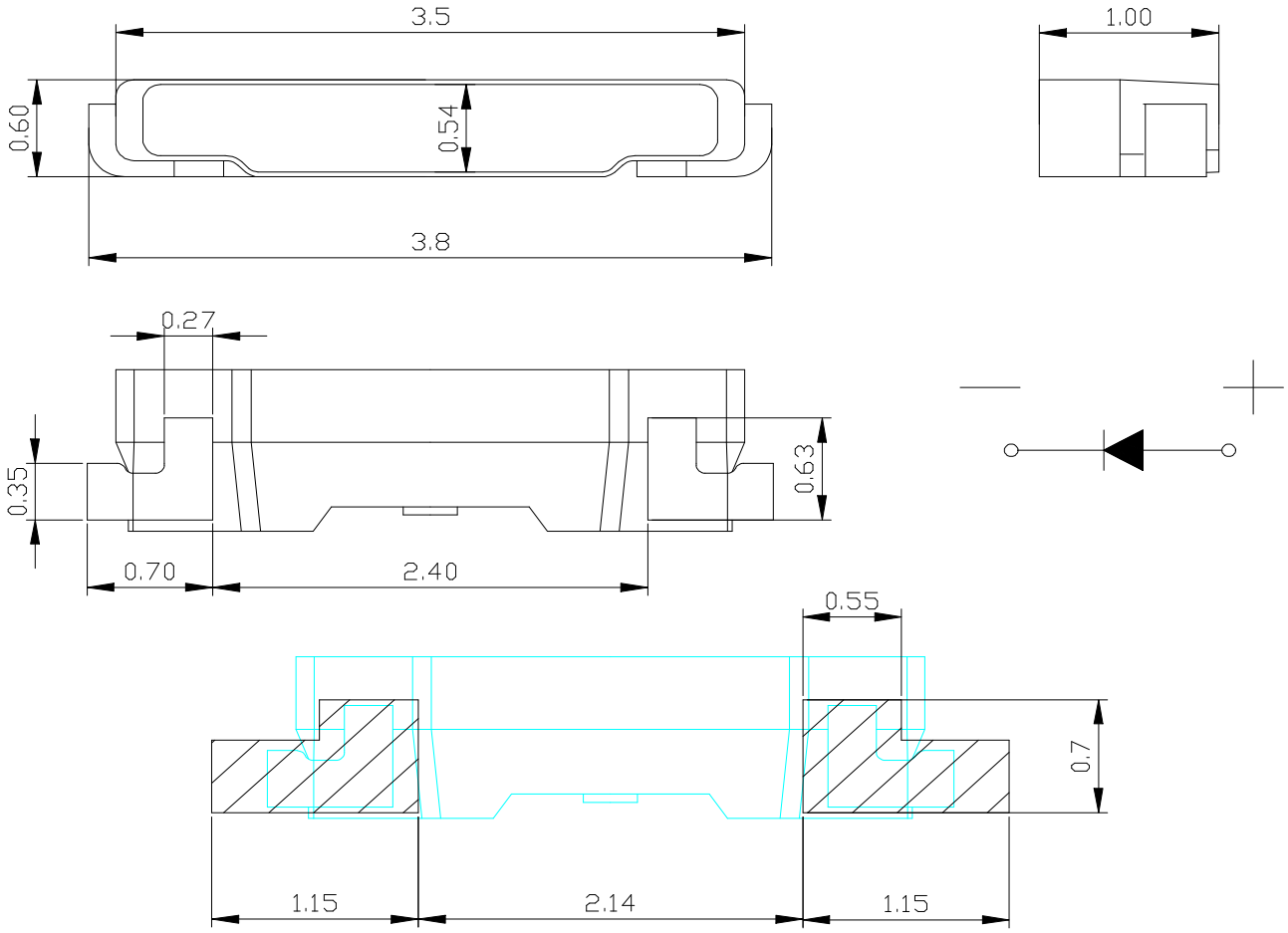
Part NO: DVYS-S020CCW-06T

制定 Prepared By	审核 Checked By	批准 Approved By

1. Features 产品特征

- ✧ Side view white LED 侧发光白光 LED
  The white color devices are made with GaN Light Emitting Diode.
  白光颜色来源于 GaN 晶片组成的发光二极管
- ✧ 3.8mmx0.6mm ,1.0mm THICKNESS. 3.8mmx0.6mm，总高 1.0mm
- ✧ LOW POWER CONSUMPTION. 低功率消耗
- ✧ WIDE VIEWING ANGLE. 宽角度发光
- ✧ RoHS compliant. 满足 RoHS 要求
- ✧ Applications: Backlight for GPS、Monitor、Mobile phone、Small size backlight .
  应用于：车载 GPS、显示屏、手机、中小尺寸背光

2. Dimension 产品尺寸



Notes:
tolerances Unless dimension X.XX±0.05mm X.X±0.1mm, Unit=mm
未标尺寸公差：X.XX±0.05mm X.X±0.1mm 单位=mm。

3. Parameters 光电特性参数

Electrical / Optical Characteristics at TA=25°C(25°C 环境下之电性/光学特性)

Symbol (符号)	Parameter (参数)	Min. (最小值)	Typ. (规格值)	Max. (最大值)	Units (单位)	Test Conditions (测试条件)
VF	Forward (正向电压)	2.7	-	3.2	V	IF=20mA
IV	Luminous Intensity (亮度)	2800	-	4100	mcd	IF=20mA
2θ1/2	Viewing angle (发光角度)	-	120	-	Deg	IF=20mA
IR	Reverse Current (反向电流)	-	-	1	uA	VR=10V

Note:

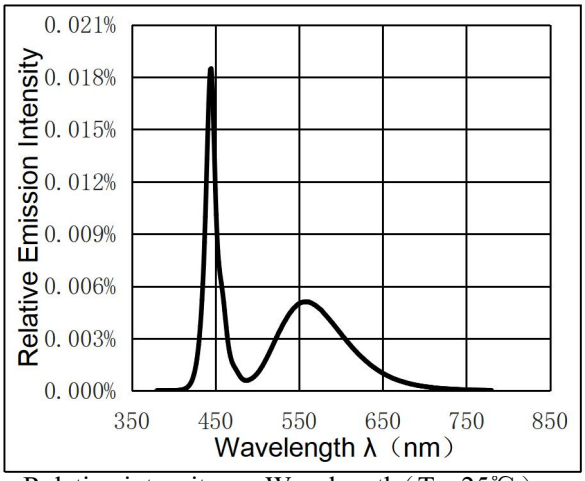
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
(θ1/2 是指当亮度减到一半时与发光特性曲线相交所对应的角度值.)

Absolute Maximum Ratings at T_A=25°C(在 25°C 环境下之绝对最大额定值)

Parameter (参数)	Symbol (符号)	White (白色)	Units (单位)
Total Power dissipation (总功率消耗)	Pd	90	mW
DC Forward Current (正向直流电流)	I_F	30	mA
Peak Forward Current (*) (正向电流峰值)	I_{FP}	100	mA
Electrostatic Discharge(HBM)*1 (静电)	ESD	2000	V
Reverse Voltage (反向电压)	VR	10	V
Soldering Temperature(焊接温度)	Tsol	回流焊：260 °C 不大于 10 秒 手动焊接：300 °C 不大于 3 秒	
Operating Temperature(操作温度)	Topr	-30°C ~85°C	
Storage Temperature(贮藏温度)	Tstg	-40°C ~85°C	

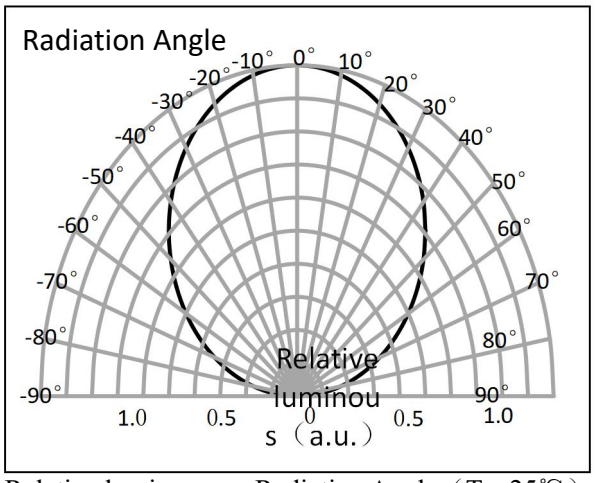
* I_{FP} 条件：脉宽≤0.1msec, 周期≤1/10

典型光学特性曲线 ： （Typical optical characteristics curves）



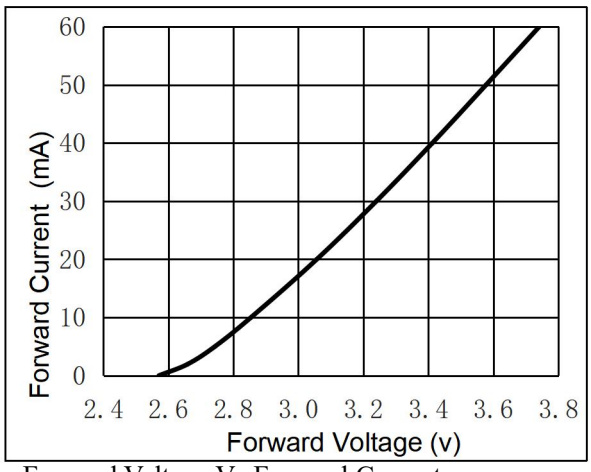
Relative intensity vs. Wavelength（Ta=25℃）

光谱曲线图



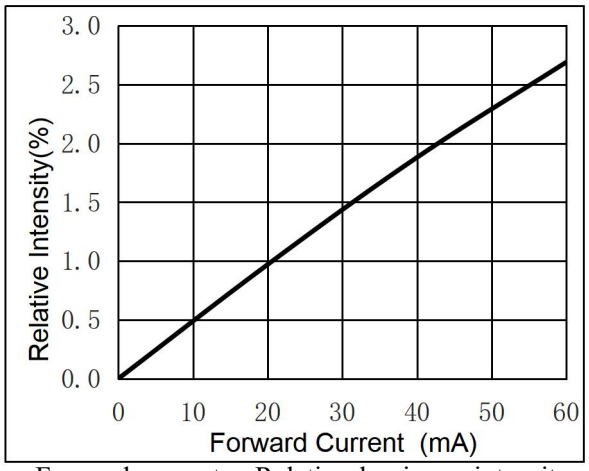
Relative luminous vs. Radiation Angle（Ta=25℃）

发光角度图解



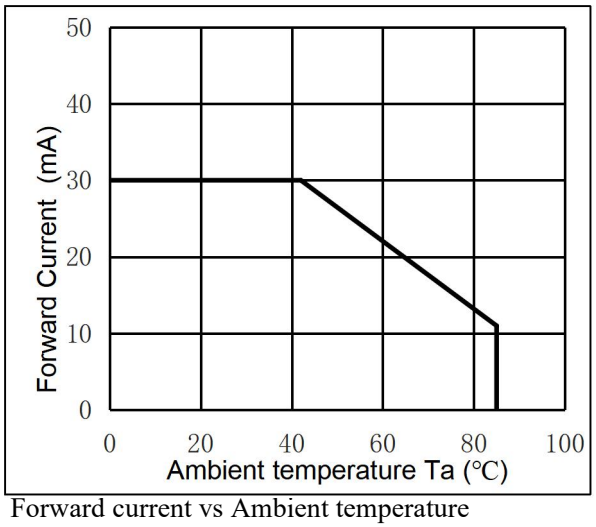
Forward Voltage Vs Forward Current

伏安特性曲线



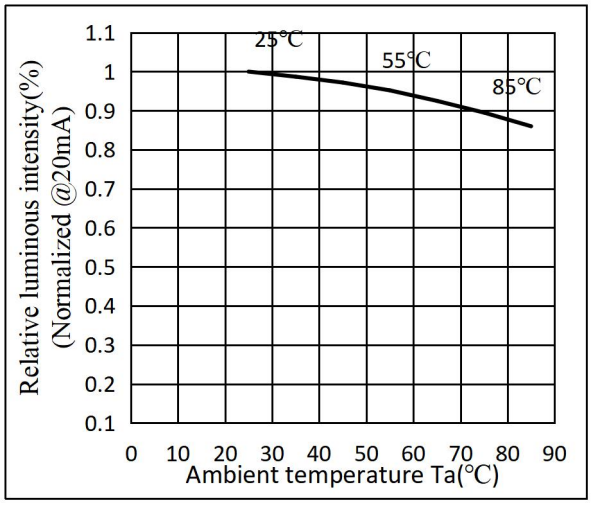
Forward current vsRelative luminous intensity

正向电流与相对光强特性曲线



Forward current vs Ambient temperature

(IF=20mA)温度与正向电流特性曲线

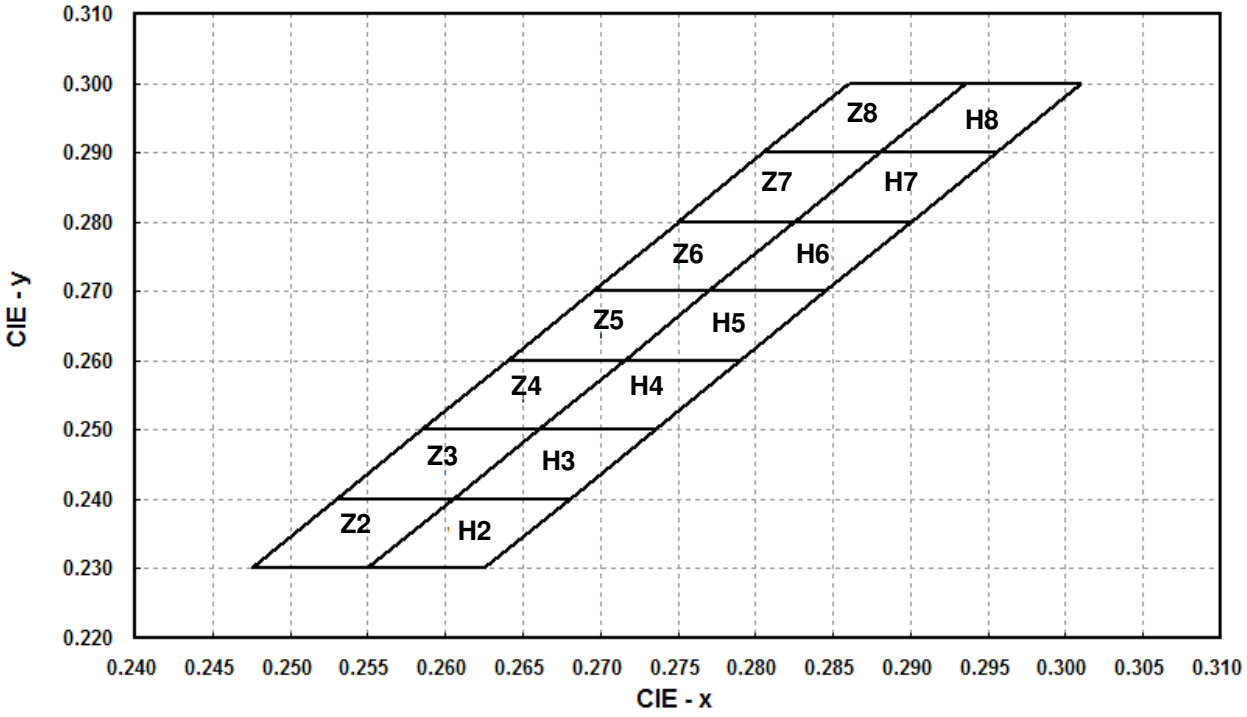


luminous intensity vs. Solder Temperature

(IF=20mA)发光强度与环境温度曲线

4. The C.I.E Chromaticity Diagram　　CIE 色度图

Chromaticity coordinates specifications(tolerance is ±0.003 @I_F=20mA):
色度坐标（公差±0.003 @I_F=20mA)



Bin Code	CIE-X	CIE-Y	CIE-X	CIE-Y	CIE-X	CIE-Y	CIE-X	CIE-Y
Z2	0.2566	0.2408	0.2623	0.2508	0.2659	0.2469	0.2602	0.2369
Z3	0.2623	0.2508	0.2680	0.2608	0.2716	0.2569	0.2659	0.2469
Z4	0.2680	0.2608	0.2737	0.2708	0.2773	0.2669	0.2716	0.2569
Z5	0.2737	0.2708	0.2794	0.2808	0.2830	0.2769	0.2773	0.2669
Z6	0.2794	0.2808	0.2851	0.2908	0.2887	0.2869	0.2830	0.2769
Z7	0.2851	0.2908	0.2908	0.3008	0.2944	0.2969	0.2887	0.2869
Z8	0.2908	0.3008	0.2965	0.3108	0.3001	0.3069	0.2944	0.2969
H2	0.2602	0.2369	0.2659	0.2469	0.2695	0.2430	0.2638	0.2330
H3	0.2659	0.2469	0.2716	0.2569	0.2752	0.2530	0.2695	0.2430
H4	0.2716	0.2569	0.2773	0.2669	0.2809	0.2630	0.2752	0.2530
H5	0.2773	0.2669	0.2830	0.2769	0.2866	0.2730	0.2809	0.2630
H6	0.2830	0.2769	0.2887	0.2869	0.2923	0.2830	0.2866	0.2730
H7	0.2887	0.2869	0.2944	0.2969	0.2980	0.2930	0.2923	0.2830
H8	0.2944	0.2969	0.3001	0.3069	0.3037	0.3030	0.2980	0.2930

Luminous intensity **limits**

20MA		
BIN CODE	**Min. (mcd)**	**Max. (mcd)**
28	2800	2900
29	2900	3000
30	3000	3100
31	3100	3200
32	3200	3300
33	3300	3400
34	3400	3500
35	3500	3600
36	3600	3700
37	3700	3800
38	3800	3900
39	3900	4000
40	4000	4100
41	4100	4200

7. Intensity And Forward Bin Limits 亮度、电压等级

Forward voltage (Tolerance: ±0.05V@ IF= 20mA @ Ta=25℃)

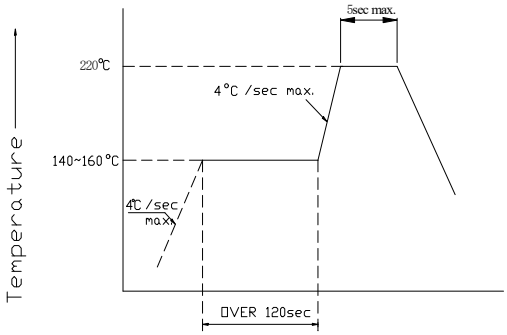
电压 VF(公差±0.05V@ IF= 20mA @ Ta=25℃)

BIN CODE	Min.	Max.	Unit	Condition
V7	2.7	2.8	V	IF=20mA
V8	2.8	2.9		
V9	2.9	3.0		
V0	3.0	3.1		
V1	3.1	3.2		

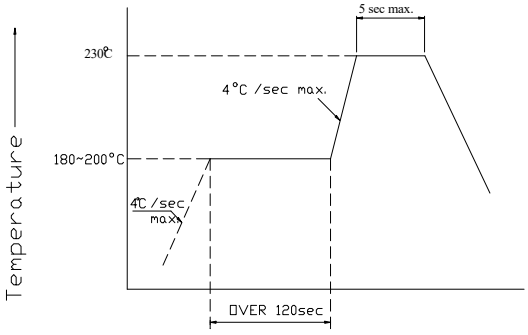
8. SMTReflow Soldering Instructions SMT 回流焊说明

Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.
(本产品最多只可回焊两次,且在首次回焊后须冷却至室温之后方可进行第二次回焊.)

1>Lead Solder（有铅回焊）



2>Lead-Free Solder(无铅回焊)



9. Use precautions 使用注意事项：

9.1 Welding 焊接：

a. SMD LED 灌封胶较软，外力易损坏发光面及塑料壳，焊接时要轻拿轻放，不可用力按压正面胶体。
The SMD LED potting glue is relatively soft, and external force can easily damage the light-emitting surface and plastic shell. Be gentle when welding and do not press hard on the positive glue.

b. 建议使用免洗型的助焊剂，依照回流曲线条件回流焊接，回流次数最多两次，确保 LED 发光面干净，胶体表面有助焊剂、锡珠、异物、破损会导致 LED 发光颜色差异或改变。
It is recommended to use no-clean flux and reflow soldering according to the reflow curve conditions. The reflow times are up to two times to ensure that the LED light-emitting surface is clean. The presence of flux, tin beads, foreign matter, or damage on the surface of the colloid will cause differences or changes in the LED's luminous color.

c. 仅在修补时进行手动焊接，建议使用 25W 防静电烙铁，镊子、烙铁焊头不可碰及发光面和塑料件，焊接时间不超过 3 秒钟。过长时间会导致 LED 灯珠表面烫伤。
Manual soldering is only performed when repairing. It is recommended to use a 25W anti-static soldering iron. Tweezers and soldering iron tips should not touch the luminous surface and plastic parts. The connection time does not exceed 3 seconds. Excessive time may cause burns on the surface of the LED lamp beads.

d. 焊接时及实验过程中，不能用力扭曲 LED，否则容易使 LED 死灯。
During welding and the experiment, do not twist the LED forcefully, otherwise it will easily cause the LED to burn out.

e. 不要在同一单元板上焊接不同 BIN 级（色区）的产品，如不同色区，不同电压，否则会产生色差。
Do not weld products with different BIN levels (color areas) on the same unit board, such as different color areas and different voltages, otherwise color differences will occur.

f. 请避免锡膏、PCB 板含硫，硫经过高温时会导致 LED 灯珠表面镀银层硫化发黑，导致色差死灯。
Please avoid solder paste and PCB boards containing sulfur. When sulfur is exposed to high temperatures, it will cause the silver-plated layer on the surface of the LED lamp beads to sulfide and turn black, resulting in chromatic aberration and dead lamps.

9.2 Storage 保存：

a. 打开包装前，LED 应存储在温度 30℃或以下、相对湿度在 60%RH 以下，一年内使用。
Before opening the package, the LED should be stored at a temperature of 30℃ or below and a relative humidity of 60%RH or below and used within one year.

b. 打开包装后，LED 在温度 30℃或以下、相对湿度在 30-35%RH 或更低环境下，使用时间 3 天。 LED在室温、相对湿度在大于 35%RH 的环境下，建议使用时间 4 小时内。 LED 吸潮后，回流焊时可能裂胶，影响发光颜色或死灯。 对于未使用的散件，请去潮处理 （对于卷装品：烘烤 65℃±5℃，12 小时；对于散装品：烘烤 105℃±5℃，1 小时），烘烤后的产品请使用铝箔袋密封保存。
After opening the package, the LED should be used for 3 days in an environment with a temperature of 30° C or below and a relative humidity of 30-35%RH or below. LED In an environment with room temperature and relative humidity greater than 35%RH, the recommended use time is within 4 hours. After the LED absorbs moisture, the glue may crack during reflow soldering. Affects glow color or dead light. For unused parts, please dehumidify them (for rolled products: bake at 65℃±5℃ for 12 hours; for bulk products: bake at 105℃ ±5℃ for 1 hour). Please use aluminum foil bags to seal and store the baked products.

c. 保存环境中避免有酸、碱以及腐蚀性气体存在，同时避免强烈震动及强磁场作用。
Avoid the presence of acid, alkali and corrosive gases in the storage environment, and avoid strong vibration and strong magnetic fields.

9.3 Product design testing 产品设计测试：

a. LED 产品要在额定电流下使用，同时电路设计中需要加限流电阻保护，否则，轻微的电压变化就会导致较大电流变化，导致 LED 产品大电流冲击死灯。
LED products must be used at rated current, and current limiting resistors must be added to the circuit design to protect them. Otherwise, slight voltage changes will cause Causes large current changes, causing LED products to have high current impact and die.

b. LED 产品建议恒流使用（不建议恒压使用，如需恒压使用，请确认产品设计是否有过载保护。）
LED products are recommended for constant current use (constant voltage use is not recommended. If constant voltage use is required, please confirm whether the product design has overload protection.)

c. 在电路导通或关闭情况下，要避免瞬间浪涌电压的产生，否则，LED 将被烧坏。
When the circuit is on or off, avoid the generation of instantaneous surge voltage, otherwise, the LED will be burned out.

d. LED 贴到灯板上，检测时灯条弯折最大角度不能超过 15° （如下图所示），如果弯折角度大于 15°，则超出了灯珠的承受范围，会出现灯闪或死灯现象，影响灯珠使用寿命。
When the LED is attached to the light board, the maximum bending angle of the light bar should not exceed 15° (as shown in the figure below). If the bending angle is greater than 15°,This exceeds the tolerance of the lamp beads and will cause light flickering or dead light, affecting the service life of the lamp beads.