

## 2835 Mid-Low-Power Series Datasheet



### Features & Benefits

- Package: 2.8\*3.5\*0.7mm (Top view white LED) 封装尺寸 2.8\*3.5\*0.7mm
- Extremely wide viewing angle 发光角度大
- Soldering methods: All SMT assembly methods 适用于所有的 SMT 组装和焊接工艺
- Moisture sensitivity level: Level 3 防潮等级 Level 3
- Loaded quantity: 4000 pcs/reel 包装每卷 4000PCS

### Typical Application:

- Panel Light & Tubular Light & Ceiling Light 面板灯、灯管、吊灯
- Other Indoor & Outdoor Light 室内/户外照明
- Advertising backlighting 广告背光
- General use. 一般应用

## 1. Product Nomenclature 产品编码原则

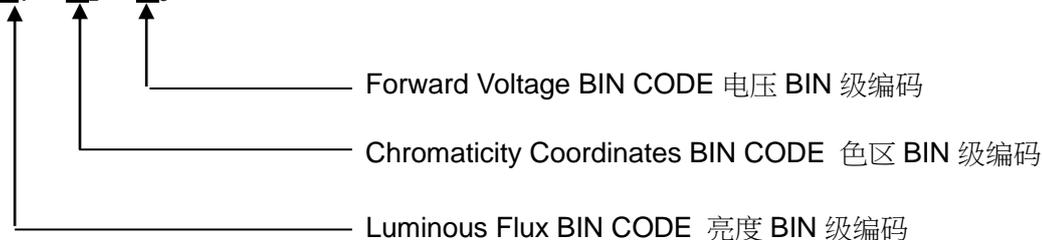
### 1-1 Part Number System description 物料编码说明

$X_1 X_2 \cdot X_3 X_4 \cdot X_5 X_6 X_7 X_8 X_9 X_{10} X_{11} X_{12} X_{13} X_{14} X_{15}$

Part Number Code 序号	Description 描述	Part Number 物料编码	Value 说明
$X_1 X_2$	Production Type	01	Self-produce
$X_3$	Company	J	JF
$X_4$	Applications	T	Top LED
$X_5$	Chip Type	C	One chip 3V
$X_6$	Power Range	G	0.5W
$X_7 \cdot X_{10}$	Product Size	2835	2.8*3.5mm
$X_{11}$	Emitting Color	W	white
$X_{12} X_{13}$	Color Rendering	80	CRI 80+
$X_{14}$	Patent	P	Internal Code
$X_{15}$	Water code	03	Version

### 1-2 BIN description BIN 级说明

$X_1 / X_2 / X_3$



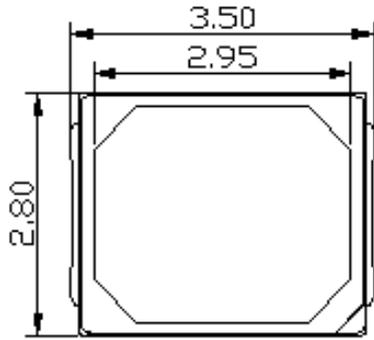
### 1-3 Product Selection Table(Ta=25°C) 产品目录(Ta=25°C)

Part Number 产品型号	CCT(K) 色温(K)	Luminous Flux(lm)@150mA 光通量(lm)		Luminous Flux(lm)@60mA 光通量(lm)	
		Min 最小值	Max 最大值	Min 最小值	Max 最大值
01.JT.CG2835W80P03	2700K	50	70	24	32
	3000K	55	75	26	34
	3500K	55	75	26	34
	4000K	60	80	28	36
	5000K	60	80	28	36
	6500K	60	80	28	36
	9000K	55	75	26	34

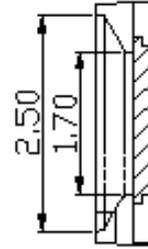
Note:备注

- Tolerance of measurements of the Luminous Flux is  $\pm 5\%$  (LM 测试误差 $\pm 5\%$ )
- The lumen table is only for reference (LM 参数供参考)
- Ta = 25°C, RH60% (温度: 25 °C, 湿度: 60%)

**2. Package Outline Dimension 封装尺寸**



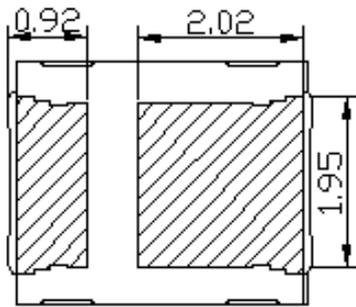
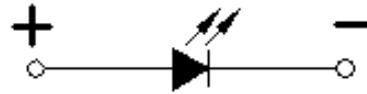
Top View



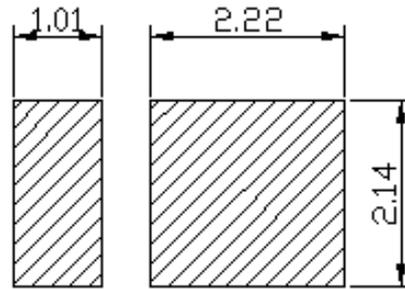
Size View



Size View



Bottom View



Recommended bonding pad design

**Notes: 备注**

- ① All dimensions units are millimeters 所有尺寸标注单位为毫米
- ② Tolerance is  $\pm 0.10\text{mm}$  unless otherwise specified 除特别标注外，所有尺寸允许公差 $\pm 0.1\text{mm}$

### 3. Absolute Maximum Ratings(Ta=25°C) 绝对最大额定值

Parameter 参数	Symbol 符号	Rating 额定值
Power Dissipation 功耗	Pd	578 mW
Forward Current 正向电流	I <sub>F</sub>	165 mA
Junction Temperature 结温	T <sub>j</sub>	125°C
ESD Resistance(HBM) 静电	ESD	1000V
Soldering Temperature 焊接温度	Tsol	Reflow soldering (260°C for 10seconds) Hand soldering (300°C for 3 seconds)
Operating Temperature 操作温度	Topr	-40°C~+85°C
Storage Temperature 保存温度	Tstg	-40°C~+100°C

### 4. Electrical-optical characteristics(Ta=25°C) 电性与光学特性

Parameter 参数	Symbol 符号	Min. 最小	Typ. 平均	Max. 最大	Unit 单位	Test Condition 测试条件
Forward Voltage 正向电压	V <sub>f</sub>	2.8	-	3.4	V	IF=150mA
Viewing Angle 发光角度	2θ <sub>1/2</sub>	-	120	-	deg	
Color Rendering Index 显指	CRI	80	-	-	-	
Thermal Resistance 热阻	R <sub>th(j-s)</sub>		40		°C/W	
Reverse Current 反向电流	I <sub>R</sub>	-	-	10	μA	VR=5V

Notes: 备注

- ① Luminous flux measurement tolerance: ±5%.光通量的测试允许公差为±5%
- ② Forward voltage tolerance is ±0.1V.正向电压的测试允许公差为±0.1V
- ③ CRI measurement tolerance: ±2 显色指数的允许公差为±2

### 5. Corresponding to the different current of Optoelectronic parameters. 不同电流光电参数

IF(mA)	Flux(lm)	lm/W	VF(V)	Ra	R9
30	15.83	193.07	2.73	82.70	8.04
60	30.28	177.13	2.85	82.30	5.25
90	51.44	189.12	3.02	81.87	3.03
120	55.52	151.33	3.06	81.80	2.55
150	66.61	140.98	3.15	81.60	1.53
180	76.57	131.46	3.24	81.40	0.73

备注：The above photoelectric parameter comes from 1530 chip finished product data

以上光电参数来源于 1530 芯片成品数据

6. Typical Electro-Optical Characteristics Curves 典型光学特性曲线

Fig.1- Relative spectral emission ( Ta=25°C )

相对光谱分布特性曲线

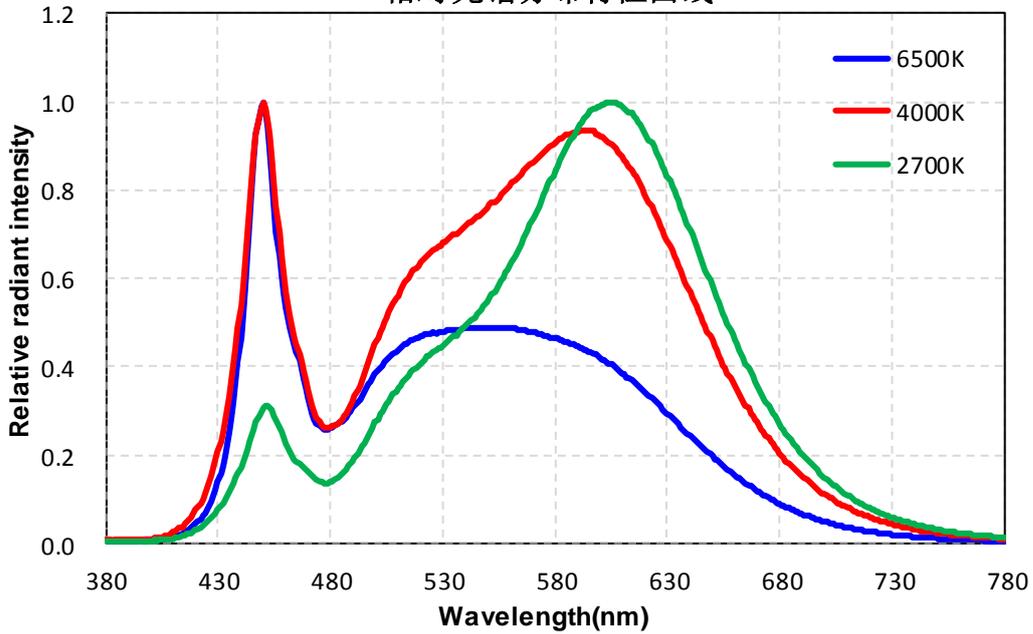
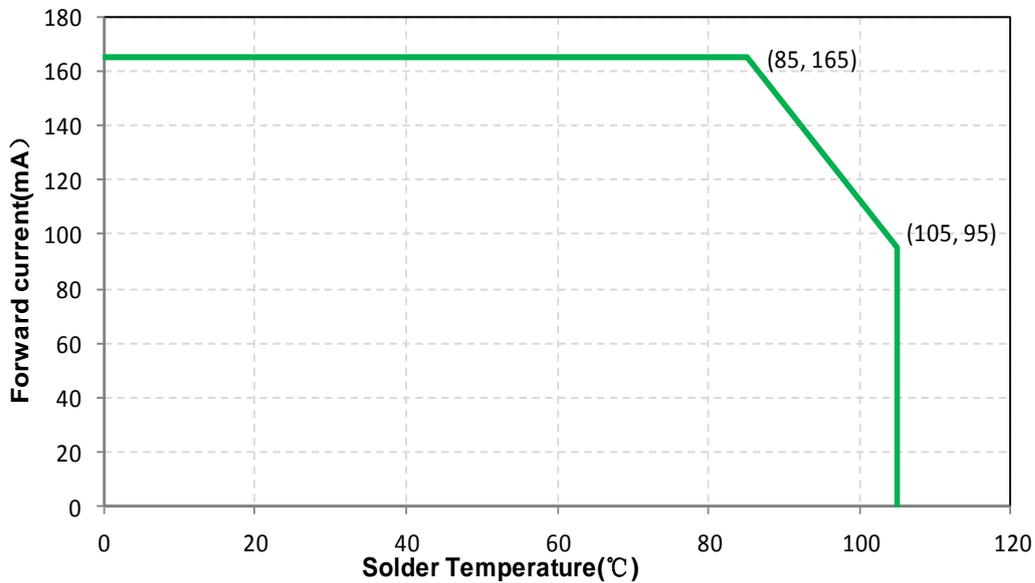


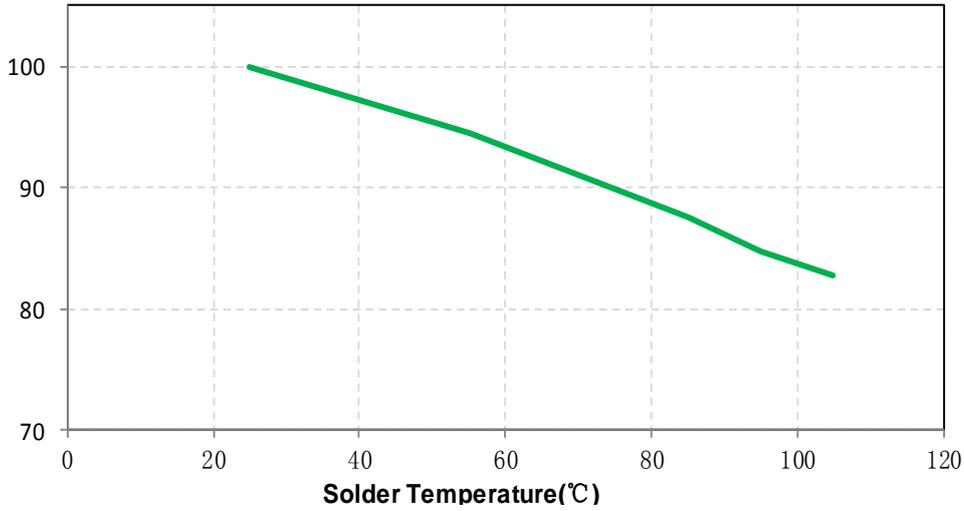
Fig.2- Solder Temperature vs. Forward current

(Derating based on Tj max=125°C)

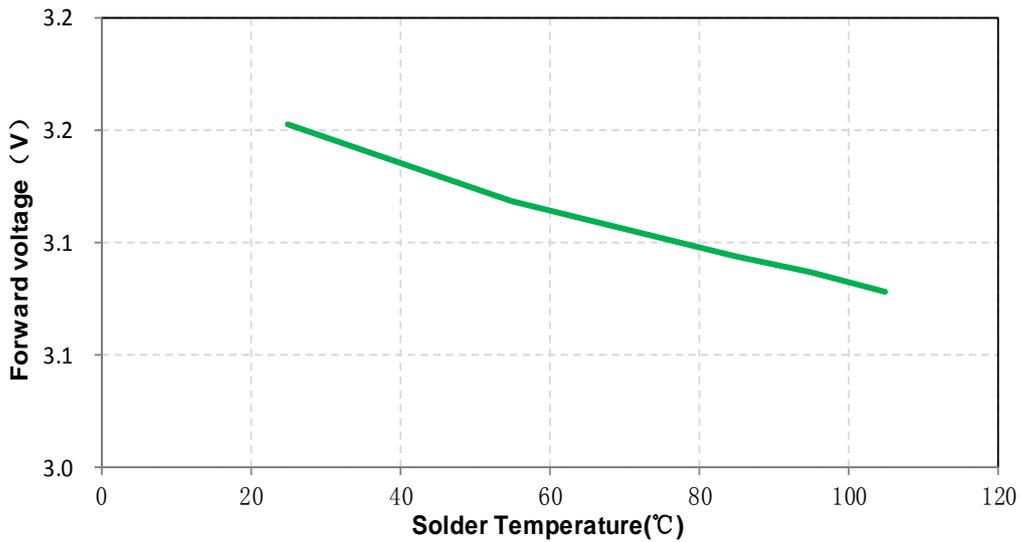
焊盘温度与正向电流特性曲线



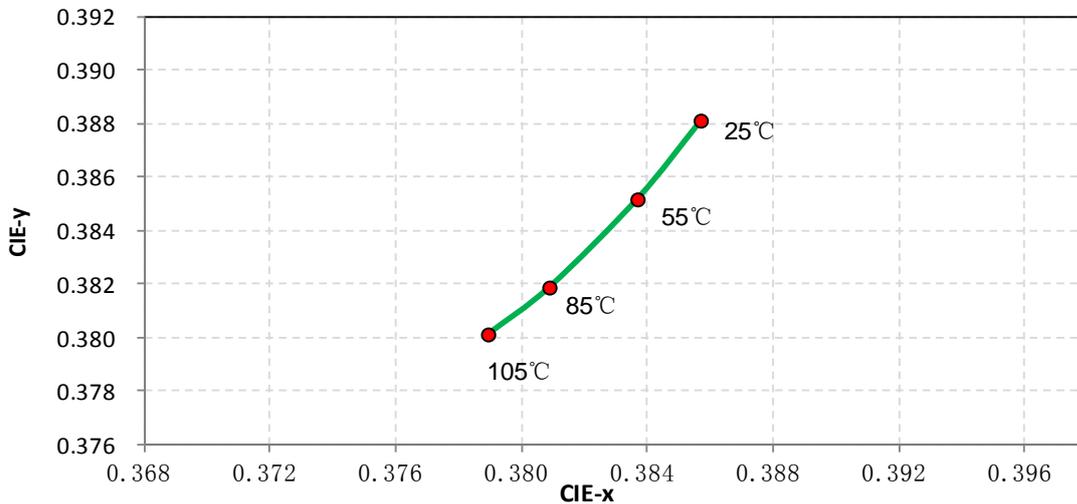
**Fig3- Solder Temperature vs. Relative luminous Intensity**  
焊盘温度与相对流明强度特性曲线



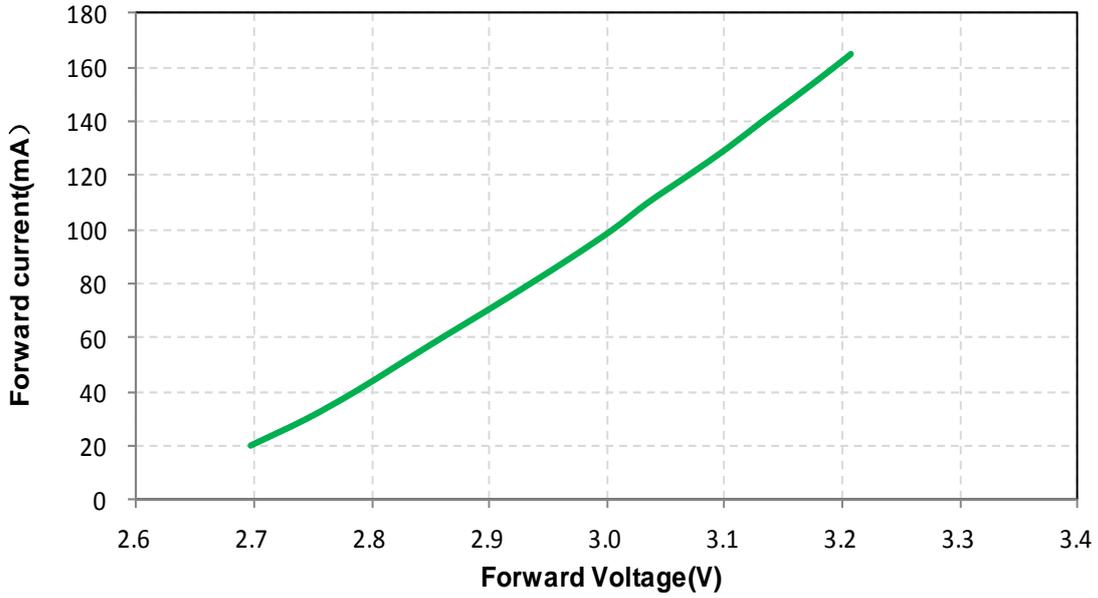
**Fig.4- Solder Temperature vs. Forward voltage**  
焊盘温度与正向电压特性曲线



**Fig.5- Chromaticity Coordinate vs. Solder Temperature**  
焊盘温度与色坐标特性曲线



**Fig.6- Forward voltage vs. Forward current (Ta=25℃)**  
正向电压与正向电流特性曲线



**Fig.7- Forward current vs. Relative luminous Intensity**  
正向电流与相对流明强度特性曲线

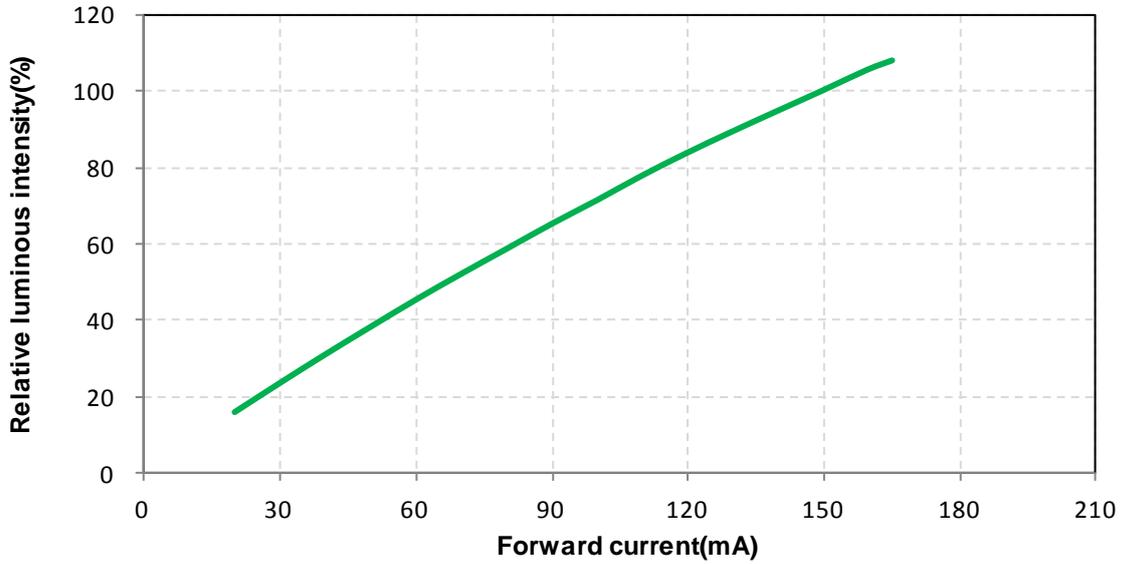
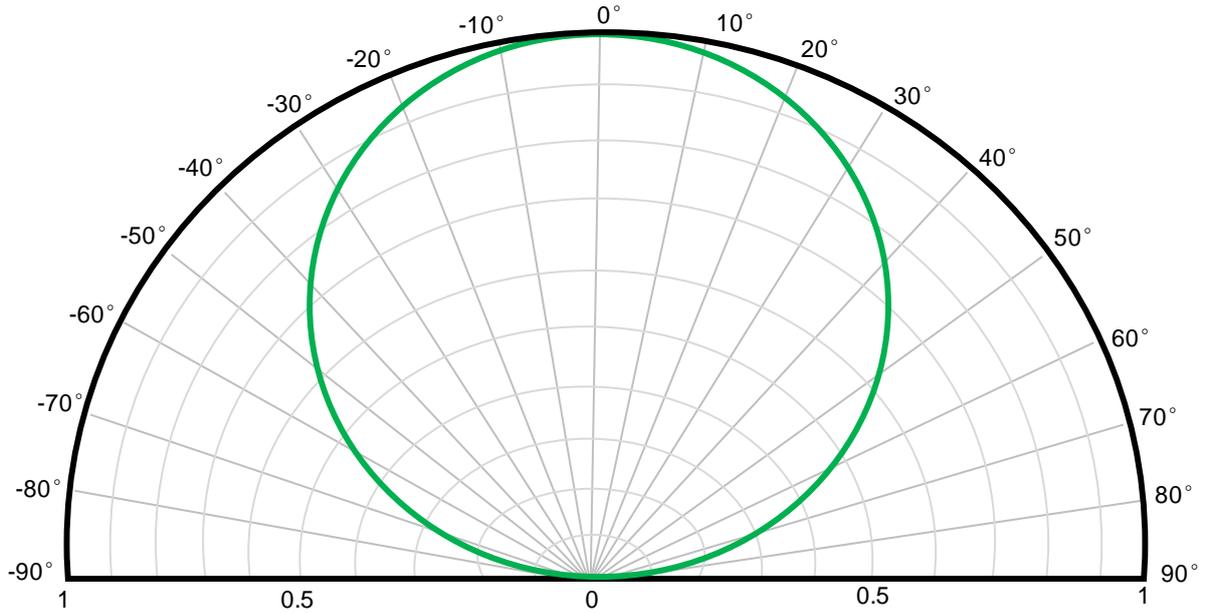


Fig.8- Typical radiation patten in polar coordinate system

辐射特性曲线



6.Product Binning 产品 BIN 级分类

6-1 Luminous flux classification 亮度划分

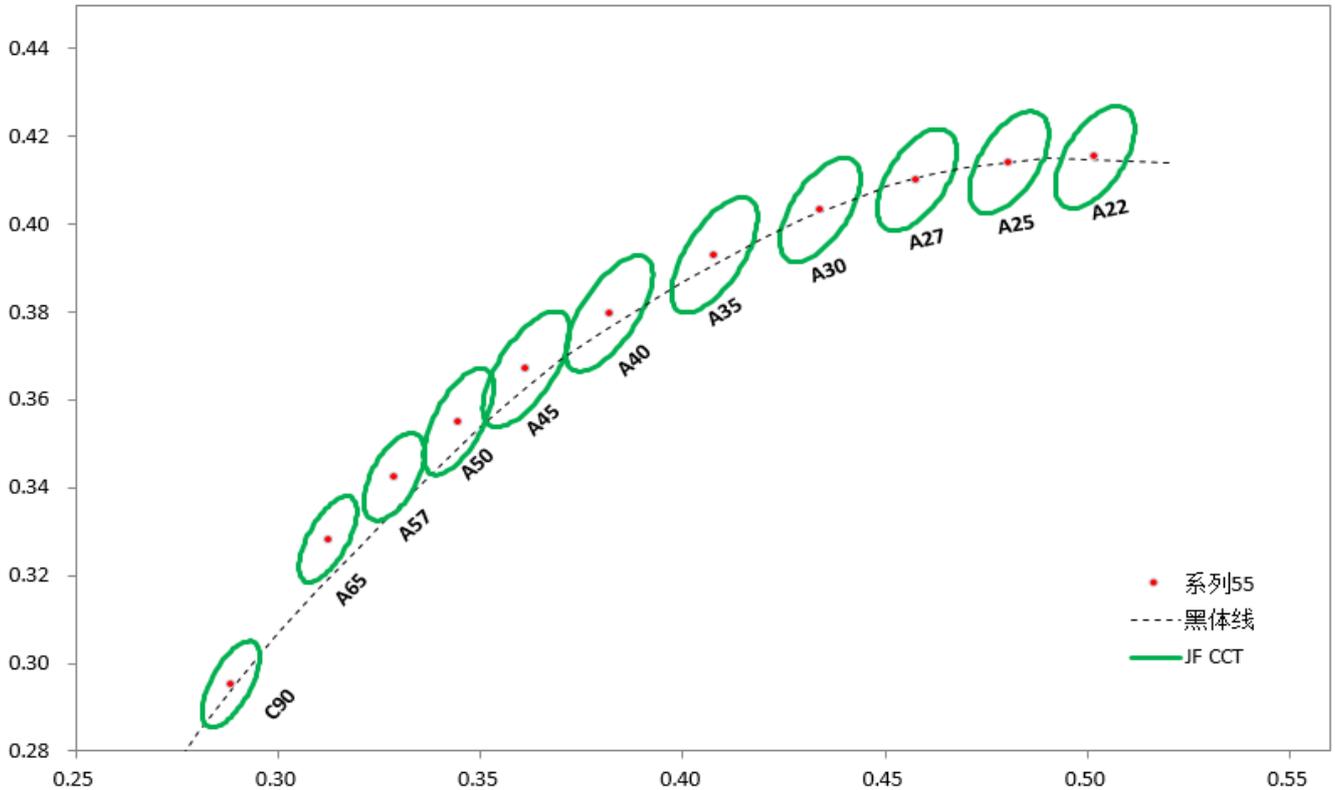
BIN code	Min (lm)	Max (lm)
50	50	55
55	55	60
60	60	65
65	65	70
70	70	75
75	75	80

6-2 Forward voltage 电压分类

BIN Code	Min (V)	Max (V)
5-2	2.8	2.9
6-1	2.9	3.0
6-2	3.0	3.1
7-1	3.1	3.2
7-2	3.2	3.3
8-1	3.3	3.4

6-4 Chromaticity coordinates 色区分类

JF CIE1931 Diagram x,y-ASNI



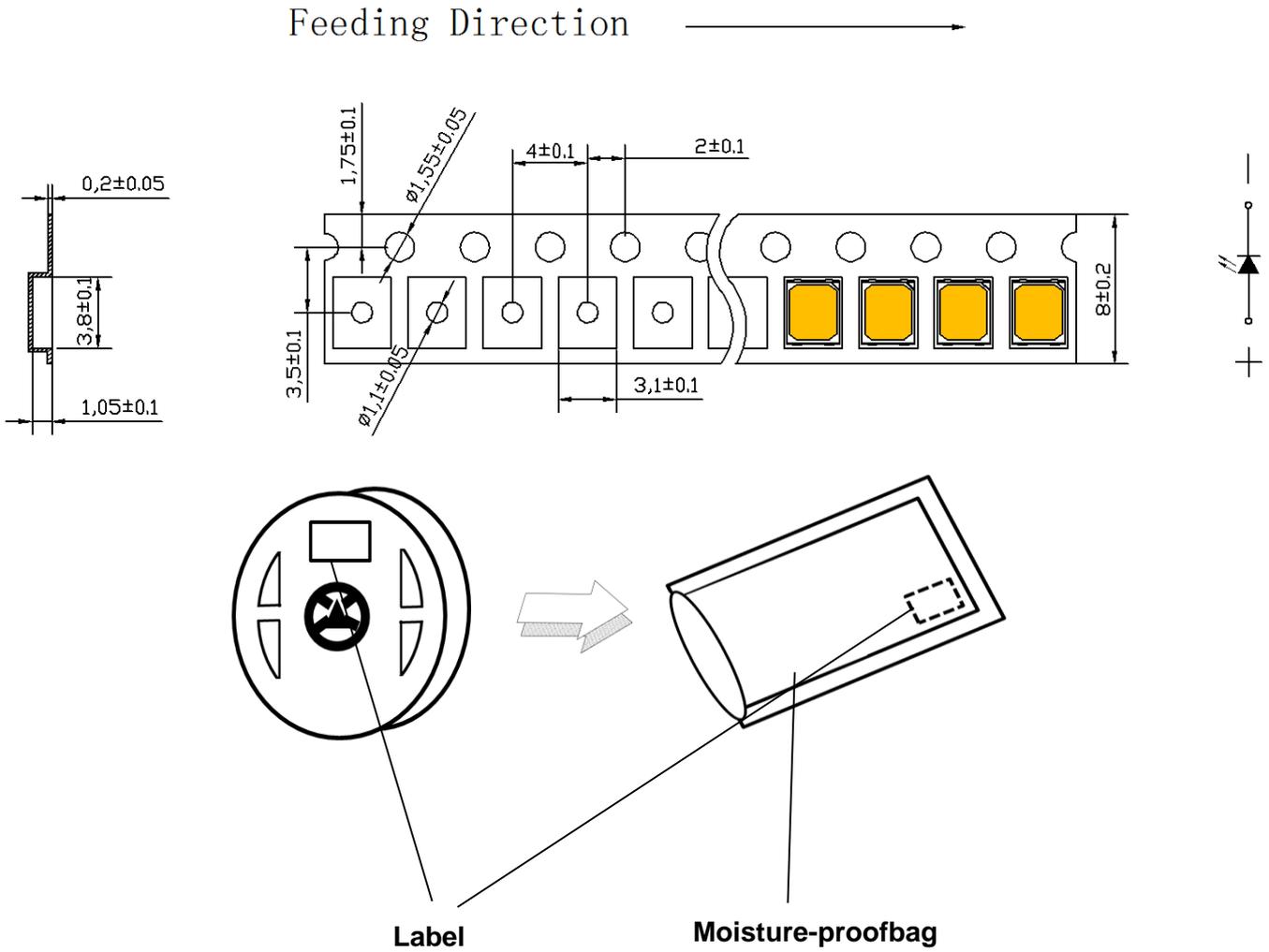
6-4-1 Elliptical Coordinates 椭圆坐标

Color Bin 色区 Bin	Center 中心点		Radius 半径		Angle 角度
	CIE-x	CIE-y	a	b	
A22	0.5018	0.4153	0.002700	0.001400	53.42
A25	0.4806	0.4141	0.002700	0.001400	53.42
A27	0.4578	0.4101	0.002700	0.001400	53.42
A30	0.4339	0.4033	0.002780	0.001360	53.13
A35	0.4078	0.3930	0.003090	0.001380	54.00
A40	0.3818	0.3797	0.003130	0.001340	53.43
A45	0.3613	0.3670	0.003130	0.001340	53.43
A50	0.3446	0.3551	0.002740	0.001180	59.37
A57	0.3287	0.3425	0.002235	0.001100	58.35
A65	0.3123	0.3283	0.002230	0.000950	58.34
C90	0.2883	0.29525	0.002230	0.000950	58.34

Note:注意

- ① All measurements were made under the standardized environment of JF 所有测量都在 JF 标准环境下进行
- ② XY tolerance is  $\pm 0.005$ . 色坐标允许公差为  $\pm 0.005$
- ③  $T_a = 25^\circ\text{C}$ , RH60%(温度:  $25^\circ\text{C}$ , 湿度: 60%)

**7. Package Information (unit: mm) 包装规格**



**8. Label Form Specification 标签规格**

**JF** SHENZHEN JUFEI OPTOELECTRONICS CO.,LTD

P/N : 01.JT.CG2835W80P03 ①

Bin : 55/W27/6-1 ②      Lot : 20180628012 ⑤

Φ(Lm) : 55-60      TC(K) : 2550-2850

VF(V) : 2.9-3.0      Date : 180628 ④

Q'ty : 4000 pcs ③

AD07DAC11C03F1026K0BA/0/W27AN40/4914 ⑥



**RoHS** ⑧

Proof-test Seal : ⑦

## Label description 标签说明

- |   |                              |
|---|------------------------------|
| ① | Product Type (物料编码)          |
| ② | Product Bin (BIN 级)          |
| ③ | Quantity (数量)                |
| ④ | Produce Date (生产日期)          |
| ⑤ | Produce Batch (生产批号)         |
| ⑥ | Product Tracing Number (追踪码) |
| ⑦ | Proof-test Seal (检验印章)       |
| ⑧ | RoHS Sign (RoHS 标志)          |

**9. Reliability test items and conditions: 信赖性测试项目及条件**

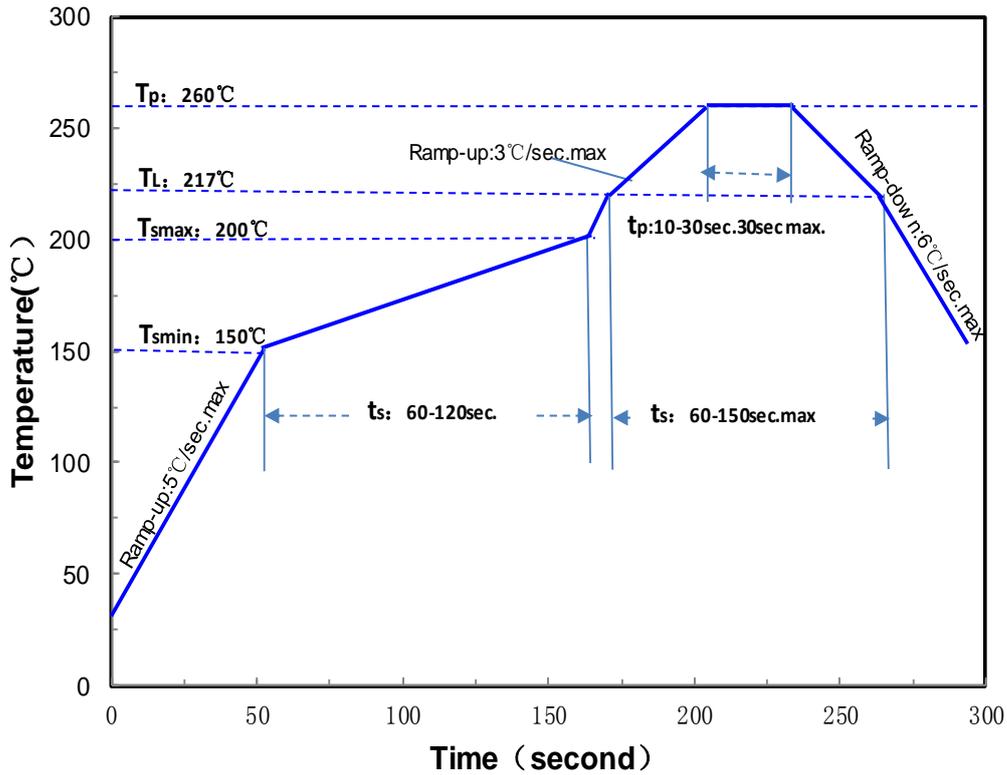
No.	Test Item 项目	Applicable Standard 适用标准	Test Conditions 测试条件	Sample size 数量	Criteria 标准
1	High Temperature Life 高温寿命	JESD22-A108	Test If=DC60mA Temp. =+100°C Test time=1000hrs	22	$\Delta LM\% < 10\%$ , $\Delta VF < 10\%$ $\Delta x/\Delta y < 0.008$
2	High Temperature High Humidity Life 高温高湿寿命	JEITAED-4701 100103	Test If=DC60mA Temp. =+85°C RH=85% Test time=1000hrs	22	$\Delta LM\% < 10\%$ , $\Delta VF < 10\%$ $\Delta x/\Delta y < 0.008$
3	Thermal Shock 冷热冲击	MIL-STD-202G	-40°C ~ +100°C 15min ~ 15min Test Time=200 cycles	22	No led damage
4	Reflow Soldering 回流焊	JEITAED-4701 300301	Operation heating: 260°C (Max.), within 10seconds.(Max.)	22	$\Delta LM\% < 10\%$ , $\Delta VF < 10\%$ $\Delta x/\Delta y < 0.008$
5	Sulfur test 硫化实验	JF Standard	500ml/1gS ;4H/80°C	12	$\Delta LM\% < 20\%$ , $\Delta VF < 10\%$ $\Delta x/\Delta y < 0.008$
6	Red ink test 红墨水实验	JF Standard	Red ink : alcohol=1:1 100°C/4H	12	Impervious

## Note:

- ① Measurement shall be taken within 2 hours. 测试必须在 2 小时内完成。
- ② The tested LED have been returned to normal ambient conditions before testing. 测试前需确保 LED 灯珠已恢复至常温。
- ③ T 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。

10. Precautions for use 使用方法及注意事项

10.1 Reference SMT 参考回流焊



Profile Feature	Lead Free Assembly
Temperature min ( $T_{smin}$ )	150 °C
Temperature max( $T_{smax}$ )	200 °C
Maximum time ( $t_s$ )from $T_{smin}$ to $T_{smax}$	120 seconds
Ramp-up( $T_L$ to $T_p$ )	3 °C/sec
Liquids Temperature( $T_L$ )	217 °C
Maximum Time( $t_L$ ) Maintained $T_L$	150 seconds
Maximum Peak Package Body Temperature( $T_p$ )	260 °C
Time Within 5 °C of the Specified Temperature	10-30seconds
Maximum Ramp-Down Rate( $T_p$ to $T_L$ )	6 °C/seconds
Maximum Time 25 °C to Peak Temperature	8minutes

10.2 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。

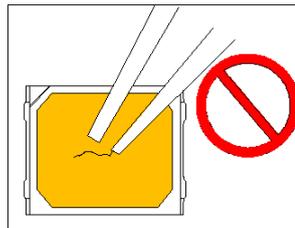
10.3 Storage 存储

- a. Don't open the moisture proof bag before ready to use the LEDs. 在未准备使用 LED 之前不要打开防潮袋
- b. The LEDs should be kept at 30 °C or less and 65%RH or less before opening the package. The max. period before opening the package is 1 year. 未开密封袋之前 LED 建议的存储环境为温度小于 30 °C、湿度 < 65% RH，且最长的存储期为 1 年。

- C. After opening the package, the LEDs should be kept at 30°C/60%RH or less, and it should be used within 3 days. If the LEDs should be kept at 30-60%RH or more, and it should be used within 12hours. 打开密封袋后,环境温湿度保持在 30°C/60% RH 或更低, 需在 3 天内使用。如果环境温湿度超过 30°C/60% RH,则必须 12 小时内使用。
- d. If the LEDs be kept over the conditions of 30%, baking is required before mounting. Baking condition as below: 70±5°C for 12 hours for roll goods, 105±5°C for 1 hours for bulk goods.如果湿度指示卡显示湿度为 30%, 在使用之前需要烘烤除潮。烘烤条件如下:卷装 70±5°C 为 12 小时,散装 105±5°C 1 小时。
- e. The environment have no acid、alkali、corrosive gas、intensively shake and high magnetic field. 存储环境需隔绝酸、碱、腐蚀性气体,强烈震动和高磁场。

#### 10.4 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。



#### 10.5 Handling Precautions 处理防备措施

- a. 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。
- b. In order to prevent external 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 900PPM, the single content of Chlorine element is required to be less than 900PPM, the total content of Bromine element and Chlorine element in the external materials of the application products is required to be less than 1500PPM. This is provided for informational purposes only and is not a warranty or endorsement.为了防止外界物质进入 LED 内部以造成 LED 的损伤, 所处环境及所用套件等等, 单一的溴元素含量要求小于 900PPM, 单一氯元素含量要求小于 900PPM, 溴元素与氯元素总含量必须小于 1500PPM. 这只是一个建议, 不作任何品质担保。
- c. advises against the use of any chemicals or materials that have been found or are suspected to have an adverse affect on device performance or reliability. To verify compatibility, JF recommends that all chemicals and materials be tested in the specific application and environment for which they are intended to be used.反对使用任何对 LED 器件的性能或者可靠性有害的物质或材料, 不管这些材料是已经证实了的还是仅仅怀疑有害。针对特定的用途和使用环境, 建议对所有的物质和材料进行相容性的测试。

- d. 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。
- e. 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. 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电流变化，可能导致产品损毁。
- f. 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。
- g. Other points for attention, please refer to our LED user manual. 其它注意事项请参照聚飞 LED 使用手册。

**Revision History**

Version:A0

<b>Page</b>	<b>Subjects(major change in previous version)</b>	<b>Date of change</b>
1-15	Initial Issue	August 18.2018