1. Description 产品介绍

1.1 产品描述

The Green source color devices are made with InGaN on Substrate Light Emitting Diode

绿光 LED 由 InGaN 三种元素芯片激发而成

The LED package dimension: 3.45mmX3.45mmX2.20mm.

产品尺寸：3.45mmX3.45mmX2.20mm。

1.2Features 产品特征

Ceramics Package.陶瓷封装

Extremely wide viewing angle.发光角度大

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1.4Package Dimension 封装尺寸

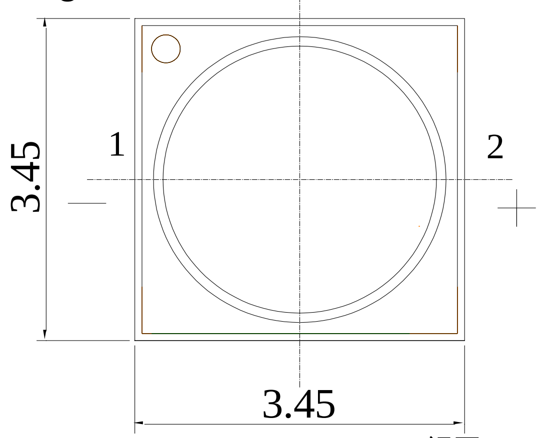

Fig.1-1 Top view 正面视图

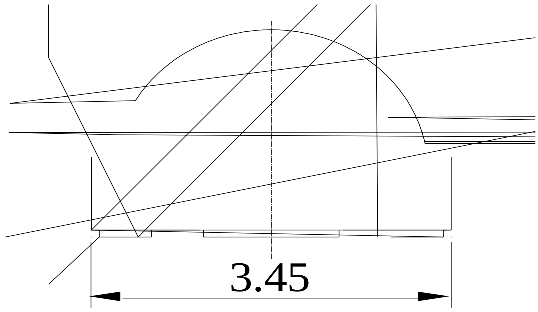

Fig.1-2 Side view 侧面视图

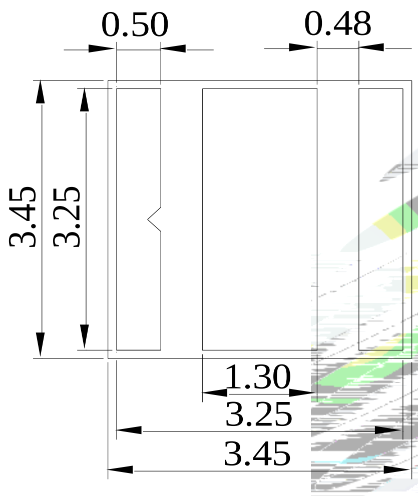

Fig.1-3 Bottom view 背面视图

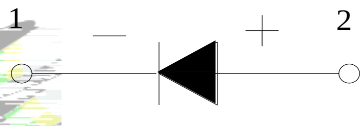

Fig.1-4 Polarity 极性

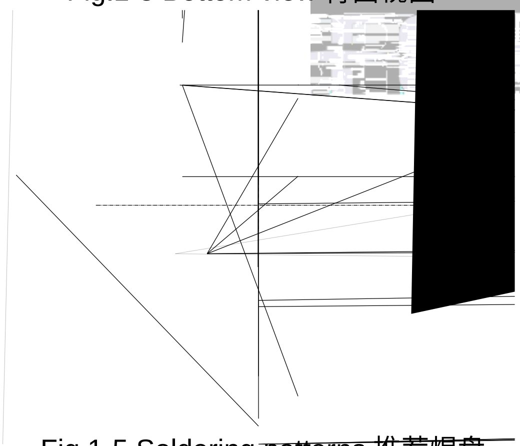

Fig.1-5 Soldering patterns 推荐焊盘

Notes 备注:

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

2. 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

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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 ±0.1V. 以上所示电压测量误差 ±0.1V.

3. The above Dominant Wavelength measurement allowance tolerance is±1nm.以上所示波长测量误差±1nm.

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. 所有测试都是基于瑞丰现有的标准测试平台。

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 80% at 2000V ESD (HBM). ESD protection during products handing is needed. 80%的LED通过人体模式ESD2000V 测试，在操作时请注意静电防护。

1.5.1 Bin Range Of Forward Voltage and Luminous Intensity (IF=350mA)电压与光强分 BIN 范围(IF=350mA)

Table 1-3

V_F V	F0	G0	H0	I0
	2.6-2.8	2.8-3.0	3.0-3.2	3.2-3.4
	FC4	FC5	FC6	FC7
	120-130	130-140	140-150	150-160
WLD(nm)	E00	F00		
	520-525	525-530		

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

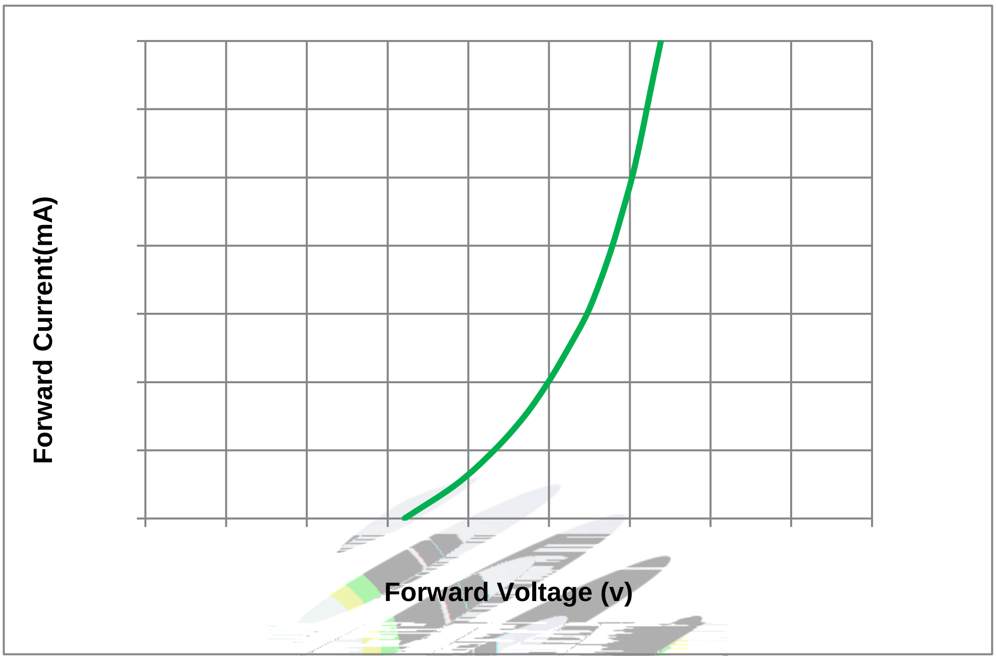

Fig 1-6 Forward Voltage Vs Forward Current伏安特性曲线

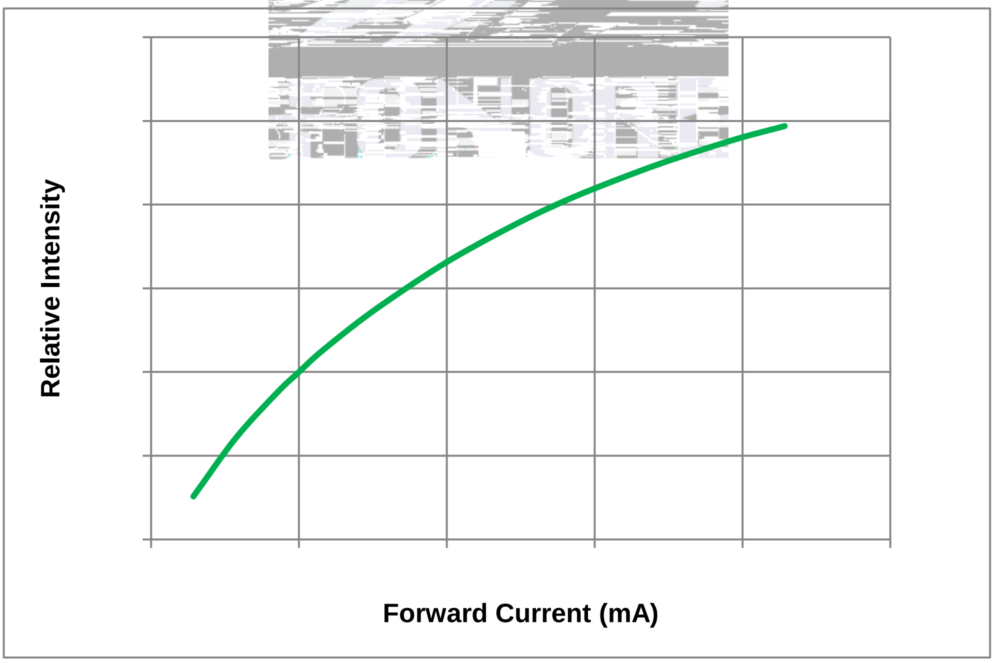

Fig 1-7 Forward Current Vs Relative Intensity正向电流与相对光强特性曲线

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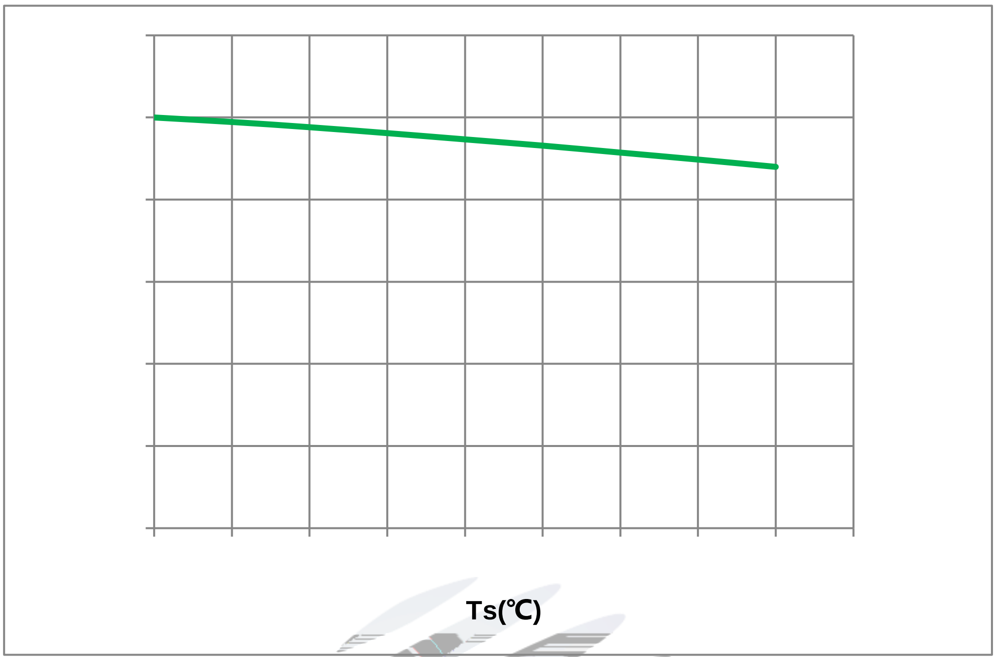

Fig.1-8 Temperature Vs Relative Intensity 引脚温度与相对光强特性曲线

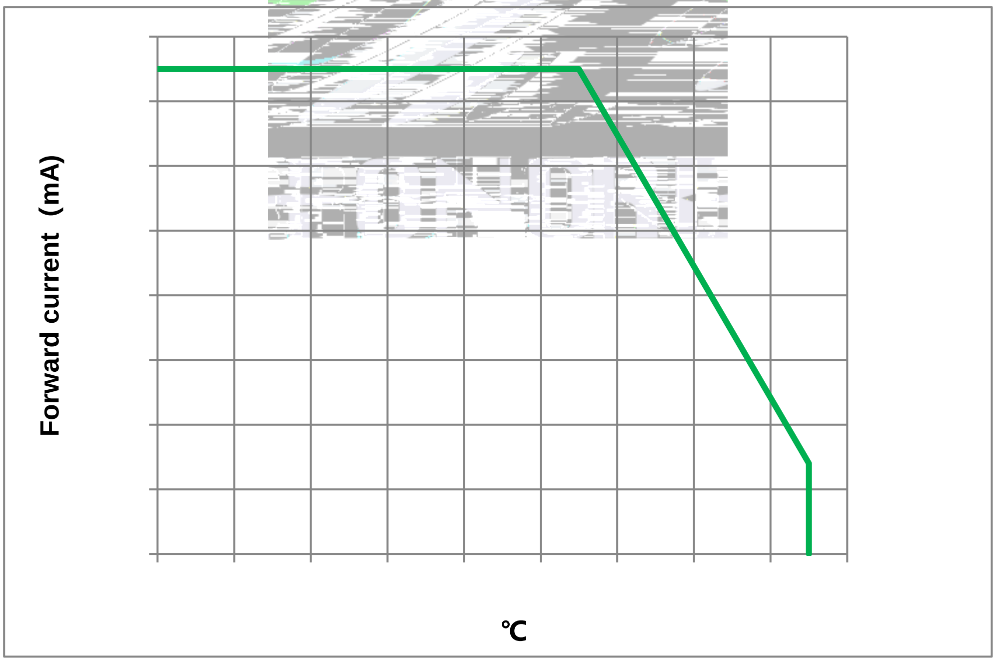

Fig 1-9 Ts Temperature Vs Forward Current 管脚温度与正向电流特性曲线

Tj 150℃

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2. Packaging 产品包装

2.1 Packaging Specification 包装规格

Package:1000pcs/reel.包装每卷

2.1.1Carrier Tape Dimension 载带尺寸

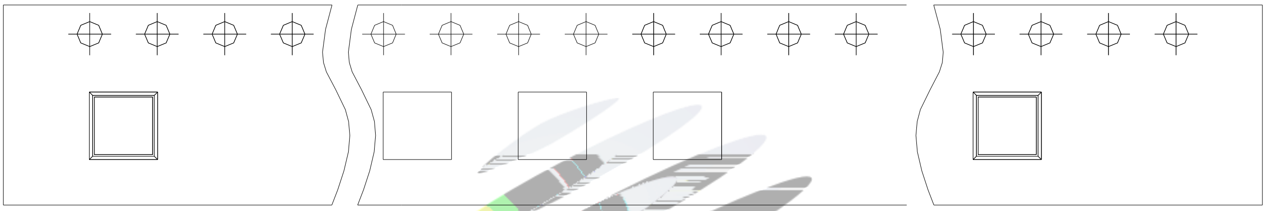

Fig.2-1 Carrier Tape Dimension 载带尺寸

2.1.2Reel Dimension 卷盘尺寸

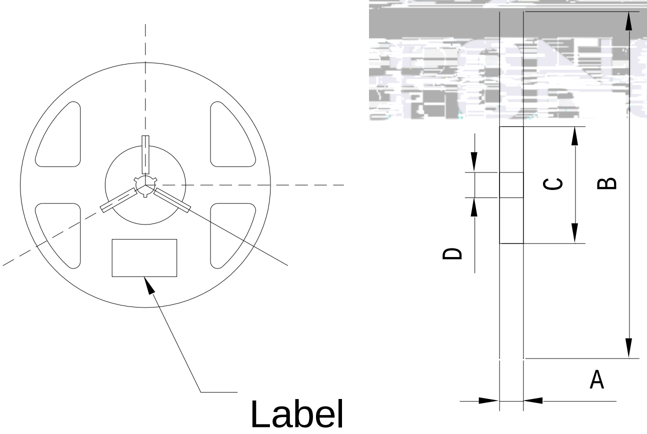

Fig.2-2Reel 卷盘

Table 2-1Reel Dimension 卷盘尺寸

A	14.0±0.5mm
B	178±1mm
C	59±1mm
D	13.9±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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2.1.3Label Form Specification 标签规格

Table 2-2 Label Parameter 标签参数

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

Fig 2-3 Label Form 标签模板

2.2Moisture Resistant Packing 防潮包装

Fig.2-4Packing specification 包装说明

2.3Cardboard Box 包装纸箱

包装纸箱

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

Table 2-3 Test items and conditions 测试项目及条件

Test Items	Ref. Standard	Test Condition	Time	Quantity	Ac/Re /
Reflow 回流焊	JESD22-B106	T_{emp}:260℃max T=10 sec	2times.	10pcs.	0/1
Thermal Shock 冷热冲击	JEITAED-4701300307	-40℃ 15min 10s 100℃ 15min	500 cycles.	10pcs.	0/1
High Temperature Storage 高温保存	JEITAED-4701200201	T_{emp}:100℃	1000hrs.	10pcs.	0/1
Low Temperature Storage 低温保存	JEITA ED-4701200202	T_{emp}:-40℃	1000hrs.	10pcs.	0/1
Life Test 常温通电	JESD22-A108	T_A=25℃ I_F=350mA	1000hrs.	10pcs.	0/1
High Temperature High Humidity Life Test 高温高湿通电	JESD22-A101	60℃/ 90%R_H I_F=350mA	1000hrs.	10pcs.	0/1

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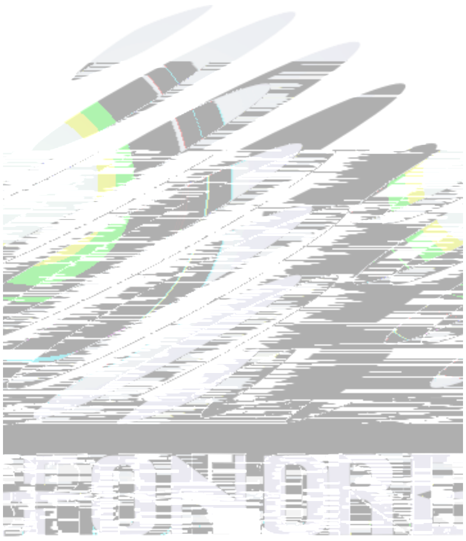

3. SMT Reflow Soldering Instructions SMT 回流焊说明

3.1SMT Reflow Soldering Instructions SMT 回流焊说明

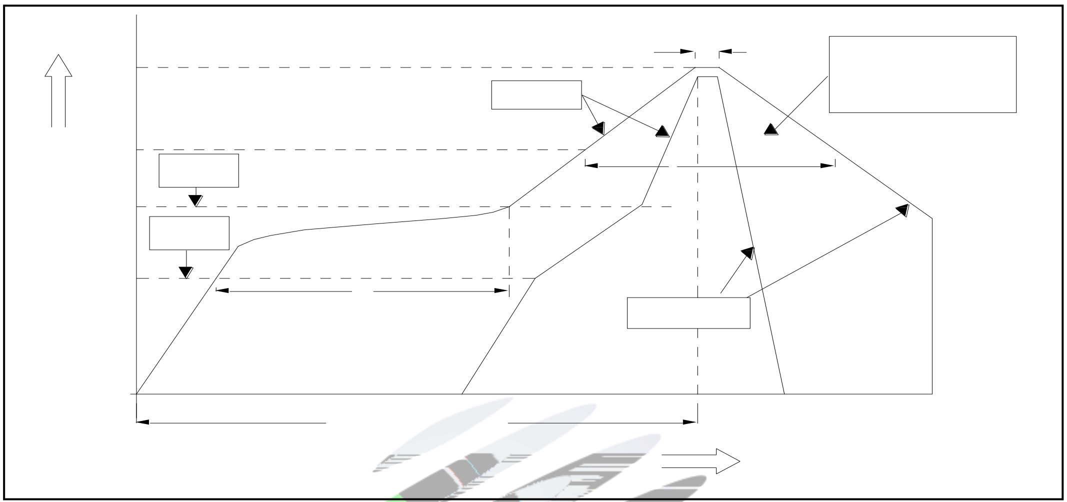

Fig.3-1SMT Reflow Soldering Instructions SMT 回流焊说明

Table 3-1 SMT Reflow Soldering Parameter SMT 回流焊参数

平均升温速度（T_{smax}至T_{P}）	最高 3 °C/ 秒
预热：最低温度（T_{smin}）	150 °C
预热：最高温度（T_{smax}）	200 °C
预热：时间（T_{smin}至T_{smax}）	60 - 120 秒
限时维持高温：温度（T_{L}）	217 °C
限时维持高温：时间（t_{L}）	最多60 秒
峰值 / 分类温度（T_{P}）	260 °C
限时峰值分类温度：时间（t_{p}）	最多10 秒
与实际峰值温度（T_{P}）相差 5 °C 以内的保持时间	最多30秒
降温速度	最高 6 °C/ 秒
25 °C 升至峰值温度所需时间	最多 8 分钟

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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. [illegible]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 do soldering by hand, 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) Soldering by hand should be done only one time.手工焊接只可焊接一次。

3.1.2 Repairing 修补

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[illegible]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 impacted on the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use

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(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。

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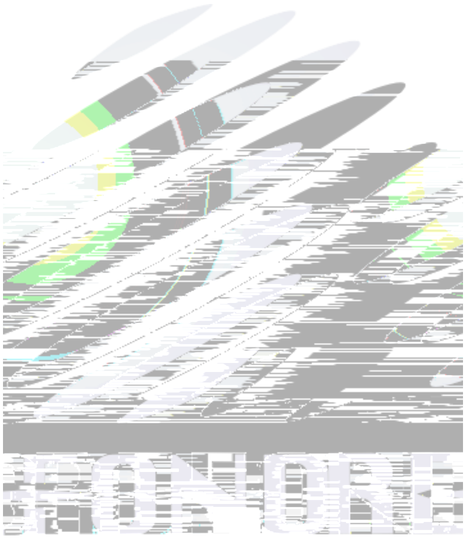

(4) Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.通过使用适当的工具从材料侧面夹取，不可直接用手或尖锐金属压胶体表面，它可能会损坏内部电路。

Fig 4-1Misoperation 错误操作

(5) In designing a circuit, the current through each LED must be 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，还需使用保护电阻，否则，微小的电压变化将会引起较大的电流变化，可能导致器件的损坏。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。

(6) 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的温度改变而改变，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。

(7) Compared to standard encapsulants, silicone is generally softer, and the surface is more likely to attract dust，re

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damage to the LED. 与其他封装胶相比，硅胶通常较软，表面易吸附脏物，应用时应特别注意，当对产品洁净度要求较高时，回流焊以后需要采用恰当的清洗方式，我们推荐用异丙醇作清洗剂，如果需要用到其他清洗剂，必须保证不会破坏封装体，超声清洗可能会对 LED 带来损害，不推荐这种清洗方式。

Table 4-1Storage 储存

Conditions		Temperature	Humidity	Time
Storage	Before Opening Aluminum Bag 拆包前	30℃	75%	Within 1 years From Date 1年内
	After Opening Aluminum Bag 拆包后	30℃	60%	168hours 168小时
Baking 烘烤		60±5℃	＜5%	≥24hours 大于24小时

(8) I 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） and less than 5%RH for above 24 hours.[illegible]或包装失效，如果开[illegible]或者产品不符合以上存放储存条件，需拆包后进行烘烤，烘烤条件：60±5℃，小于 5%RH，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[illegible]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关资料。

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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

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