

SPECIFICATIONS

COB产品规格书

TOPLITE



MODEL: TR-R27-3X180XX

客户承认 APPROVED		
承认日期 APPROVED DATE		

上海鼎晖科技股份有限公司
SHANGHAI TOPLITE TECHNOLOGY CO.,LTD.

www.ledtoplight.com.cn
www.ledtoplite.com



TECHNICAL DATA SHEET 产品数据表

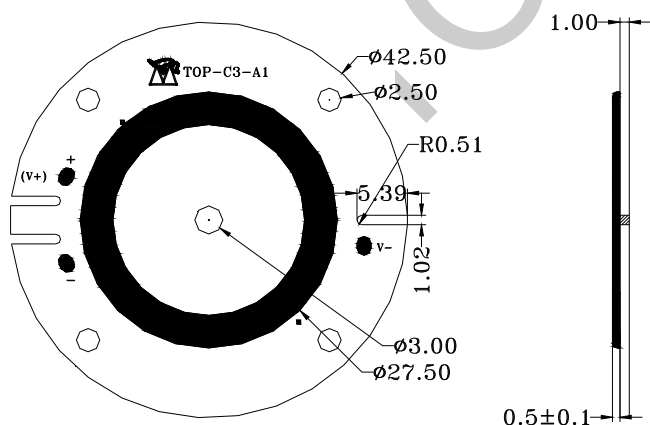
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1. PRODUCT APPEARANCE 产品实物图



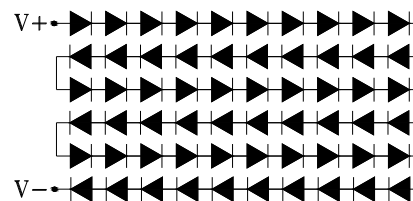
2. OUTLINE DRAWING 外形尺寸图



Unit: mm

Tolerance: ± 0.25

3. SCHEMATIC DIAGRAM 原理图





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4. PERFORMANCE PARAMETERS 性能参数

4-1. ELECTRICAL-OPTICAL CHARACTERISTICS 电气特性与光特性

(T_c=25°C)

**	PARAMETER 参数	SYMBOL 符号	CONDITION 条件	MIN. 最小值	TYP. 典型值	MAX. 最大值	UNIT 单位
common	Forward Voltage ^{*4} 电压	V _F	I _F =20mA	168	180	198	V
	Power 功率			3.4	3.6	3.9	W
	Beam Angle 发光角度	Deg		—	120	—	Deg
W*	Color Temp ^{*1} 色温	T _c	I _F =20mA	2870	3045	3220	K
	Color Rendering Index ^{*3} 显指	R _a		80	—	—	—
	Luminous Flux ^{*2} 光通量	Φ		405	470	—	lm
	Luminous Efficiency 光效	η		120	130	—	lm/W
D*	Color Temp ^{*1} 色温	T _c	I _F =20mA	4745	5028	5311	K
	Color Rendering Index ^{*3} 显指	R _a		80	—	—	—
	Luminous Flux ^{*2} 光通量	Φ		435	505	—	lm
	Luminous Efficiency 光效	η		130	140	—	lm/W

Note:

- *1. W: Warm white; D: Natural white;) ;
色温(W: 暖白; D: 自然白;) ;
- *2. After 20 ms drive, Measurement tolerance: ± 5 % ;
经过 20 毫秒测试, 测试公差: ±5% ;
- *3. After 20 ms drive, Measurement tolerance:± 2 ;
经过 20 毫秒测试, 测试公差: ±2 ;
- *4. After 20 ms drive, Measurement tolerance:± 3% ;
经过 20 毫秒测试, 测试公差: ±3% ;
- *5. The data above comes from Shanghai Toplite -ZVISION 1 meter integrating sphere/
以上数据来源于鼎晖科技-中为光电 1 米积分球。



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4-2. ABSOLUTE MAXIMUM RATINGS 最大额定参数

ITEM 项目	SYMBOL 符号	RATING 额定值	UNIT 单位
Power Dissipation 功率	P	7.9	W
Forward Current 正向电流	I _F	40	mA
Minimum Current 最小电流	I _{F min}	5	mA
Reverse Voltage 反向电压	V _R	300	V
Operating Temperature 工作温度	T _{OP}	- 30 ~ + 80	°C
Storage Temperature 储存温度	T _{ST}	- 40 ~ + 100	°C
Junction Temperature 结温	T _J	≤110	°C

Note:

- *1. Forward Current allows maximum surge current ≤ 10ms;
正向电流允许最大冲击电流小于 10 ms;
- *2. Power and the forward current value, should be within the rated parameters of the LED;
功率与正向电流的数值, 应在该 LED 的额定参数范围内;
- *3. The applicable condition of maximum power dissipation is junction temperature ≤ 110°C.
最大功率的适用条件是结温 ≤ 110°C。

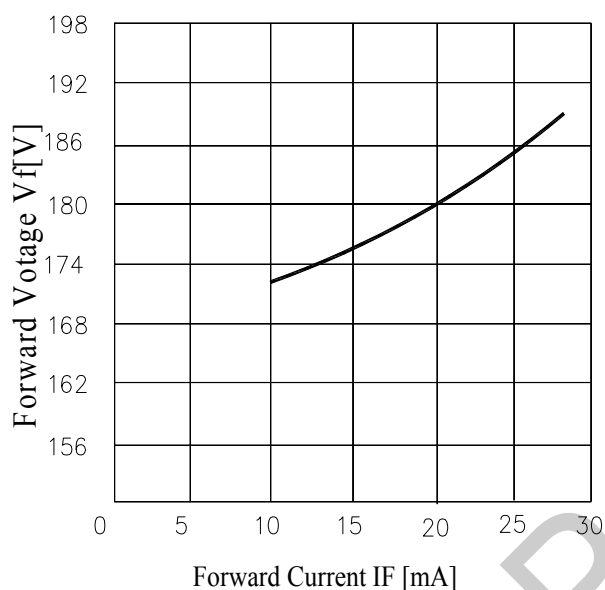


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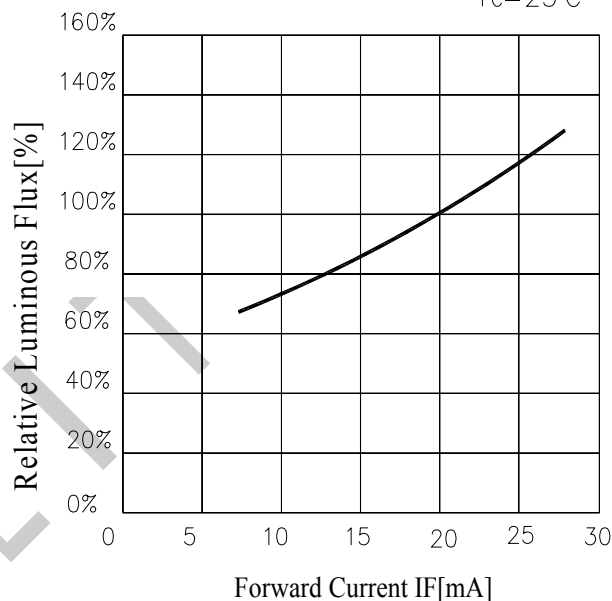
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4-3. CHARACTERISTICS DIAGRAM (TYP.) 光电曲线特征图

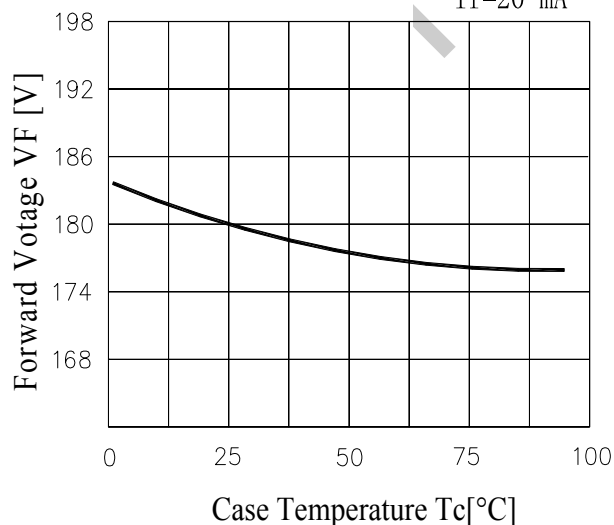
正向电流 Vs 正向电压
Forward Current Vs. Forward Voltage
T_c=25°C



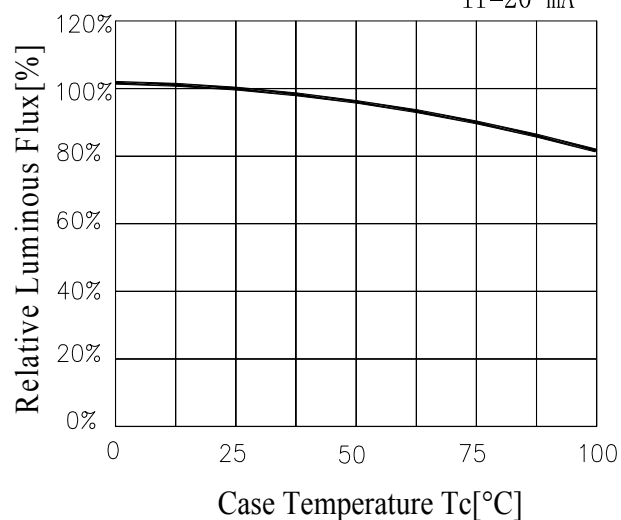
正向电流 Vs 相对光通量
Forward Current Vs. Relative Luminous Flux
T_c=25°C



温度 Vs 正向电压
Case Temperature Vs. Forward Voltage
I_f=20 mA



温度 Vs 相对光通量
Case Temperature Vs. Relative Luminous Flux
I_f=20 mA

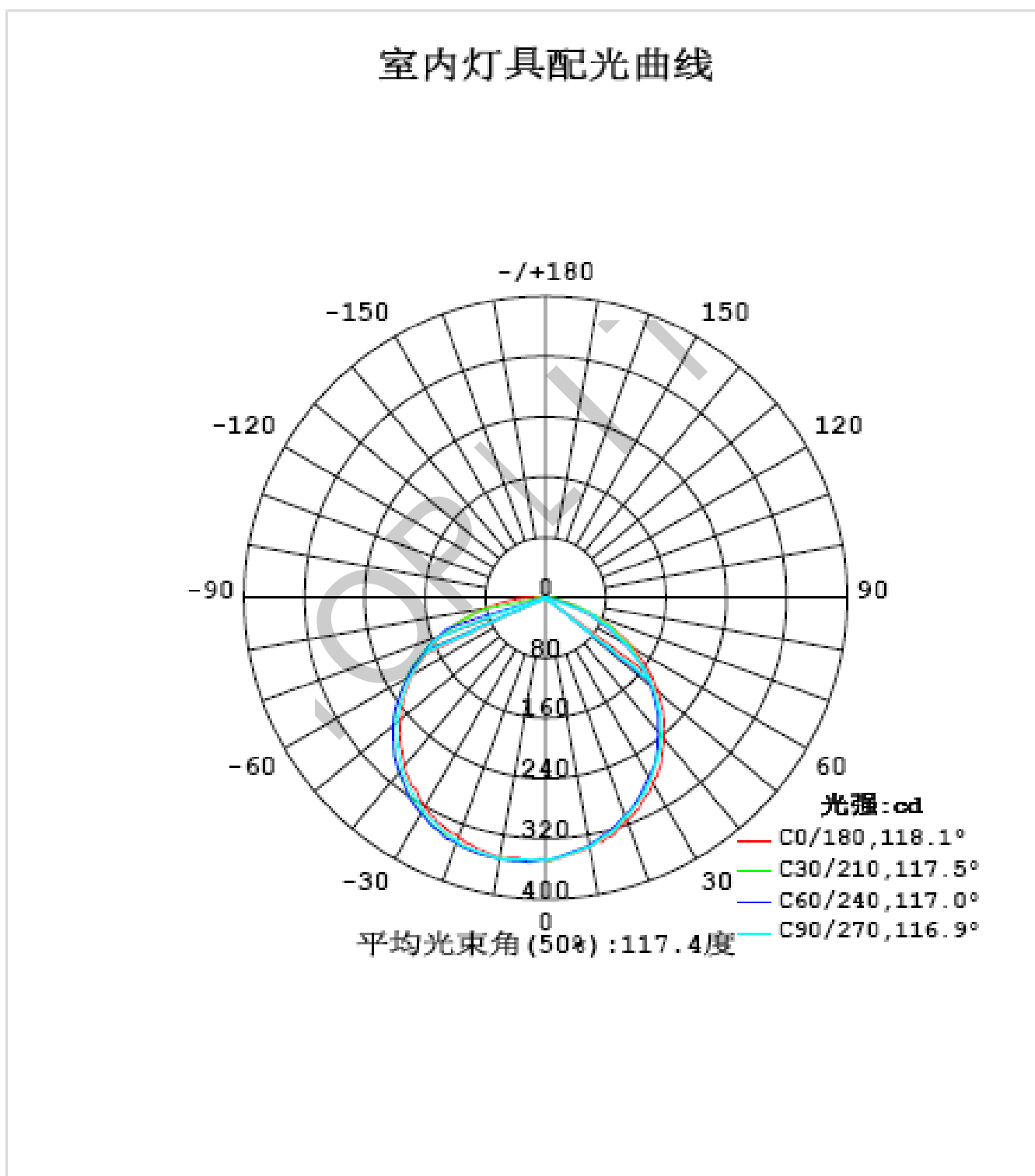




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4-4. SPATIAL DISTRIBUTION (TYP.) 光强分布空间





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5. RELIABILITY 可靠性

The reliability of products shall be satisfied with items listed below.

产品可靠性应满足以下各项要求

5-1. TEST ITEMS AND TEST CONDITIONS AND STANDARD/检测/测试项目/标准

NO	TEST ITEM 试验项目	TEST CONDITIONS 试验条件
1	Endurance test 寿命测试	$T_c = 85 \pm 5^\circ\text{C}$, $I_F = 20\text{ mA} \times 1000\text{ hours}$ (with Al fin)
2	High temperature storage test 高温储存测试	$T_a = +100^\circ\text{C} \times 1000\text{ hours}$
3	Low temperature storage test 低温储存测试	$T_a = -40^\circ\text{C} \times 1000\text{ hours}$
4	High Temperature & Humidity Test 高温高湿测试	$T_a = 85^\circ\text{C}$, 85%RH for 500 hours
5	Thermal shock test 冷热冲击	$T_a = -40^\circ\text{C} \times 30\text{ minutes} \sim 100^\circ\text{C} \times 30\text{ minutes}$, 100 cycle

5-2. FAILURE CRITERIA 失效标准

NO.	ITEM 项目	SYMBOL 符号	CONDITIONS 条件	FAILURE CRITERIA 失效准则
1	Forward Voltage 正向电压	V_F	$I_F = 20\text{ mA}$	$V_F > \text{Initial value} \times 1.1$
2	Luminous Flux 光通量	Φ	$I_F = 20\text{ mA}$	$\Phi < \text{Initial value} \times 0.7$



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6. CHROMATICITY COORDINATES REGIONAL 色度坐标区域

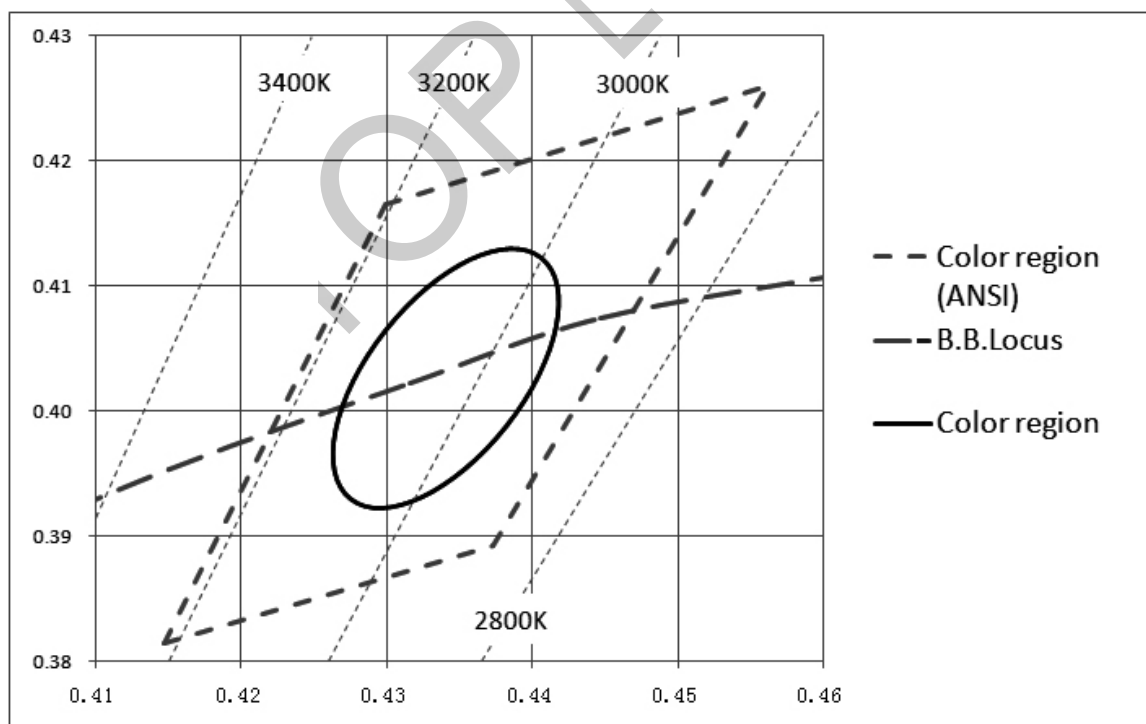
6-1. 3000K CHROMATICITY COORDINATES 3000K 的色度坐标

(Tolerance: x, y ± 0.005)

($I_F = 20 \text{ mA}$, $T_c = 25^\circ\text{C}$)

Range	Chromaticity coordinates				
	NO.1	NO.2	NO.3	NO.4	CENTER
x	0.4562	0.4299	0.4147	0.4373	0.4338
y	0.4260	0.4165	0.3814	0.3893	0.4030

Chromaticity Diagram



Note: The tolerance of measurement: $V_F \pm 3\%$, $D_v \pm 5\%$, Chromaticity(x,y) ± 0.005 .

注: 测试公差范围: $V_F \pm 3\%$, $\Phi_v \pm 5\%$, 色坐标 ± 0.005



TECHNICAL DATA SHEET 产品数据表

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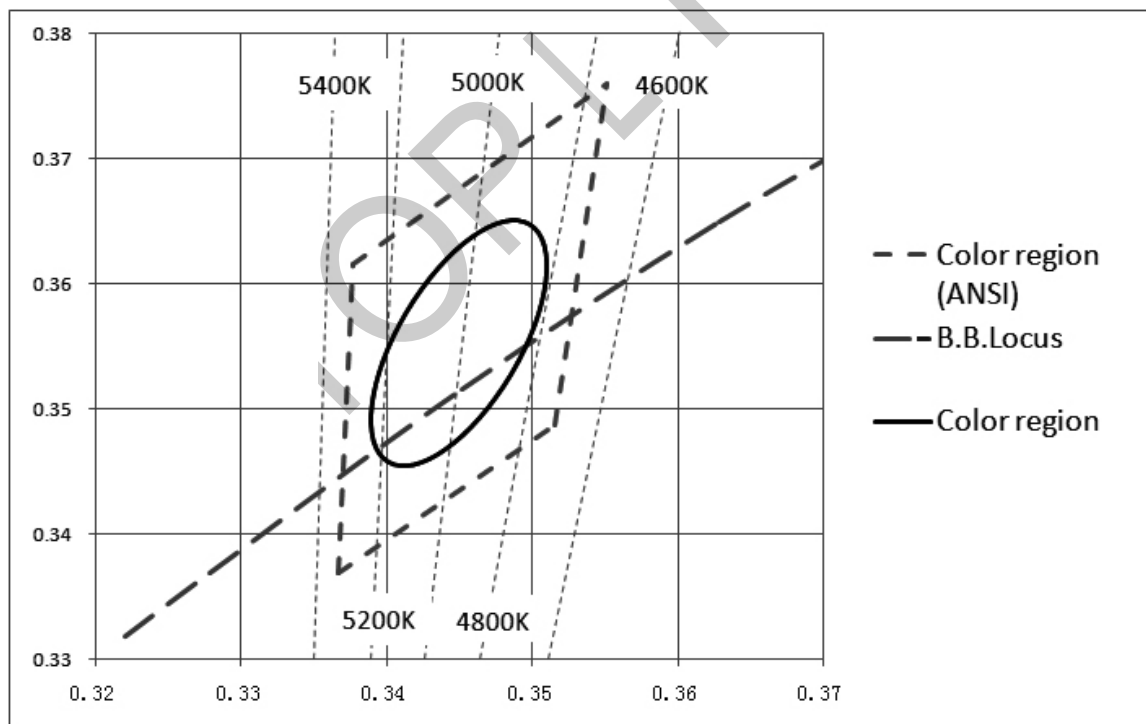
6-2. 5000K CHROMATICITY COORDINATES 5000K 的色度坐标

(Tolerance: x, y \pm 0.005)

($I_F = 20 \text{ mA}$, $T_c = 25^\circ\text{C}$)

Range		Chromaticity coordinates				
		NO.1	NO.2	NO.3	NO.4	CENTER
	x	0.3551	0.3376	0.3366	0.3515	0.3447
	y	0.3760	0.3616	0.3369	0.3487	0.3553

Chromaticity Diagram



Note: The tolerance of measurement: $V_F \pm 3\%$, $D_v \pm 5\%$, Chromaticity(x,y) ± 0.005 .

注: 测试公差范围: $V_F \pm 3\%$, $\Phi_v \pm 5\%$, 色坐标 ± 0.005

TECHNICAL DATA SHEET 产品数据表


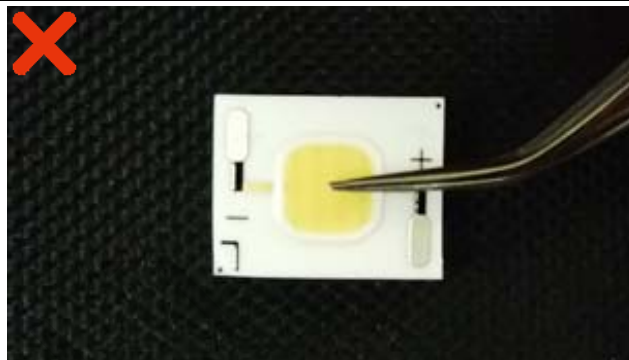
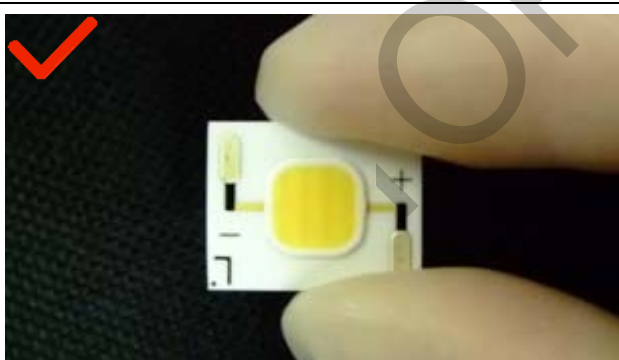
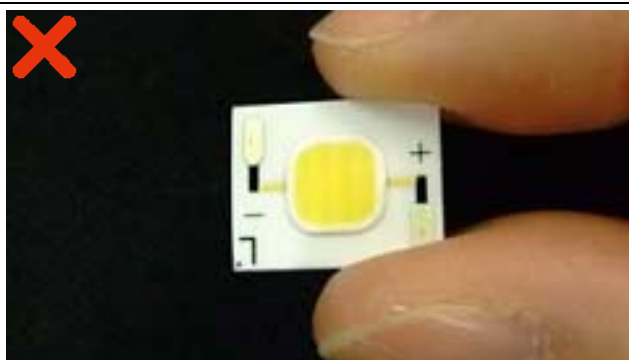
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7. USE STANDARD 使用规范

Before use, please read through this specification. 请在使用前，仔细阅读使用规范

7-1 . Take matters needing attention 取放注意事项

	
<p>Correct</p>	<p>Error</p>
<p>● Don't use finger or sharp objects in contact with the surface of the product, in order to avoid dirty or damage to the surface and internal circuit connection, affect the optical performance and local short circuit. 不要用手指或尖锐物体接触产品的表面，以避免弄脏或损坏表面和内部电路连接，影响光学性能及局部短路。</p>	
	
<p>Correct</p>	<p>Error</p>
<p>● Work in low humidity environment, dealing with COB series products always take proper anti-static grounding measures, it is recommended to wear anti-static gloves when handling. 在低湿度的工作环境中，处理 COB 系列产品时始终采取适当的防静电接地措施，建议在处理时戴上防静电手套。</p>	



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7-2 . Storage Condition 存储条件

- 7-2-1. Products should not be stored within dirty or corrosive places.
此产品应避免放于如高温、高湿、不洁或者有腐蚀性的不适宜环境下;
Suggested storage Condition: Temperature: $5^{\circ}\text{C}\pm 5^{\circ}\text{C}$; Humidity: $\leq 60\%\text{RH}$.
建议储存条件: 温度 $25^{\circ}\text{C}\pm 5^{\circ}\text{C}$; 湿度 $\leq 60\%\text{RH}$;
- 7-2-2. The product cannot suffer from weight.
不要使其受到重压;
- 7-2-3. After long-time storage, it needs to go through dehumidification treatment before soldering.
产品经过长时间储存在焊接前需要做除湿处理;

7-3 . Anti-static Precautions 防静电措施

- 7-3-1. Please implement suitable measures to avoid static electricity, such as putting on antistatic clothing, gloves, wristbands, etc.
请采取适当的措施以防止任何静电的产生, 如: 处理该产品时佩戴腕带或防静电手套、穿着防静电服饰;
- 7-3-2. The plant, equipment, machine and other things involved in the production process should be connected to the ground, which can protect the product from static electricity.
产品生产的任何环节(厂房, 设备, 机器等)应连接到地面, 避免本产品被静电破坏;
- 7-3-3. After long-time storage, it needs to go through dehumidification treatment before soldering.
产品经过长时间储存, 在焊接前需要做除湿处理;
- 7-3-4. We suggest you to test the finished products, so as to ensure they are in good condition without electric leakage.
COB 组装成最终产品, 建议进行检测, 以确保组装好的产品不被静电损坏(电气泄漏现象);

7-4 . Product Assembly 产品组装

- 7-4-1. Products must be assembled on the heat sink.
产品需要组装在散热器上面;
- 7-4-2. Bonding on rough or uneven surface would increase thermal resistance and heat quantity. Therefore, the contact surface between the product and the heat sink is supposed to be smooth without burr.
粗糙、不均匀和毛刺的表面热粘合会产生负面影响, 加大热阻, 增加热量, 故产品及散热器接触面应均匀无毛刺;
- 7-4-3. Processing LED junction at a high temperature may influence the luminous flux and service life of LED. Please make sure that the LED junction temperature is lower than maximum rated value.
高温操作 LED, 不利 LED 的光输出和寿命的性能。故 LED 的结温应不超过绝对最大额定值;

7-5 . Soldering Condition 焊接条件

- 7-5-1. is not appropriate for reflow soldering process.
产品不适应回流焊接;
- 7-5-2. Please choose lead-free soldering.
请使用无铅焊接;
- 7-5-3. When soldering through an electric soldering iron:
使用电烙铁焊接时注意事项:
ensure that the temperature of soldering iron tip is $350^{\circ}\text{C}\pm 5^{\circ}\text{C}$;
烙铁尖温度要求在 $350^{\circ}\text{C}\pm 5^{\circ}\text{C}$;
Soldering time: $\leq 3\text{s}$; Soldering iron power: $\leq 40\text{W}$; Soldering times: ≤ 2 ;
焊接时间不超过 3s, 烙铁功率 $\leq 40\text{W}$, 焊接次数小于等于 2 次;



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- 7-5-4. Make sure no external force acts on its optical surface, when soldering.
焊接时，不能有外力作用于光学表面；
- 7-5-5. Please choose lead-free soldering.
请使用无铅焊接；
- 7-5-6. Before repairing soldered part, please cool the product until normal temperature.
焊接修理时，应将产品自然冷却到常温后操作；
- 7-5-7. The product whose soldering rate exceeds suggested rate may confront quality problems.
We do not guarantee its quality.
如果焊接率超过这些建议的条件，产品品质不予保证；

7-6 . Using Condition 使用环境

- 7-6-1. Please make sure the product is not applied under the following conditions;
请确保产品未在下述条件下使用；
In case the product has to be used under the following conditions, please make an evaluation in advance.
如果该产品需在下列条件下使用，请先进行评估；
- 7-6-2. Directly or indirectly by the rain wet places;
直接或间接地被雨水淋湿的地方；
- 7-6-3. Be exposed to corrosive gases (such as Cl₂, H₂S, NH₃, SO_x, NO_x, etc.);
暴露在腐蚀性气体（如 Cl₂, H₂S, NH₃, SO_x, NO_x 等）的地方；
- 7-6-4. Be stained with dust, liquid or oil;
沾上灰尘，液体或油的地方；