

Spec No 编号	
Version 版本	A/01

# PRODUCT SPECIFICATION

## 产品规格书

Can Yang SMD Series

Standard type

**MODEL 型号：** CY-2835A4\*\*K4-A1


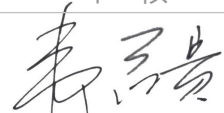
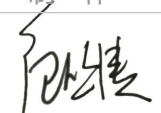
If you have any questions, please contact us before placing an order

阅读后如有任何疑问，请在订购之前联系我们

Customer confirmation 客户确认

General manager 总 经 理	Quality 品 质	Technology 技 术	Purchase 采 购

Explain 说明：

General manager 总 经 理	Sales Representative 销 售 代 表	to examine 审 核	Make 制 作
			



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## 1. Product Introduction 产品介绍

### 1-1. Features 产品特点

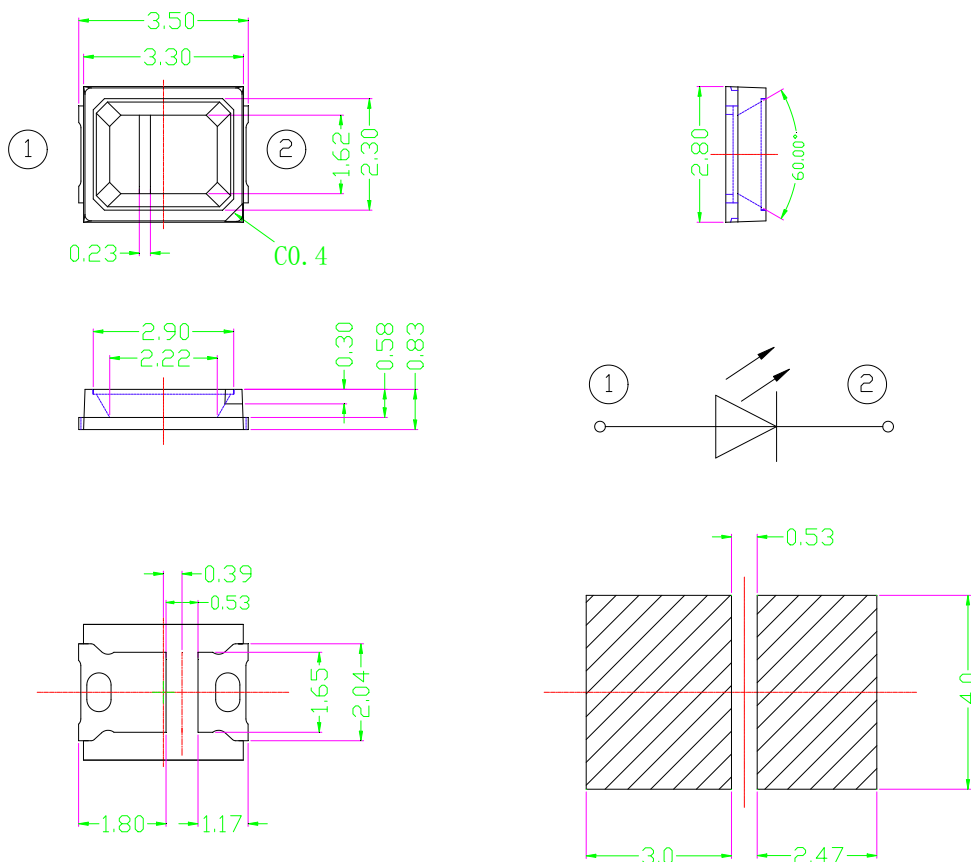
- Package: white SMT package, colored diffused silicone resin 白色 SMT 支架填充带扩散有色的硅胶封装
- Viewing angle at 50% Iv120° 发光视角为 120°
- Color: 2700K- 6500K(white) 色温 2700K-6500K 白光
- CRI: min. 80 (typ. 83) 显指最小为 80 (平均 83)
- Luminous Flux: typ. 58lm @3000K 3000K 色温时平均为 58lm
- Luminous efficacy: typ. 120 lm/W @3000K 3000K 色温时光效为 120lm/W
- RoHS compliant RoHS 认证



### 1-2. Application

- Landscape lighting 景观灯
- Strip lighting 线条灯
- General lighting 普通照明

### 1-3. Package Dimensions 外形尺寸



#### Notes

1. All dimensions are in millimeters. 以上尺寸单位均为 mm
2. Tolerance is  $\pm 0.25\text{mm}$  unless otherwise noted. 未特别标注公差尺寸公差均为  $\pm 0.25\text{mm}$ 。

## 2. Performance Characteristics 性能特性

### 2-1. Electric Optical Characteristics 光电特性

(Ta=25℃)

Product code 产品型号	CCT 标准色温	CRI 显指	Luminous flux 光通量 (lm)			Forward current 正向电流 (mA)	Voltage 电压 (DC-V)		
		Min.	Min.	Typ.	Max.		Min.	Typ.	Max.
CY-2835A430K4-A1	3000K	80	45	55	60	150	2.8	3.2	3.4
CY-2835A440K4-A1	4000K	80	50	58	65	150	2.8	3.2	3.4
CY-2835A465K4-A1	6500K	80	50	57	65	150	2.8	3.2	3.4

Notes 注释：

- Can Yang photoelectric maintains forward voltage +/-3%, luminous flux +/-10%, Ra +/-2, CCT +/-15%  
璨阳光电测量误差 正向电压+ / - 3%，光通量+ / - 10%，Ra+ / - 2，色温 +/-15%

### 2-2. Absolute Maximum Ratings 最大极限参数

#### Absolute Maximum Ratings 最大极限参数

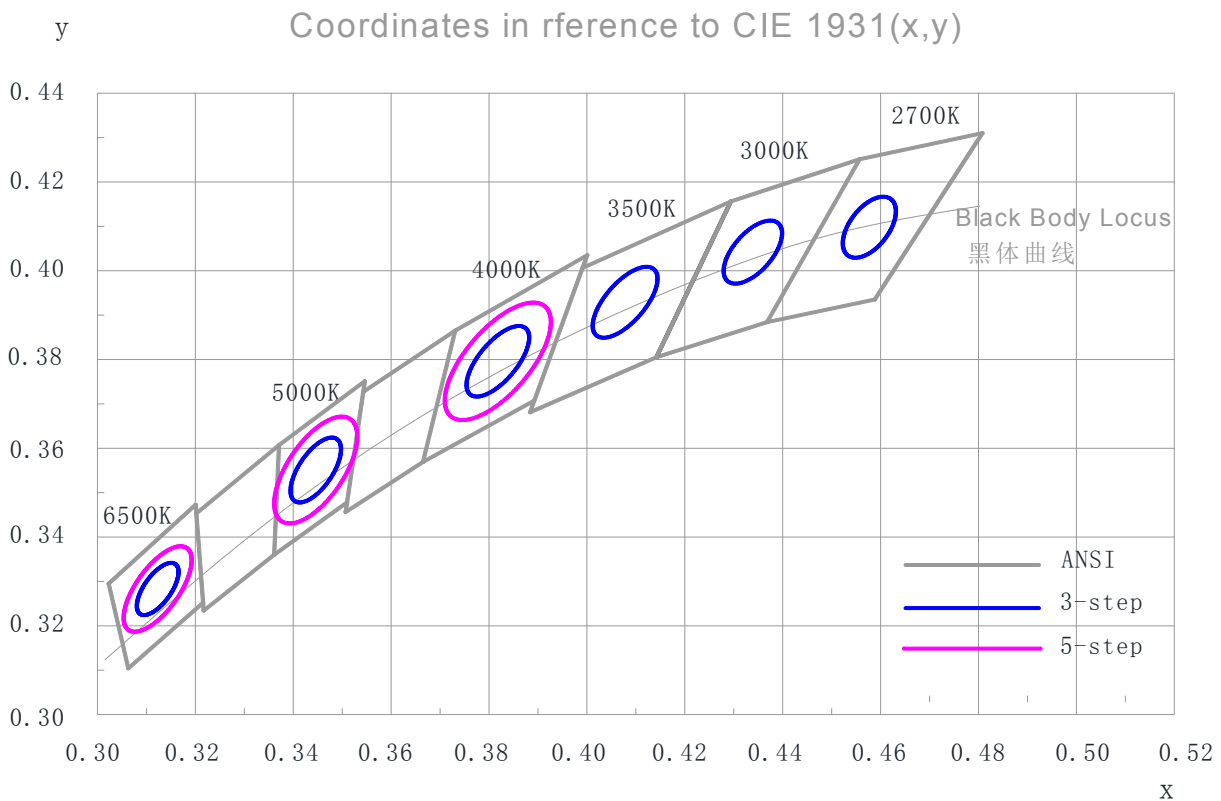
Parameter 参数	Symbol 符号	Rating 最大值
Pulse forward current 脉冲电流 (mA) *	Ifm	230
Forward Current 正向电流 (mA)	If	180
Reverse Current 反向电流 (uA)	Ir	10
Operating Temperature 操作温度 (℃)	Top	-40 ~ +100
Storage Temperature 存储温度 (℃)	Tst	-40 ~ +110
ESD withstand voltage 抗静电能力 (V) (acc. to ANSI/esda/jedec js-001-HBM)	VESD	5000
Junction Temperature 结温 (℃)	Tj	140

\*. Pulse width ≤ 0.1ms, Duty ≤ 1/10 脉冲宽度 ≤ 0.1ms, 占空比 ≤ 1/10

## 2-3. Chromaticity Characteristics 色度特性

( Rated current 额定电流,  $T_a=25^{\circ}\text{C}$  )

Color Region 颜色区域	Nom inal 标准色温 CCT	Center Point 中心点 ( x, y )	Oval parameter 麦克亚当椭圆 参数		
			Major Axis 长轴 a	Minor Axis 短轴 b	Ellipse Rotation Angle 椭圆旋转角度 $\theta$
* 3-step # 5-step MacAdam ellipse 麦克亚当椭圆	* 2700K	( 0.4577,0.4098 )	0.00774	0.00411	57.28
	* 3000K	( 0.4339,0.4032 )	0.00834	0.00408	53.17
	* 3500K	( 0.4078,0.3929 )	0.00951	0.00417	52.97
	# 4000K	( 0.3818,0.3796 )	0.0157	0.0068	53.40
	# 5000K	( 0.3446,0.3551 )	0.0135	0.0059	59.80
	# 6500K	( 0.3123,0.3283 )	0.0110	0.0045	58.10



1.\* Color region stay within MacAdam 3-step ellipse from the chromaticity center.

# Color region stay within MacAdam 5-step ellipse from the chromaticity center.

\* 颜色区域保持在 3 步麦克亚当椭圆以内.

# 颜色区域保持在 5 步麦克亚当椭圆以内.

2.The chromaticity center refers to ANSIC78.377:2011.

色坐标中心值采用 ANSIC78.377:2011 标准.

3. The angle of ellipse between the major axis of the ellipse and the x-axis, and a and b are the major and minor semi-axes of an ellipse. (Ref. IEC 60081:1997 AnnexD).

椭圆旋转角度为椭圆的长轴 a 与坐标系中的 X 轴的夹角, a 和 b 分别为椭圆的长轴和短轴。(参考 IEC 60081:1997 AnnexD) .

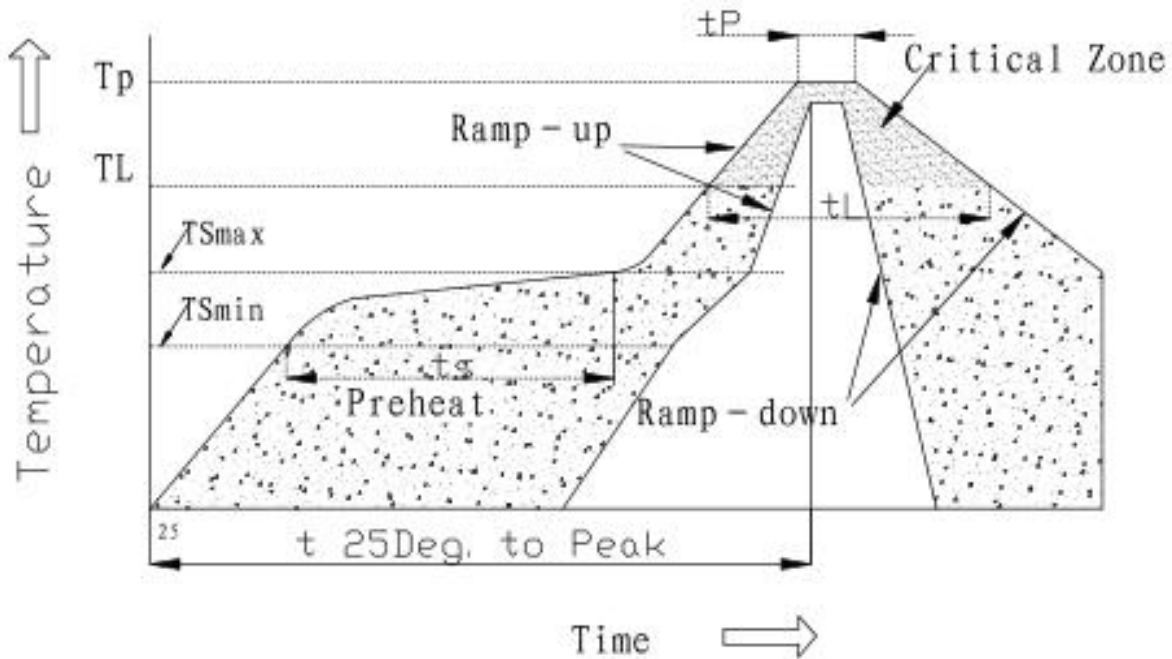
### 3. Recommend for soldering 推荐焊接条件

5.1 A soldering iron of less than 20W is recommended to be used in Hand Soldering. Please Keep the temperature of the soldering iron under 350°C while soldering. Each terminal of the LED is to go for less than 3 second.

手焊推荐使用功率低于 20W 的烙铁，焊接时烙铁温度必须保持在 350°C 以下，每次焊接的持续时间不行超过 3 秒。

5.2 Reflow soldering: Use the conditions shown in the under figure of reflow soldering.

回流焊接: 推荐使用以下回流焊接温度图进行。



Profile Feature	Sn-Pb Electric Assembly	Sn-Free Electric Assembly
Average ramp-up rate(TL to TP)	3°C/second max.	3°C/second max.
Preheat	60-120seconds	60-180seconds
-Temperature Min. (Tsmin)	100°C	150°C
-Temperature Min. (Tsmax)	150°C	200°C
Tsmax to TL -Ramp-up Rate	3°C/second	3°C/second
Time maintained above TL	180°C/60-150seconds	210°C/60-150seconds
Peak Temperature (TP)	230+0/-5°C	250+0/-5°C
Time within 5°C of Actual Peak Temperature (TP)	10seconds	10seconds
Ramp-down Rate	6°C/seconds max.	6°C/seconds max.
Time 25°C to Peak Temperature	6 minures max.	8 minures max.

Reflow soldering should not be done more than one time. 回流焊最多只能进行一次。

Stress on the LEDs should be avoided during heating in soldering process.

在回流焊接过程中不要对 LED 进行挤压。

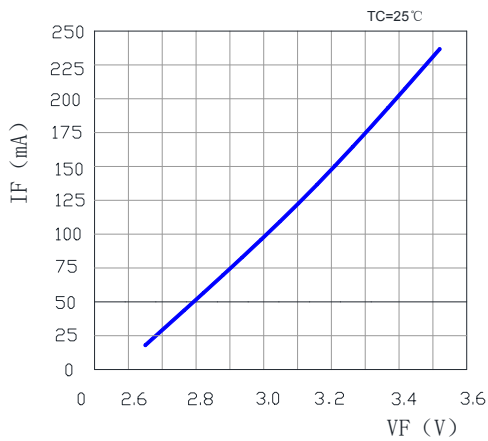
After soldering, do not deal with the product before its temperature drop down to room temperature.

焊接完成后，须在产品温度降到室温后再进行其它处理

## 4. Characteristic Curves 特性曲线

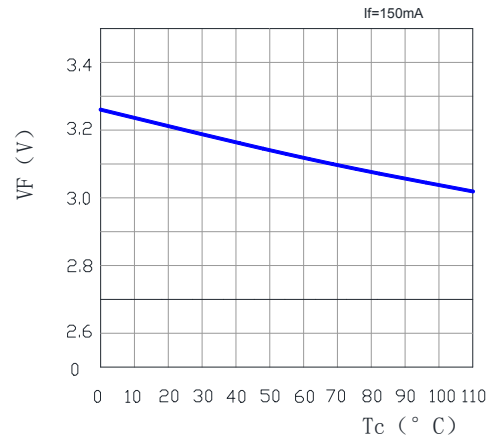
### 4-1. Forward Current Characteristics / Temperature Characteristics 正向电流特性/温度特性

Forward Voltage vs Forward Current



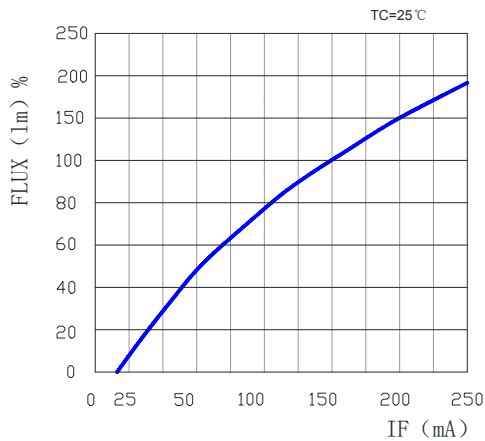
正向电压 VS. 正向电流关系图

Case Temperature vs Forward Voltage



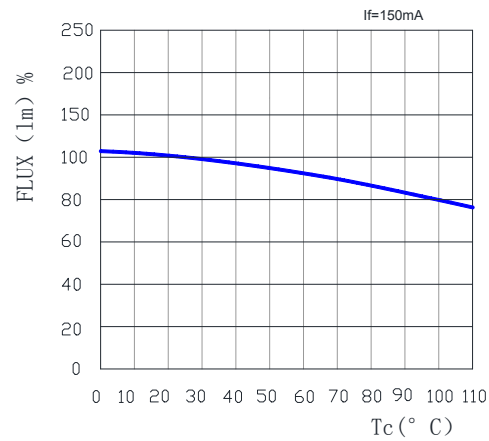
表面温度 VS. 正向电压关系图

Forward Current vs Relative Luminous Flux



正向电流 VS. 亮度关系图

Case Temperature vs Relative Luminous Flux

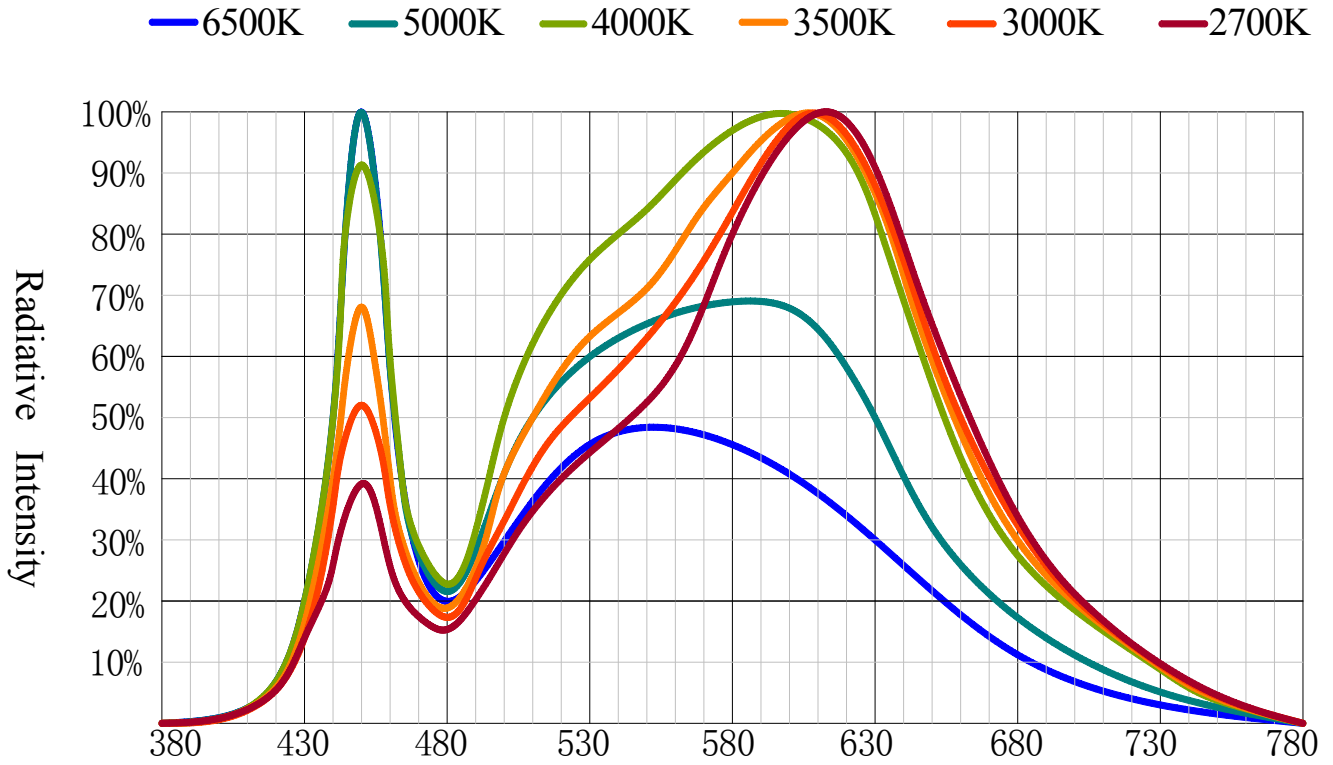


表面温度 VS. 亮度关系图

## 4-2. Optical Characteristics 光学特性

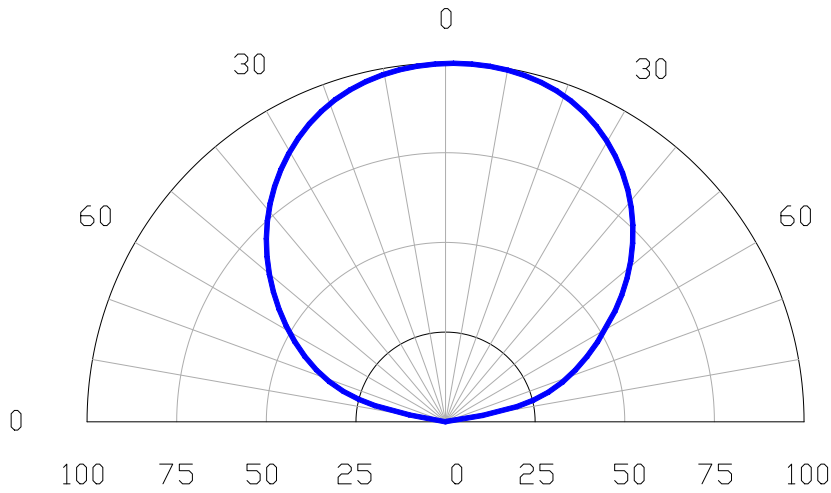
**Spectrum : CRI(Ra) 80Min.**

Ta=25°C If=150mA



## 4-2. Optical Characteristics (continued) 光学特性 (续)

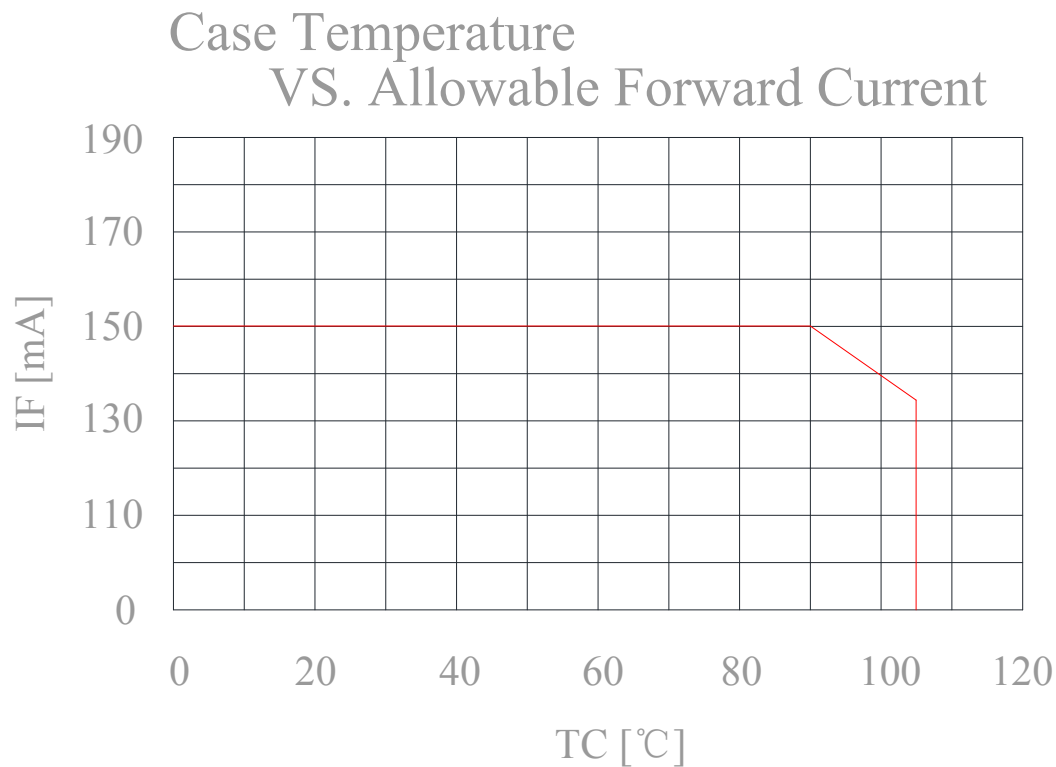
Beam Patter



亮度 VS. 角度关系图

## 4-3. Derating Characteristics 降额特性

基板温度 VS. 允许的正向电流





## 5. Reliability 可靠性

### 5-1. Reliability Test 可靠性试验

Test Item 测试项目	Test Condition 试验条件	参考标准
Life Test 常温寿命	IF=150mA Ta=25°C @1000hrs	JESD22-A108D
High Temperature Life Test 高温寿命	Ta=80°C IF=150mA @1000hrs	JESD22-A108D
Low Temperature Storage Test 低温贮存	Ta=-40°C @1000 hours	JEITA ED-4701 100 103
High Temperature Storage Test 高温贮存	Ta=100°C @1000 hours	JEITA ED-4701 200 201
High Temperature High Humidity Life Test 高温高湿寿命	Ta=60°C RH=90% IF=150mA @1000hrs	JEITA ED-4701 100 102
Resistance to Soldering Heat 耐焊接热	Tsol=240±5°C @10secs	GB/T 4937, II, 2.2&2.3
Thermal Shock Test 冷热冲击试验	-40 °C(30 min) - 100 °C(30 min) @100 cycle	MIL-STD-202G

### 5-2. Failure Criteria 实验判定标准

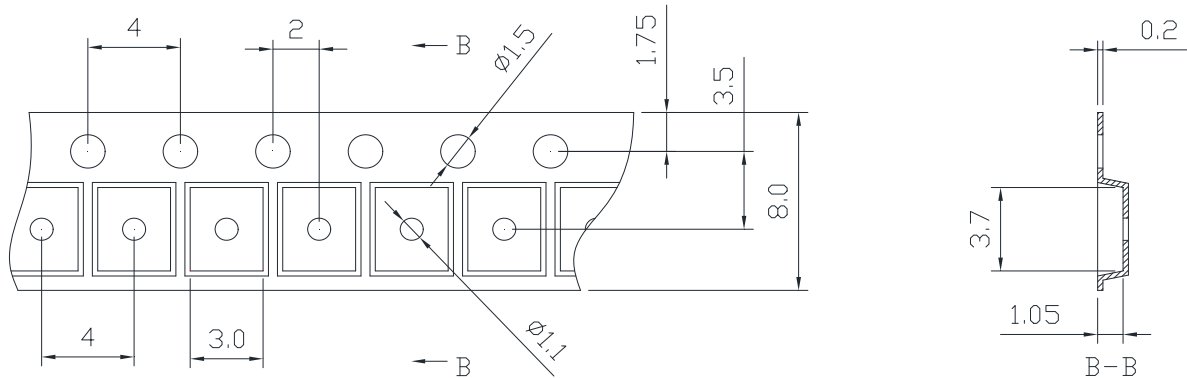
( Tc=25°C )

Measuring Item 实验项目	Symbol 符号	Measuring Condition 实验条件	Failure Criteria 判定标准
Forward Voltage 正向电压	Vf	If=150mA	>初始值× 1.1
Reverse Current 反向电流	Ir	Vr=5V	Ir ≤ 10μA
Resistance to Soldering Heat 耐焊接热		If=150mA	Material without internal cracks, stripped, no dead light 材料内部无裂痕、剥离、无死灯
Total Luminous Flux 总光通量	Φv	If=150mA	Φv<初始值× 0.7

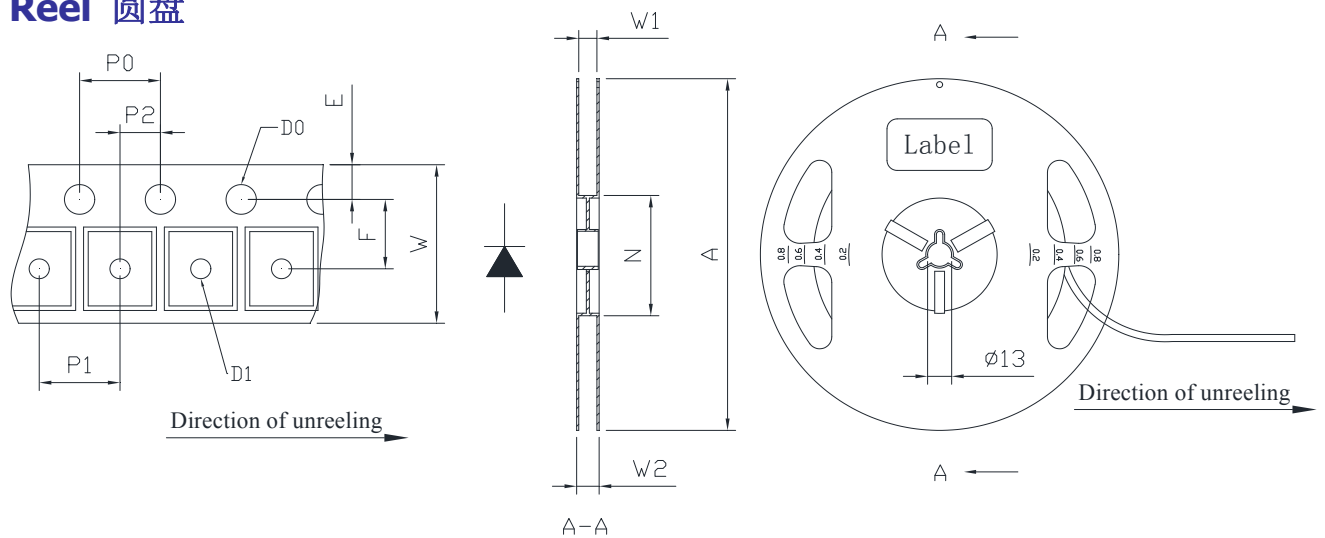
## 6. Packing Specification 包装规格

### 6-1. Packing 包装

#### Taping 载带



#### Reel 圆盘



Leader: min. 100mm  
Trailer: min. 160mm

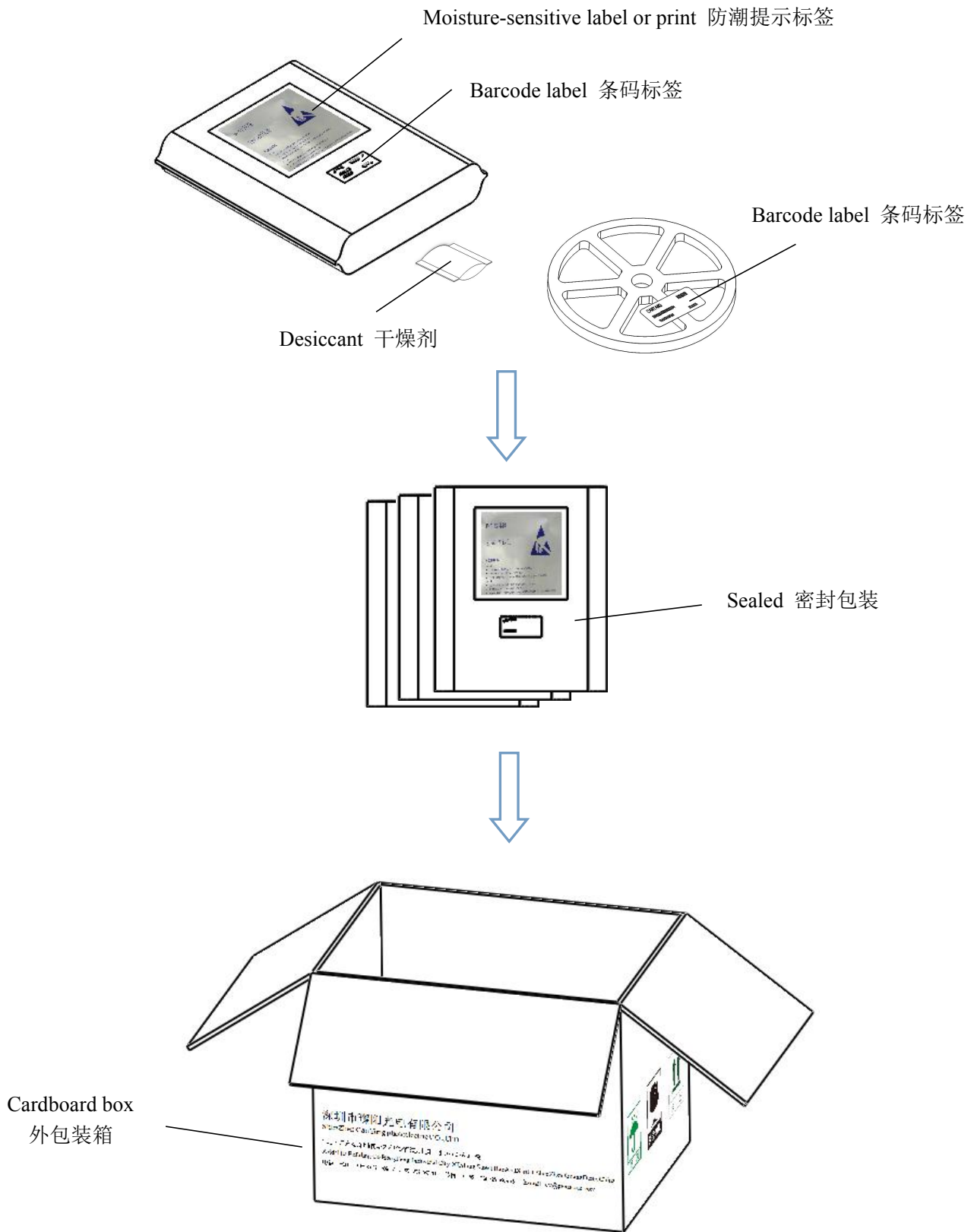
#### Tape dimensions(mm) 载带尺寸(mm)

W	P0	P1	P2	D0	E	F
8.0	4.0	4.0	2.0	1.5	1.75	3.5

#### Reel dimensions(mm) 圆盘尺寸(mm)

A	W	Nmin	W1	W2max
180	8.0	69	9	12

## 6-2. Dry Packing Process and Materials



## 7. Precautions 使用注意事项

### 7.1 Storage 储存

Moisture proof and anti-electrostatic package with moisture absorbent material is used, to keep moisture to a minimum.

本产品使用密封防潮抗静电袋包装主，并附有干燥剂，未开封的产品保存时间为一年。

Before opening the package, the product should be kept at 30°C or less and humidity less than 60%RH, and be used within a year.

开封前，产品须存放在温度不高于30°C，湿度不高于60%RH的环境中。

After opening the package, the product should be soldered within 2 hours. If not, please store at 30°C or less and humidity less than 10%RH within 24 hours. It is recommended that the product be operated at the workshop condition of 30°C or less and humidity less than 60%RH.

开封后，产品应在2小时内使用完，如未能使用完剩下的材料须存放在温度不高于30°C，湿度不高于10%RH的环境中，最长存放时间为24小时。建议工作环境温度为不高于30°C，湿度不高于60%RH。

If the moisture absorbent material has fade away or the LEDs have exceeded the storage time, baking treatment should be performed based on the folloing condition: 80±5°C for 24 hours.

对于尚未焊接的材料如果干燥剂或包装失效，或者产品没有符合以上有效存储条件，烘烤可以起到一定的性能恢复效果。烘烤条件为：80±5°C 烘烤24小时。

### 7.2 Static Electricity 静电防护

Static electricity or surge voltage damages the LEDs. Damaged LEDs will show some nuusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current. Evennot light.

All devices, equipment and machinery must be properly gounded. At the same time, it is recommended that wrist bands or anti-electrostatic gloves, anti-electrostatic containers be rsed when dealing with the LEDs.

静电和电涌会导致产品特性发生改变，例如正向电压降低等，如果情况严重甚至会损毁产品。所以在使用时必须要采取有效的防电静措施。

所有相关的设备和机器都应该可靠接地，同时必须采取其它防止静电和电涌的措施。使用防静电手环、防静电垫子、防静电工作服、工作鞋、手套、防静电容器，都是有效的防止静电和电涌的措施。

### 7.3 Design Consideration 电路设计

In designing a circuit, the current through each LED must not exceed the absolute maximum rating specified for each LED. In the meanwhile, resistors for protection should be applied, otherwise slight voltage fluctuation will cause big current change, burn out may happen.

设计电路时，通过LED的电流不能超过规定的最大值，同时还需要使用保护电阻，否则微小的电压变化将会引起较大的电流变化，可能导致产品损毁。

Thermal design is paramount importance because heat generation may result in the characteristics decline, such as brightness decreased, color changed and so on. Please consider the heat generation of the LEDs when making the system design.

LED 的特性容易因为自身的发热和环境的温度的改变而发生改变。温度的升高会降低 LED 的发光效率、影响发光颜色等，所以在设计时应该充分考虑散热的问题。

#### 7.4 Reverse voltage protection 反压保护

In general the reverse current of LED is very small, it can't affect using the component normally, but when it often suffered the reverse voltage which exceed the limits of the component than it will be damaged, the reverse current increases rapidly causing the string light display grayscale so when designing, please pay attention to control the reverse voltage we suggest the reverse voltage less than 10V.

通常 LED 的反向漏电流都很小，不会影响正常使用。如果 LED 长期遭受超过其所能承受的反向电压冲击时，LED 会被损伤，反向漏电流会迅速增大，引起 LED 灯具零灰度下串光的发生。在设计中要注意控制反向电压，建议加在 LED 上的反向电压不超过 10V。

### 7.5 The safe temperature for LEDs working 温度保护

The high temperature will make the LEDs' luminous intensity decreased radically, if LEDs worked in hot environment for a long time, they will be disabled easily. When LEDs are working in a closed array, we suggest that the LEDs' surface temperature should be lower than 55°C and the legs' temperature should be lower than 75°C.

LED 在高温条件下，衰减会加速，本身应力也会增大，若长期处于高温环境下，极容易出现失效。

对于高密度排列使用的情况，建议在使用过程中灯面温度不超过 55°C，灯脚温度不超过 75°C。

## 7.6 Others 其它事项

When handling the product, touching the encapsulant with bare hands will not only contaminate its surface, but also affect on its optical characteristics. Excessive force to the encapsulant might result in catastrophic failure of the LEDs due to die breakage or wire deformation. For this reason, please do not put excessive stress on LEDs, especially when the LEDs are heated such as during Reflow soldering.

直接用手拿取产品不但会污染封装树脂表面，也可能由于静电等因素导致产品性能改变。过度的压力也可能直接影响封装内部的管芯和金线，因此请勿对产品施加过度压力，特别当产品处理高温状态下，例如在回流焊过程中。

The epoxy resin of encapsulant is fragile, so please avoid scratch or friction over the epoxy resin surface. While handling the product with tweezers, do not hold by the epoxy resin, be careful.

LED 的环氧树脂封装部份相当脆弱，请勿用坚硬、尖锐的物体刮、擦封装树脂部份。在用镊子夹取的时候也应当小心注意。