

Supplier name:
Ningbo Sunpu Led Co.,Ltd.,

Acknowledgment number:

Product Acknowledgment

Customer Name:

Supply-side model:

Acknowledgment Effective Date:

Manufacturers		Client Confirm (Quality)		Client Confirm (R & D)	
Prepared		Qualified ☐		Qualified ☐	
		Unqualified ☐		Unqualified ☐	
Audit		Audit		Audit	
Approve		Approve		Approve	

(After both sides confirmed the Acknowledgment qualified,must be signed and sealed)

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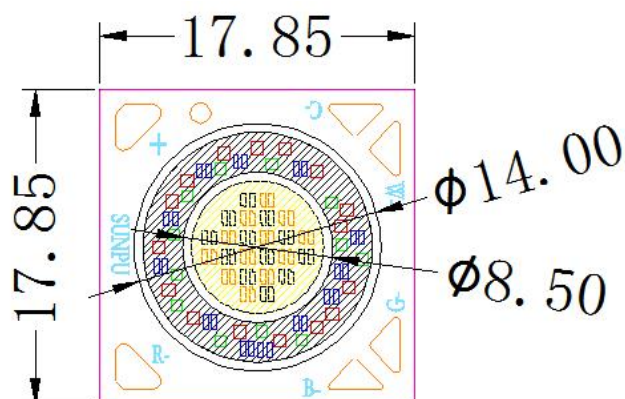
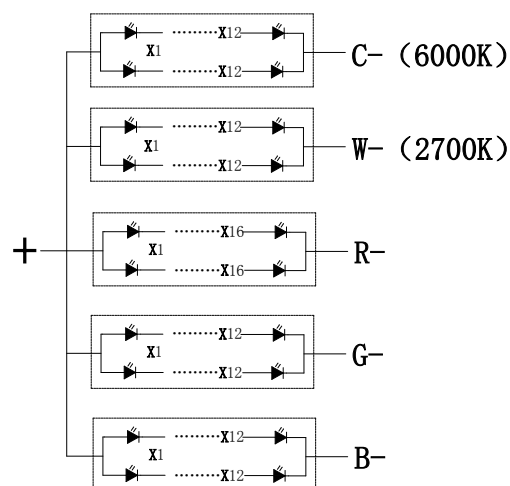
Part No.: TR2-27-Y-B34-H2-60-Y-B6-H2**COB-TR2 series****Product introduction**

The series of products ,which use aluminum for substrate.The products have high brightness, long life, a variety of power, easy installation, general size, which are especially suitable for indoor and outdoor lighting products, etc.

Features:**Contents**

- ✧ High brightness、high reliability、long life
- ✧ Light angle: 120°
- ✧ Typical color temperature: 2700K and 6000K
- ✧ Ra : 95+

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Outline dimensions

Circuit structure

NOTES:

- ✧ All dimensions are millimeter.
- ✧ Tolerance is $\pm 0.3\text{mm}$ unless otherwise noted.
- ✧ It is strongly recommended that the temperature of T_s (Welding plate) is not higher than 90°C .
- ✧ The distance between T_s point and the outer dam is 2mm.

Limit parameter ($T_a = 25^\circ\text{C}$) (A single circuit)

Parameter	Symbol	Test Condition	Value		Unit
			Min.	Max.	
DC Forward Current	I_F	----	----	450	mA
Peak Pulse Current	I_{peak}	Duty=1/10 1kHz	----	562.5	mA
Power Dissipation	P_d	----	----	18	W
LED Junction Temperature	T_J	----	----	125	$^\circ\text{C}$
Operating Temperature	T_{opr}	----	-40	+90	$^\circ\text{C}$
Storage Temperature	T_{str}	----	-40	+100	$^\circ\text{C}$
ESD Sensitivity	----	HBM	2000	----	V
Soldering Temperature	----	----	350 $^\circ\text{C}$ for 5 Seconds max		



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Photoelectric parameters (Ta = 25°C)

CCT	Item	Symbol	Condition	Min	Typ	Max	Unit
2700K	Forward Voltage	V _F	I _F =320mA	--	36	--	V
	Luminous Flux	Φ		--	750	--	lm
	Color Temperature	CCT		2620	2725	2810	K
	General Color Rendering Index	Ra		95	--	--	--
6000K	Forward Voltage	V _F	I _F =320 mA	--	36	--	V
	Luminous Flux	Φ		--	1000	--	lm
	Color Temperature	CCT		5720	6000	6350	K
	General Color Rendering Index	Ra		95	--	--	--

ITEMS	Item	Symbol	Condition	Min	Typ	Max	Unit
R	Forward Voltage	V _F	I _F =320mA	30	--	40	V
	Dominant Wavelength	λ _d		620	--	630	nm
G	Forward Voltage	V _F	I _F = 320mA	33	--	48	V
	Dominant Wavelength	λ _d		520	--	530	nm
B	Forward Voltage	V _F	I _F = 320mA	31	--	42	V
	Dominant Wavelength	λ _d		450	--	470	nm



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Limit curves: (2700K /6000K)

Fig.1 Forward Current (mA) Vs Forward Voltage(V)

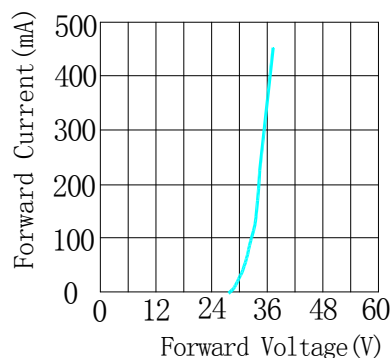


Fig.2 Relative Intensity Vs Forward Current (mA)

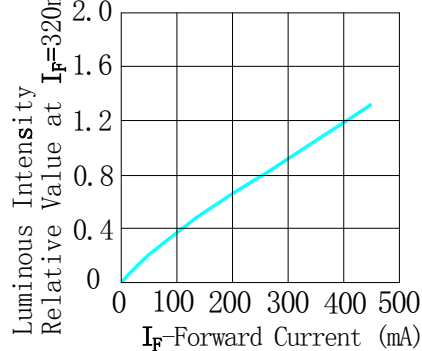


Fig.3 Forward Current Vs Temperature of Ts

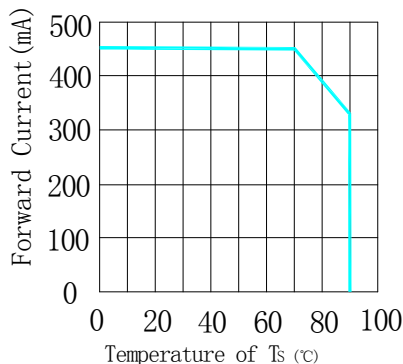
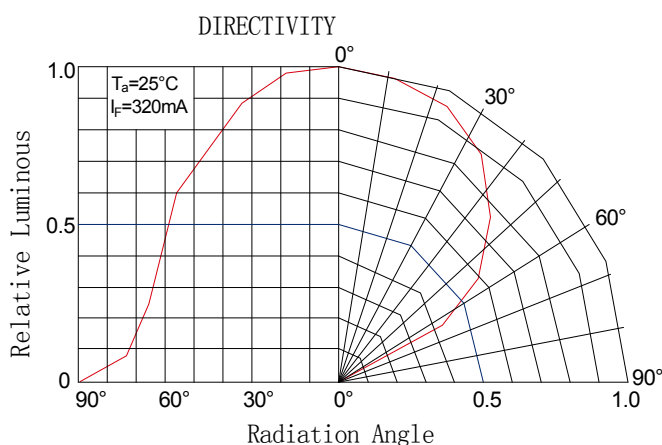
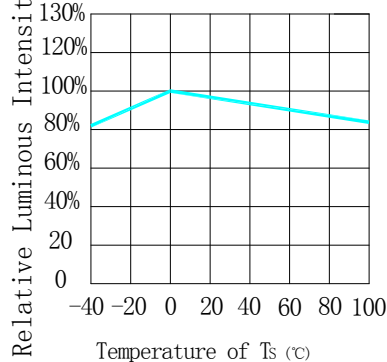
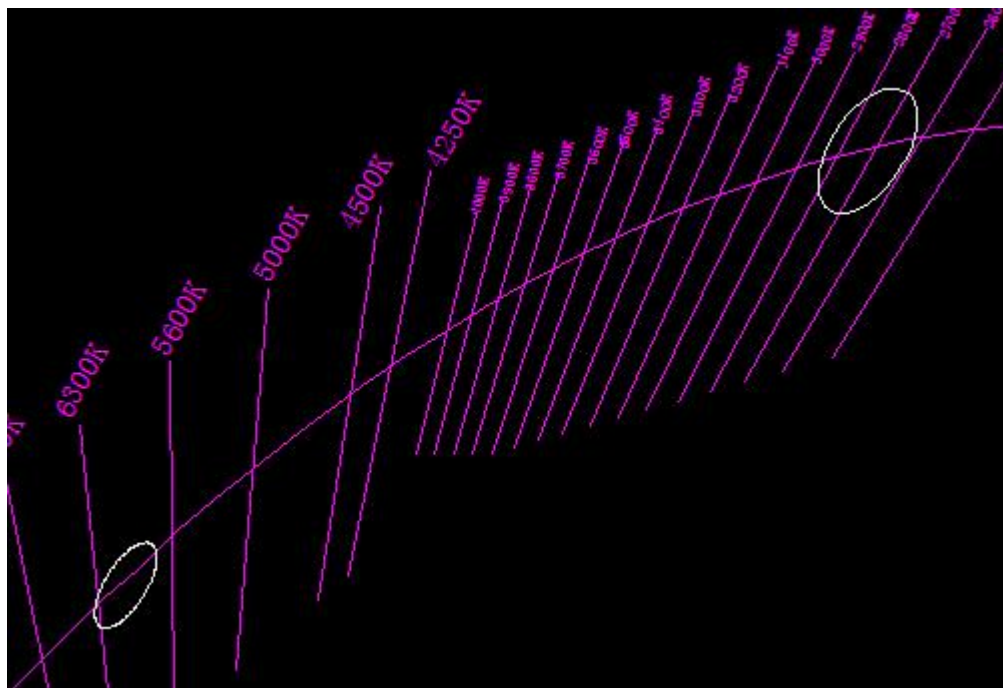


Fig.4 Relative Intensity Vs Temperature of Ts



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Chromaticity Coordinates Ranks($I_F=320\text{mA}$ $T_a=25^\circ\text{C}$)





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Stands	Colour temperature	Center of Coordinates		Long axis	Minor axis	Gradient	Explain
ANSI	TC	X	Y	a	b	θ	SDCM
	2700K	0.4578	0.4101	0.01290	0.00685	53.7	5-step MacAdam
Sunpu-6000K	6000K	0.3217	0.3303	0.00892	0.0038	58.23	4-step MacAdam

Code	Colour temperature
W27	2700K
W60	6000K

Notes:

- ✧ Tolerance of measurements of the Forward Voltage is $\pm 2\%V$
- ✧ Tolerance of measurements of the Luminous Flux is $\pm 10\%$
- ✧ Tolerance of measurements of the Color Rendering R_a is ± 2
- ✧ Chromaticity Coordinates (x,y) is measured with an accuracy of ± 0.05
- ✧ Ranking at $T_c=25^\circ C$



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Reliability Tests and Results

Test	Reference Standard	Test Conditions	Test Duration	Units Failed/T ested
High Temperature Storage	JEITA ED-4701 200 201	$T_A=100^{\circ}\text{C}$	1000hours	0/10
High Temperature Humidity Storage	JEITA ED-4701 100 103	$T_A=85^{\circ}\text{C}$ RH=85%	1000hours	0/10
Low Temperature Storage	JEITA ED-4701 200 202	$T_A=-40^{\circ}\text{C}$	1000hours	0/10
High Temperature Operating Life	JESD22-A108D	$TC=85^{\circ}\text{C}$ $I_F=320\text{mA}$	1000hours	0/10
Electrostatic Discharges	JEITA ED-4701 300 304	HBM 2KV 3K Ω 100Pf 3pulses negative		0/10
Temperature Cycle *1	Sunpu-opto	-40°C (30min) $\sim$ (90s) $\sim$ 110°C (30min) $\sim$ (90s) -40°C	300cycles	0/10

NOTES:

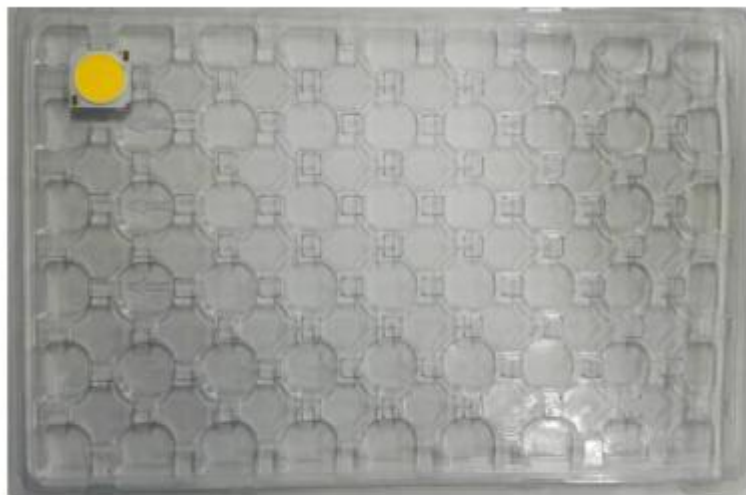
* Measurements are performed after allowing the LEDs to return to room temperature

Failure Criteria

Items	Conditions	Failure Criteria
Forward Voltage (V_F)	$I_F=320\text{mA}$	$>\text{Initial value} \times 1.1$
Luminous Flux (Φ_V)	$I_F=320\text{mA}$	$<\text{Initial value} \times 0.7$

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Packaging

**40 pcs/tray (5*8=40pcs)**

Using and attention

1、 Soldering

COB light source device is a very fragile encapsulation device. Careless in the process of soldering operation will cause the damage of the products easily and even lead to death lamp. client should be cautious. In the process of soldering iron or other welding equipment to heat up, please don't use hand or other items to put any pressure on the surface of a product, please avoid iron touch within white rubber dam. because under the white dam it is likely to be the gold thread connection with substrate. If it is extruded by any external things, it is likely cause that connections between gold wire and substrate loose or fall off leading to product stroboscopic at work or death lamp. soldering temperature shall not be higher than 350 °C and the time shall not be more than 3 seconds and the number less than 2 times. When the soldering operation is completed, it is necessary that the product is cooled to room temperature, then washed again, and other operations.

2、 Cleaning

After soldering it is recommended that client should use alcohol to clean, The specific method is that

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Using tweezers clamping alcohol cotton ball in the source surface lightly wipe back and forth to clean, Prohibit the forceps tip injury to the source surface .Before using other similar solvent cleaning, please make sure that to use the solvent will not damage the product packaging materials such as silica gel and phosphor etc.

3、 Storage

This product use sealed moisture-proof anti-static bag packaging, storage method is as follows:

- ✧ Opened before, the product must be stored in room temperature and humidity environment is not higher than 70% RH.
- ✧ Once opened, the product can be stored in room temperature and humidity is not higher than 70% RH of the environment in a week, please use in the period of time.

If not timely installation after opening, Should be stored in dry cabinet temperature and humidity not higher than 10%RH .

4、 Static electricity

Static and surge can cause product characteristics change, such as forward voltage to reduce, if severe cases may even damage the product. So When in use effective anti-static measures must be taken. All related equipment and machines should be properly grounded, at the same time must take other measures to prevent static and surge. Use anti-static bracelet, anti-static MATS, anti-static overalls, work shoes, gloves, anti-static container, are effective measures to prevent static and surge.

**5、 Driving and cooling scheme**

In the design of driving, by the current cannot exceed a maximum value specified products. Over voltage, over current pulses generated at the moment of the power switch or reverse voltage pulse may

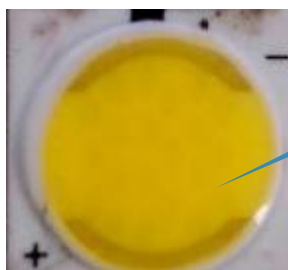
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cause product damage and even death light. Therefore it is recommended that choose drive power selection of high stability. Because the heat this for product is concentrated, It should be the choice of high thermal conductivity thermal grease or conductive adhesive and Evenly coated on the light back. There can be no gap between substrate and radiator.

**6、 Sulfidizing**

The surface of the metal line material of this product is metal silver. As we all known silver and sulfur reaction generated black sulfide silver Ag_2S extremely easily, cause substrate silver coating color, color temperature drift and light failure, greatly influence the product performance. In use process, the customer shall not use sulfur content is higher than 0.5% of the material. Common sulfide materials are:

- ✧ Production materials: carton/leather, flux, rubber, rubber gloves/sulfur gloves and other rubber materials, etc.
- ✧ Lamps and lanterns material: PCB, rubber gasket, sealing glue, and potting glue, insulating sleeve with sulphur, sulphur lamp shell, etc.

**7、 Halogen**

Halogen will damage the product, affecting device performance. Reference standards such as IEC, IPC and JPCA - ES, customers to use material, each kind of halogen content shall not be higher than 900 PPM, halogen sum shall not be higher than 1500 PPM.

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- ✧ halogen include: F, Cl, Br, I
- ✧ common containing halogen material: white oil, pouring sealant, sealant, line insulation casing, etc.

8、 External force

Packaging adhesive products (including the white dam colloid) is fragile , when in use should pay attention to the following points:

- ✧ Do not use hard, sharp objects scratch, wipe the packaging adhesive part.
- ✧ Do not hand take products, avoid pollution package silica surface, and influence its optical properties.
- ✧ It should be noted that when using tweezers clip excessive pressure may damage , packaging silica gel,for example, damage, scratches, peeling,serious deformation and die lamp.
- ✧ Products dropped, the product may lead to deformation.

