

承認書

SPECIFICATION FOR APPROVAL

● 客戶名称	
● Customer	
● 客戶品號	
● Customer Part No.	
● 產品品號	HC-B4-3535C09-RGBWD8
● Brightek Part No.	
● 產品規格描述	3535 八脚 RGBW 四色灯珠
● Specification	
● 製錶人	王清
● Prepared By	
● 審核	李东平
● Checkedy	
● 客戶回簽	
● Customer	
● 送样日期:	
● Deliver date:	

說明：一、謹致執事者：茲提供敝公司產品之有關詳細規格及圖面資料，敬請給予辦理測試認同時敬請送返一份附有貴公司簽認之測試認定後之樣品認定書。

We are sending you our specification and drawings for your approval. Please return to us one copy "For Approval" with your approved signatures.

二、客戶意見欄 Customer's Proposal

☐ Approve 承認 (請於認可欄中簽名)

☐ Disagree 不同意

Reason 原因:

光宇集团

光宇集团国际(香港)有限公司

GTU Group International (HK) Co., Limited

广东光宇半导体科技有限公司

工厂地址：东莞市寮步镇松湖智谷 A2 栋 3 楼

东莞市弘呈光电有限公司

DongGuan Hong cheng Optoelectronics Co.,Ltd.

工厂地址：广东省东莞市樟木头镇莞樟路樟木头段 15 号 15 栋 2108 号

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版本/版次	修改日期	修改内容
A01	2024.9.2	增加脚位定义说明。
A02	2024.12.10	修改蓝光，翠绿光工作电压由最小值 2.8V
A03	2025.7.25	修改蓝光，翠绿光，白光的工作电压最小值 2.6V,红光电压值最大 2.4V

1. Product Introduction 产品介绍

1-1. Features 产品特点

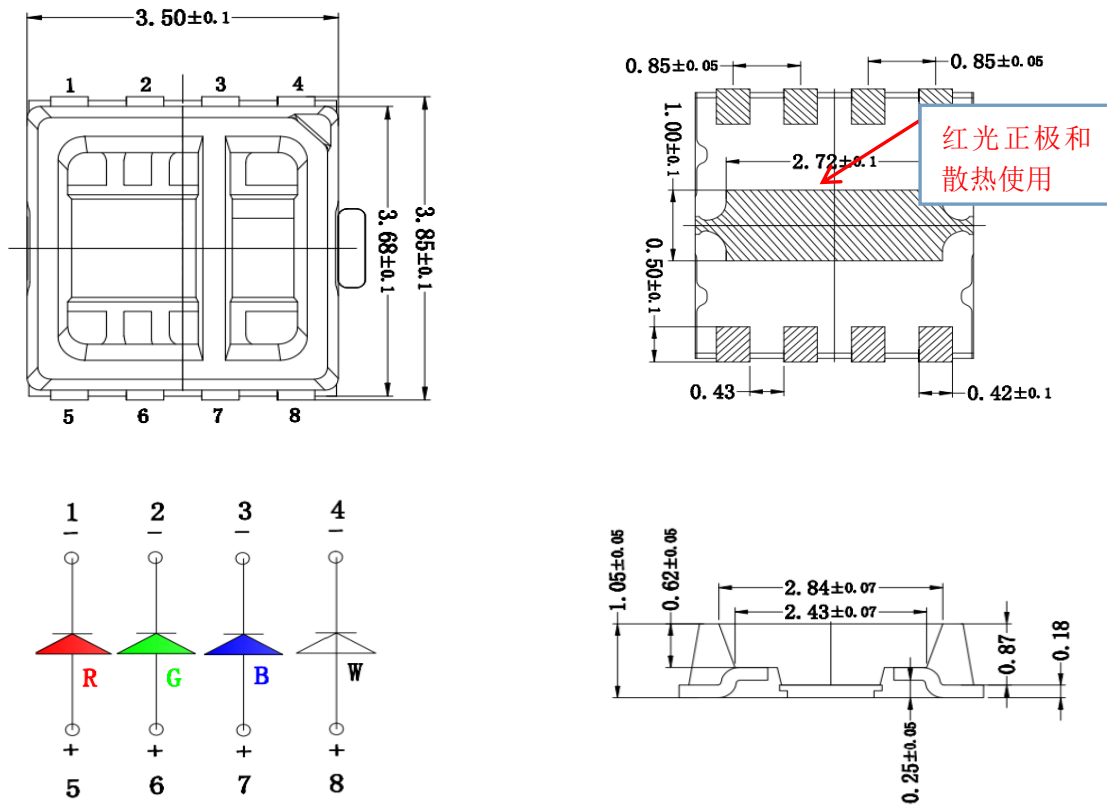
- Mechanical Dimensions 产品尺寸 3.5*3.5*1.05 (mm)
- High luminous intensity flux and high efficacy 高光效、高亮度
- Low power dissipation, good reliability and long life 低功耗, 高可靠性和长寿命
- RoHS compliant RoHS 认证

1-2. Application 应用领域

- Landscape lighting 景观灯
- Strip lighting 线条灯
- General lighting 普通照明



1-3. Package Dimensions 外形尺寸



颜色名称	脚位顺序	描述
R	1、5 脚位	1 为红光负极, 5 为正极, 连接支架散热盘 (见图示)
G	2、6 脚位	2 为绿光负极, 6 为正极
B	3、7 脚位	3 为蓝光负极, 7 为正极
W	4、8 脚位	4 为白光负极, 8 为正极

Notes

- 1.All dimensions are in millimeters. 以上尺寸单位均为 mm。
- 2.Tolerance is $\pm 0.25\text{mm}$ unless otherwise noted. 未特别标注公差尺寸公差均为 $\pm 0.10\text{mm}$ 。

2. Performance Characteristics 性能特性

2-1. Absolute Maximum Ratings 最大极限参数

Ta=25℃

Parameter 参数	Symbol 符号		Rating 最大值	Unit 单位
Power Dissipation 功耗 *1	Pd	R	60	mW
		G	70	
		B	70	
		W	70	
Pulse Forward Current 正向脉冲电流	Ifp		100	mA
Reverse Voltage 反向电压	Vr		5	V
Operating Temperature 操作温度	Top		-40 ~ +85	℃
Storage Temperature 存储温度	Tst		-40 ~ +100	℃
Junction Temperature 结温	Tj		125	℃
Electrostatic Discharge Threshoi 抗静电能力	ESD		2000	V
Soldering Temperatu 焊接温度	Ts		260℃ for 3 seconds	

*1. Input power and forward current are the values when the LED is used within the range of the derating curve in this data sheet. 当产品在较高的温度环境中使用时，请务必按照本规格书中的降额曲线对输入电流做相应的调整。

*2. Pulse width ≤ 0.1ms, Duty ≤ 1/10 脉冲宽度 ≤ 0.1ms, 占空比 ≤ 1/10

3. The data on this specification is for reference only 以上数据仅供参考。

2-2. Optical-Electrical Characteristic 光电特性参数

(Ta=25℃)

Parameter 参 数	Symbol 符 号	Emitting color 发光颜色	Test Condition 测试条件	Values 值			Units 单位
				Min.	Typ.	Max.	
Forward Voltage 正 向 电 压	VF	R	IF=20mA	1.9	--	2.4	V
		G	IF=20mA	2.6	--	3.3	V
		B	IF=20mA	2.6	--	3.3	V
		W	IF=20mA	2.6		3.0	V
Luminous Flux 流 明	Φ	R	IF=20mA	2	--	3	lm
		G	IF=20mA	4	--	7	lm
		B	IF=20mA	1	--	2	lm
		W	IF=20mA	6	--	10	lm
Dominant Wavelength 主 波 长	λd	R	IF=20mA	620	--	630	nm
		G	IF=20mA	520	--	530	nm
		B	IF=20mA	450	--	470	nm
Correlated Color Temperature 色 温	CCT	W	IF=20mA	6000	--	8000	K
Color rendering index 显色指数	Ra	W	IF=20mA	80	--	±1	/
Reverse Current 反 向 电 流	Ir	-	VR=5V	-	-	2	μA
Viewing Angle 发 光 角 度	2Θ1/2	-	IF=20mA	-	120	-	Deg

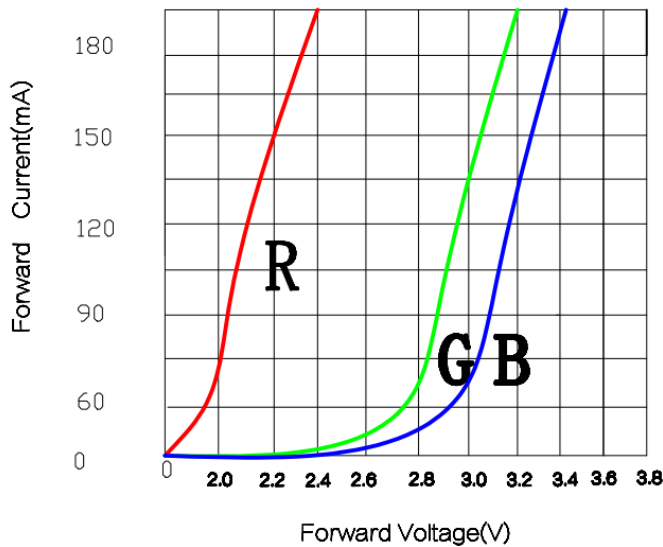
※ Above data are measured by Jeray's tester forward voltage +/-3%, luminous flux +/-10%, Dominant Wavelength +/-2nm, CCT +/-15%, 以上数据是以远方测试机台进行测试 各参数测试误差为 正向电压+ / - 3%, 光通量+ / - 10%, 主波长 + / - 2nm, 色温 +/-15%

3. Characteristic Curves 特性曲线

3-1. Forward Current Characteristics / Temperature Characteristics

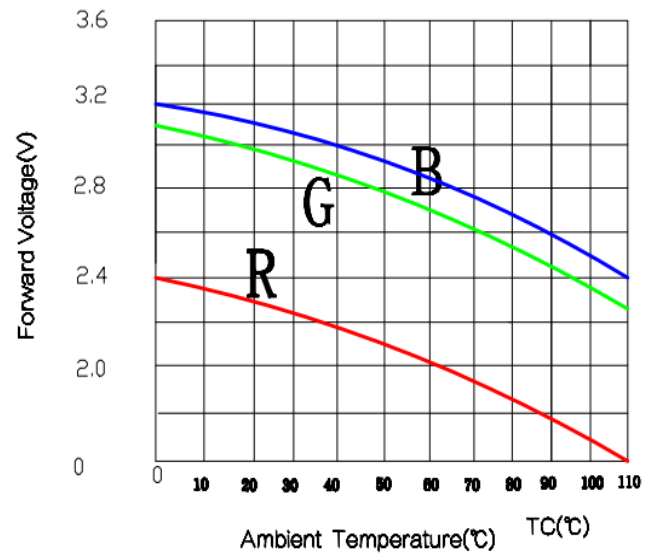
正向电流特性/温度特性(RGB)

Forward Voltage vs Forward Current
TC=25°C



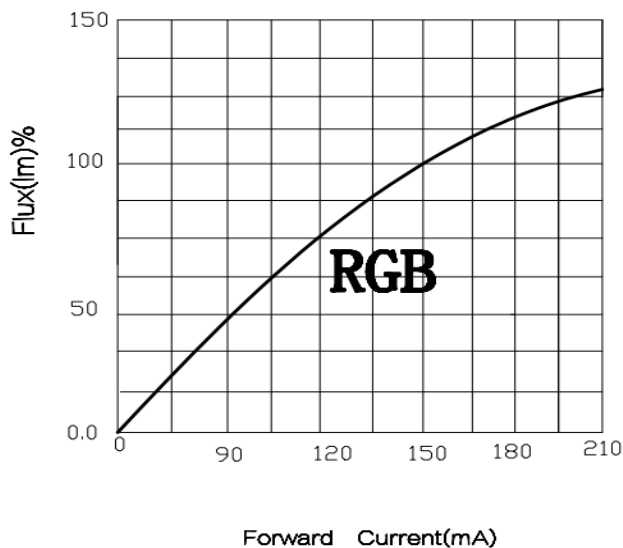
正向电压 VS. 正向电流关系图

Ambient Temperature vs Forward Voltage



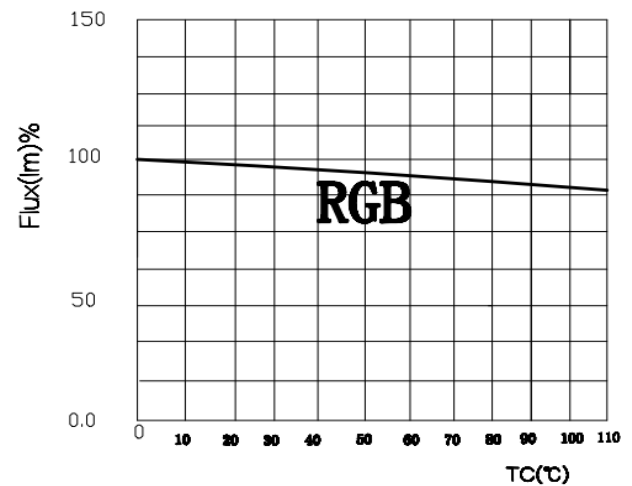
温度 VS. 正向电压关系图

Forward Current vs Luminous Flux



正向电流 VS. 亮度关系图

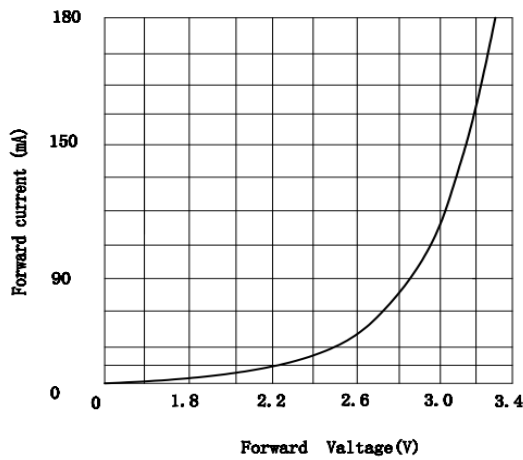
Ambient Temperature vs Luminous Flux



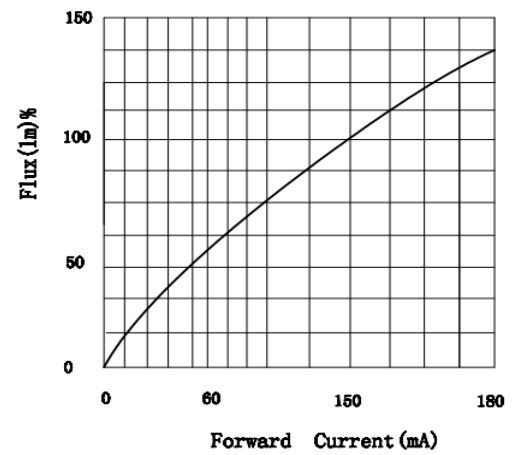
温度 VS. 亮度关系图

3-2. Forward Current Characteristics / Temperature Characteristics

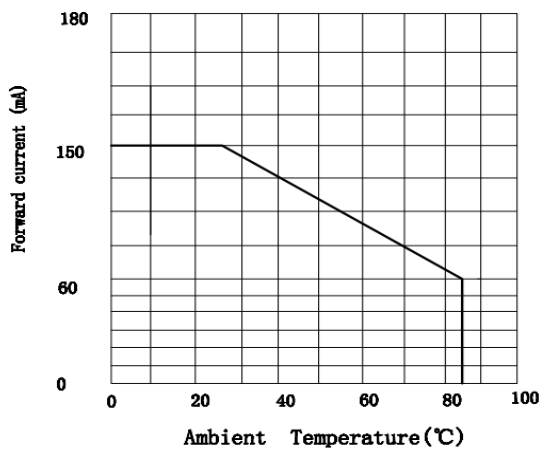
正向电流特性/温度特性(W)



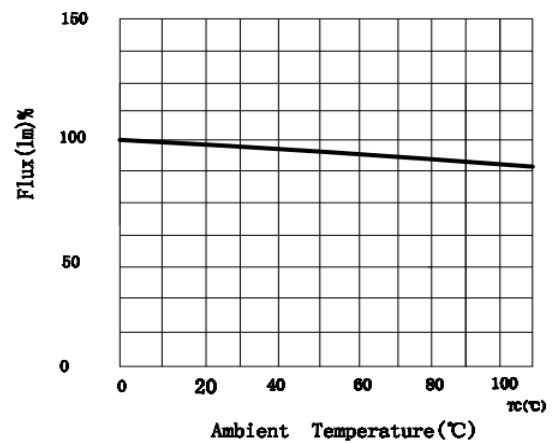
Forward Current VS. Forward Voltage
电压与电流关系曲线图



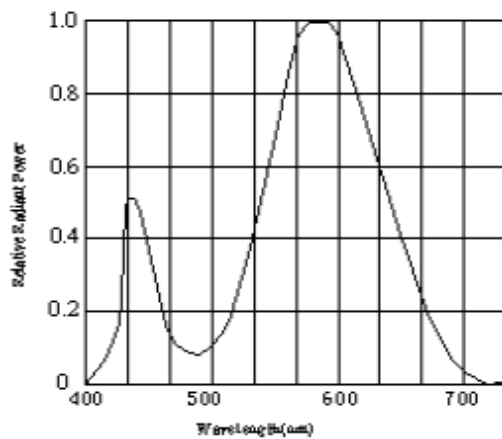
Relative Luminous Flux VS. Forward Current
亮度与电流关系曲线图



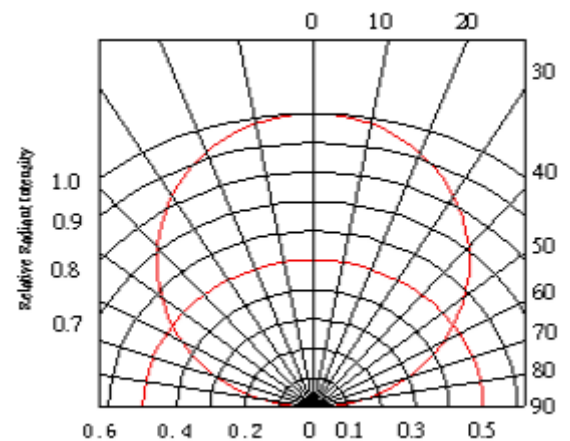
Forward Current VS. Ambient Temperature
电流与温度关系曲线图



Relative Luminous Flux VS. Ambient Temperature
温度与亮度关系曲线图



Relative Radiant power VS. Wavelength
辐射功率与波长关系曲线图

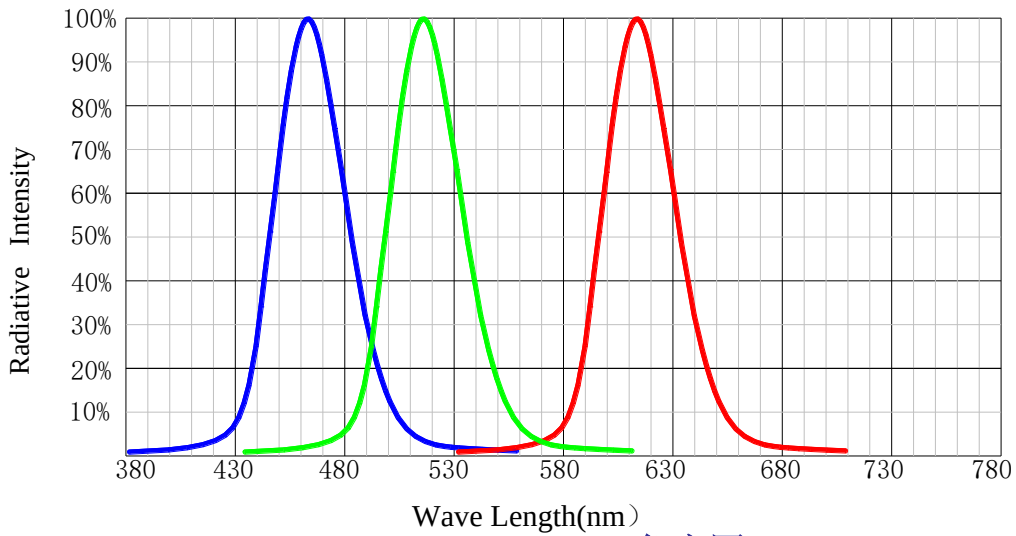


Relative Radiant Intensity VS. Angular Displacement
辐射强度与角度关系曲线图

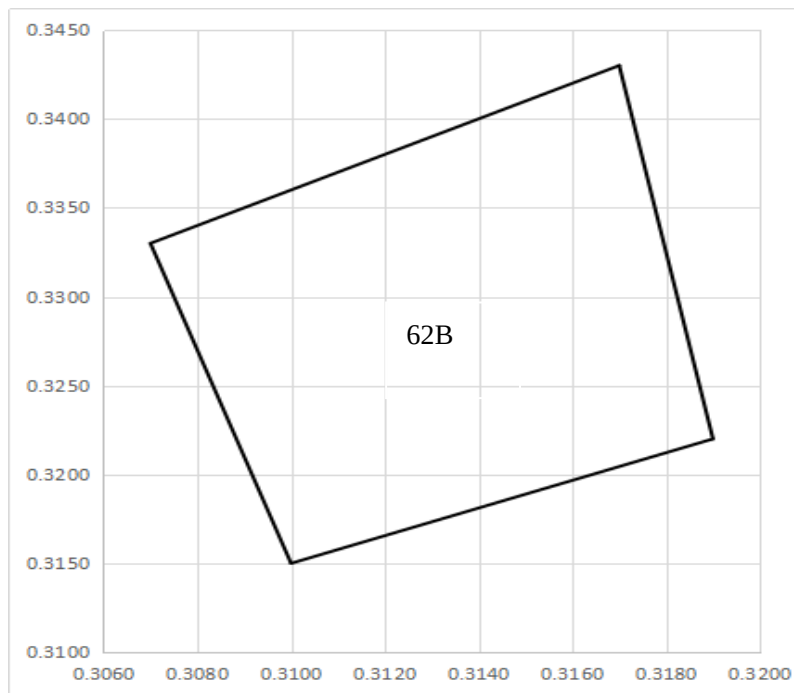
3-3. Optical Characteristics 光学特性

Spectrum :RED/GREEN/BLUE

(Ta=25℃)



3-4. CIE Chromaticity Diagram CIE 色度图



色温	色区	X1	Y1	X2	Y2	X3	Y3	X4	Y4
6000-8000K	62B	0.3100	0.3150	0.3070	0.3330	0.3170	0.3430	0.3190	0.3220

Note: The color coordinates measurement allowance tolerance is ± 0.0035 . (坐标测量误差 ± 0.0035)

4. Reliability 可靠性

4-1. Reliability Test 可靠性试验

Test Item 测试项目	Test Condition 试验条件
Continuous Operation Test 连续运行试验	IF=20mA Ta=25℃ × 1000hrs
	IF=20mA Tj=125℃ × 1000hrs
Low Temperature Storage Test 低温贮存试验	-40 ℃ × 1000 hours
High Temperature Storage Test 高温贮存试验	100℃ × 1000 hours
Moisture-proof Test 高温高湿试验	85 ℃, 85 %RH for 500 hours
Thermal Shock Test 冷热冲击试验	-40 ℃ × 30 minutes-----100 ℃ × 30 minutes, 100 cycle

4-2. Failure Criteria 实验判定标准

(Tc=25℃)

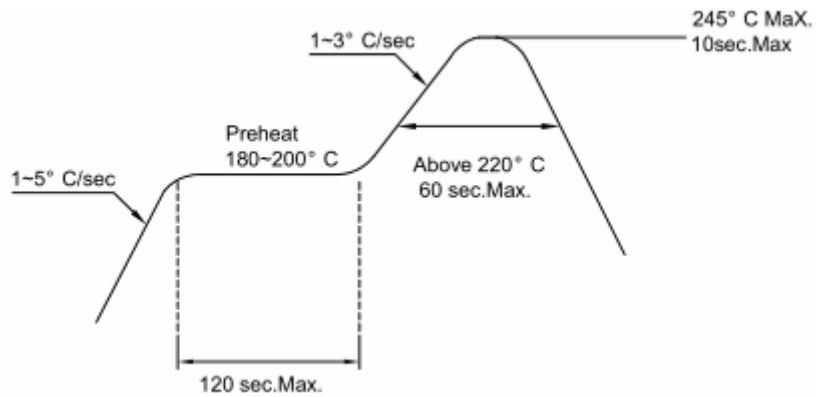
Measuring Item 实验项目	Symbol 符号	Measuring Condition 实验 条件	Failure Criteria 判定标准
Forward Voltage 正向电压	Vf	If=20mA	>U × 1.2
Total Luminous Flux 总光通量	Φ _v	If=20mA	<S × 0.7

U defines the upper limit of the specified characteristics. S defines the initial value.
U 为实验前电压的初始值, S 为实验后光通量的值.

Note : Measurement shall be taken between 2 hours and 24 hours, and the test pieces should be return to the normal ambient conditions after the completion of each test.
注释: 每个试验完成后试验样品均被放置回正常的环境条件下, 并且在 2 到 24 小时内测试完.

4.3 Soldering Conditions 焊接条件

SMT Reflow Soldering Instructions SMT 回流焊说明



1. Reflow soldering should not be done more than two times. many times reflow soldering has destructive effect to the product

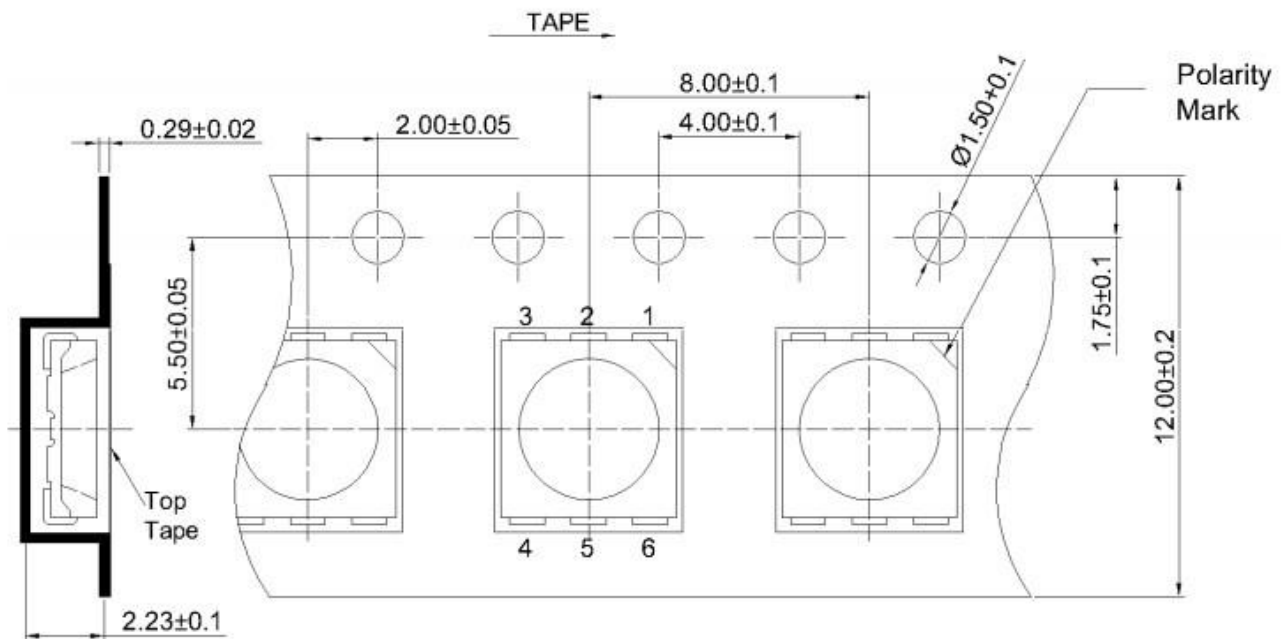
回流焊不可以做两次以上，多次回流焊对产品有破坏性作用

2. When soldering , do not put stress on the LEDs during heating

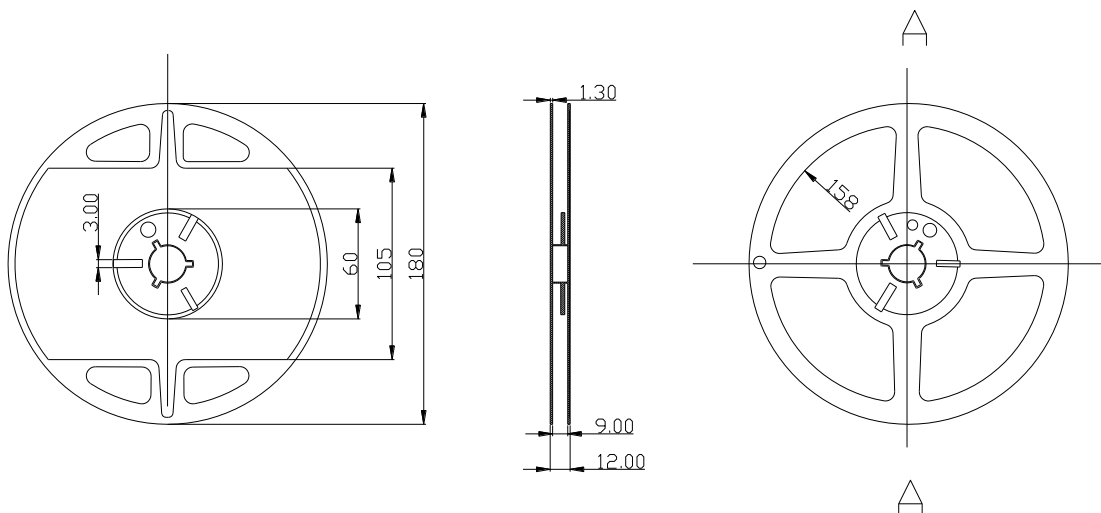
当焊接时，不要在材料受热时用力压胶体表面

5. Packing Specifications: 包装规格

※ Loaded quantity: 1000 pcs/reel



※ Package Method: (Unit: mm)



Note:

1. A

11 dimensions are in millimeters.

所有尺寸单位均为 mm。

2. Tolerance is ± 0.1 mm unless otherwise noted.

除非特别注明否则公差均为 ± 0.1 mm。

3. Packing quantity: 1000pcs/reel.

包装数量: 1000pcs/卷。

6. Precaution 使用注意事项

6-1. Handling with care for this product 触碰产品

-Because of the LED surface is composed of resin materials. Please avoid the resin area from being pressed, stressed, rubbed, come into contact with sharp metal nail because the function, performance and reliability of this product are negatively impacted.

-Please be aware that this product should not come into contact with any other parts while incorporating in your lighting apparatus or your other products.

-由于 LED 灯珠的表面胶体部份都是由软性的树脂材料组成的，所以在拿取产品时该位置应避免被挤压，摩擦或是锋利金属物体碰到，反之该产品的功能、性能和可靠性均会受到极大影响。

-请注意在组装成您的成品灯具或是其它产品时，也应注意不能挤压或是刮到此树脂的部份。

6-2. Countermeasure against static electricity 静电防护

-Handling of this product needs countermeasures against static electricity because this is a semiconductor product.

-Please take adequate measures to prevent any static electricity being produced such as the wearing of a wristband or anti-static gloves when handling this product.

-Every manufacturing facility in regard to the product (plant, equipment, machine, carrier machine and conveyance unit) should be connected to ground and please avoid the product to be electric-charged.

-ESD sensitivity of this product is over 1000V (HBM, based on JEITA ED-4701/304).

-After assembling the LEDs into your final product(s), it is recommended to check whether the assembled LEDs are damaged by static electricity (electrical leak phenomenon) or not.

-It is easy to find static damaged LED dies by a light-on test with the minimum current value.

-因为该产品属半导体产品，故在使用本产品的过程中需要做相应的静电防护措施。

-请采取充分必要的措施来防止静电产生，如戴防静电手环或防静电手套等。

-每一个生产设备都必须可靠地接地（如生产设备、量测装置、设备、运输设备等），避免产品被静电击坏。

-本产品的抗静电能力超过 2000V（HBM，基于 JEITA ed-4701 / 304 标准）。

-将发光二极管组装成最终产品后，建议您检查 LED 产品是否有被静电损坏（漏电现象）。

-可用一小电流点亮 LED 来检测是否有被静电击坏发光二极管。

6-3. Caution of product assembly 产品装配注意事项

-Roughness, unevenness and burr of surface negatively impact thermal bonding between the product and heat sink and increase heat thermal resistance between them.

Confidence of thermally and mechanical coupling between the product and heat sink are confirmed by checking the mounting surface and measuring the case temperature of the product.

-In order to reduce the thermal resistance at assembly, it might be good to use TIM (Thermal Interface Material) on whole contact surface of the product.

-In case of using thermal grease for the TIM, it might be good to apply uniformly on the contact surface of the product.

- It might be good to make sure that the product heat sink is NOT strained by stress after solid for assembly to PCB.

-热沉表面粗糙、不均匀和表面毛边等均会对本产品的散热产生严重影响，导致产品与散热片热阻的增加。

本产品装于热沉上的散热效果须通过触摸热沉表面温度或是直接测量本产品的表面温度进行确认。

-为了达到良好的散热效果，组装时在本产品与热沉接触面采用 TIM（导热材料）将有助于减少热阻。

-假如使用导热硅脂作为导热介质，在本品与热沉接触面涂覆得会比较均匀。

-在焊接后需要确认 LED 产品热沉是否与 PCB 接触面结合紧密。

6-4. Thermal Design 散热设计

-The thermal design to draw heat away from the LED junction is most critical parameter for an LED illumination system. High operating temperatures at the LED junction adversely affect the performance of LED's light output and lifetime. Therefore the LED junction temperature should not exceed the absolute maximum rating in LED illumination system. -The LED junction temperature while operation of LED illumination system depends upon thermal resistance of internal -LED package (R_{j-c}), outer thermal resistances of LED package, power loss and ambient temperature. Please take both of the thermal design specifications and ambient temperature conditions into consideration for the setting of driving conditions.

-在成品灯具设计时，优良的散热设计就是将 LED PN 结产生的热量尽可能多的通过热沉传递出去。PN 结的温度过高将严重地影响 LED 的性能、光输出以及产品寿命。因此 LED 结温不应超过灯具系统中所规定的极限值。LED 结温的高低灯具由系统中的热阻决定。

-LED 封装 (R_{jc}) 外部热阻，功率流失和环境温度。在设计 LED 驱动条件时，请将散热设计和环境温度都要考虑进去。

6-5. Driving Current 驱动电流

-A constant current is recommended as an applying driving current to this product.

-In the case of constant voltage driving, please connect current-limiting resistor to each products in series and control the driving current to keep under the absolute maximum rating forward current value.

-Electrical transient might apply excess voltage, excess current and reverse voltage to the product(s). They also affect negative impact on the product(s) therefore please make sure that no excess voltage, no excess current and no reverse voltage is applied to the product(s) when the LED driver is turn-on and/or turn-off.

-本产品推荐使用恒流源进行驱动。

-假如使用恒压驱动，请连接好限流电阻并确保使用的电流在产品最大允许电流范围内使用。

-瞬间开关电源可能会产生超过 LED 规定使用的正向电压、正向电流和反向电压会对 LED 产生不良影响，因此请采取措施确保加在 LED 两端的电压与电流在正常范围内。

6-6. Recommended soldering Condition 推荐焊接条件

Soldering shall be implemented using a soldering bit at a temperature lower than 350°C, and shall be finished within 3 seconds for one land.

No external force shall be applied to resin part while soldering is implemented.

Next process of soldering should be carried out after the product has return to ambient temperature.

Contacts number of soldering bit should be within twice for each terminal.

手动焊接时，请确保烙铁头的温度低于 350℃，同时每一次焊接时间请控制在 3 秒以内。

焊接过程中请不要按压产品的树脂部份，以免对产品造成损坏。

同一焊点连续两次焊接时，请在第一次焊接完成且产品温度已回到室温后方可进行。

同一焊点的焊接应该控制在二次以内完成。