

- **Customer:**

## **Technical Data Sheet**

**PN:JT.CB002ZA-B**

**For: IF= 20mA   VF: Testing with 15 mA**

### **Contents**

- 1. Features**
- 2. Applications**
- 3. Package outline dimension**
- 4. Absolute maximum ratings**
- 5. Electrical-optical characteristics**
- 6. Typical electro-optical characteristics curves**
- 7. Tapping specifications**
- 8. Package method**
- 9. Label description**
- 10. BIN range**
- 11. Reliability test items and conditions**
- 12. Precautions for use**

## 1. Features:

- 1.1 Package: 4\*1.4\*0.8mm
- 1.2 Emitted Color: White
- 1.3 Mono-color type
- 1.4 Soldering methods: All SMT assembly methods
- 1.5 Comply RoHS standard.

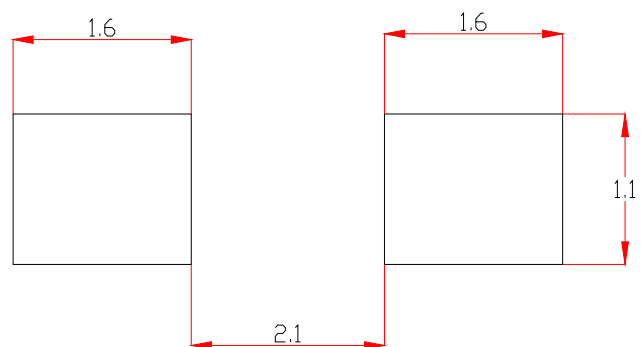
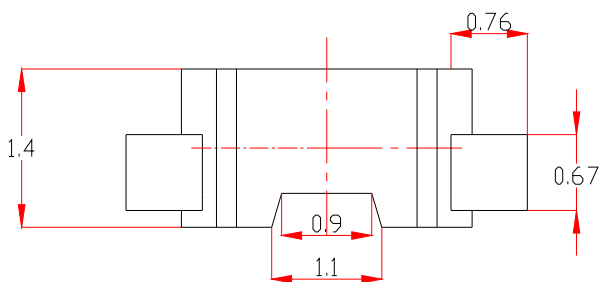
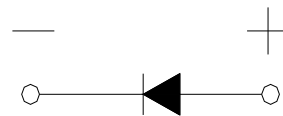
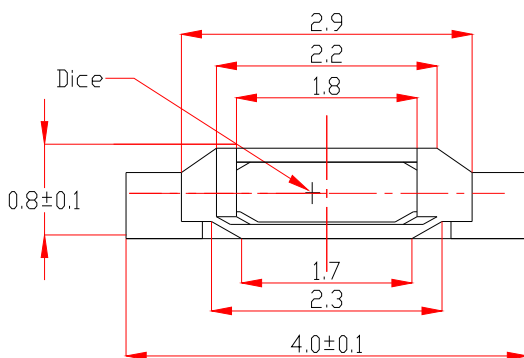
## 2. Applications:

- 2.1 LCD back light.
- 2.2 Mobile phones: LCD, Keypad and symbol.
- 2.3 MP3,MP4

## ※Appearance:



## 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 <sub>F</sub>	30	mA
Peak Forward Current * 1	I <sub>FP</sub>	100	mA
Reverse Voltage	V <sub>R</sub>	5	V
Soldering Temperature	Tsol	Reflow soldering (260for10seconds) Hand soldering ( 300 for 3 seconds)	°C
Operating Temperature	Topr	-30°C~85°C	-
Storage Temperature	Tstg	-40°C~100°C	-
Electrostatic discharge	ESD	2000(HBM)	V

\* 1 I<sub>FP</sub> condition: pulse width  $\leq 0.1\text{msec}$ , duty cycle  $\leq 1/10$

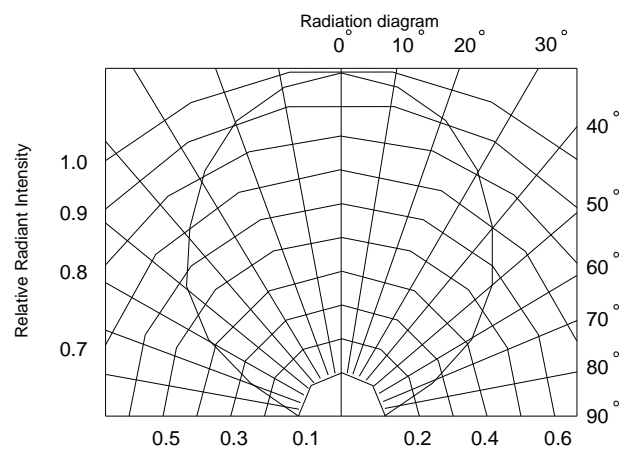
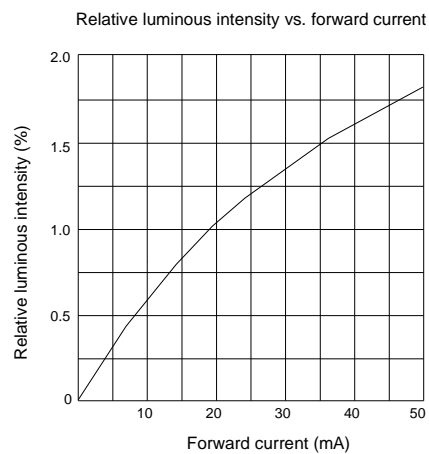
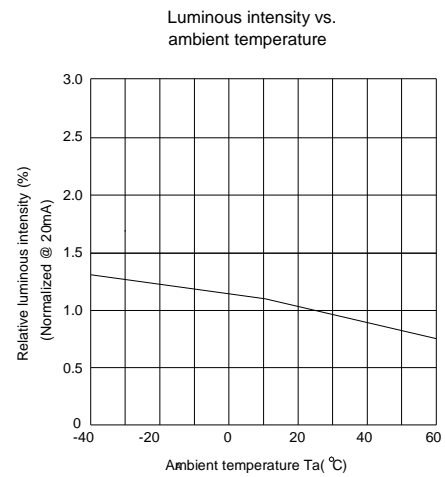
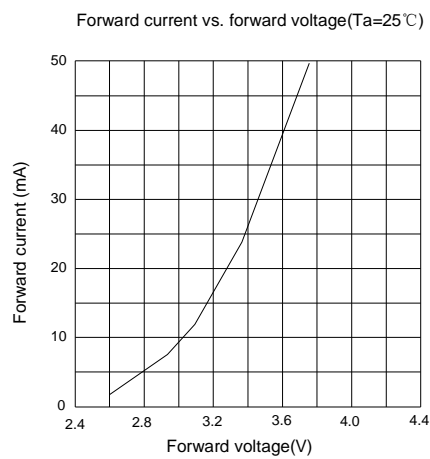
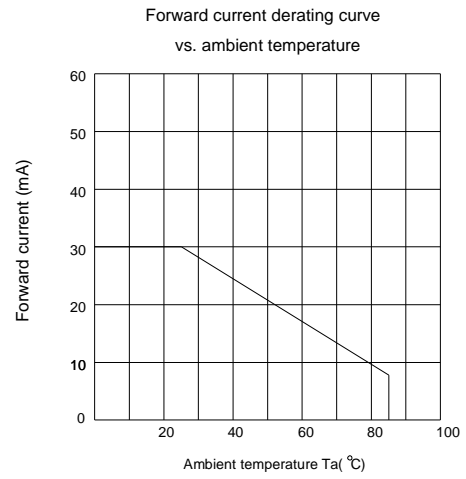
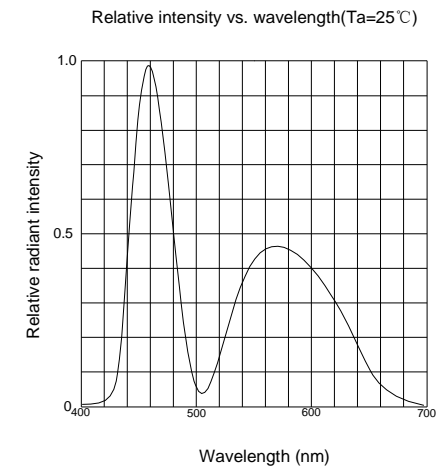
**5. Electrical-optical characteristics(Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	V <sub>f</sub>	-		3.4	V	I <sub>F</sub> =15mA
Luminous Intensity	I <sub>v</sub>	1000	-		mcd	I <sub>F</sub> =20mA
Viewing Angle	2 $\theta_{1/2}$	-	110	-	deg	
Reverse Current	I <sub>R</sub>	-	-	10	$\mu\text{A}$	V <sub>R</sub> =5V

Note: 1. Tolerance of luminous intensity is  $\pm 5\%$

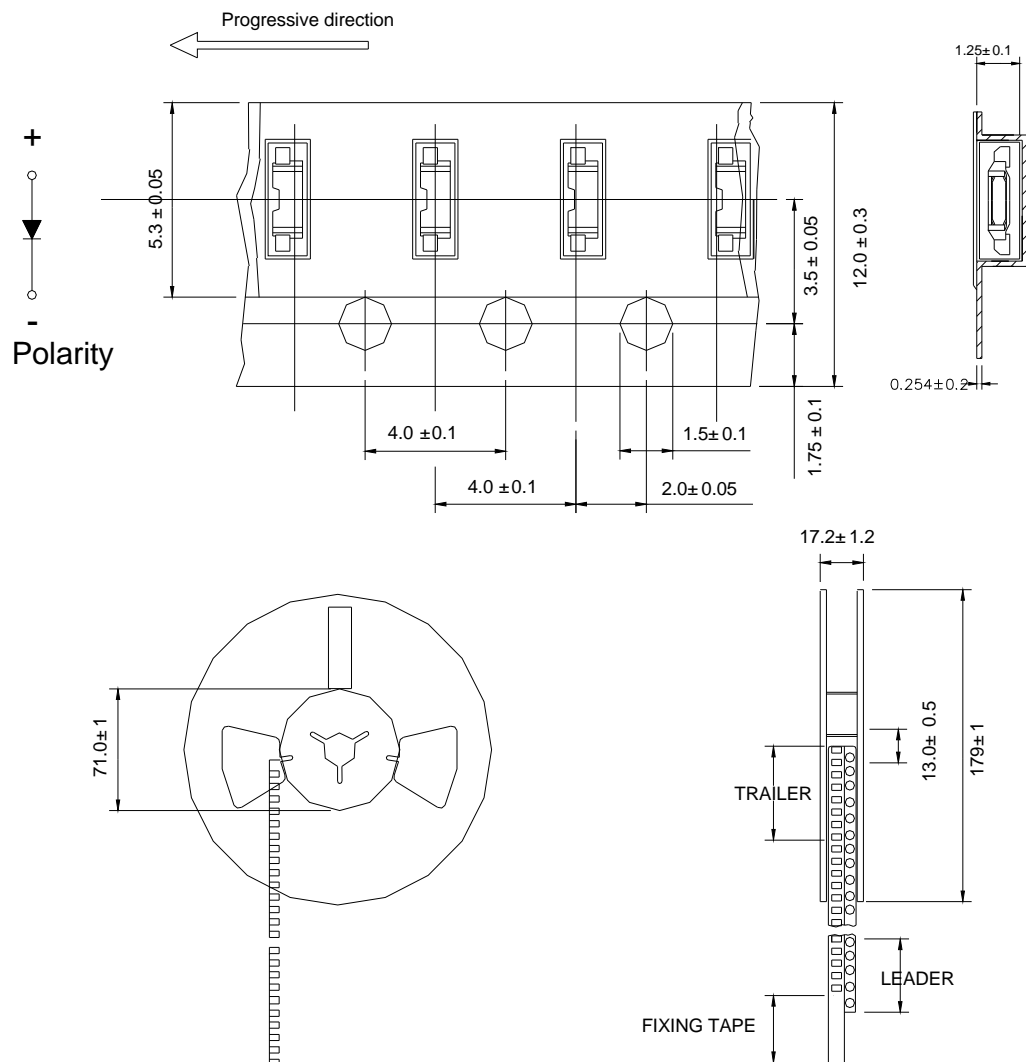
2.Tolerance of forward voltage is  $\pm 0.03\text{V}$

6. Typical Electro-Optical Characteristics Curves

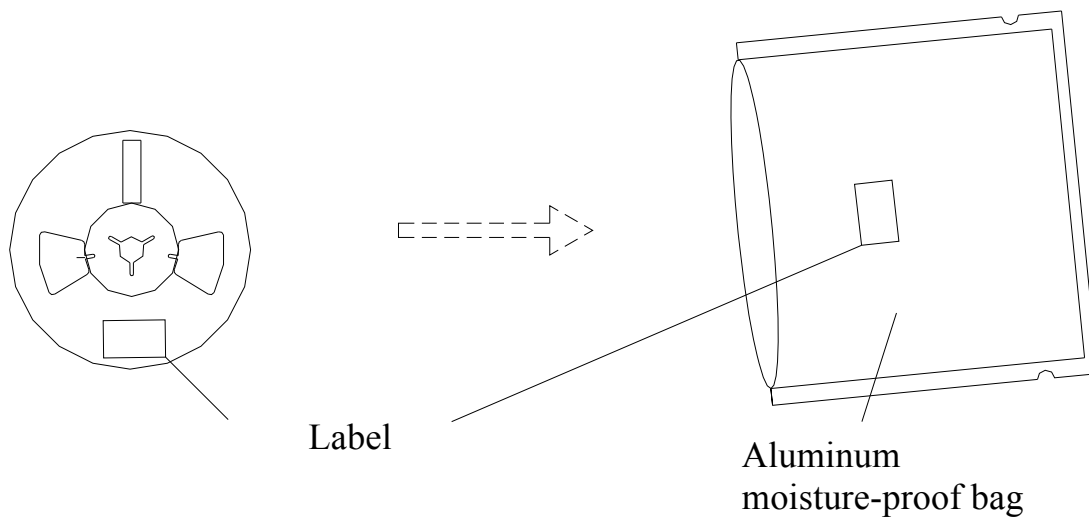


## 7. Tapping specifications (Units: mm)

Loaded quantity: 1000-3000 pcs/reel



## 8. Package Method:(unit:mm)



## 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: 25/OD/7-1\*

25 show luminous intensity BIN CODE

OD show chromaticity coordinates BIN CODE

7-1\* show forward voltage BIN CODE

## 10. BIN range

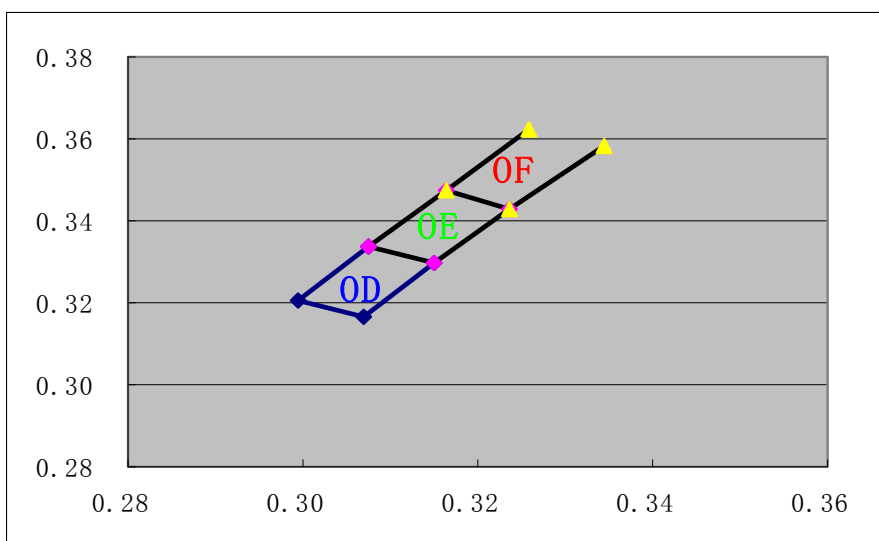
Luminous intensity (tolerance is  $\pm 5\%$  @  $I_f=20\text{mA}$ ):

BIN CODE	Min. (mcd)	Max. (mcd)
22	1000	1150
23	1150	1300
24	1300	1450
25	1450	1600
26	1600	1750
27	1750	1900
28	1900	2050
29	2050	2200

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

BIN CODE	CIE_X	CIE_Y	CIE_X	CIE_Y
OD	0.3076	0.3335	0.3012	0.3235
	0.3087	0.3198	0.3151	0.3298
OE	0.3140	0.3435	0.3076	0.3335
	0.3151	0.3298	0.3215	0.3398
OF	0.3220	0.3560	0.3140	0.3435
	0.3215	0.3398	0.3295	0.3523



**Forward voltage (tolerance is  $\pm 0.03\text{V}$  @  $I_f=15\text{mA}$ ):**

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

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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	22	0/1
2	High Temperature High Humidity	Temp. =+65℃ RH=90%HR Test time=240hrs	22	0/1
3	Thermal Shock	-40℃ ~ +100℃ 20min 10s 20min Test Time=100cycles	22	0/1
4	High Temperature Storage	High Temp. =+100℃ Test time=1000hrs	22	0/1
5	Low Temperature Storage	Low Ta=-40℃ Test time=1000hrs	22	0/1
6	Temperature Cycle	-40℃ ~ +100℃ 60min 20min 60min Test Time=20cycle	22	0/1
7	Reflow Soldering	Operation heating: 260℃(Max.), within 10seconds. (Max.)	22	0/1

※Judgment criteria of failure for the reliability

- Iv: Below 70% of initial values
- Vf: Over 20% of upper limit value

Note: Measurement shall be taken between 2 hours and after the test LED have been returned to normal ambient conditions after completion of each test.

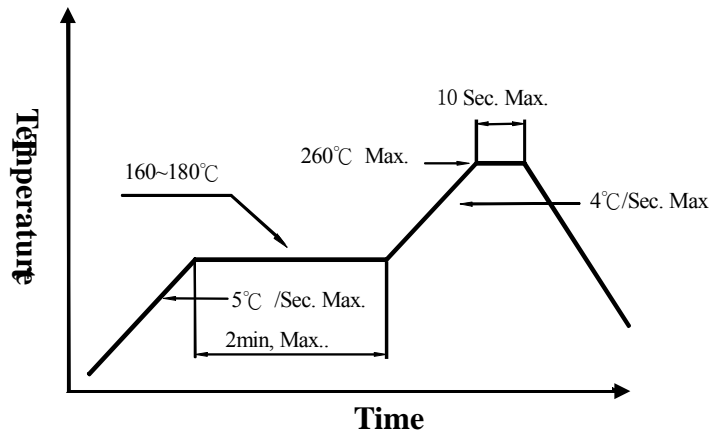
**12. Precautions for use :****12.1 Soldering**

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℃ and soldering time should not be done more than three seconds, at the same time iron can't touch radiant surface and plastic.



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- c Don't twist LED in course of manual soldering and experiment, Otherwise, the lights will not work possibly.



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

## 12.3 Sealing

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

## 12.4 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. storage 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 7 days.
- d 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.
- e The environment have no acid、alkali、corrosive gas、intensively shake and high magnetic field.

## 12.5 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,

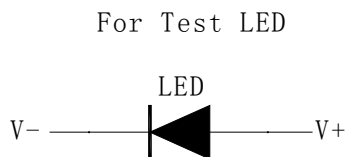
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and the equipment must be grounded.

- c After LED is destroyed, leakage current increase obviously, and it will be forward voltage falling or failure lamp in the case of low current.

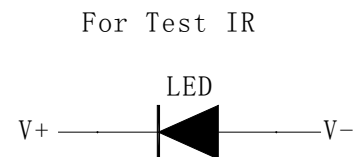
### 12.6 Test

- 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:



$I_F = 15\text{mA}$   
Normal  $V_F = 2.9 \sim 3.4\text{V}$

Fig.1



$V_R = 5\text{V}$   
Normal  $I_R < 10\mu\text{A}$

Fig.2

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

### 12.7 Else

Radiant color of LEDs have 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.