

SPECIFICATION

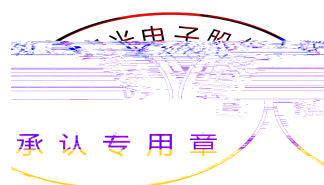
产品规格书

REFOND P/N 产品型号

RF-GNB191TS-CF

R&D 研发

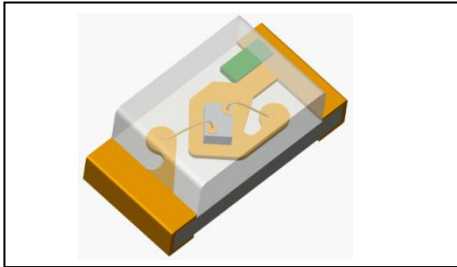
Mass Product 量产供货





1. Description 产品介绍

1.1 General Description 产品描述



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

该产品为色光 LED，是由绿光芯片封装形成，产品尺寸：1.6mmX0.8mmX0.7mm。

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

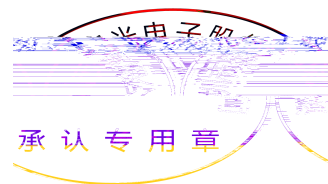
RoHS compliant. 满足RoHS要求

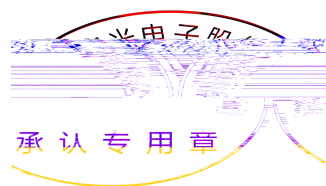
1.3 Application 产品应用

Optical indicator. 光电指示

Switch and symbol, display. 开关和标志，显示器等

General use. 其他应用



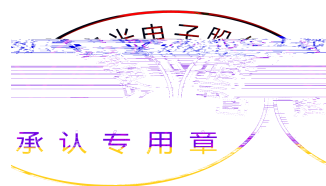


1.5 Product Parameters 产品参数

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

Item 项目	Test Condition 测试条件	Symbol 符号	Value			Unit 单位	
			Min. (最小值)	Typ. (典型值)	Max. (最大值)		
Spectral Half Bandwidth 半波宽	I _F =20mA	Δ	--	15	--	nm	
Forward Voltage 正向电压	I _F =20mA	V _F	F1	2.6	--	2.7	V
			F2	2.7		2.8	V
			G1	2.8		2.9	V
			G2	2.9		3.0	V
			H1	3.0		3.1	V
			H2	3.1		3.2	V
			I1	3.2		3.3	V
			I2	3.3		3.4	V
Dominant Wavelength 主波长	I _F =20mA	D	4Q	520	--	521	nm
			4R	521	--	522	nm
			4S	522	--	523	nm
			4T	523	--	524	nm
			4U	524	--	525	nm
			4V	525	--	526	nm
			4W	526	--	527	nm
			4X	527	--	528	nm
Luminous Intensity 发光强度	I _F =20mA	I _v	1AU	260	--	330	mcd
			1AV	330		430	mcd
			1CG	430		560	mcd
			1IL	560		650	mcd
			K20	650		800	mcd
			L10	800		1000	mcd
			L20	1000	--	1200	mcd
			M10	1200	--	1500	mcd
Viewing Angle 发光角度	I _F =20mA		--	140	--	deg	
Reverse Current 漏电流	V _R =5V	I _R	--		10	μA	
Thermal Resistance. 热阻	I _F =20mA	R _{THJ-S}	--	--	450	°C/W	

 Notes 备注: V_R=5V For test conditions. V_R=5V 为测试允许条件



1.6 Typical Optical Characteristics Curves

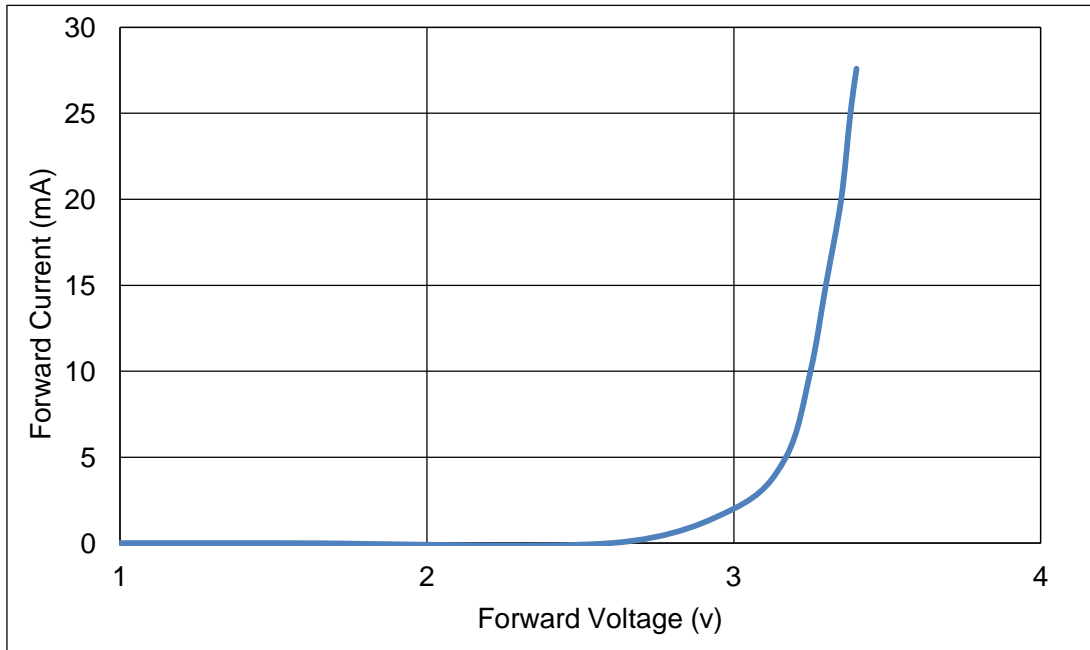


Fig 1-6 Forward Voltage Vs Forward Current 伏安特性曲线

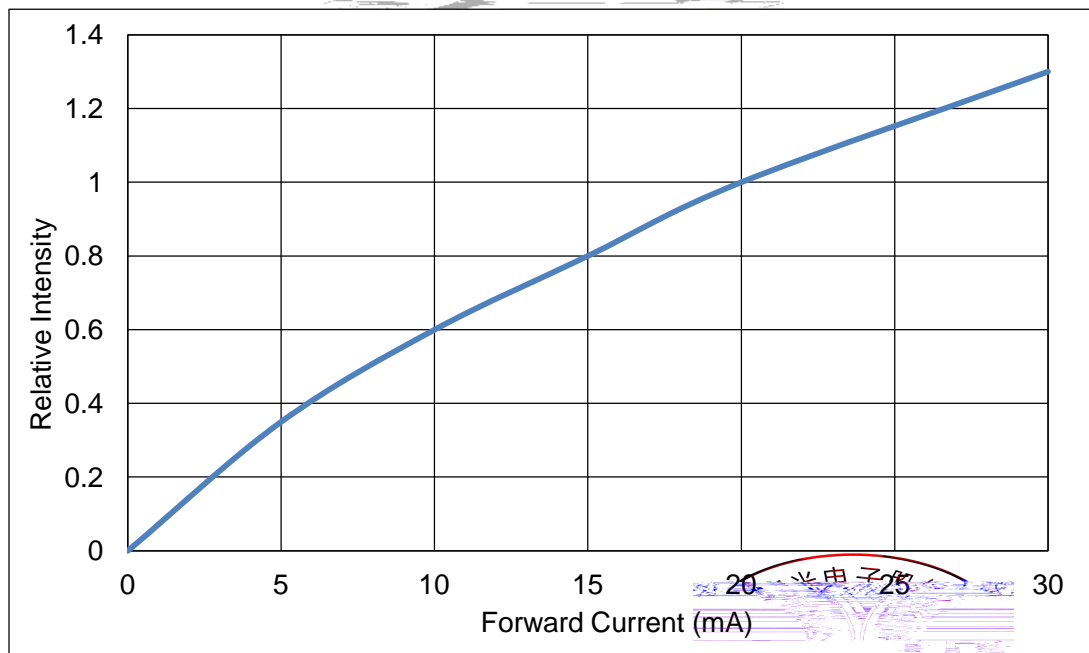


Fig 1-7 Forward Current Vs Relative Intensity 正向电流与相对光强特性曲线

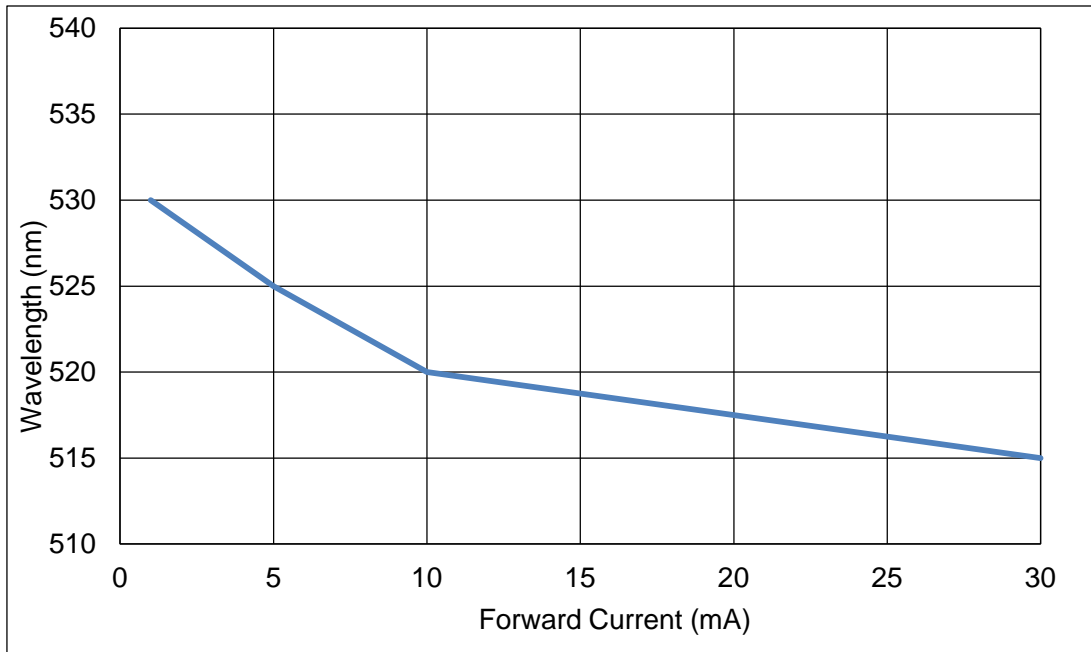


Fig 1-10 Forward Current Vs Dominate Wavelength (Ta=25°C) 正向电流与主波长关系曲线

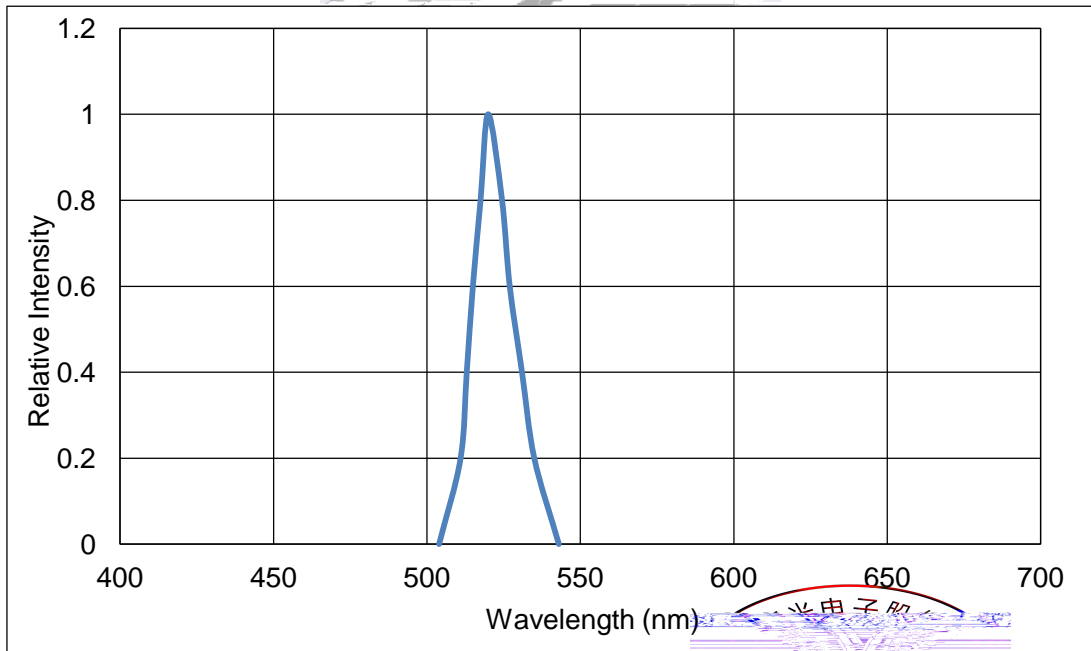
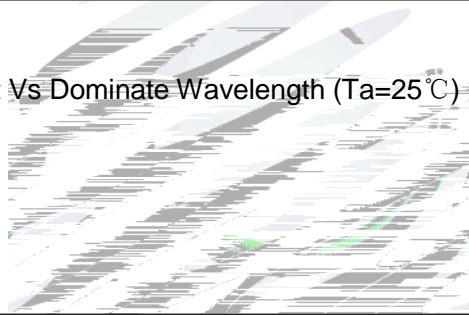
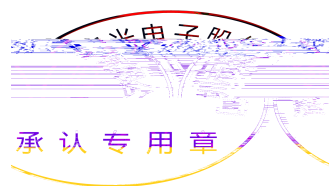


Fig 1-11 Relative Intensity Vs Wavelength (Ta=25°C) 相对强度与波长关系曲线



2. Packaging 产品包装

2.1 Packaging Specification 包装规格

Package:4000pcs/reel.包装每卷 4000pcs。

2.1.1 Carrier Tape Dimension 载带尺寸

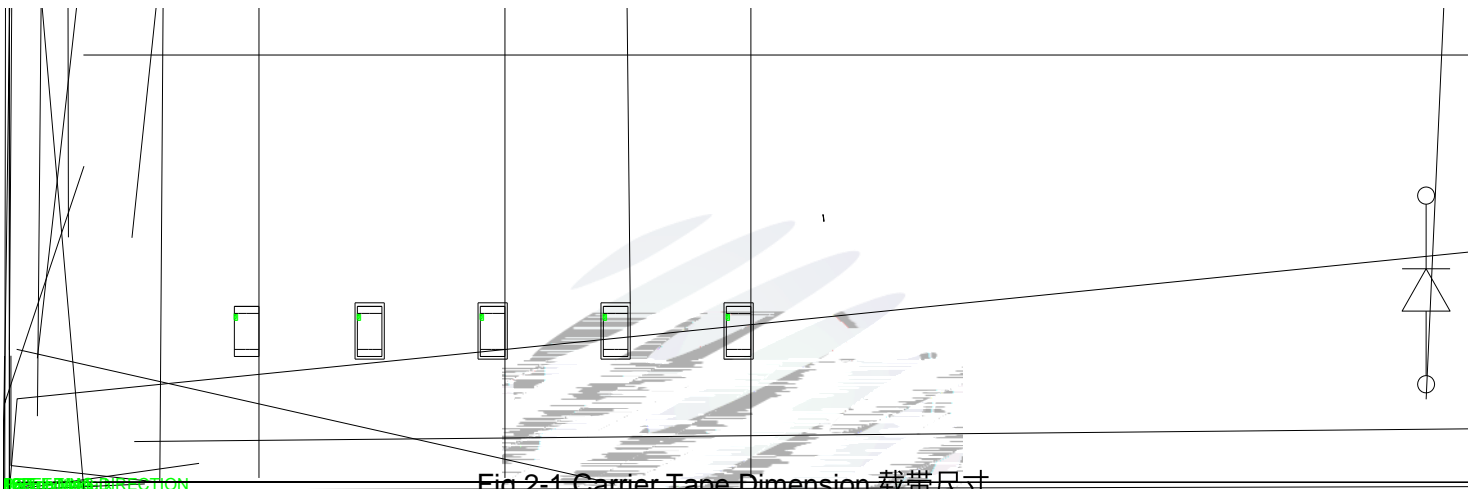


Fig.2-1 Carrier Tape Dimension 载带尺寸

2.1.2 Reel Dimension 卷盘尺寸

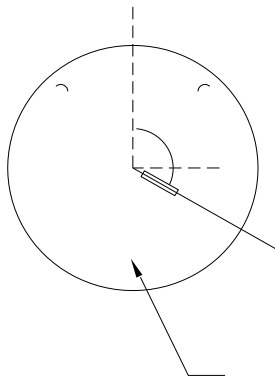


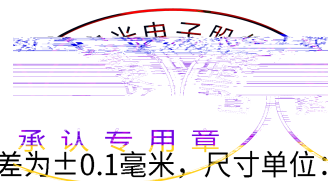
Fig.2-2 Reel Dimension 卷盘尺寸

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。



2.1.3 Label Form Specification 标签规格

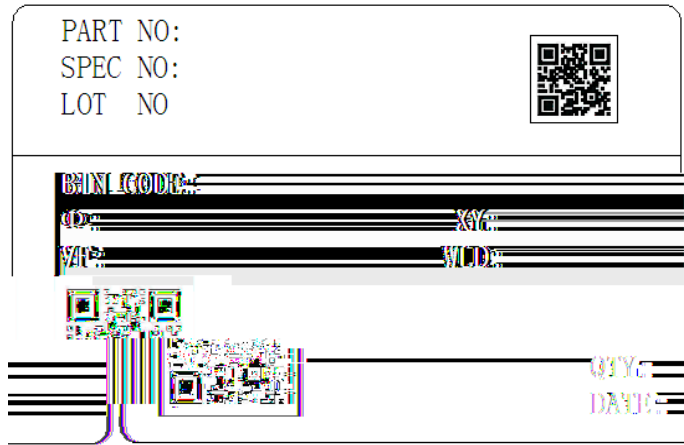


Fig. 2-3 Label Form Specification 标签规格

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

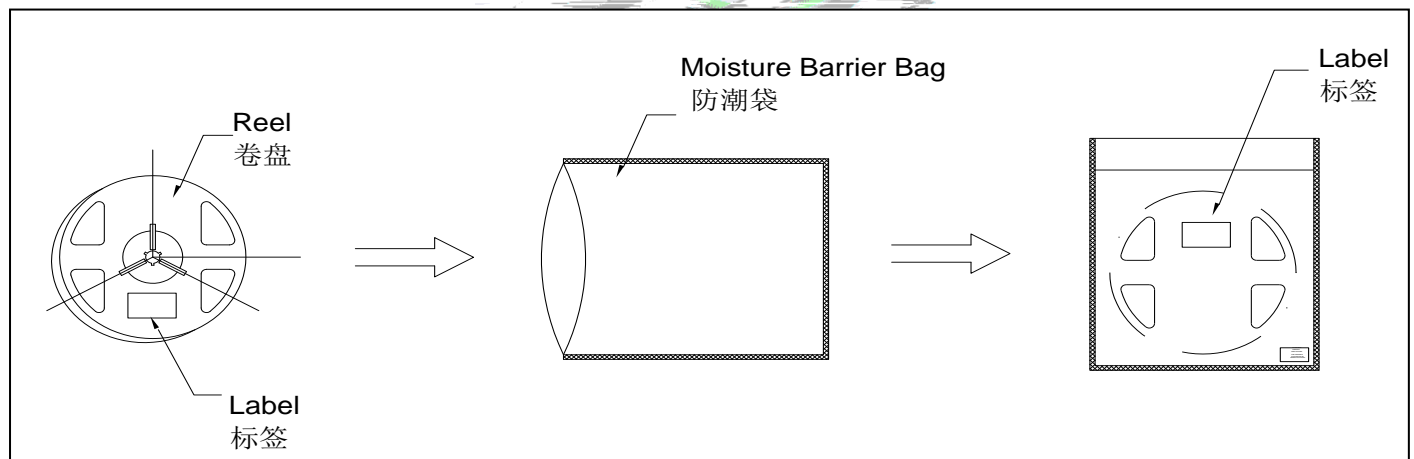
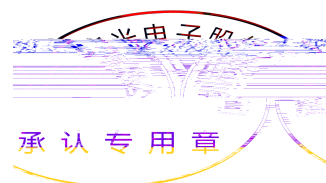


Fig.2-4 Moisture Resistant Packing 防潮包装



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	T _{temp} :260°Cmax T=10 sec	2 times	22Pcs.	0/1
Temperature Cycle 温度循环	JESD22-A104	100°C 30 min 5 min -40°C 30 min	100 cycles	22Pcs.	0/1
Thermal Shock 冷热冲击	JESD22-A106	-40°C 15min 100°C 15min	300 cycles	22Pcs.	0/1
High Temperature Storage 高温保存	JESD22-A103	T _{temp} :100°C	1000 hrs.	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	$I_F=20mA$	-	U.S.L*)x1.1



3. SMT Reflow Soldering Instructions SMT

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 0.6 /P utes

Average temperature rise speed平均升温速度 (T _{max} 至 T _P)	最高3 °C/秒 Max 3 °C/ s
Preheating: minimum temperature预热: 最低温度 (T _{min})	150 °C
Preheating: Max temperature预热: 最高温度 (T _{max})	200 °C
Preheating: Time预热: 时间 (T _{min} 至 T _{max})	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 (T _P) 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 T_p 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 twice. If more than 24 hours between the two solderings, LED 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挤压表面。

3.1.1 Soldering Iron 烙铁焊接

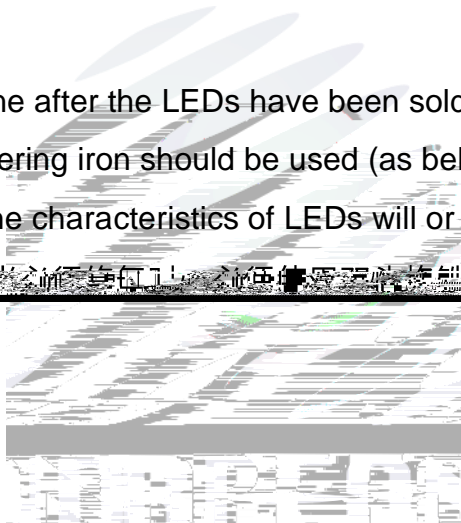
(1) When do soldering by hand, keep the temperature of iron below less 300°C less than 3 seconds 当手工焊接时，烙铁的温度必须小于300°C，时间不可超过3秒。

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

3.1.2 Repairing 维修

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.

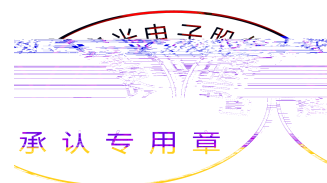
LED 焊接后不可再进行维修，当必须维修时，应使用双头烙铁，而且事先应确认此种维修是否会损坏LED本身的特性。



3.1.3 Cautions 注意事项

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

(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. 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。



(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. 设计电路时，通过 LED 的电流不能超过规定的最大值，同时，需要添加保护电阻，否则，微小的电压变化将会引起极大的电流变化，可能导致产品损毁。电路设计必须保证只有在开启或者关闭的时候出现正向电压的变化，不要施加反压，否则会损坏 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 容易因为自身的发热和环境温度的改变而改变，温度升高会降低 LED 发光效率，影响发光颜色，所以在设计时应充分考虑散热问题。

(6) Storage

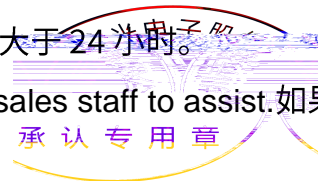
Table 4-1 Storage 储存

Conditions 种类		Temperature 温度	Humidity 湿度	Time 时间
Storage 储存	Before Opening Aluminum Bag 拆包前	≤30°C	≤75%	Within 1 Year From Date 一年内
	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

(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) °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。

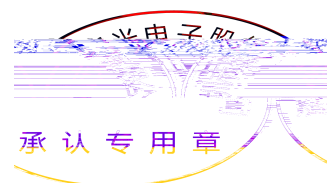
If the package is flatulence or damaged, please notify the sales staff to assist. 如果包装胀气或者破

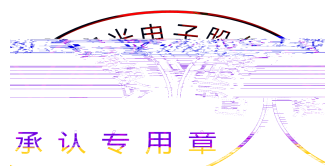
损，请及时通知销售人员。



(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





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。