

ShenZhen JuFei Optoelectronics Co., Ltd.



01.JT.ZB320ZA-B

● Customer:

Technical Data Sheet

PN: JT.ZB320ZA-B

For: IF= 20mA

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1、Features:

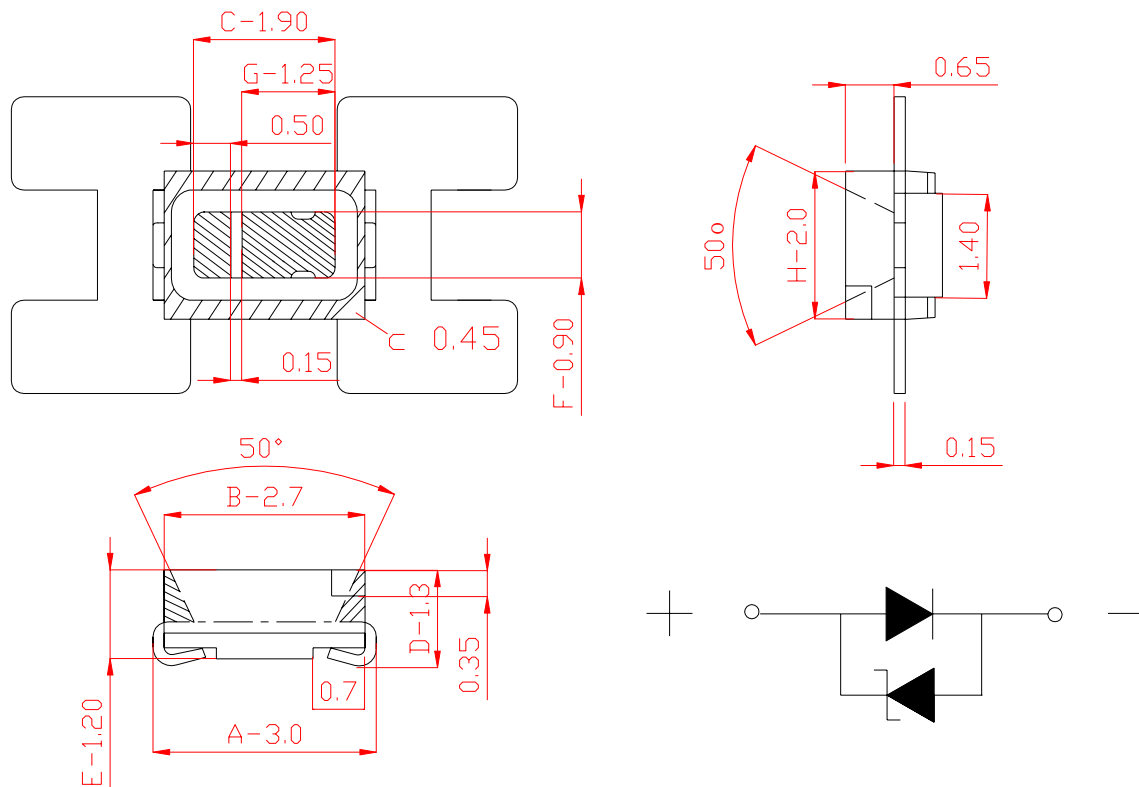
- 1.1 Package: 3.0*2.0*1.2mm (Top view white LED)
- 1.2 Emitted Color: White
- 1.3 Mono-color type
- 1.4 Soldering methods: All SMT assembly methods
- 1.5 Comply RoHS standard



2、Applications:

- 2.1 LCD back light: 5-7inch
- 2.2 General use.

3、Package Outline Dimension:



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.10\text{mm}$ unless otherwise specified.

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4、Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	100	mW
Forward Current	I _F	30	mA
Peak Forward Current * 1	I _{FP}	100	mA
Reverse Voltage	V _R	5	V
Soldering Temperature	Tsol	260 (for 10seconds) Hand soldering (300 for 3 seconds)	°C
Operating Temperature	Topr	-35°C~+85°C	-
Storage Temperature	Tstg	-40°C~+100°C	-
Electrostatic discharge	ESD	2000(HBM)	V

* I_{FP} condition: pulse width ≤0.1msec, duty cycle ≤1/10.

5、Electrical-optical characteristics(Ta=25°C)

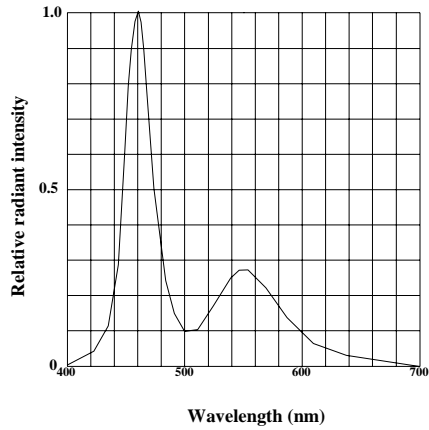
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	V _f	-		3.5	V	I _F =20mA
Luminous Intensity	I _v	950	-		mcd	
Viewing Angle	2θ _{1/2}	-	110	-	deg	
Reverse Voltage	V _R	-	0.8	1.2	V	IR=10mA

Note: 1. Tolerance of luminous intensity is ±5%

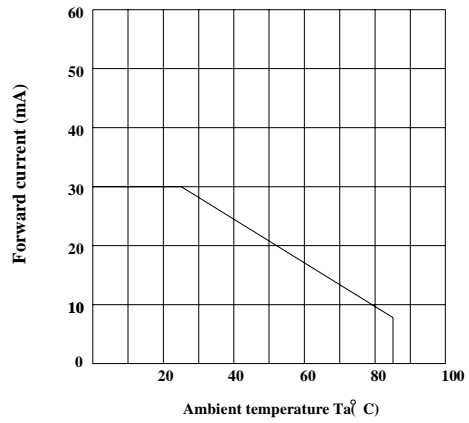
2. Tolerance of forward voltage is ±0.03V

6、Typical Electro-Optical Characteristics Curves

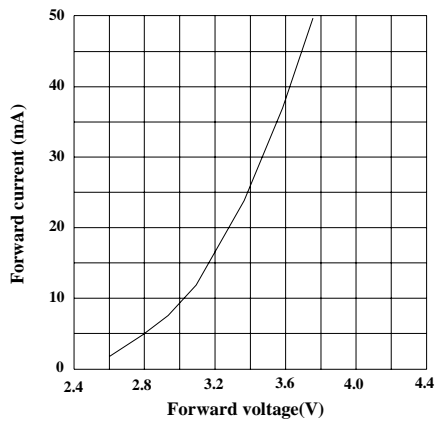
Relative intensity vs. wavelength(Ta=25)



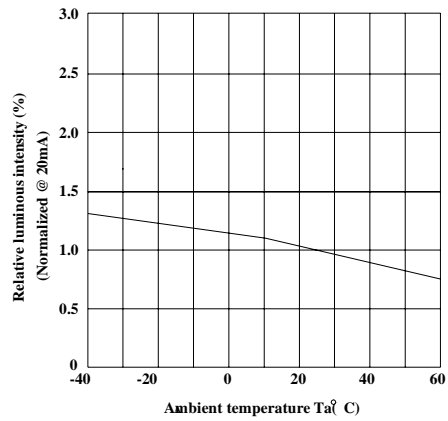
Forward current derat
vs. ambient temperature



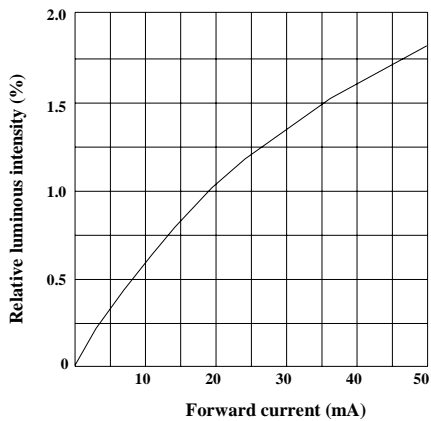
Forward current vs. forward voltage(Ta=25)



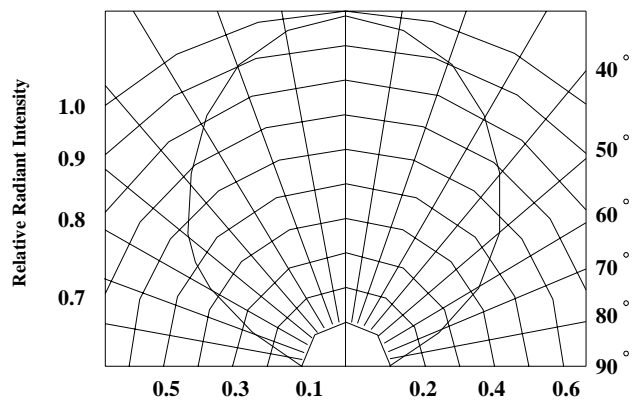
Luminous intensity vs.
ambient temperature



Relative luminous intensity vs. forward current

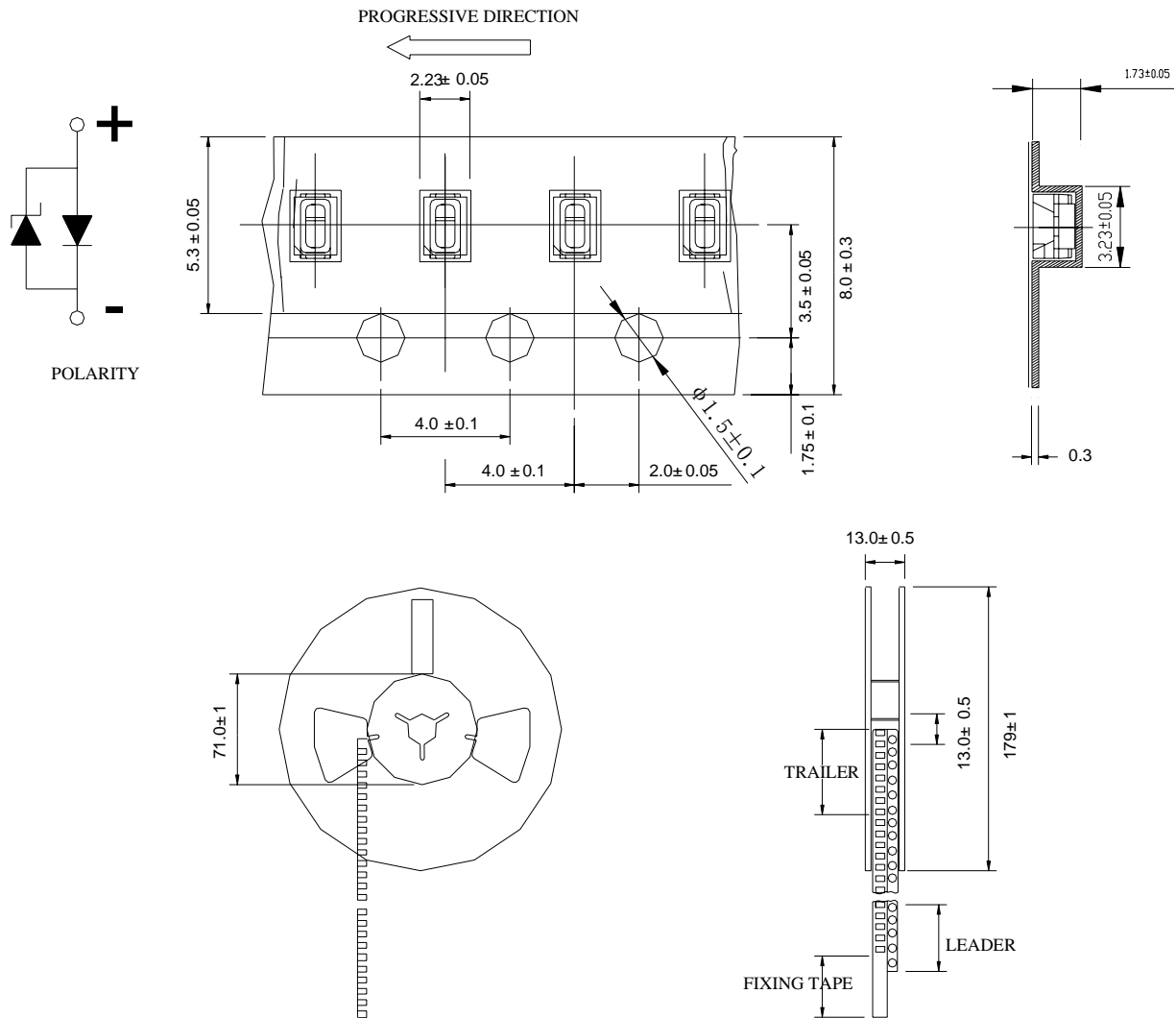


Radiation diagram
0° 10° 20° 30°

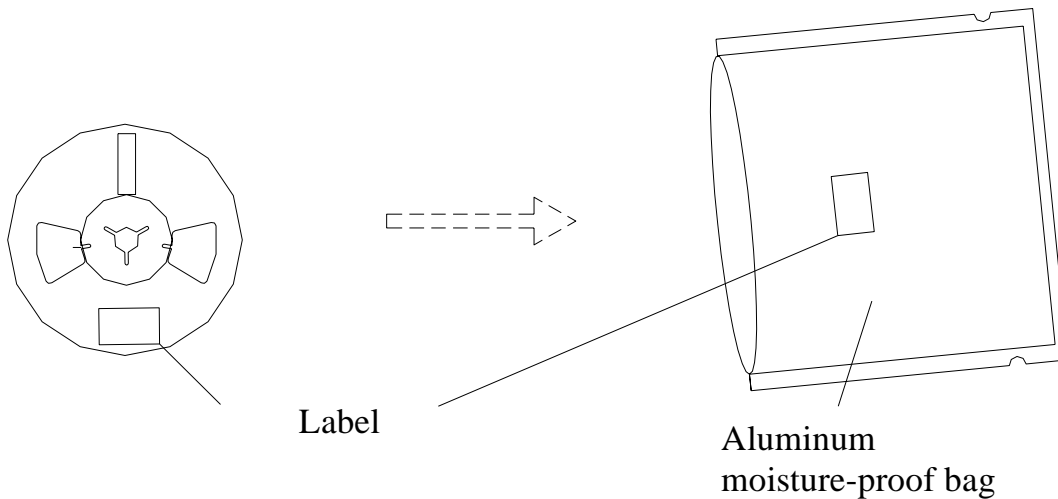


7、Tapping specifications (Units: mm)

Loaded quantity: 1000-3000 pcs/reel



8、Package Method:(unit:mm)



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9、Label description :



BIN description: $\frac{X}{X} / \frac{X}{X} / \frac{X-X}{X-X}$

- Forward voltage BIN CODE
- Chromaticity coordinates BIN CODE
- Luminous intensity BIN CODE

Such as:

BIN: 12/E1/7-1*

12 show luminous intensity BIN CODE

E1 show chromaticity coordinates BIN CODE

7-1* show forward voltage BIN CODE

10、BIN range

Luminous intensity (tolerance is $\pm 5\%$ @ $I_f=20\text{mA}$):

20mA test		
BIN CODE	Min. (mcd)	Max. (mcd)
11	950	1000
12	1000	1050
13	1050	1100
14	1100	1150
15	1150	1200
16	1200	1250
17	1250	1300
18	1300	1350
19	1350	1400
20	1400	1450
21	1450	1500
22	1500	1550
23	1550	1600
24	1600	1650
25	1650	1700
26	1700	1750
27	1750	1800

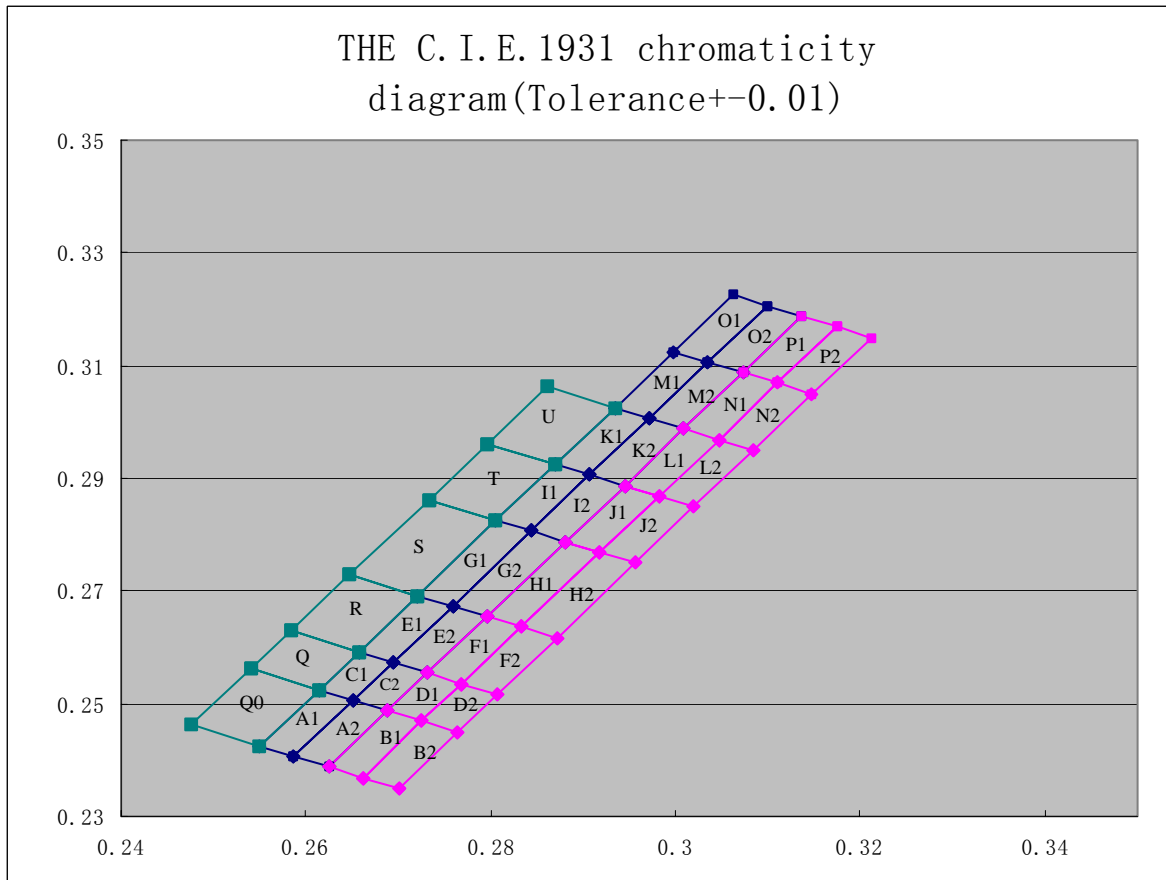
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Chromaticity coordinates specifications(tolerance is ± 0.005 @ $I_f=20\text{mA}$):

	x	y		x	y		x	y		x	y
A1	0.255	0.2425	B1	0.2625	0.2388	I2	0.2844	0.2807	J2	0.2919	0.2769
	0.2614	0.2525		0.2689	0.2488		0.2908	0.2907		0.2983	0.2869
	0.2651	0.2507		0.2725	0.2469		0.2945	0.2888		0.302	0.285
	0.2586	0.2407		0.2663	0.2369		0.2881	0.2788		0.2956	0.275
A2	0.2586	0.2407	B2	0.2663	0.2369	K1	0.287	0.2925	L1	0.2983	0.2869
	0.2651	0.2507		0.2725	0.2469		0.2934	0.3025		0.2945	0.2888
	0.2689	0.2488		0.2764	0.245		0.2972	0.3007		0.3009	0.2988
	0.2625	0.2388		0.27	0.235		0.2908	0.2907		0.3047	0.2969
C1	0.2614	0.2525	D1	0.2689	0.2487	K2	0.2908	0.29065	L2	0.2983	0.2869
	0.2657	0.2592		0.2732	0.2554		0.2972	0.3007		0.3047	0.2969
	0.2694	0.2574		0.2768	0.2536		0.3009	0.2988		0.3084	0.295
	0.2651	0.2507		0.2725	0.2469		0.2945	0.2888		0.302	0.285
C2	0.2651	0.2507	D2	0.2725	0.2469	M1	0.2934	0.3025	N1	0.3009	0.2988
	0.2694	0.2574		0.2768	0.2536		0.2998	0.3125		0.3073	0.3088
	0.2732	0.2555		0.2807	0.2517		0.3036	0.3107		0.3111	0.3069
	0.2689	0.2488		0.2764	0.245		0.2972	0.3007		0.3047	0.2969
E1	0.2657	0.2592	F1	0.2732	0.2554	M2	0.2972	0.3007	N2	0.3047	0.2969
	0.2721	0.2692		0.2796	0.2654		0.3036	0.3107		0.3111	0.3069
	0.2759	0.2674		0.2832	0.2636		0.3073	0.3088		0.3148	0.305
	0.2694	0.2574		0.2768	0.2536		0.3009	0.2988		0.3084	0.295
E2	0.2694	0.2574	F2	0.2768	0.2536	O1	0.2998	0.3125	P1	0.3073	0.3088
	0.2759	0.2674		0.2832	0.2636		0.3062	0.3225		0.3137	0.3188
	0.2796	0.2655		0.2871	0.2617		0.31	0.3207		0.3175	0.3169
	0.2732	0.2555		0.2807	0.2517		0.3036	0.3107		0.3111	0.3069
G1	0.2721	0.2692	H1	0.2796	0.2654	O2	0.3036	0.3107	P2	0.3111	0.3069
	0.2806	0.2825		0.2881	0.2787		0.31	0.3207		0.3175	0.3169
	0.2844	0.2806		0.2917	0.2769		0.3137	0.3188		0.3212	0.315
	0.2759	0.2674		0.2832	0.2636		0.3073	0.3088		0.3148	0.305
G2	0.2759	0.2674	H2	0.2832	0.2636	Q0	0.255	0.2425	S	0.2721	0.2692
	0.2844	0.2806		0.2917	0.2769		0.2477	0.2462		0.2648	0.2729
	0.2881	0.2787		0.2956	0.275		0.2541	0.2562		0.2733	0.2862
	0.2796	0.2655		0.2871	0.2617		0.2614	0.2525		0.2806	0.2825
I1	0.2806	0.2825	J1	0.2919	0.2769	Q	0.2614	0.2525	T	0.2806	0.2825
	0.287	0.2925		0.2881	0.2788		0.2541	0.2562		0.2733	0.2862
	0.2908	0.2907		0.2945	0.2888		0.2584	0.2629		0.2797	0.2962
	0.2844	0.2807		0.2983	0.2869		0.2657	0.2592		0.287	0.2925
						R	0.2657	0.2592	U	0.287	0.2925
							0.2584	0.2629		0.2797	0.2962
							0.2648	0.2729		0.2861	0.3062
							0.2721	0.2692		0.2934	0.3025



Forward voltage (tolerance is $\pm 0.03V @ I_f=20mA$):

BIN CODE	Min.(v)	Max.(v)
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
8-2*	3.4	3.5

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11、 Reliability test items and conditions:

No.	Test Item	Test Conditions	Sample size	Ac/Re
1	Operation Life	Test If=DC20mA Temp: Room temperature Test time=1000hrs	20	0/1
2	High Temperature High Humidity	Temp. =+65℃ RH=90% Test time=240hrs	20	0/1
3	Thermal Shock	-40℃ ~ +100℃ 20min 10s 20min Test Time=100 cycles	20	0/1
4	High Temperature Storage	High Temp. =+100℃ Test time=1000hrs	20	0/1
5	Low Temperature Storage	Low Ta=-40℃ Test time=1000hrs	20	0/1
6	Temperature Cycle	-40℃ ~ +100℃ 60min 20min 60min Test Time=20cycle	20	0/1
7	Reflow Soldering	Operation heating: 260℃(Max.), within 10seconds.(Max.)	20	0/1

※Judgment criteria of failure for the reliability

- Iv: Below 85% of initial values
- Vf: Over 10% of upper limit value

Note:

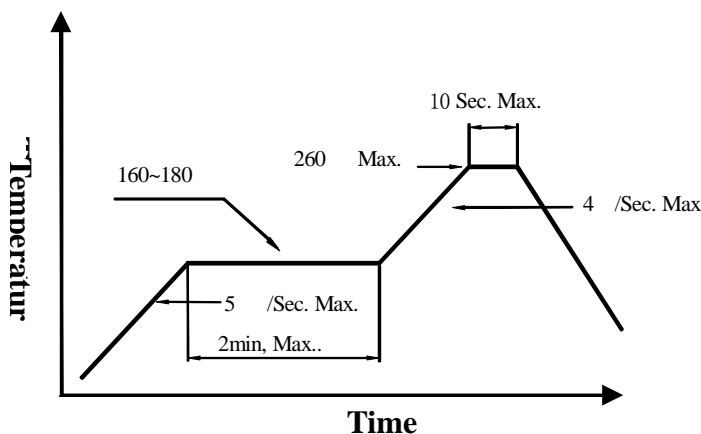
1. Measurement shall be taken within 2 hours
2. The tested LED have been returned to normal ambient conditions before testing.

12、Precautions for use :

12.1 Soldering

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

- 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.
- 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°C and soldering time should not be done more than three seconds, at the same time iron can't touch radiant surface and plastic.
- Don't twist LED in course of manual soldering and experiment, Otherwise, the lights will not work possibly.



12.2 Cleaning

- 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 using. after cleaning, you must insure clean on the radiant surface. Otherwise, foreign objects can affect radiant color.
- LED can not be in contact with isoamyl acetate、trichloroethylene、acetone、sulfid、nitride、acid、alkali、salt. These matter can destroy LED.

12.3 Sealing

- Sealing glue can not contain sodium ion、sulfid, because these matter can affect fluorescence powder poisoning.
- When using normal sealing glue, Recommended to be operated life for 168hrs under normal temperature.

12.4 Storage

- Don't open the moisture proof bag before ready to use the LEDs.
- The LEDs should be kept at 30°C or less and 60%RH or less before opening the package. The max. storage period before opening the package is 1 year.
- After opening the package, the LEDs should be kept at 30-35%RH or less, and it should be used within 7 days.
- If the LEDs be kept over the conditions of c., baking is required before mounting. Baking condition as below: 60±5°C for 12 hrs for bulk goods, 105±5°C for 1 hrs for roll goods.
- The environment have no acid、alkali、corrosive gas、intensively shake and high magnetic field.

12.5 Static

- Static and Peak surge voltage can destroy LED, Avoiding Instantaneous voltage when turn on or turn off the lights.
- Please wear Anti-static wrist band、Anti-static glove、Anti-static shoes in the course of operation, and the equipment must be grounded.
- 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.

12.6 Test

- 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.
- 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:

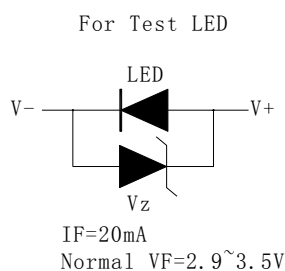


Fig.1

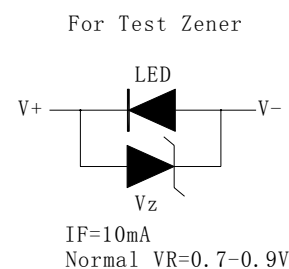


Fig.2

12.7 Else

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