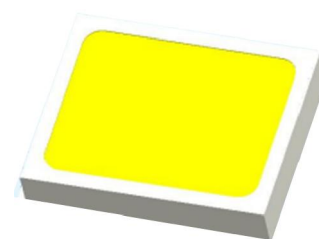


2016 Series Datasheet

PN: 01.JS.CK2016W60N01

For: Camera Flash Current =500mA

Torch Light Current=350mA



Features & Benefits

- Package: 2.0*1.6*0.52mm (Top view white LED)
- Emitted Color: White
- Typical luminous flux: 170lm@500mA
- Typical color temperature: 5700K@500mA
- Moisture Sensitivity Level (MSL) Class 1
- Soldering methods: All SMT assembly methods

Typical Application:

- Mobile Phone Camera flash
- Torch Light for DV application
- Indoor lighting applications
- General use.

Table of Contents

1.Absolute Maximum Ratings($T_a=25^{\circ}\text{C}$).....	3
2.Electrical-optical characteristics($T_a=25^{\circ}\text{C}$).....	3
3.Corresponding to the different current Flux.....	3
4. Product Binning.....	3
5.Package Outline Dimension	5
6.Tapping specifications (Units: mm).....	6
7.Package Method:(unit:mm).....	6
8.Label description:	7
9.Typical Electro-Optical Characteristics Curves.....	8
10.Reliability test items and conditions:.....	11
11.Precautions for use.....	11

1.Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	3200	mW
Forward Current	I _F	400	mA
Peak Forward Current	I _{FP}	800	mA
Junction Temperature	T _j	≤ 120	°C
ESD Resistance	ESD	8000	V
Soldering Temperature	Tsol	Reflow soldering (260 for 10seconds) Hand soldering (300 for 3 seconds)	°C
Operating Temperature	Topr	-40°C~+85°C	-
Storage Temperature	Tstg	-40°C~+100°C	-

* Flash duration: 400ms, duty cycle ≤1/10.

2.Electrical-optical characteristics(Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	V _f	3.2	3.8	4.0	V	IF=500mA
Luminous Flux	Φ	160	170	180	Lm	
Color Temperature	CCT	5000	-	6000	K	
Viewing Angle	2θ _{1/2}	-	120	-	deg	VR=5V
Reverse Current	IR	-	-	0.5	μA	

3.Corresponding to the different current Flux

IF(mA)	Flux(lm)	lm/W	TC(K)	VF(V)
500	175.7	100.67	5755	3.49
350	134.5	116.45	5700	3.29

Notes:

- ❶ Luminous flux measurement tolerance: ±7%.
- ❷ The data of luminous flux measured under the MCPCB at 25°C.
- ❸ Typical luminous flux or light t performance is operated within the condition guided by this datasheet.
- ❹ The CRI value is based on the Jufei testing instrument.
- ❺ CRI measurement tolerance: ±2.

4. Product Binning
a).Luminous flux (IF=500mA,tolerance is ±5%)

BIN code	Min (lm)	Max (lm)
12	120	140
14	140	160
16	160	180

b).Forward voltage (IF=500mA,tolerance is ±0.03V)

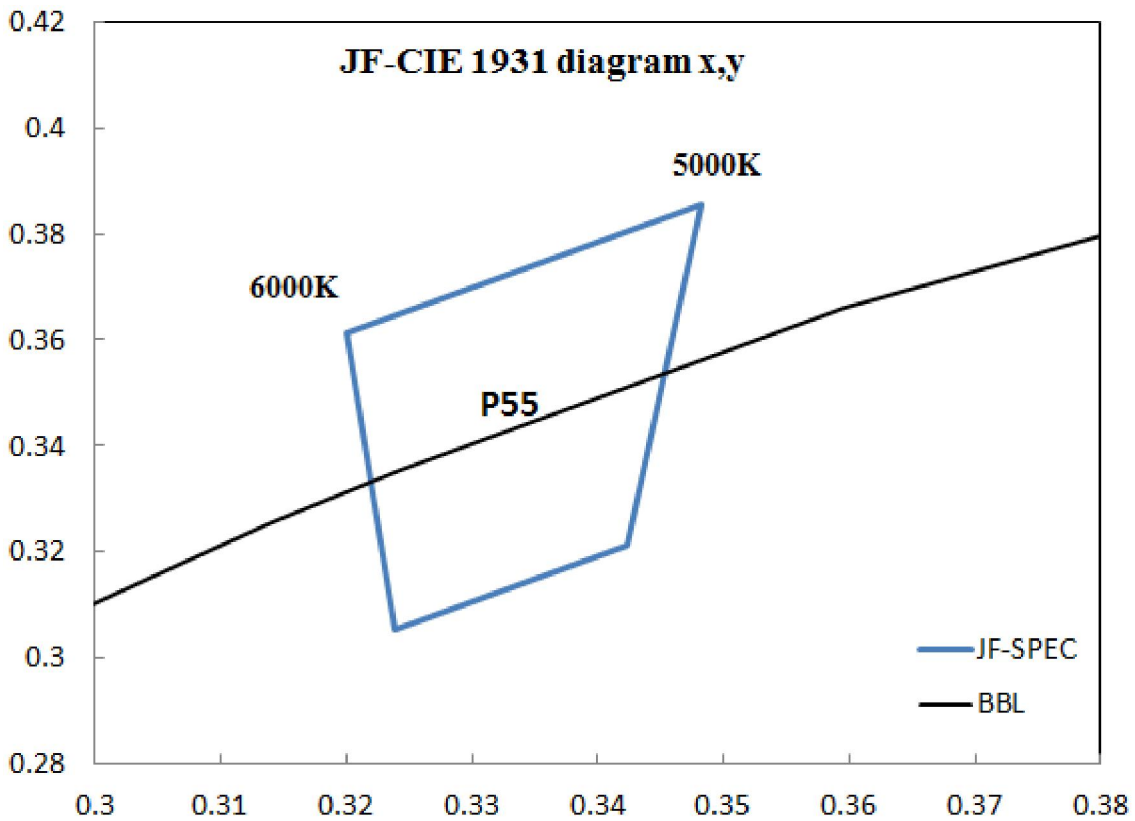
BIN Code	Min (V)	Max (V)
32	3.2	3.6
36	3.6	4.0

c).Chromaticity coordinates specifications(IF=500mA,tolerance is ±0.005)

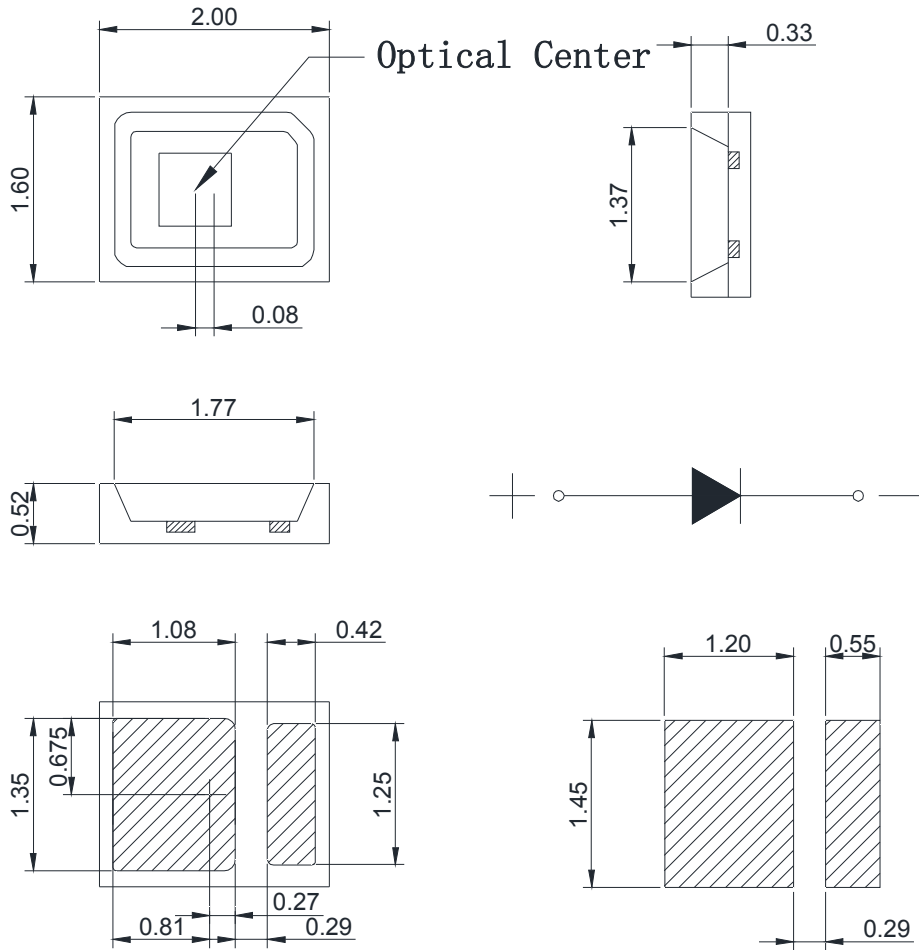
Natural white

TC(K)	Tolerance (K)	CIE-X	CIE-Y	BIN
5500	5500±500K	0.3482	0.3856	P55
		0.3200	0.3613	
		0.3238	0.3054	
		0.3424	0.3211	

diagram:



5.Package Outline Dimension



Recommended bonding pad design
+ indicates optical center

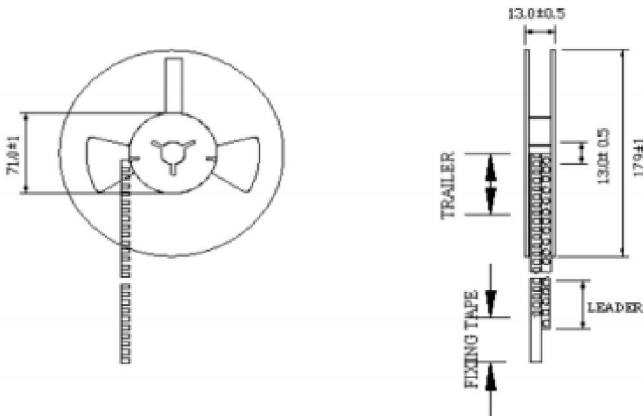
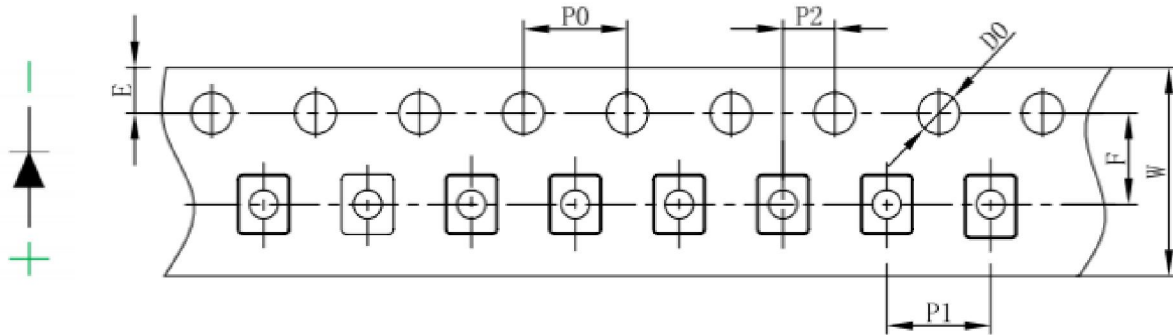
Notes:

- ❶ All dimensions are in millimeters (inches).
- ❷ Tolerance is $\pm 0.10\text{mm}$ unless otherwise specified.
- ❸ Gewicht/Approx.weight: $8.0 \pm 0.5\text{mg}$.

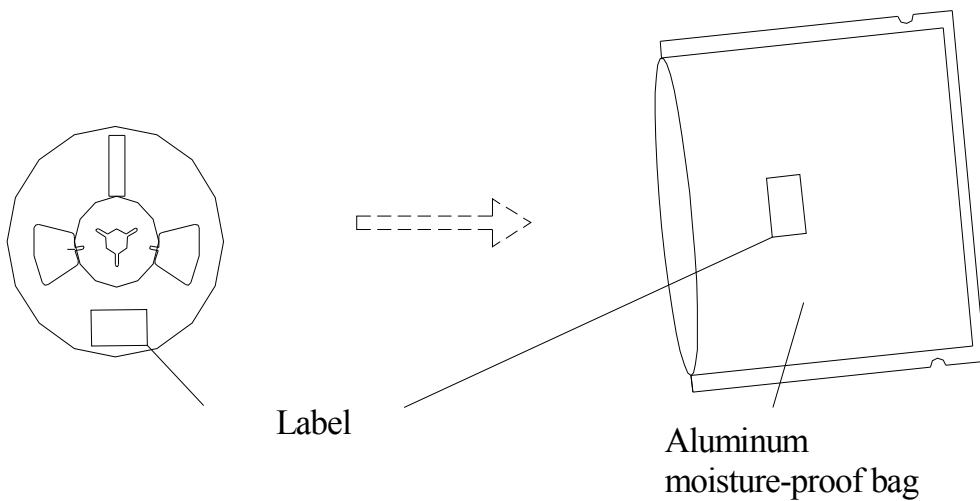
6.Tapping specifications (Unit: mm)

Loaded quantity: 4000 pcs/reel

ITEM	W	A0	B0	K0	E	F	D0	D1	P0	P1	P2	T	
DIM	8.00	1.85	2.20	0.70	1.75	3.50	1.50	1.10	4.00	4.00	2.00	0.20	M/R
TOLE	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 0	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.03 -0.03	




7.Package Method:(unit:mm)




8.Label description :

SHENZHEN JUFEI OPTOELECTRONICS CO.,LTD.
 PN: 01.JS.CK2016W60N00① BIN: 125
 Φ: 100.0-120.0 LM VF: 3.2-3.6V TC: 5000-⑧
 Bin: 10/P55/32② QTY: 4000 pcs③
 Pd: 150709④ Pb: 20150702920⑤
 A20150702920C38BFA16100F1026K0BA/0/150709/1/49
 14⑥



Proof-test Seal : ⑦



a) Label description

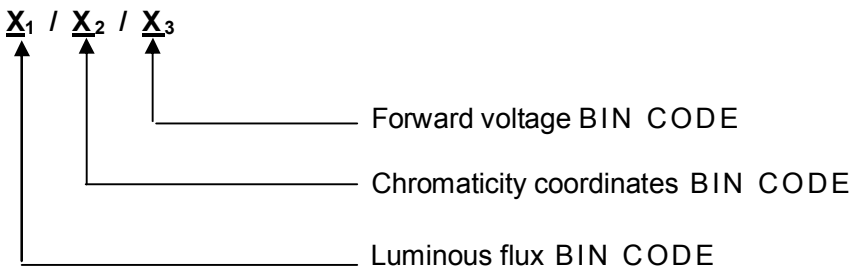
- ①Product Type
- ②Product Bin
- ③Quantity
- ④Produce Date
- ⑤Produce Batch
- ⑥Product Tracing Num
- ⑦Proof-test Seal
- ⑧RoHS Sign

b) Part Number System description

X₁X₂X₃X₄X₅X₆X₇X₈X₉X₁₀X₁₁X₁₂X₁₃X₁₄X₁₅

Part Number Code	Description	Part Number	Value
X ₁ X ₂	Production Type	01	
X ₃	Company	J	JF
X ₄	Applications	S	Flash
X ₅	Chip Type	C	
X ₆	Power Range	K	1.5W
X ₇ -X ₁₀	Product Size	2016	2.0*1.6mm
X ₁₁	Emitting Color	W	white
X ₁₂ X ₁₃	Color Rendering	60	CRI 60+
X ₁₄	Patent	N	
X ₁₅	Water code	00	

c) BIN description



9. Typical Electro-Optical Characteristics Curves

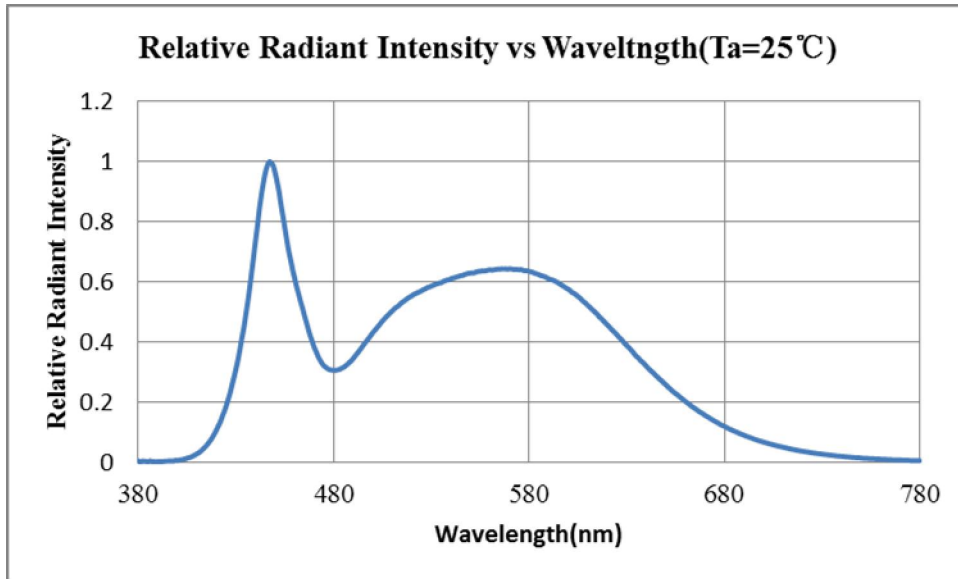


Figure 9.1

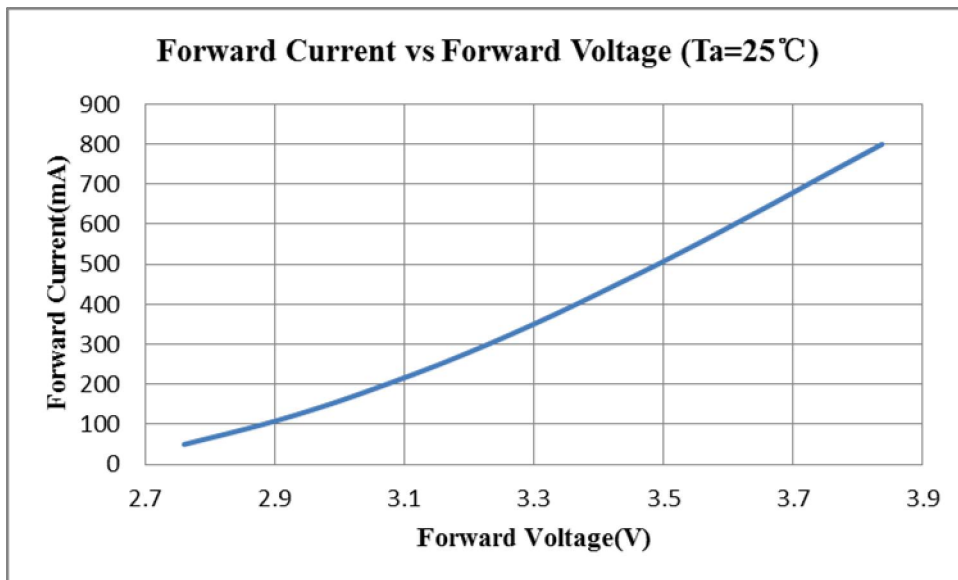


Figure 9.2

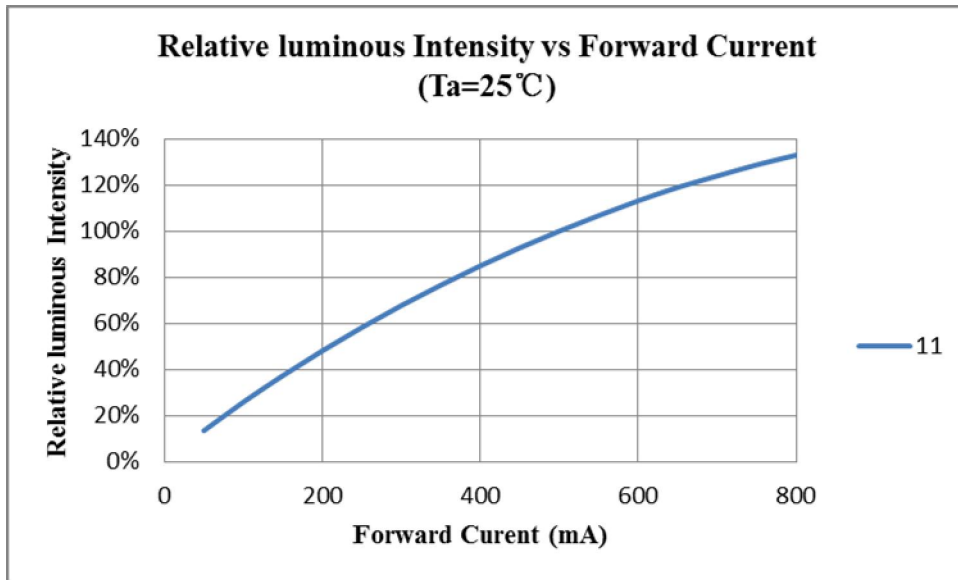


Figure 9.3

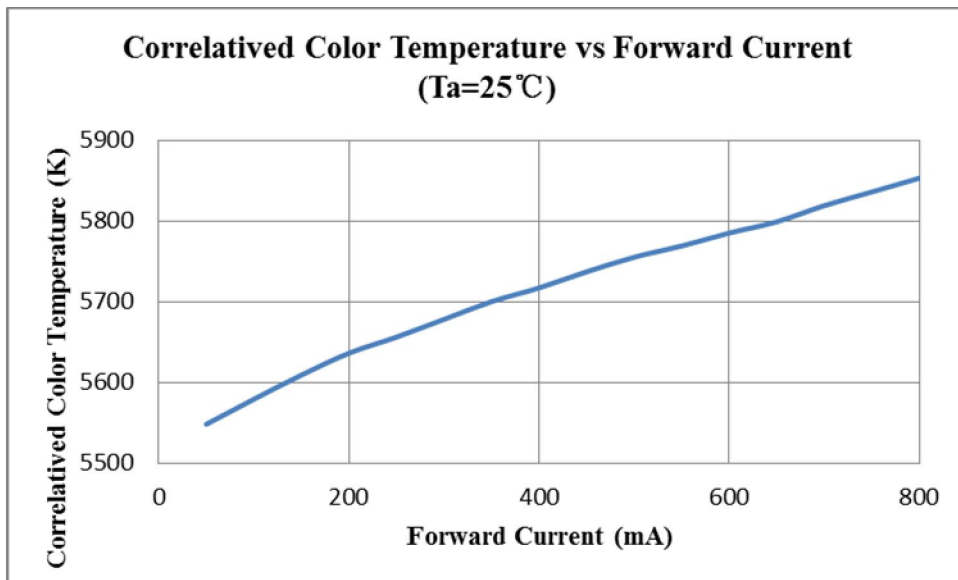


Figure 9.4

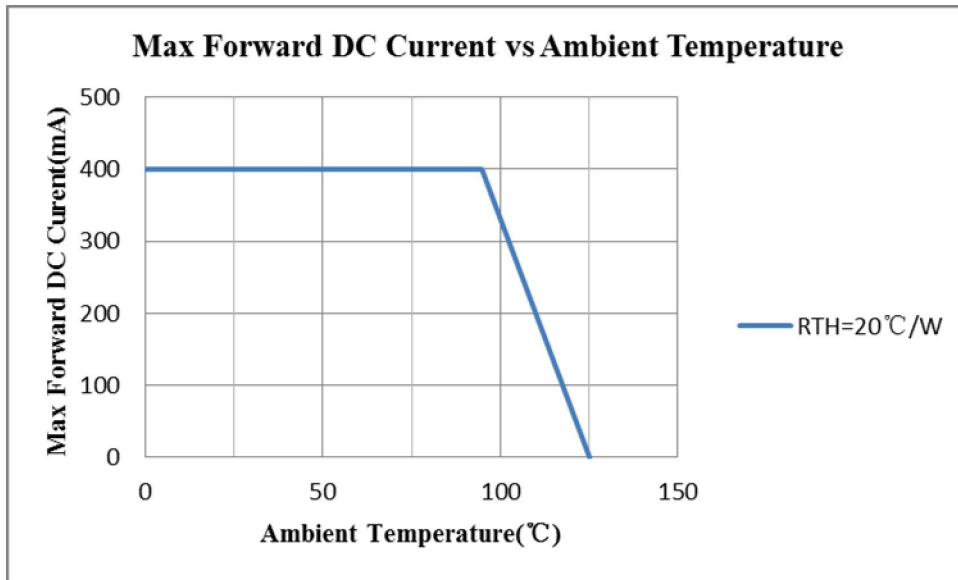


Figure 9.5

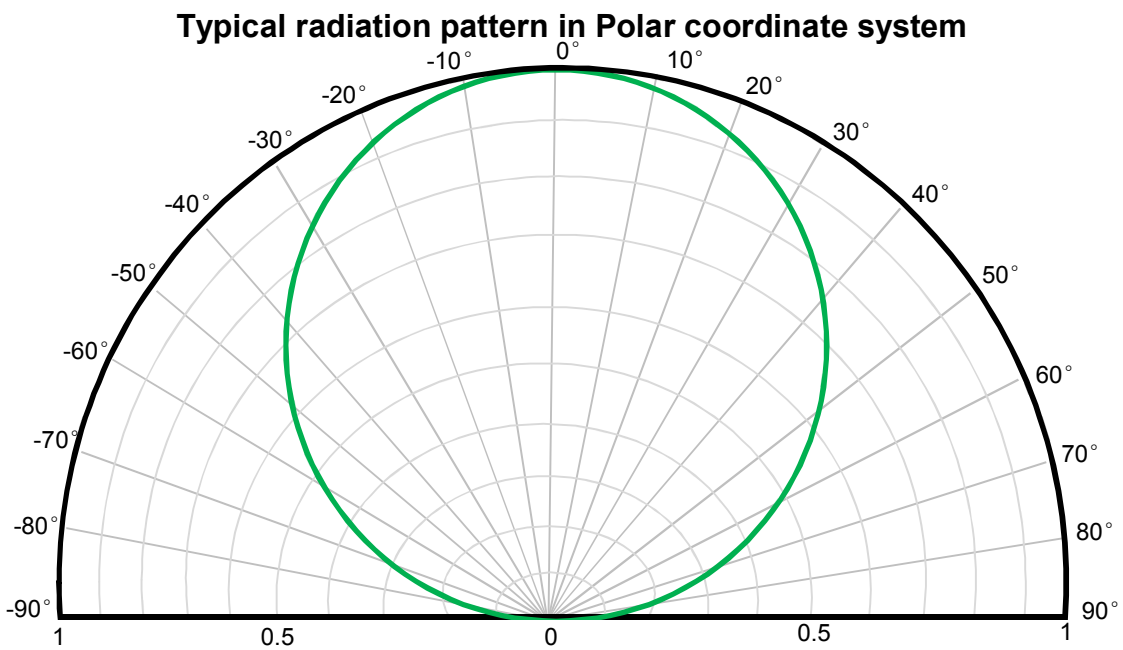


Figure 9.6

10. Reliability test items and conditions:

No.	Test Item	Applicable Standard	Test Conditions	Sample size	Ac/Re
1	Operation Life	JESD22 A108-C	Test If=DC350mA Temp:Room temperature Test time=1000hrs	22	0/1
2	High Temperature High Humidity	JEITAED-4701 100 103	Temp. =+65℃ RH=90% Test time=240hrs	22	0/1
3	Thermal Shock	MIL-STD-202G	-40℃~+100℃ 20min 10s 20min Test Time=100 cycles	22	0/1
4	High Temperature Storage	JEITAED-4701 200 201	High Temp. =+100℃ Test time=1000hrs	22	0/1
5	Low Temperature Storage	JEITAED-4701 200 202	Low Ta=-40℃ Test time=1000hrs	22	0/1
6	Temperature Cycle	JEITAED-4701 100 105	-40℃~+100℃ 60min 20min 60min Test Time=20cycle	22	0/1
7	Reflow Soldering	JEITAED-4701 300 301	Operation heating: 260 ℃ (Max.),within 10seconds.(Max.)	22	0/1
8	Pluse testing	JEITAED-4701	I _{FP} =500mA 400ms on/3600ms off@25℃ 1000times	22	0/1

※Judgment criteria of failure for the reliability

·Flux: Below 70% of initial values

·Vf: Over 20% of upper limit value

Note:

- ❶ Measurement shall be taken within 2 hours
- ❷ The tested LED have been returned to normal ambient conditions before testing.

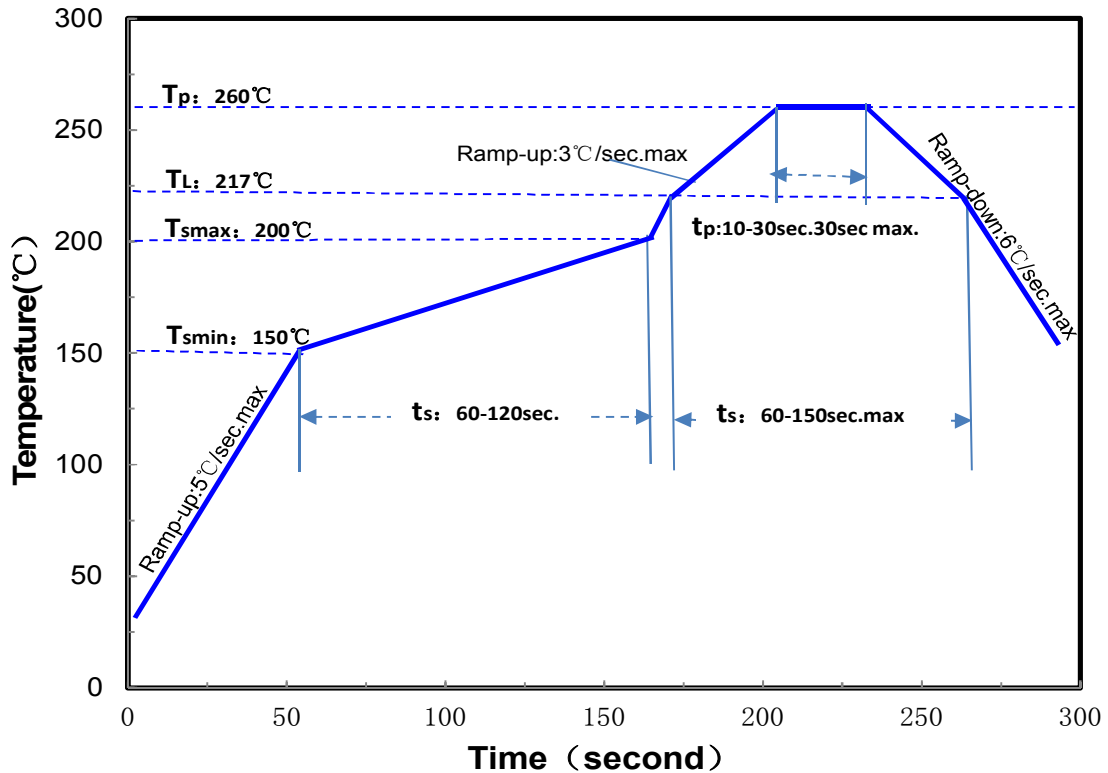
11. Precautions for use
11.1 Soldering

SMD LED encapsulation is very flexible, outside force easily demolish radiant surface and plastic, As soldering , Please handle with care!

- a. With No-clean Flux, according to reflow soldering cure condition when soldering, Reflow soldering should not be done more than two times, simultaneity you must insure clean on the radiant surface. Otherwise, foreign objects can affect radiant color.
- b. Don't process manual soldering except repair. Recommended to be soldered with 25W Anti-static iron, The temp. of the iron should be lower than 300℃ and soldering time should not be done more than three seconds, at the same time iron can't touch radiant surface and plastic.
- c. Don't twist LED in course of manual soldering and experiment, Otherwise, the lights will not work possibly.
- d. Please use the same BIN grade in one panel, and don't mix the difference BIN grade in one panel

when soldering. Otherwise, it will cause a serious uneven color problem.

- e. Please control the sulfur content of solder paste and PCB.
- f. Pb-free solder temp.-time profile as below:260°C Max.



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

11.2 Cleaning

- a. Don't be cleaned with ultrasonic. Recommended to be wiped with isopropyl alcohol or pure alcohol, wiping time should not be more than one minute. LED must be placed at room temperature for fifteen minutes before producing .you must insure clean on the radiant surface. Otherwise, foreign objects can affect radiant color.
- b. LED can't be in contact with acetate、trichloroethylene, acetone、sulfur、nitride、acid、alkali、salt. These matters can destroy LED.

11.3 Sealing

- a. Sealing glue can't contain sulfur, because these matter can affect fluorescence powder poisoning.
- b. When using normal sealing glue, recommended will be operated life for 168hrs under normal

temperature.

11.4 Storage

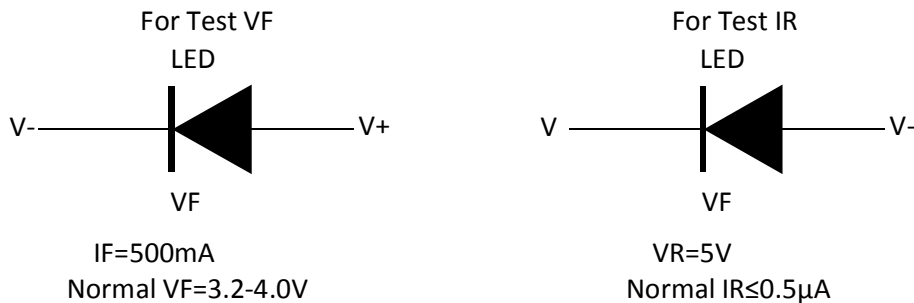
- a. Don't open the moisture proof bag before ready to use the LEDs.
- b. The LEDs should be kept at 30°C or less and 60%RH or less before opening the package. The max. period before opening the package is 1 year.
- c. After opening the package, the LEDs should be kept at 30-35%RH or less, and it should be used within 3 days. If the LEDs should be kept at 30-35%RH or more, and it should be used within 4 hours.
- d. If the LEDs be kept over the conditions of 20%, baking is required before mounting. Baking condition as below: 70±5°C for 12 hours for bulk goods, 105±5°C for 1 hours for roll goods.
- e. The environment have no acid、alkali、corrosive gas、intensively shake and high magnetic field.

11.5 Static

- a. Static and Peak surge voltage can destroy LED, Avoiding Instantaneous voltage when turn on or turn off the lights.
- b. Please wear Anti-static wrist band、Anti-static glove、Anti-static shoes in the course of operation, and the equipment must be grounded.
- c. After LED is be destroyed, leakage current increase obviously, and it will be forward voltage falling or failure lamp in the case of low current.

11.6 Test

- a. Customer must apply the current limiting resistor in the circuit so as to drive the LEDs within the rated current. Otherwise slight voltage shift maybe will cause big current change and burn out will happen.
- b. Also, caution should be taken not to overload the LEDs with instantaneous high voltage at the turning ON and OFF of the circuit. Otherwise LED will be destroyed, testing methods as follows:



- c. The reverse voltage mustn't exceed 5v when lighting on or testing the LED, otherwise, LEDs will be damaged.

11.7 Else

Radiant color of LEDs will be a little change with the current, recommended that LED is be used in series and resistance, when lighting, please don't see directly radiant surface of LED, otherwise LED will burn eyes.

Revision History

Version:B1

Created by : Gong Tao

Page	Subjects(major change in previous version)	Date of change
1-14	Initial Issue	Aug.1.2015

About Jufei@

The company production plant to the implementation of 10,000 purification, temperature and humidity, anti-static, the company introduced the most advanced SMD LED automatic production equipment, strict real integrated management system of ISO9001/TS16949, QC080000, ISO14001, OHSAS18001, and passed the CQC third-party certification; products by SGS, fully comply with the RoHS / REACH / halogen-free product environmental requirements. Jufei cost photoelectric LED products, widely recognized by the customers, has become the top ten brands of Chinese LED industry market customer satisfaction, and received the title of "Shenzhen Top Brand".

Address:No.4, Eling Industrial Area, Egongling Community, Pinghu Street, Longgang District, Shenzhen

Web : <http://www.jfled.com.cn>

Tel : 0755-29632280/29632290

Fax : 0755-29632282/29632285