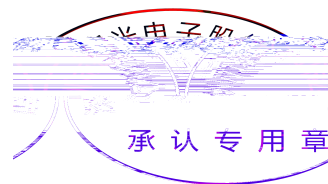
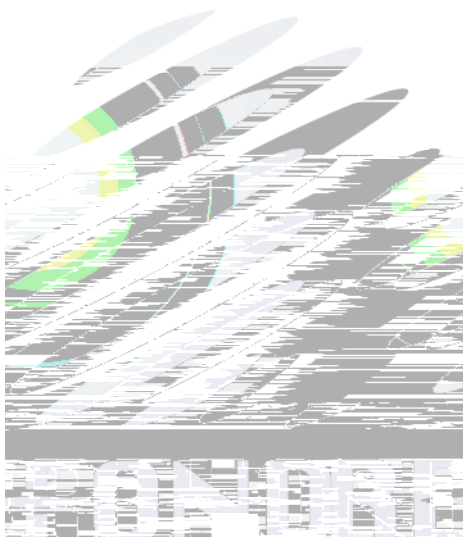


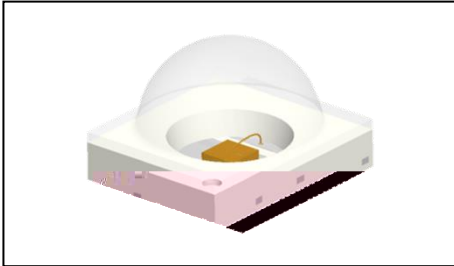
# SPECIFICATION 产品规格书





## 1. Description 产品介绍

### 1.1 General Description 产品描述



This product uses the EMC package, it has a high reliability. it also be widely application for security monitoring and senso.

Size(mm): 3.00mmX3.00mmX2.10mm.

本产品采用EMC封装结构，可靠性高。适用于各种安防监控和传感器的内部产品。

产品尺寸：3.00mmX3.00mmX2.10mm.

### 1.2 Features 产品特征

Low forward voltage.

850nm. 峰值波长 850nm

Pb-free reflow soldering application. 无铅回流焊应用

Moisture sensitive level:Level3. 防潮等级：Level 3

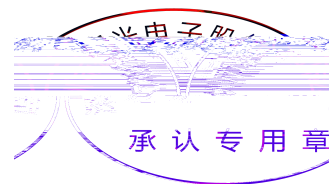
RoHS compliant. 符合RoHS

### 1.3 Application 产品应用

Surveillance systems. 监视系统

Infrared Illumination for cameras. 红外相机

Machine vision systems. 机器视觉系统



## 1.4 Package Dimension 封装尺寸

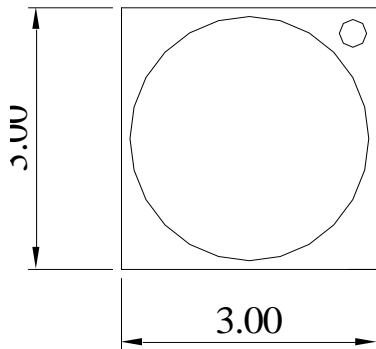


Fig.1-1 Top view 正面视图

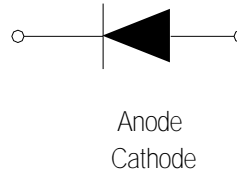


Fig.1-2 Polarity 极性

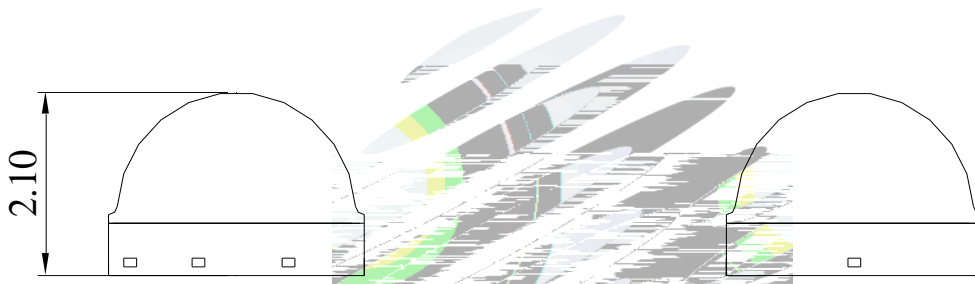


Fig.1-3 Side view 侧面视图

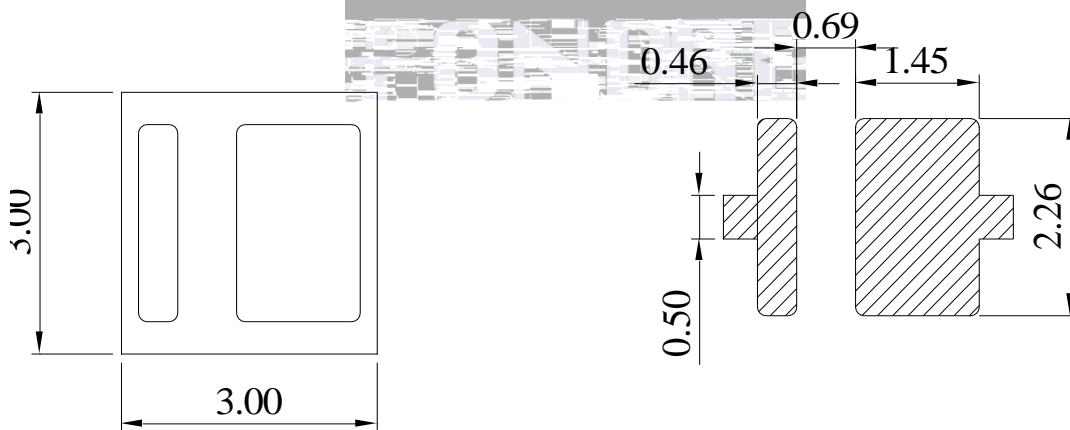
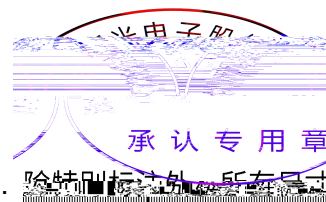


Fig.1-4 Bottom view 背面视图

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
2. All dimensions tolerances are  $\pm 0.2\text{mm}$  unless otherwise noted. 除特别标注外, 所有尺寸公差均为  $\pm 0.2$  毫米



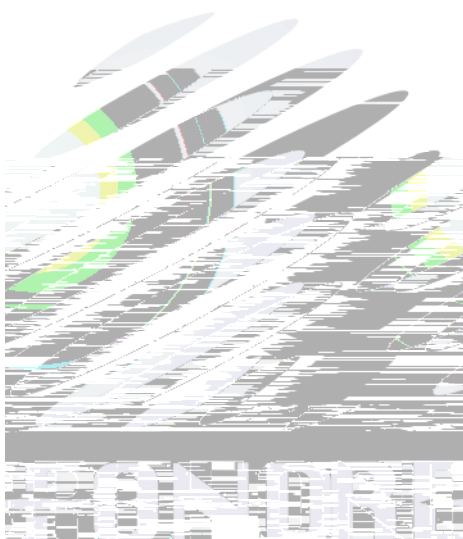


Table 1-2 Absolute Maximum Ratings at Ts=25°C 绝对最大值

Parameter (参数)	Symbol (符号)	Rating (值)	Units (单位)
Power Dissipation (功耗)	$P_D$	0.9	W
Forward Current (正向电流)	$I_F$	500	mA
Reverse Voltage (反向电压)	$V_R$	5	V
Electrostatic Discharge (HBM) (静电)	$E_{SD}$	2000	V
Operating Temperature (操作温度)	$T_{OPR}$	-40 ~ +85	
Storage Temperature (储存温度)	$T_{OPR}$	-40 ~ +100	
Junction Temperature (结温)	$T_J$	105	

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  $\pm 0.1V$ . 以上所示电压测量误差  $\pm 0.1V$ .
3. Tolerance of measurement of Total radiant flux/ Radiant Intensity:  $\pm 10\%$ . /强度测量公差:  $\pm 10\%$ .
4. 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。
5. All measurements were made under the standardized environment of Refond. 所有测试都是在瑞丰光电标准测试平台。
- 6.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。
7. ESD yield is over 90% at 2000V ESD (HBM). ESD protection during products handling 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。



## 1.6 Typical optical characteristics curves 典型光学特性曲线

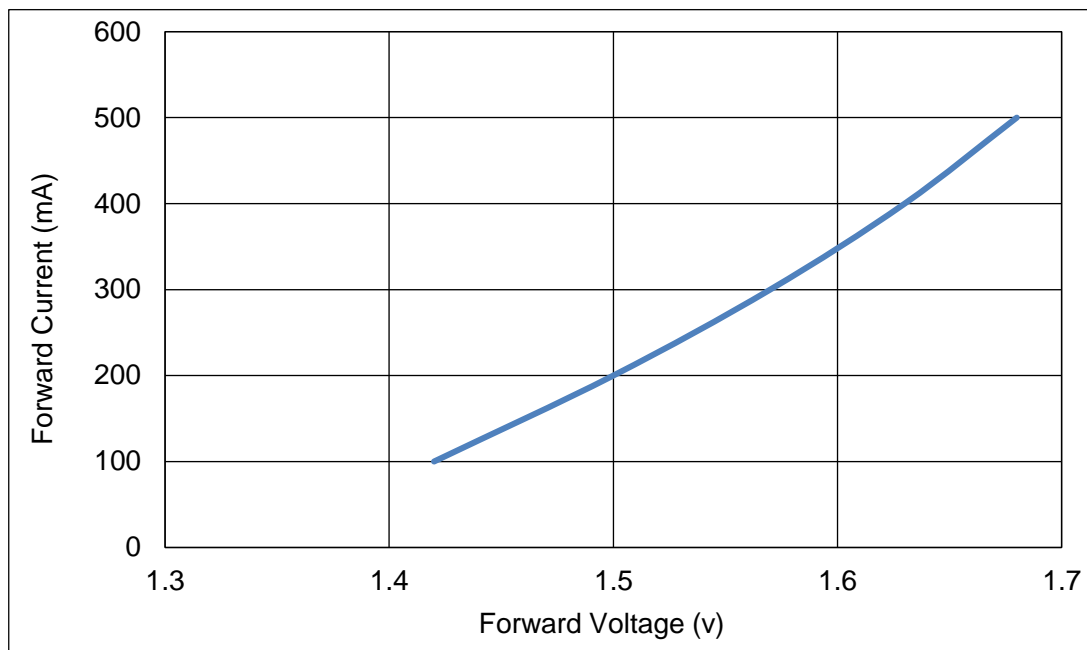


Fig 1-6 Forward Voltage Vs. Forward Current 伏安特性曲线

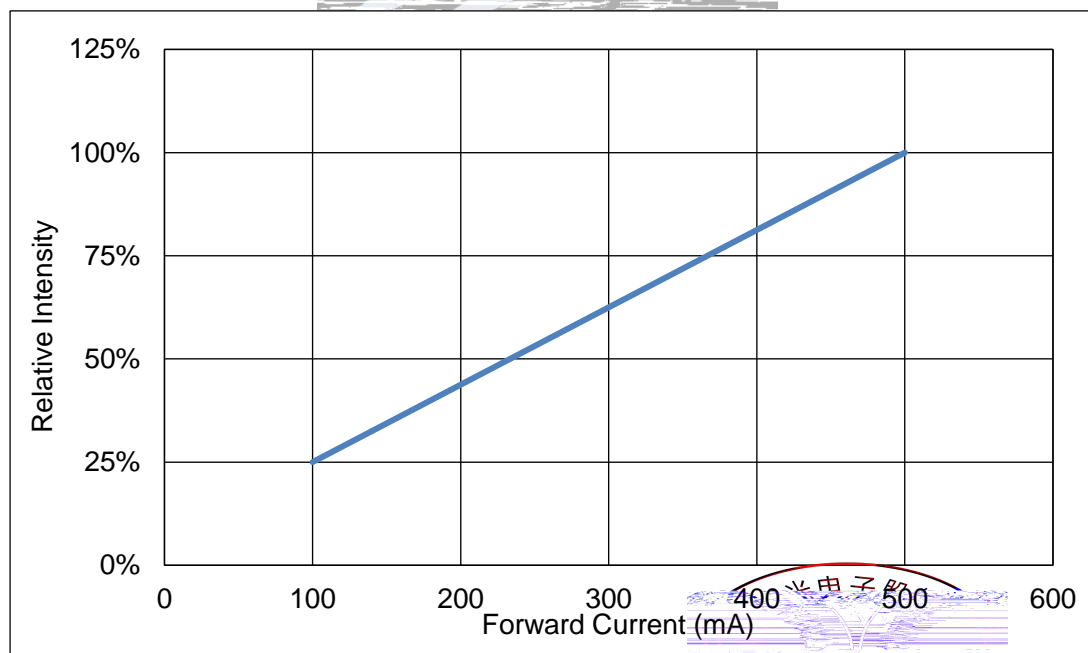
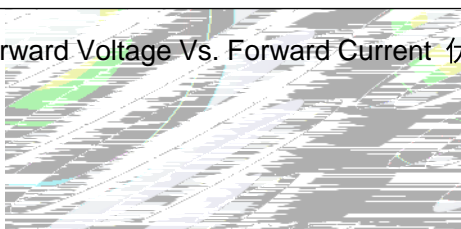
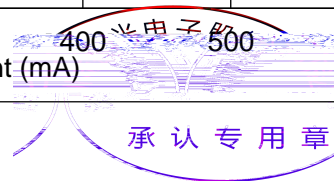


Fig 1-7 Forward Current Vs. Relative Intensity



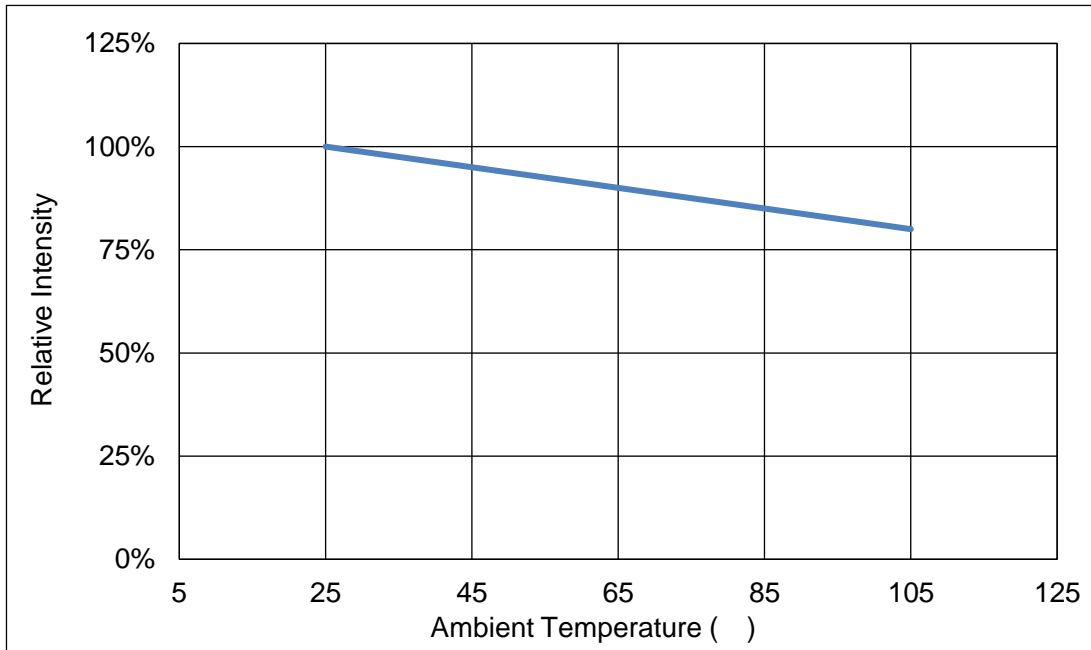


Fig 1-8 Ts Temperature Vs Relative Intensity 管脚温度与相对光强特性曲线

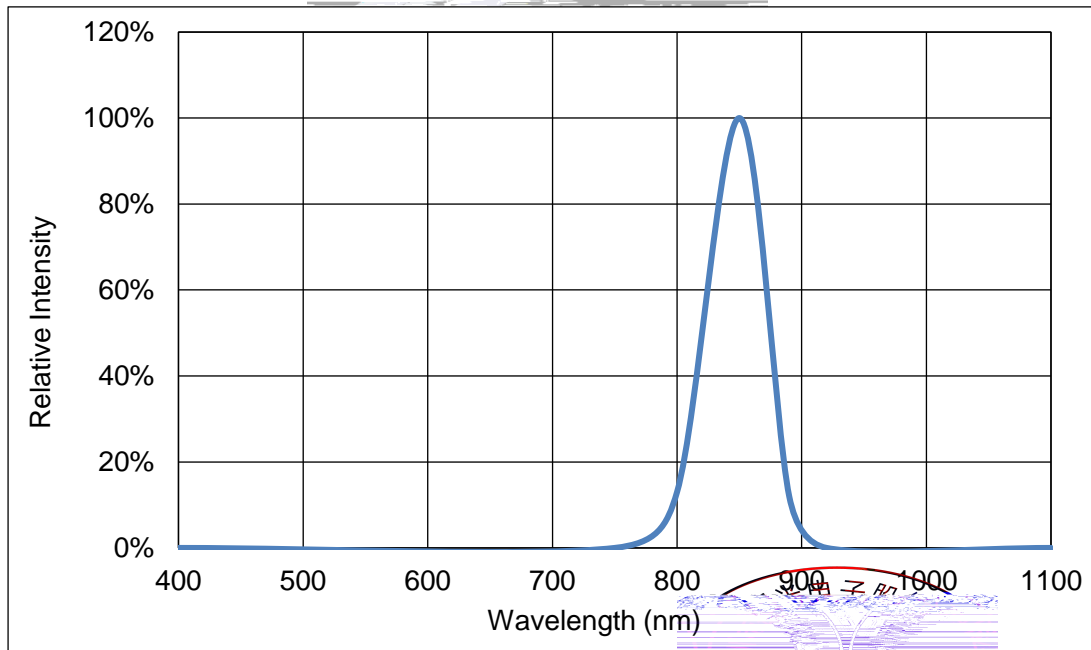
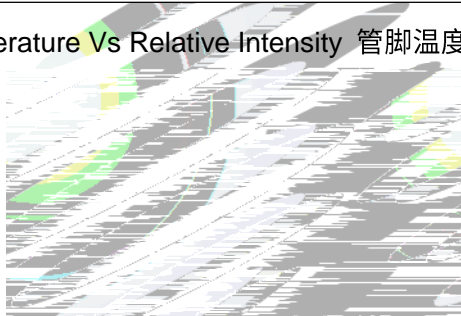


Fig 1-9 Spectrum Distribution 光谱分布特性曲线



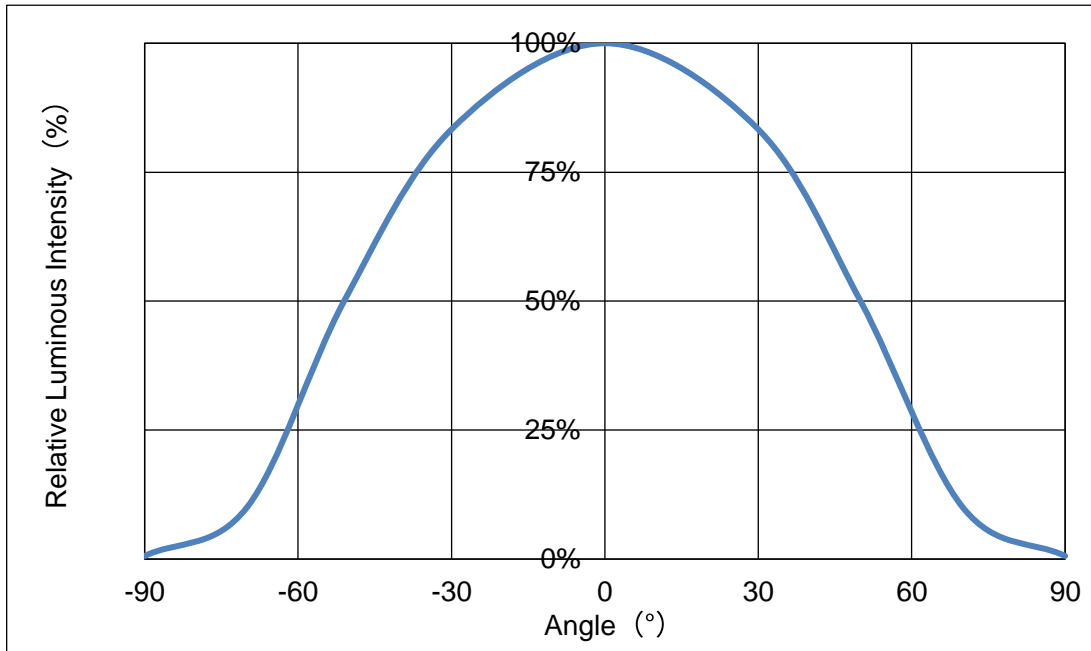


Fig 1-10 Radiation diagram 辐射特性曲线

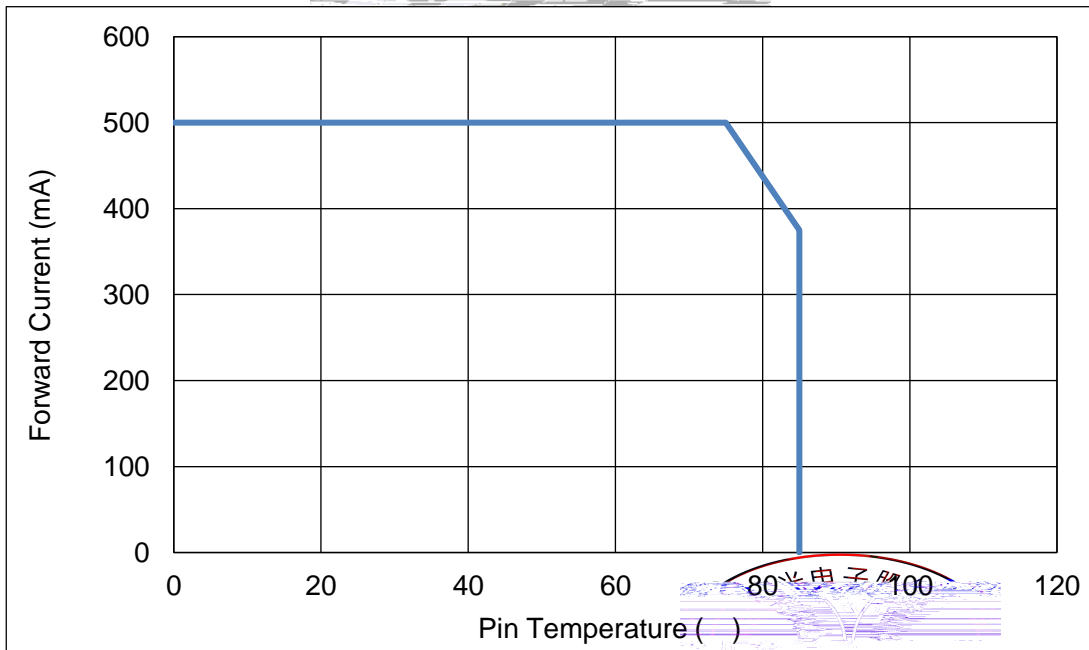
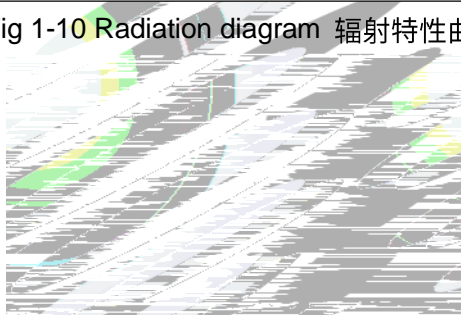


Fig 1-11 Ts Temperature Vs Forward Current 管脚温度与正向电流特性曲线

## 2. Packaging 产品包装

### 2.1 Packaging Specification 包装规格

Package:3000pcs/reel.包装每卷 3000pcs。

#### 2.1.1 Carrier Tape Dimension 载带尺寸

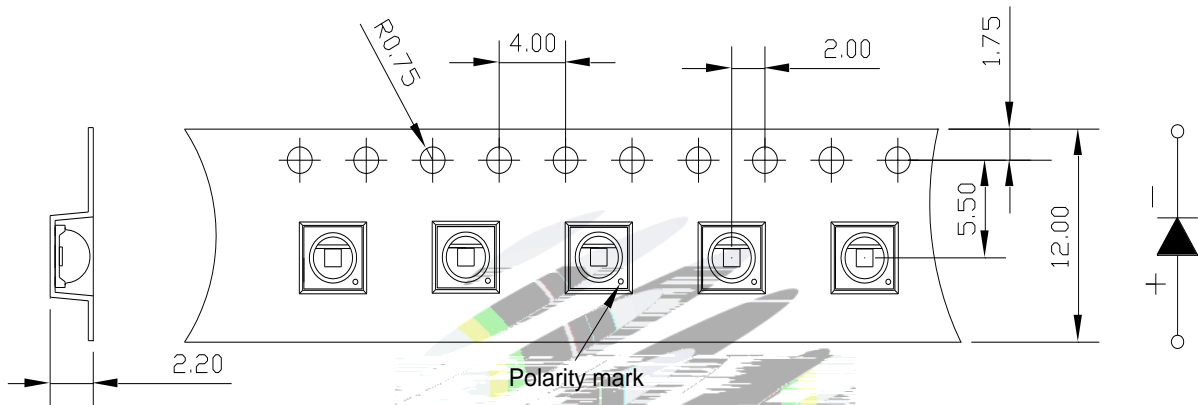


Fig.2-1 Carrier Tape Dimension 载带尺寸

#### 2.1.2 Reel Dimension 卷盘尺寸

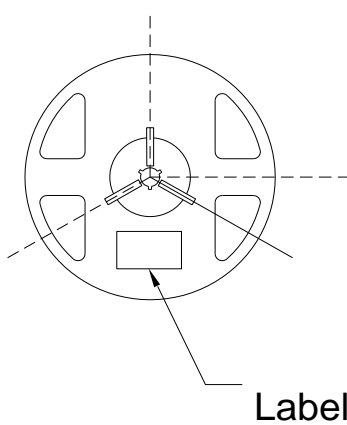


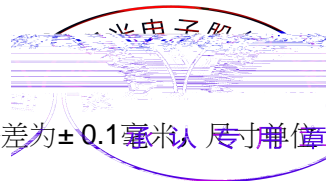
Fig.2-2 Reel Dimension 卷盘

Table 2-1 Dimension 尺寸

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

Notes 备注:

The tolerances unless mentioned  $\pm 0.1$ mm. Unit : mm 注：未注公差为 $\pm 0.1$ 毫米。尺寸单位：毫米。



### 2.1.3 Label Form Specification 标签规格

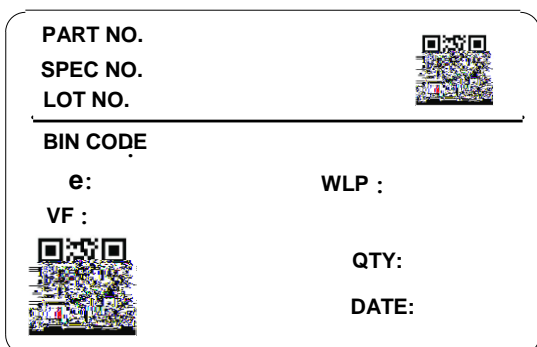


Fig 2-3 Label Form Specification 标签规格

Table 2-2 Label Form Specification 标签规格

PART NO	Part Number 品名
SPEC NO	Spec Number 规格
LOT NO	Lot Number 批次号
BIN CODE	Bin Code 色区
	Total radiant flu 辐射功率
WLP	Peak Wavelength 峰值波长
VF	Forward Voltage 正向电压
QTY	Packing Quantity 数量
DATE	Made Date 生产日期

### 2.2 Moisture Resistant Packing 防潮包装

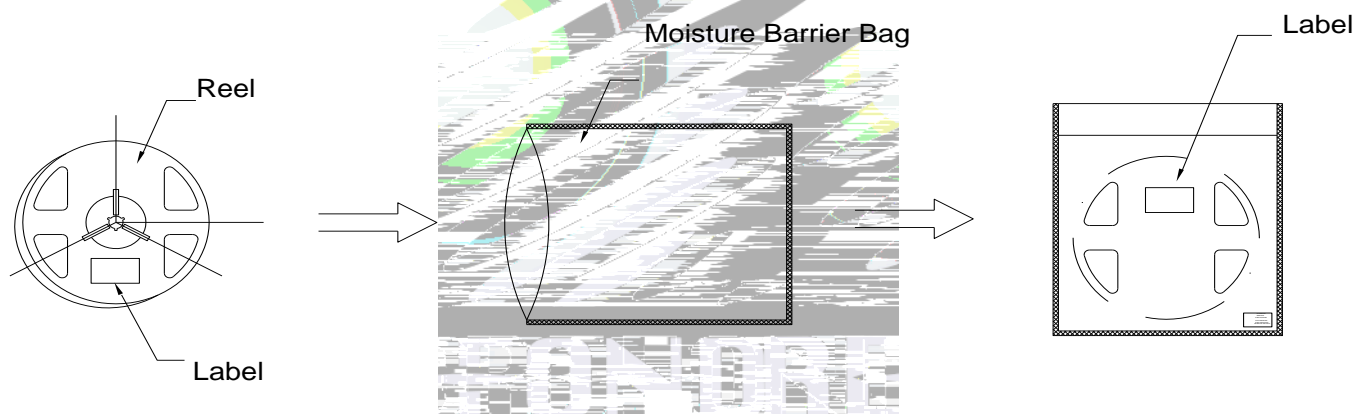


Fig.2- Moisture Resistant Packing 防潮包装

### 2.3 Cardboard Box 包装纸箱

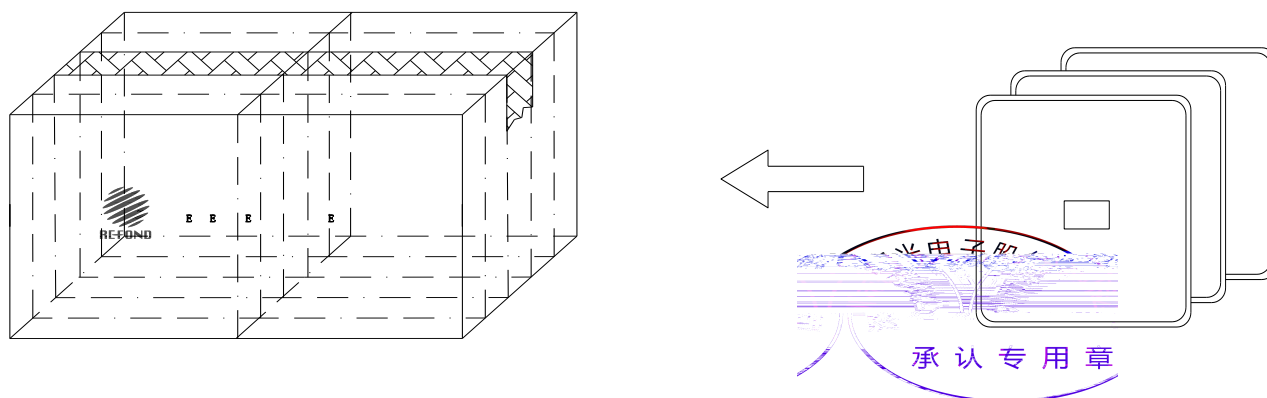
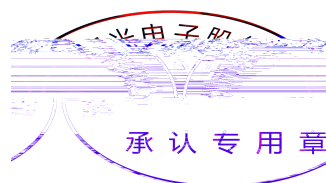


Fig.2-5 Cardboard Box 包装纸箱

## 2.4 Reliability Test Items And Conditions 信賴性測試項目及條件

Table 2-3 Reliability Test Items And Conditions 信賴性測試項目及條件

Test Items 項目	Ref.Standard 參考標準	Test Condition 測試條件	Time 時間	Quantity 數量	Ac/Re 接收/拒收
Reflow 回流焊	JESD22-B106	Temp:260°Cmax T=10 sec	3times.	10Pcs.	0/1
Temperature Cycle 溫度循環	JESD22-A106	100°C 30 min. -40°C 30 min.	100 cycles	10Pcs.	0/1
Thermal Shock 冷熱沖擊	JESD22-A104	-40°C 15min 10s 100°C 15min	300 cycles	10Pcs.	0/1
High Temperature Storage 高溫保存	JESD22-A103	Temp:100°C	1000 hrs.	10Pcs.	0/1
Low Temperature Storage 低溫保存	JESD22-A119	Temp:-40°C	1000 hrs.	10Pcs.	0/1
Life Test 常溫通電	JESD22-A108	Ta=25°C If=500mA	1000 hrs.	10Pcs.	0/1



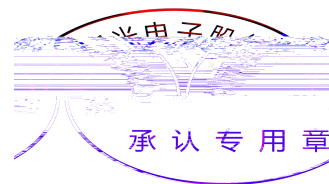
## 2.5 Criteria For Judging Damage 失效判定标准

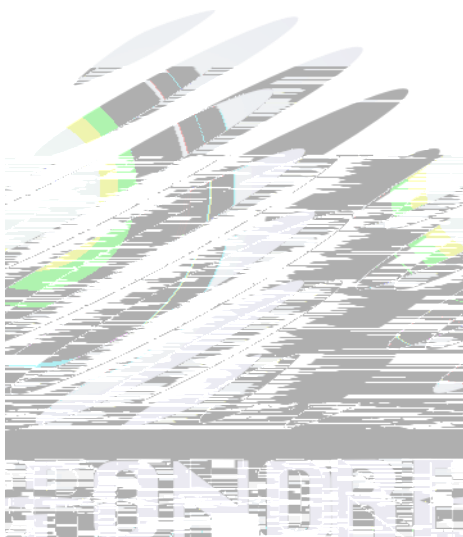
Table Criteria For Judging Damage 失效判定标准

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	$V_F$	$I_F=500mA$	-	$U.S.L^*) \times 1.1$
Reverse Current 反向电流	$I_R$	$V_R = 5V$	-	$U.S.L^*) \times 2.0$
Total radiant flux 辐射功率	e	$I_F=500mA$	$L.S.L^*) \times 0.7$	-

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. 本数据表所示之产品的典型值、电路示例等, 并不构成任何工业产权或知识产权方式的保证。





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°C less than 3 seconds 当手工焊接时，烙铁的温度必须小于300°C，时间不可超过3秒。

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

3.1.2 Repairing 维修

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.

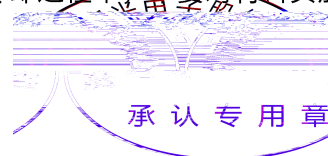
LED流焊后不应该维修，如果必须维修，请使用双头烙铁，而且事先应确认此种封装是否会损坏LED本身的特性。

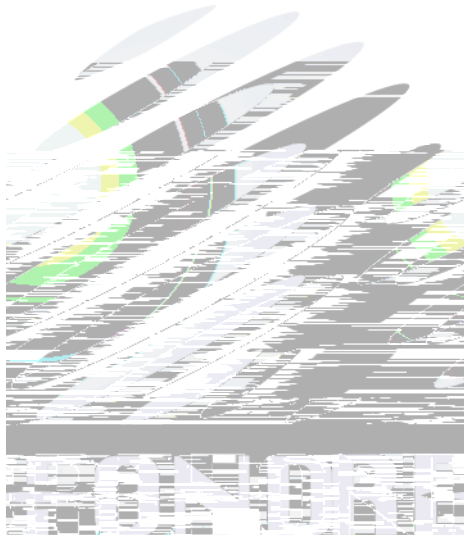
3.1.3 Cautions 注意事项

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，不要对材料施加外力，也不要震动，回流焊后，不要采用激剧冷却的方式。







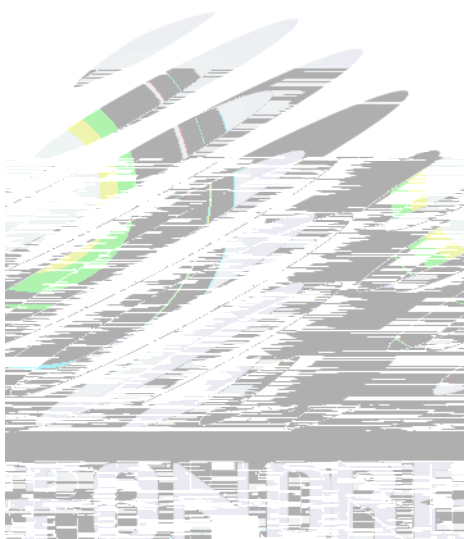


Table 4-1 Storage 儲存

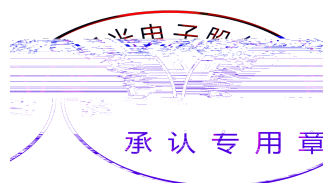
Conditions 种类		Temperature	Humidity 湿度	Time 时间
Storage	Before Opening Aluminum Bag 拆包前	30°C	75%	Within 1 Year From Date
	After Opening Aluminum Bag 拆包后	30°C	60%	168hours 168小时
Baking 烘烤		60±5°C	-	≥24hours 大于24小时

(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 (60±5) °C 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°C，大于24小时。

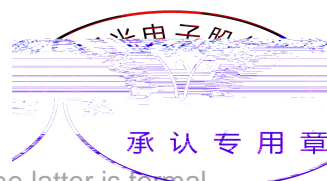
If the package is flatulence or damaged, please notify the sales staff to assist. 如果包装胀气或者破损，请通知销售人员协助处理。

(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.



Version版本	Verifier审核	Remarks备注
E/0	宋明	
E/1	王华建	新模板更新



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，如有冲突以中文版为准