

Reference

1. Scope of Application

These specifications apply to chip type LED lamp, CITELED, model CL-770S-BW01-SD-T.

2. Part code

CL-770S-BW01-SD-T

Series _____

770S : Mono-color
Thin size

Lighting color _____

BW01 : High brightness white

Diffusion _____

SD: Diffused

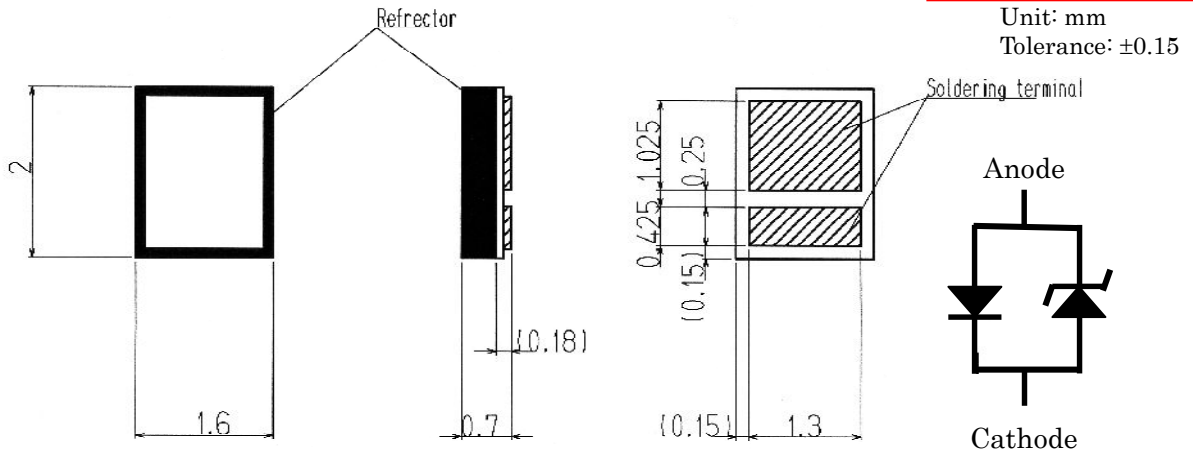
Shipping mode _____

Non-coded: Bulk
T: Taping (standard)

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						Name	CL-770S-BW01
						Drawing No	
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3. Outline drawing

Reference



4. Performance

(1) Absolute Maximum Rating (Ta=25°C)

Parameter	Symbol	Rating Value	Unit
Power Dissipation	Pd	(132)	mW
Forward Current	IF	(40)	mA
Forward Pulse Current	IFP	(200) *	mA
Reverse Voltage	VR	5	V
Operating Temperature	Top	-25 ~ +80	°C
Storage Temperature	Tst	-30 ~ +85	°C

* Duty ≤ 1/10, Pulse width ≤ 30 msec

(2) Electro-optical Characteristic (Ta=25°C)

Parameter	Symbol	Condition	MIN	TYP	MAX	Unit
Forward Voltage	VF	IF=40mA	2.55	2.95	3.30	V
Luminous Intensity *	IV	IF=40mA	4.2	6.0	10.5	cd
Chromaticity coordinates	x,y	IF=40mA		x(±0.02)	y(±0.02)	
			a	0.280	0.260	
			b	0.280	0.304	
			c	0.335	0.380	
			d	0.345	0.380	
			e	0.345	0.323	
f	0.299	0.260				

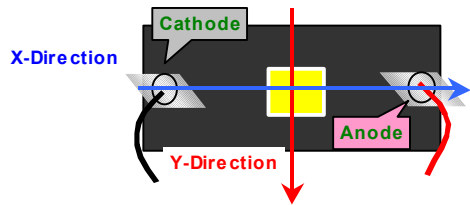
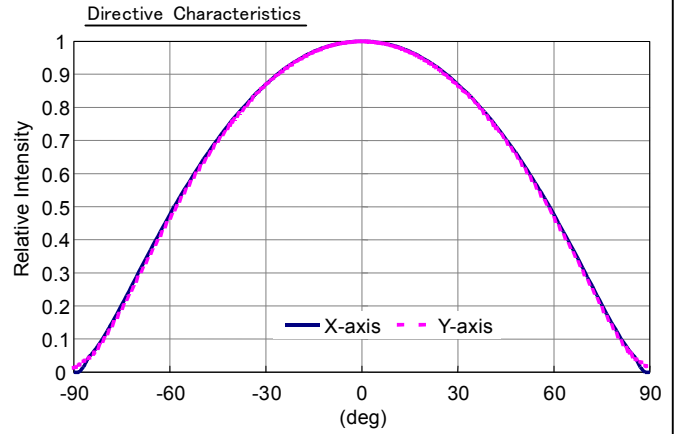
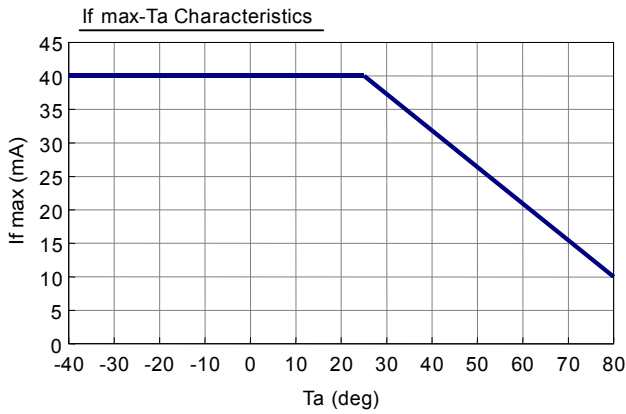
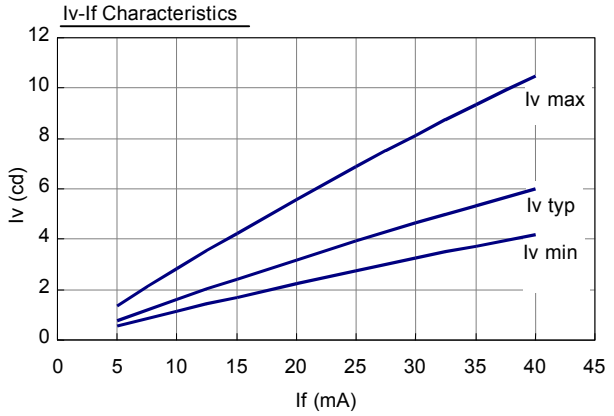
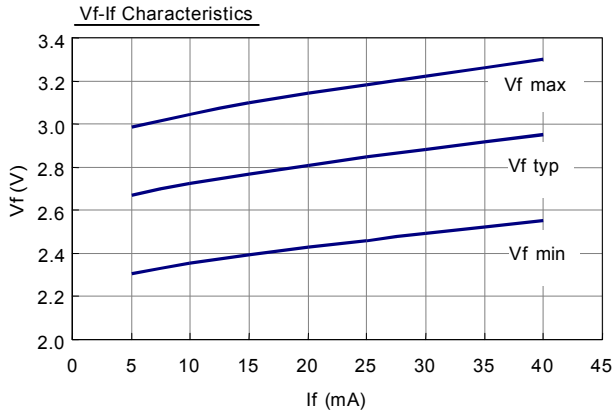
* In accordance with NIST standard.

- Note 1) The tolerance of Forward Voltage measurement is ±3% at our tester.
- Note 2) The tolerance of Luminous Intensity measurement is ±10% at our tester.
- Note 3) Chromaticity coordinates is the area surrounded with a,b,c,d.
- Note 4) For handling, please apply CMOS LSI or equivalent to prevent any electrostatic effect.
- Note 5) Please be aware that the above electro-optical characteristics are guaranteed when applying the current values shown in the table.
Please consult us when this product is used under any other conditions.

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						Name	CL-770S-BW01
						Drawing No	
Mark	Date	Description	Appro.	CITIZEN ELECTRONICS CO.,LTD.			

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5. Characteristic



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							Name	CL-770S-BW01
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6. Reliability

(1) Details of the tests

○ Life test in continuous operation

Operated with rated load of I_F of 20mA for $500^{+2.4}_{-1.2}$ hours at the ambient temperature of $25\pm 3^\circ\text{C}$.

○ High temperature storage test

Free load exposure in the chamber to the ambient temperature of 85^{+5}_{-3} °C for $500^{+2.4}_{-1.2}$ hours.

○ Low temperature storage test

Free load exposure in the chamber to the ambient temperature of -30^{+3}_{-5} °C for $500^{+2.4}_{-1.2}$ hours.

○ Anti-humidity test

Free load exposure in the chamber to the ambient condition of $60\pm 2^\circ\text{C}$ and $90\pm 5\%RH$ for $500^{+2.4}_{-1.2}$ hours.

○ Thermal shock test

Exposure to the cycle of 30 minutes in the ambient temperature of -30°C and 30 minutes in the ambient temperature of 85°C for 5 times.

○ Solder heat resistance test

Expose the samples twice to reflow soldering furnace which is provided with recommended temperature profile. After completion of the 1st test, the 2nd test should be started under the condition that the samples are stabilized thermally.

(2) Judgment Criteria of Failure for Reliability Test

Measuring Item	Symbol	Measuring Condition	Judgement Criteria for Failure
Forward Voltage	V_F	$I_F = 40\text{ mA}$	$>U \times 1.2$
Luminous Intensity	I_V	$I_F = 40\text{ mA}$	$<S \times 0.5$

U means the upper limit of the specified characteristics. S means the initial value.

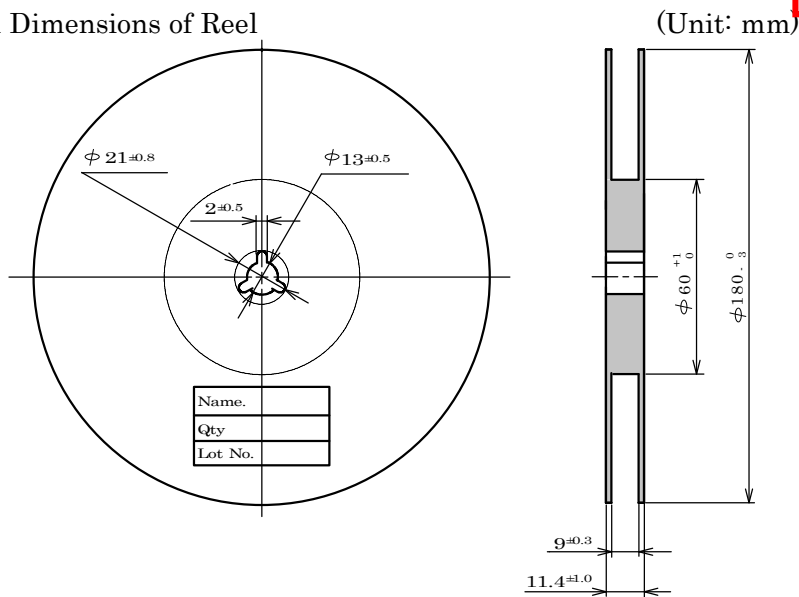
Note: Measurement shall be taken between 2 hours and 24 hours, having returned the test pieces to the normal ambient conditions after the completion of each test.

			Approved	Checked	Drawn	Symbol	CITELED
						Name	CL-770S-BW01
						Drawing No	
Mark	Date	Description	Appro.	CITIZEN ELECTRONICS CO.,LTD.			

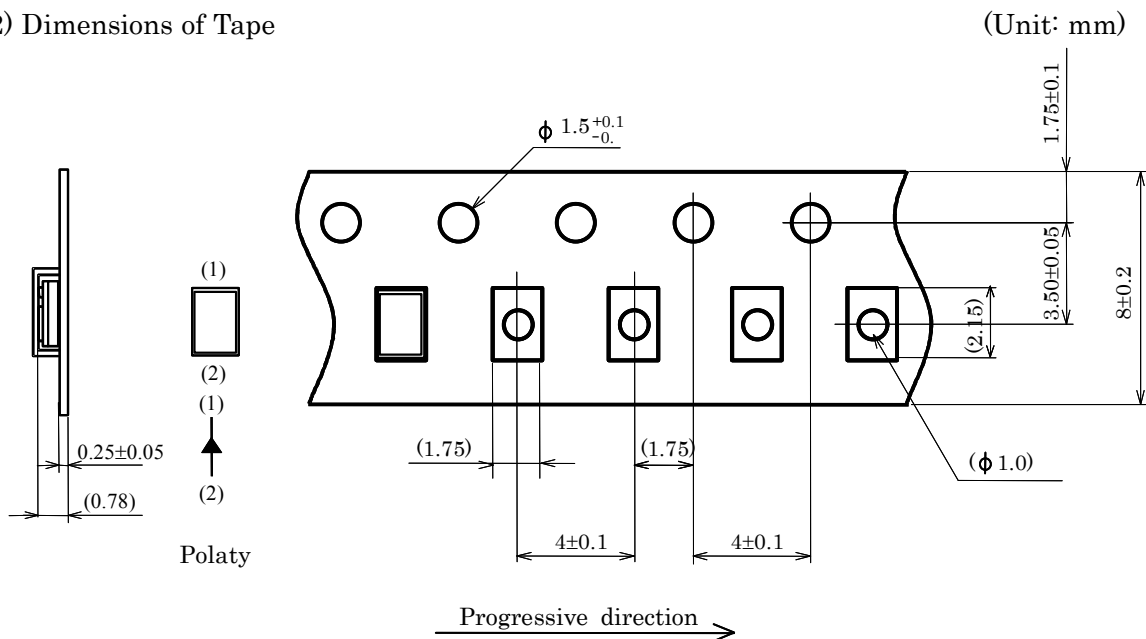
7. Taping Specifications (in accordance with JIS standard)

Reference

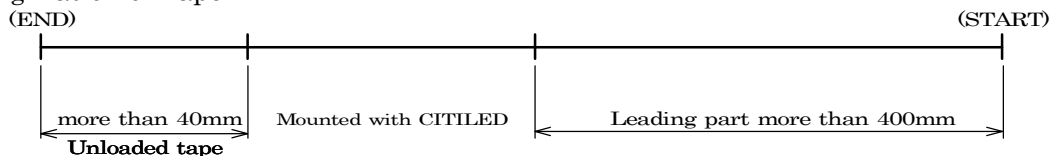
(1) Shape and Dimensions of Reel



(2) Dimensions of Tape



(3) Configuration of Tape



(4) Quantity: 3,000pcs/reel

(Please note that the shipping quantity of this product may be less than 3000 pieces per reel (minimum quantity: 1000 pieces) depending on the shipping quantity, shipping delivery date and other conditions. However, in this case, we will announce to you in advance.)

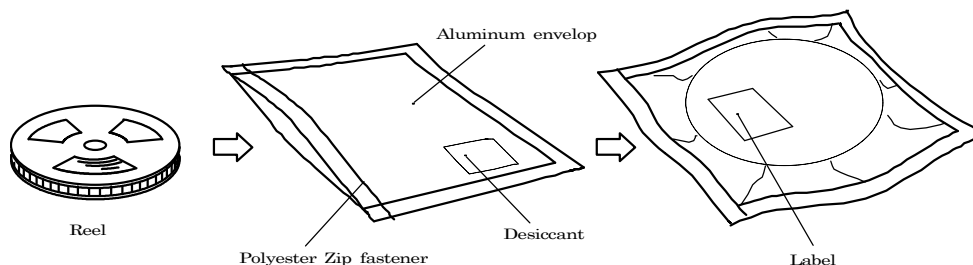
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							Name	CL-770S-BW01
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Reference

8. Packing Specifications

8-1. Moisture-proof Packing

To prevent moisture absorption during transportation and storage, reels are packed in aluminum envelopes which contain a desiccant.



8-2. Storage

To prevent moisture absorption, it is strongly recommended that reels (in bulk or taped) should be stored in the dry box (or the desiccator) with a desiccant as the appropriate storage place. If not, the following is recommended.

Temperature: 5 ~ 30 °C
 Humidity: 60%RH max.

The devices should be mounted as soon as possible after unpacking. If you store the unpacked reels, please store them in the dry box or seal them into the envelop again.

8-3. Baking

If the devices have been stored over 6 months or unpacked over 7 days, it should be baked under the following conditions.

Baking conditions: 60°C × 12 hours or more (reeled one)
 100°C × 45 minutes or more (loose one)

			Approved	Checked	Drawn	Symbol	CITILED
						Name	CL-770S-BW01
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Reference

9. Precautions

9-1. Soldering

(1) Manual soldering

- 1) Solder of 96.5Sn 3Ag 0.5Cu is recommended.
- 2) Before soldering every time, make baking to units. By manual soldering, it is the possibility of crack due to the moisture absorption in the resin portion.
- 3) Use a soldering iron of 25W or smaller. Adjust the temperature of the soldering iron below 350°C.
- 4) Force or stress must not be applied to the resin portion while soldering.
- 5) Finish soldering within 3 seconds.
- 6) Handle the devices only after temperature is cooled down.

(2) Lead free soldering

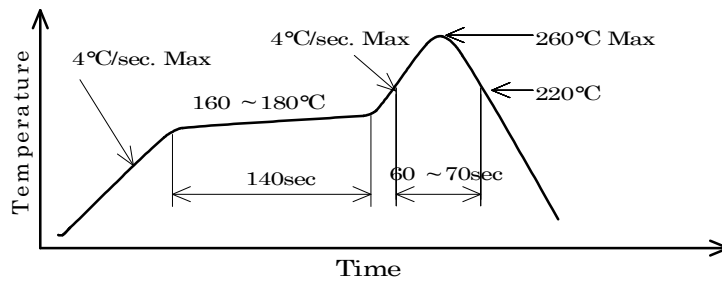
- (1) Following soldering paste is recommended

Melting temperature: 216 ~ 220°C.

Composition: 96.5Sn 3Ag 0.5Cu

- (2) The temperature profile at the top surface of the parts is recommended as shown below.

- (3) It is requested that products should be handled after their temperature has dropped down to the normal room temperature.



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9-2. Washing

- (1) When washing after soldering is needed, following conditions are requested.
 - a) Washing solvent: Pure Water
 - b) Temperature, time: 50°C or less × 30 seconds max.
or 30°C or less × 3 minutes max.
 - c) Ultrasonic washing: 300W or less

Reference

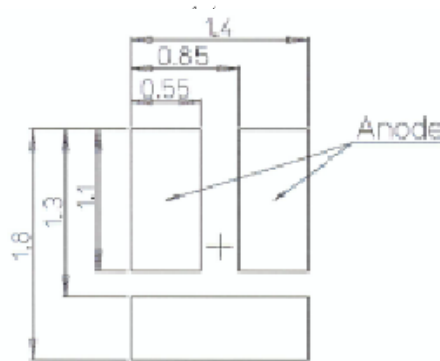
9-3. Other directions

- (1) It is requested to avoid any stress added to the resin portion while it is heated.
- (2) It is requested to avoid any friction by sharp metal nail etc. to the resin portion.

10. Designing precautions

- (1) The current limiting resistor should be placed in the circuit so that is driven within its rating. Also avoid reverse voltage (over-current) applied instantaneously when ON or OFF.
- (2) When pulse driving current is applied, average current consumption should be within the rating. Also avoid reverse voltage applied when put off.
- (3) Recommended soldering pattern

<For reflow soldering>

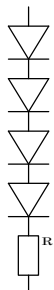


The above dimensions are not the one which guarantee the performance of mountability.

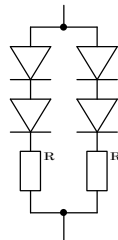
The use of the above pattern is recommended to use after deep study at your site.

- (4) When assembling the circuit board into the finished products, care must be taken to avoid the component parts from touching other parts.
- (5) When using multiple LEDs, it is required to connect a current limiting resistor on each path which the current flows to the LEDs.

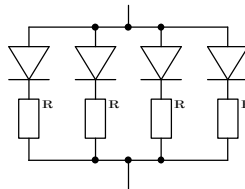
(ex-1)



(ex-2)



(ex-3)



			Approved	Checked	Drawn	Symbol	CITELED
						Name	CL-770S-BW01
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