷5000pcs

Moisture sensitivity level: Level 3.防潮等级 Level 3

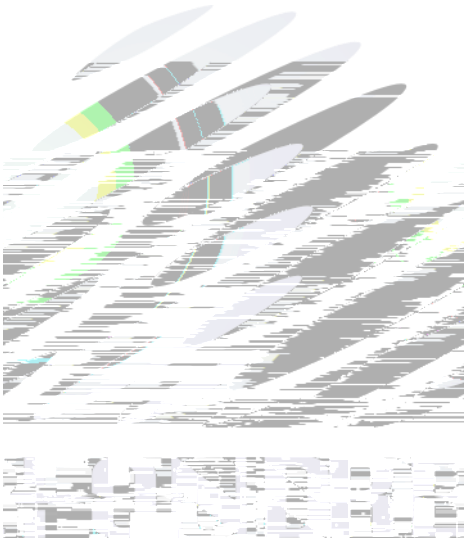
RoHS compliant.满足RoHS要求

1.3Application 产品应用

Smart bulb lighting.智能球泡灯

Indoor lighting.室内照明

Landscape lighting.景观照明



1.5Product Parameters 产品参数

Table 1-1 Electrical / Optical Characteristics at Ts=25°C 电性与光学特性

Product 产品型号	Symbol 符号	test condition 测试条件	Value			unit 单位
			Min.	Typ.	Max.	
Forward Voltage R	Vf	I_F =300mA	2.0	---	2.6	

Table 1-2 Absolute Maximum Ratings at Ts=25°C 绝对最大值

Notes 备注：

1. 1/10 Duty cycle, 0.1ms pulse width. 脉宽0.1ms,占空比1/10.

2. The above forward voltage measurement allowance tolerance is ±0.05V. 以上所示电压测量误差 ±0.05V.

3. The above wavelength measurement allowance tolerance is ±2nm 以上所示波长测量误差 ±2nm.

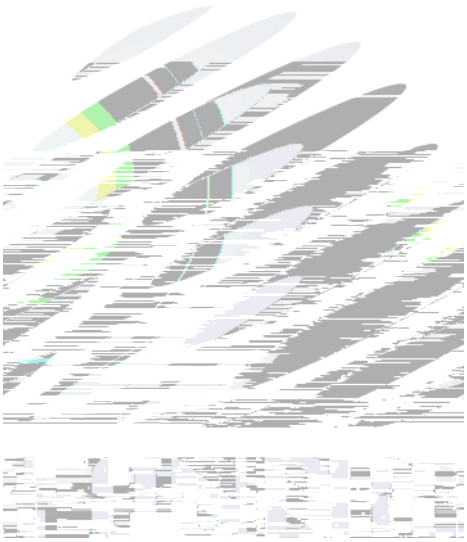
4. The above luminous intensity measurement allowance tolerance ±10%. 上述发光强度的测试允许公差为 ±10%.

5. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product. 使用功率不能超过规定的最大值。

6. All measurements were made under the standardized environment of Refond. 标准测试平台。

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 使用的最大电流需要根据散热条件确定，结温不能超过最大值。

8. ESD yield is over 90% at 2000V ESD (HBM). ESD protection during products handing is needed. 90%的LED 通过人体模式ESD2000V 测试，在操作时请注意静电防护。



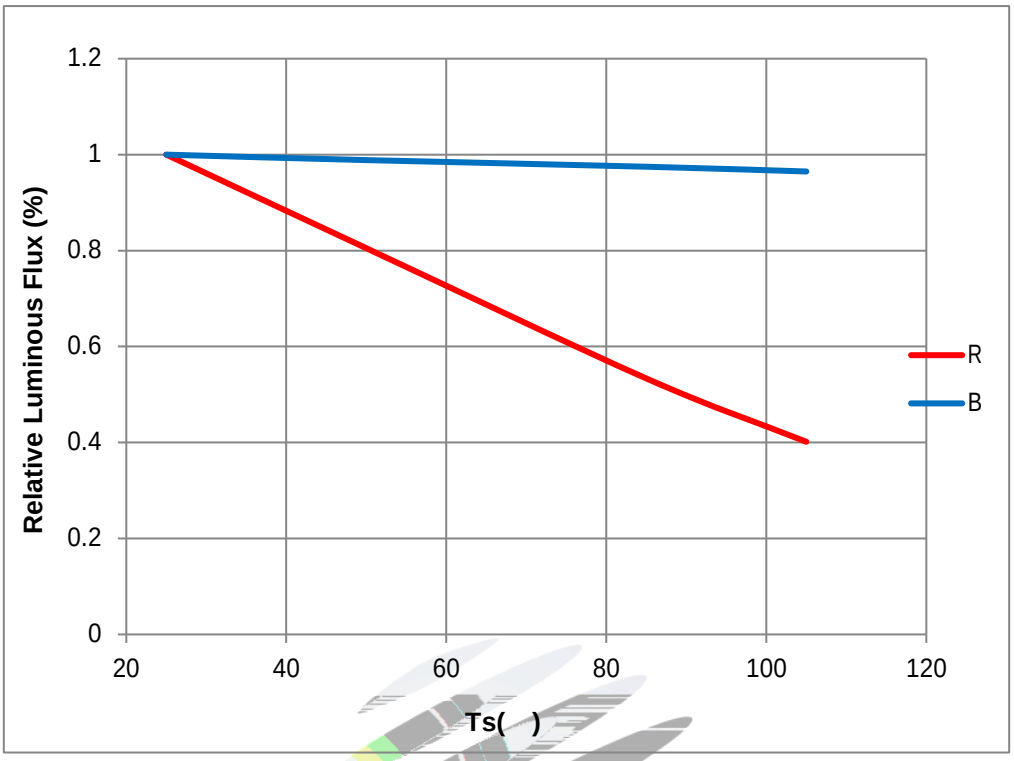


Fig 1-8 Solder Temperature Vs Relative Intensity管脚温度与相对光强特性曲线

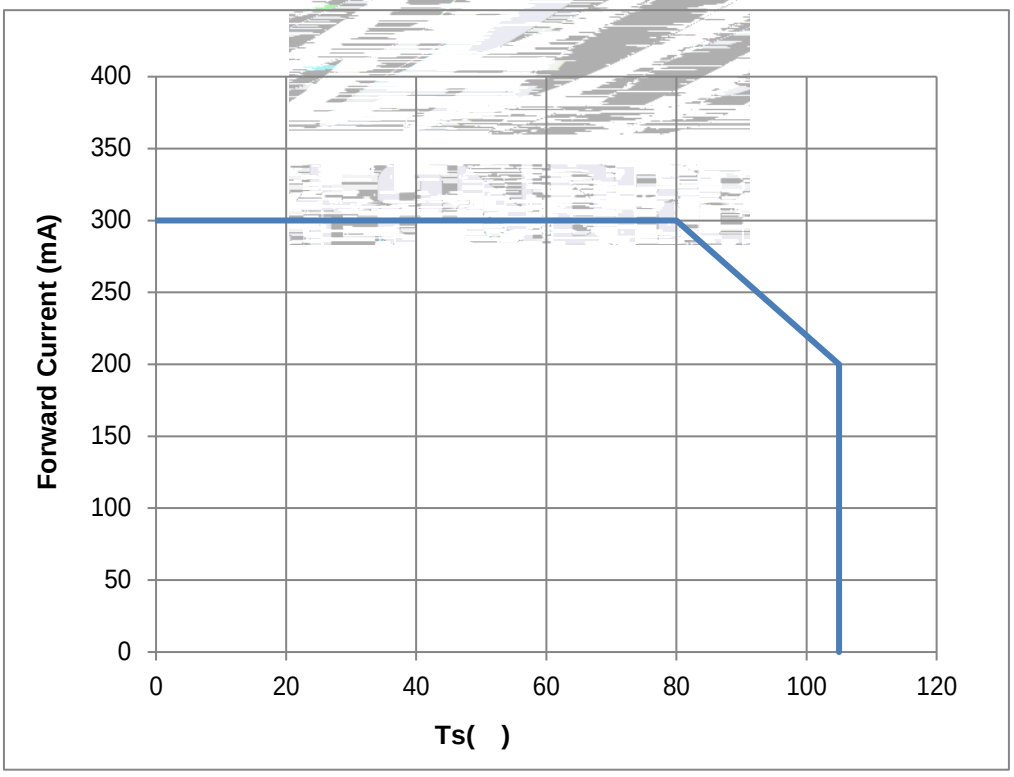


Fig 1-9 Solder Temperature Vs.Forward Current管脚温度与正向电流特性曲线

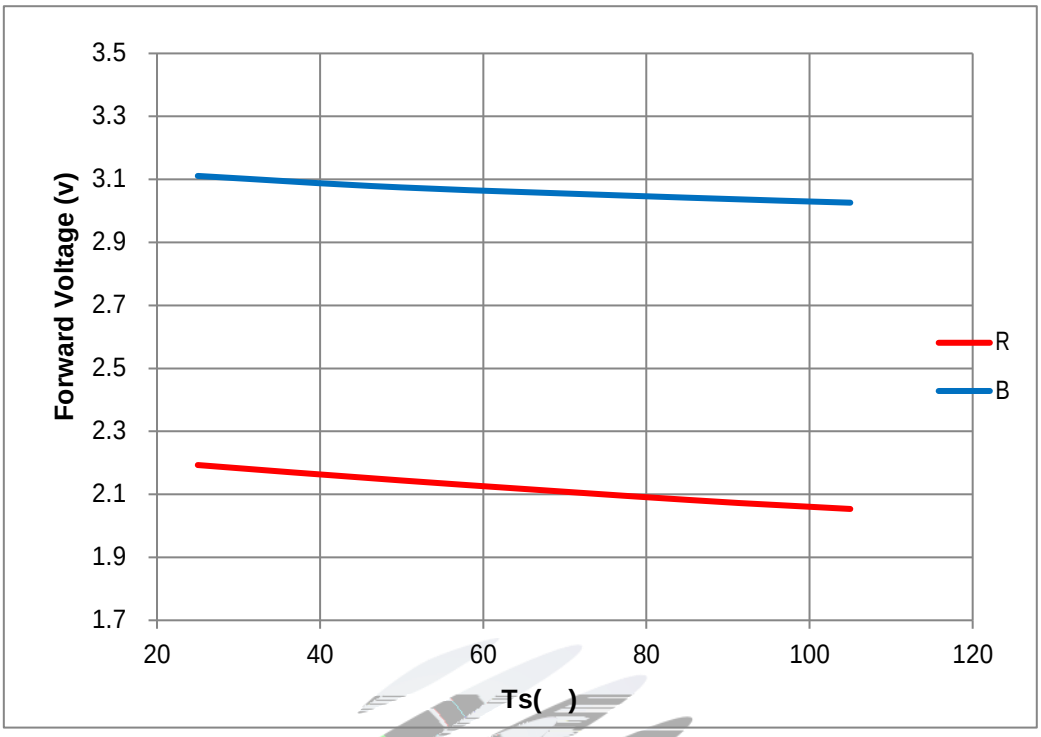


Fig 1-10 Forward Voltage Vs Solder Temperature电压与管脚温度特性曲线

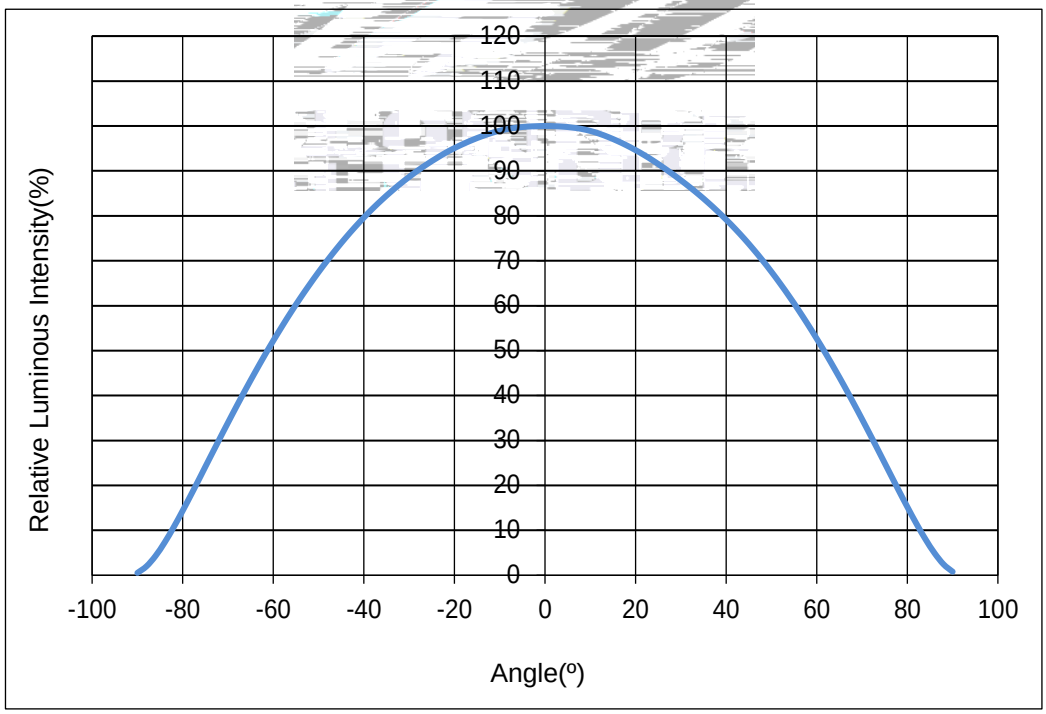


Fig 1-11 Radiation diagram辐射特性曲线

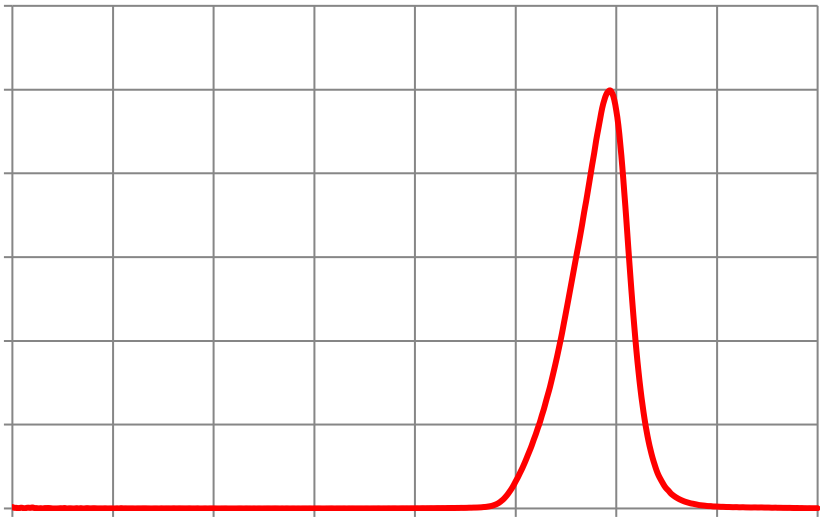
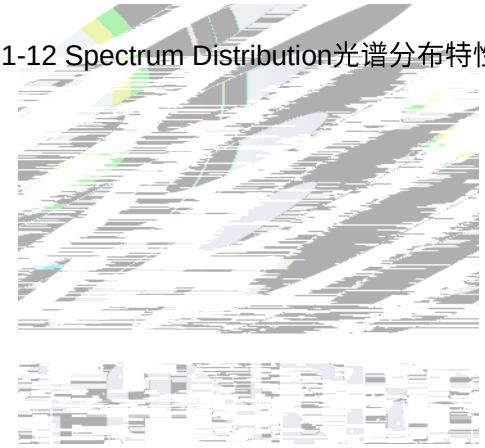


Fig 1-12 Spectrum Distribution光谱分布特性曲线



2. Packaging 产品包装

2.1 Packaging Specification 包装规格

Package:5000pcs/reel.包装每卷 5000pcs。

2.1.1Carrier Tape Dimension 载带尺寸

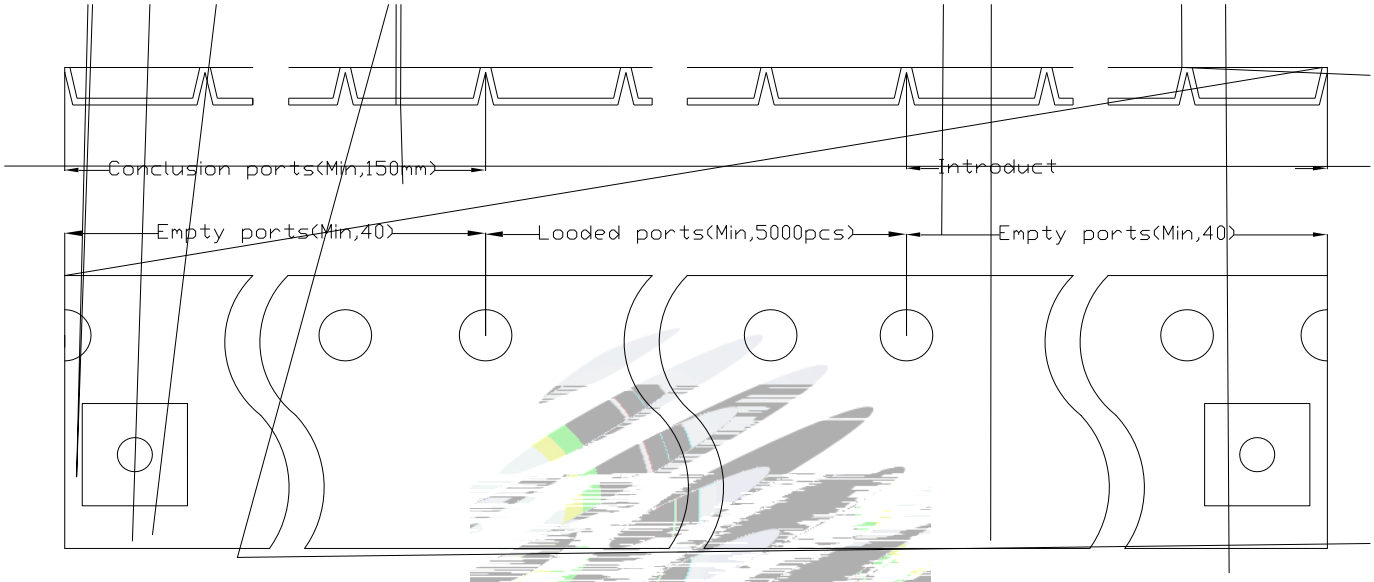
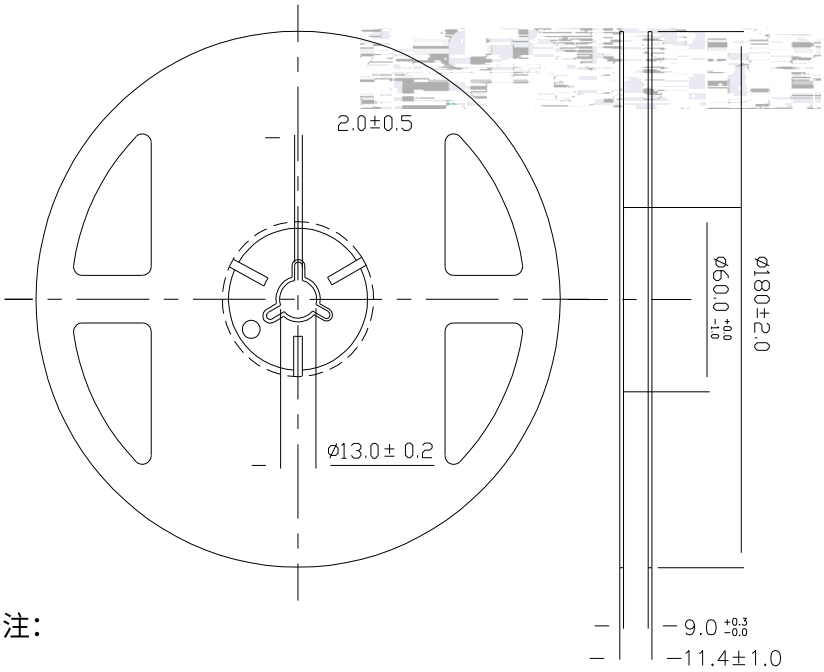


Fig.2-1 Carrier Tape Dimension 载带尺寸

2.1.2Reel Dimension 卷盘尺寸



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。

2.1.3Label Form Specification 标签规格

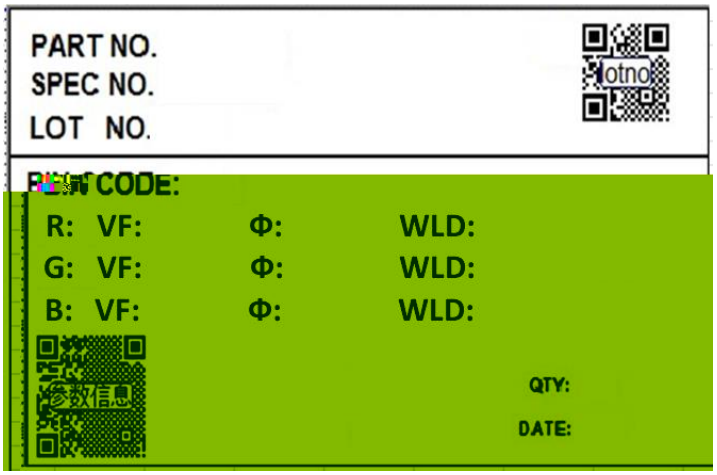


Fig 2-3 Title

Table 2-2 Title

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
V_F	Forward Voltage 正向电压
WLD	Dominant Wavelength 波长
QTY	Packing Quantity 数量
DATE	Made Date 生产日期

2.2Moisture Resistant Packing 防潮包装

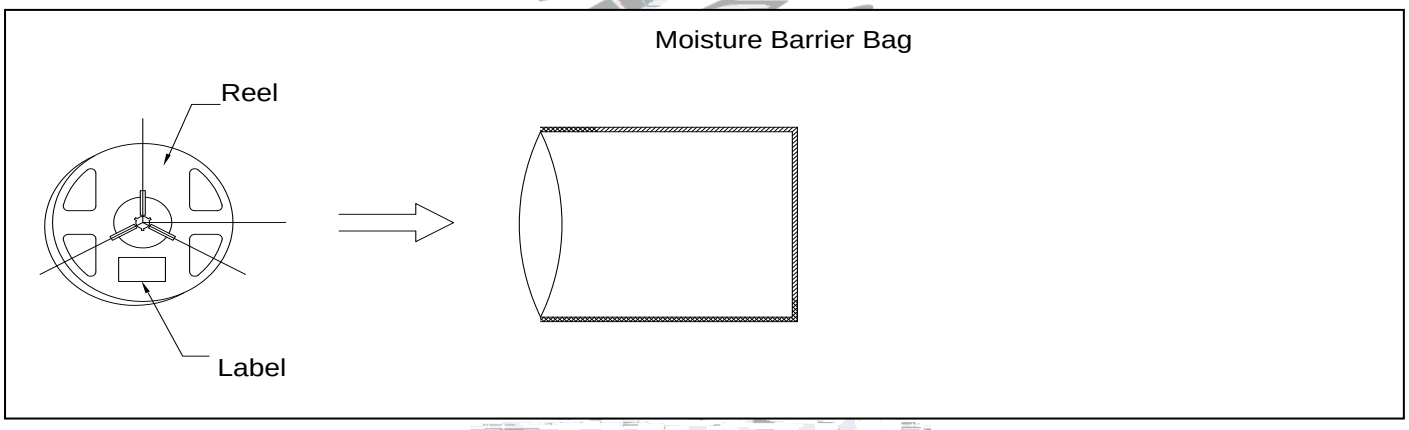


Fig.2-4Title

2.3Cardboard Box 包装纸箱

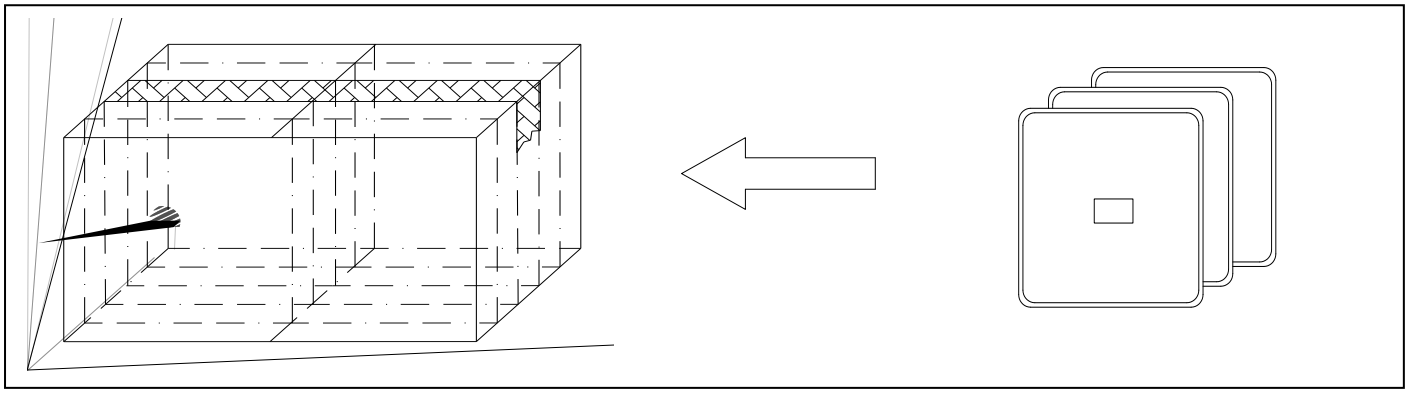


Fig.2-5Title

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

Table 2-3 Title

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	2times.	10Pcs.	0/1
Temperature Cycle 温度循环	JESD22-A104	100 30 min. -40 30 min.	300Cycles	10Pcs.	0/1
Thermal Shock 冷热冲击	JESD22-A106	-40 15min 10sec 100 15min	300Cycles	10Pcs.	0/1
High Temperature Storage 高温保存	JESD22-A103	Temp.:105	1000Hrs.	10Pcs.	0/1
Low Temperature Storage 低温保存	JESD22-A119	Temp.:-40	1000Hrs.	10Pcs.	0/1
Life Test 常温老化	JESD22-A108	Ta=25 I_F =300mA	1000Hrs.	10Pcs.	0/1
High Temperature High Humidity Life Test 高温高湿老化	JESD22-A101	60 / 90%RH I_F=300mA	1000Hrs.	10Pcs.	0/1

2.5 Criteria For Judging Damage 失效判定标准

Table 2-4 Title

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=300mA	-	(U.S.L*)x1.1
Reverse Current 反向电流	I_R	V_R =5V	-	(U.S.L*)x2.0
Luminous Flux 光通量		I_F=300mA	(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 are 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

3.1SMT Reflow Soldering Instructions SMT 回流焊说明

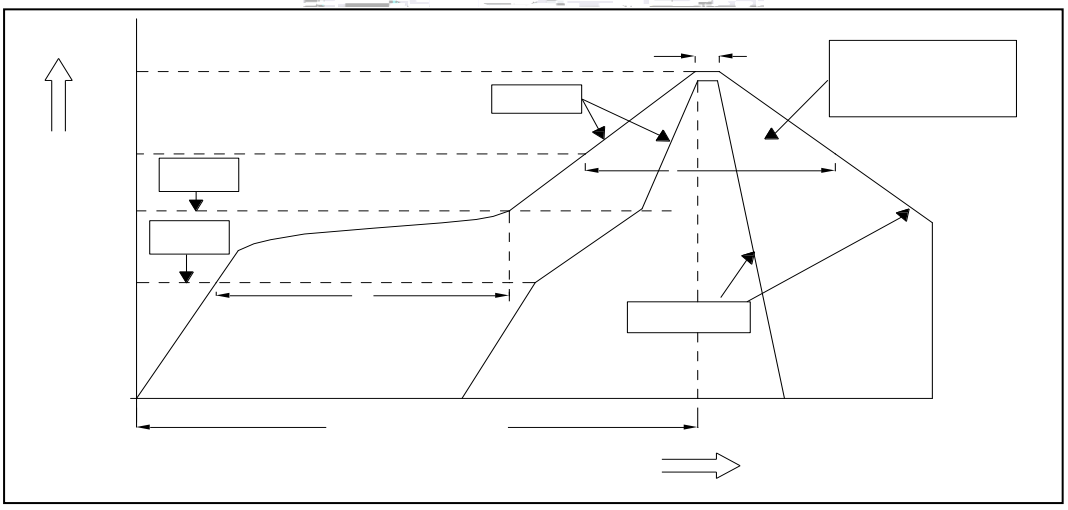


Fig.3-1Title

Table 3-1Title

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)	最多60秒 Max 60s
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：

(1)Reflow soldering should not be done more than two times. In the case of more than 24 hours passed soldering after first, LEDs will be damaged. 回流焊次数不可以超过两次，两次回流焊的时间间隔如果超过24小时，LED可能由于吸湿而损坏。

(2)When soldering , do not put stress on the LEDs during heating.当焊接时，不要在材料受热时用力压胶体表面。

3.1.1 Soldering Iron 烙铁焊接

(1) When hand soldering, keep the temperature of iron below less 300 less than 3 seconds
当手工焊接时，烙铁的温度必须小于300℃，时间不可超过3秒。

(2) The hand solder should be done only one time.手工焊接只可焊接一次。

3.1.2 Repairing 修补

Repair 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 will not be damaged by repairing.

LED回流焊后不应该修复，当必须修复时，必须使用双头烙铁，而且事先应确认此种方式会不会损坏LED本身的特性。

3.1.3 Cautions 注意事项

(1) The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the silicone resin should be proper. LED封装胶为硅胶，表面较软，用力按压胶体表面会影响LED可靠性，因此应有预防措施避免在按压器件，当使用吸嘴时，胶体表面的压力应是恰当的。

(2) Components should not be mounted on warped (non coplanar) portion of PCB. After soldering, do not warp the circuit board.LED 灯珠不要焊接在弯曲的 PCB 板上，焊接之后，也不要弯折线路板。

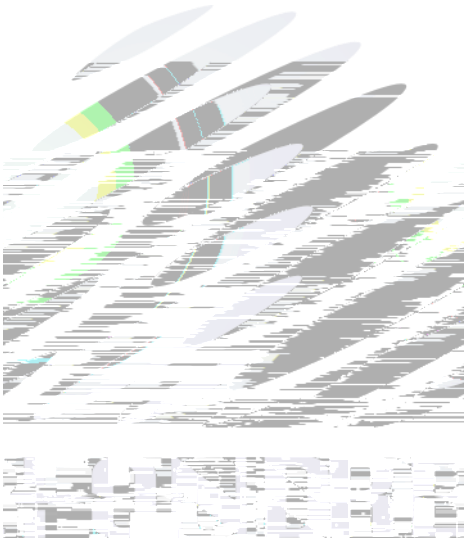
(3) Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering. Do not rapidly cool device after soldering.回流焊之后冷却过程中，不要对材料实加外力，也不要有震动，回流焊后，不要采用激剧冷却的方式。

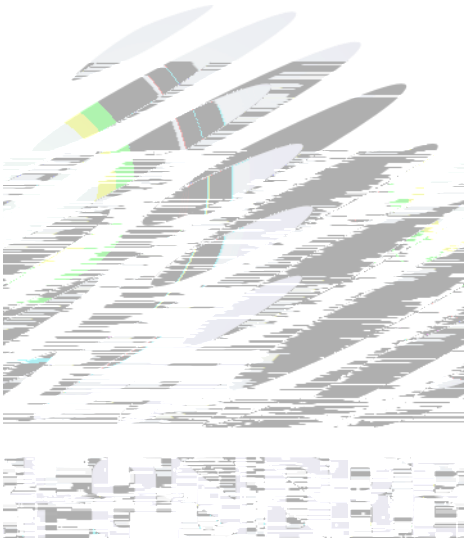
4. Handling Precautions 产品使用注意事项

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 LED mating 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





	After Opening Aluminum Bag 拆包后	30℃	60%	24hours 24小时
Baking 烘烤		60±5℃	-	≥24hours 大于24小时

(8) 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 65 5 for above 24 hours.如果干燥剂或包装失效，或者产品不符合以上有效储存条件，需拆包后进行烘烤。烘烤条件：60±5℃，大于 24 小时。

If the package is flatulence or damaged, please notify the sales staff to assist.如果包装胀气或者

(9)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。

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

Date日期	Revisor修订者	Version版本	Verifier审核	Remarks备注
2021-08-05		E/0		

www.refond.com

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。