

承認書

SPECIFICATION FOR APPROVAL

● 客戶名称	
● Customer	
● 客戶品號	
● Customer Part No.	
● 产品品號	HC-CP24051017-JXY
● Brightek Part No.	
● 产品規格描述	3535陶瓷倒装芯片模頂3W
● 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定手續。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:

光宇集團

中高端光电元件定制企业, 20多年封装经验, 品质稳定, 值得信赖, 体现光的价

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

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东莞市弘呈光电有限公司

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ISO 14001
环境管理
体系认证



ISO 9001
环境管理
体系认证



版本/版次	修改日期	修改内容

1. Product Introduction 产品介绍

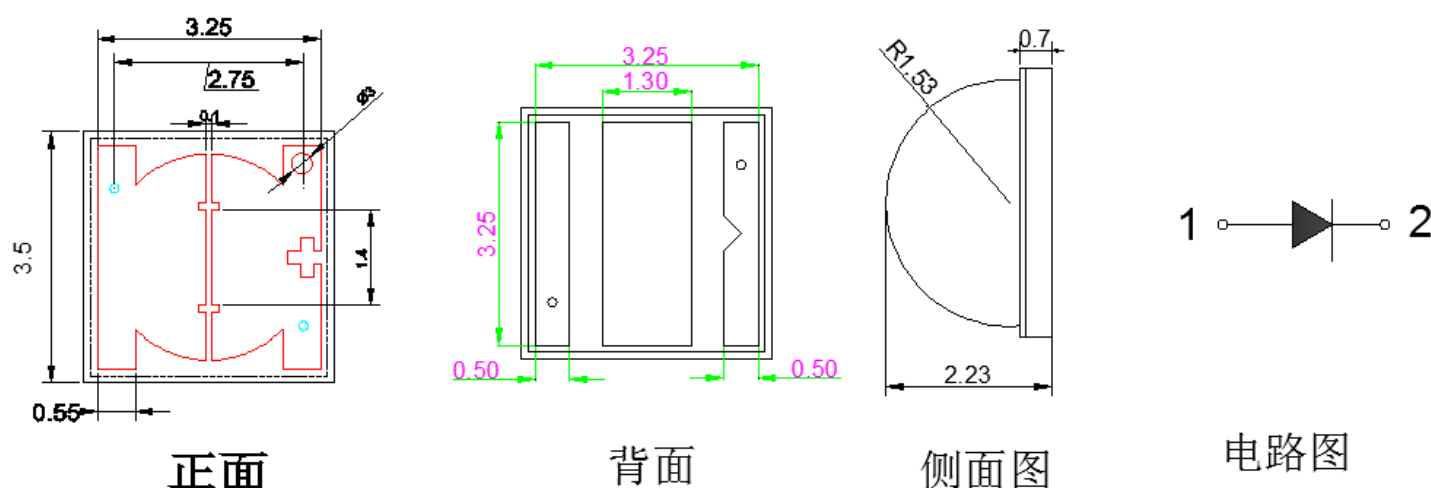
1-1. Features 产品特点

- Mechanical Dimensions 产品尺寸: 3.5×3.5×2.3 (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

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

1-3. Package Dimensions 外形尺寸



Notes

1 All dimensions are in millimeters. 以上尺寸单位均为 mm

Tolerance is $\pm 0.25\text{mm}$ unless otherwise noted. 未特别标注公差尺寸公差均为 $\pm 0.25\text{mm}$ 。

Performance Characteristics 性能特性

2-1. Absolute Maximum Ratings 最大极限参数 $T_a=25^\circ\text{C}$

Parameter 参数	Symbol 符号	Rating 最大值	Unit 单位
Power Dissipation 功耗 *1	Pd		mW
		W	
		2000	
Pulse Forward Current 正向脉冲电流 *2	Ifp	1000	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	110	℃
Electrostatic Discharge Threshold 抗静电能力	ESD	2000	V
Hand Soldering Temperature 手工焊接温度	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

2 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						
		W	IF=1000mA	3.0	3.2	3.5	V
Luminous Flux 流 明	Φ						
		W	IF=1000mA	340	360	380	lm
Correlated Color Temperature 色 温	CCT						
		W	IF=1000mA	4000	4300	4700	K
Color rendering index (显色指数)	CRI	W	IF=1000mA	65	70	75	Ra
Reverse Current 反 向 电 流	Ir	-	VR=5V	-	-	10	μA
Viewing Angle 发 光 角 度	2Θ1/2	-	IF=1000mA	-	120	-	Deg

1. Above data are measured by Jeray' s tester forward voltage +/-3%, luminous flux +/-10%, Dominant Wavelength +/-2nm, CCT +/-15%

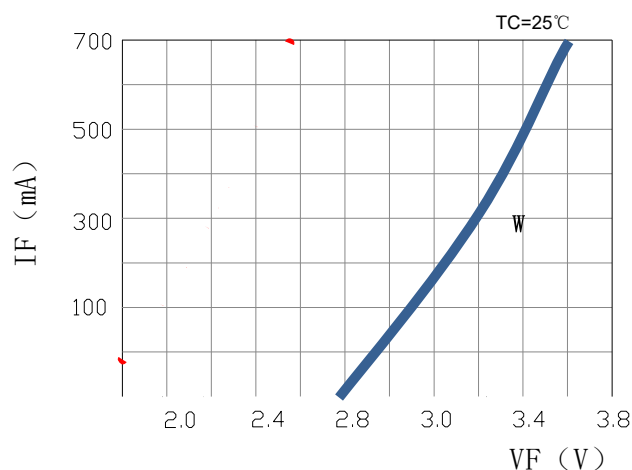
以上各参数测试误差为 正向电压+ / - 3%，光通量+ / - 10%，主波长 + / - 2nm，色温 +/-15%

3. Characteristic Curves 特性曲线

3-1. Forward Current Characteristics / Temperature Characteristics

正向电流特性/温度特性

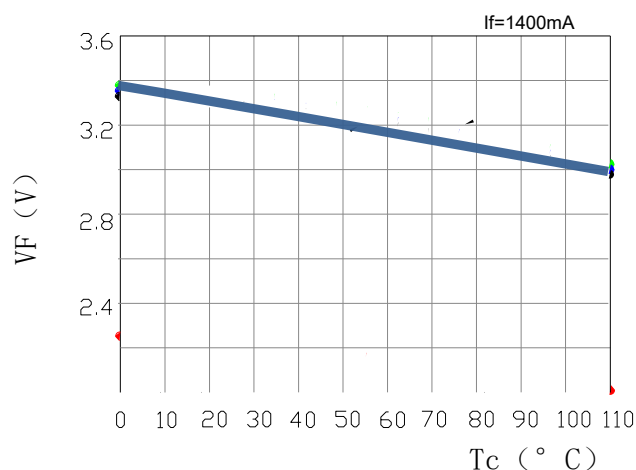
Forward Voltage vs Forward Current



正向电压 VS. 正向电流关系图

0
0

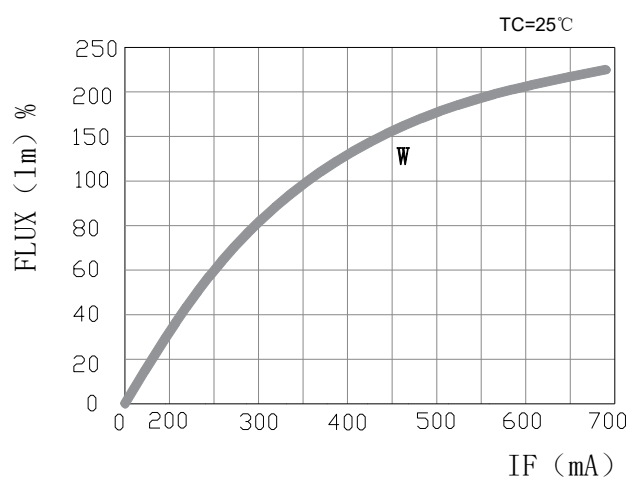
Temperature vs Forward Voltage



温度 VS. 正向电压关系图

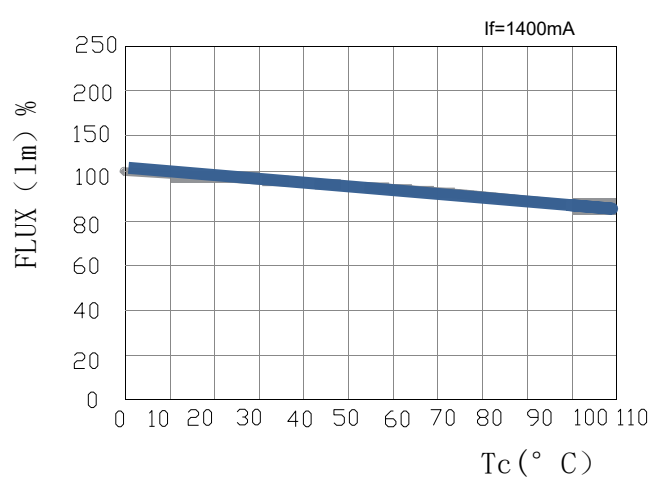
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Forward Current vs Relative Luminous Flux



正向电流 VS. 亮度关系图

Temperature vs Relative Luminous Flux

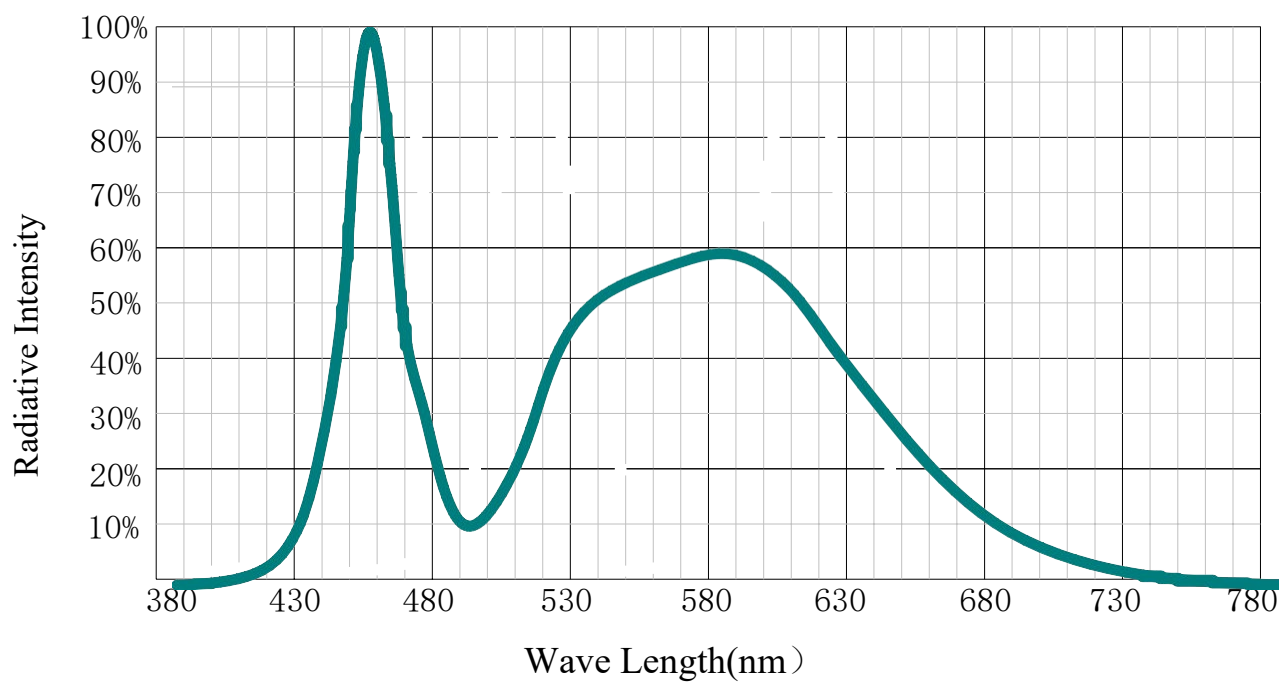


温度 VS. 亮度关系图

3-2. Optical Characteristics 光学特性

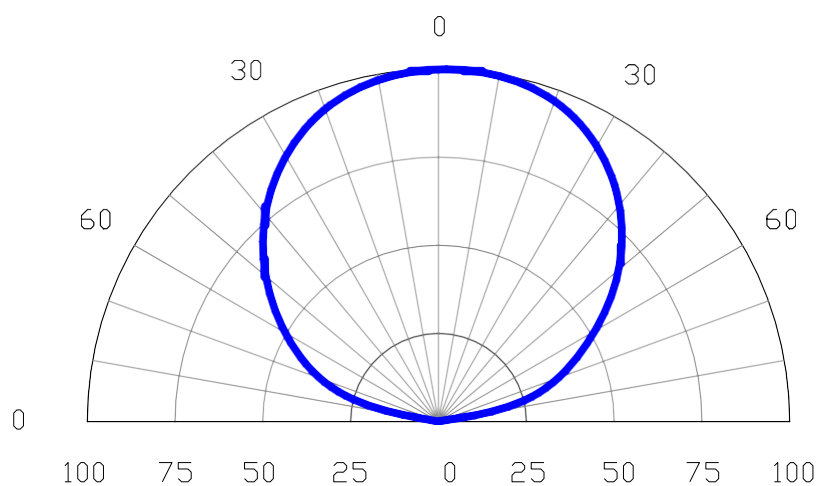
Spectrum :RED/GREEN/BLUE/WHITE

Ta=25°C If=1400mA



3-3. Optical Characteristics 光学特性

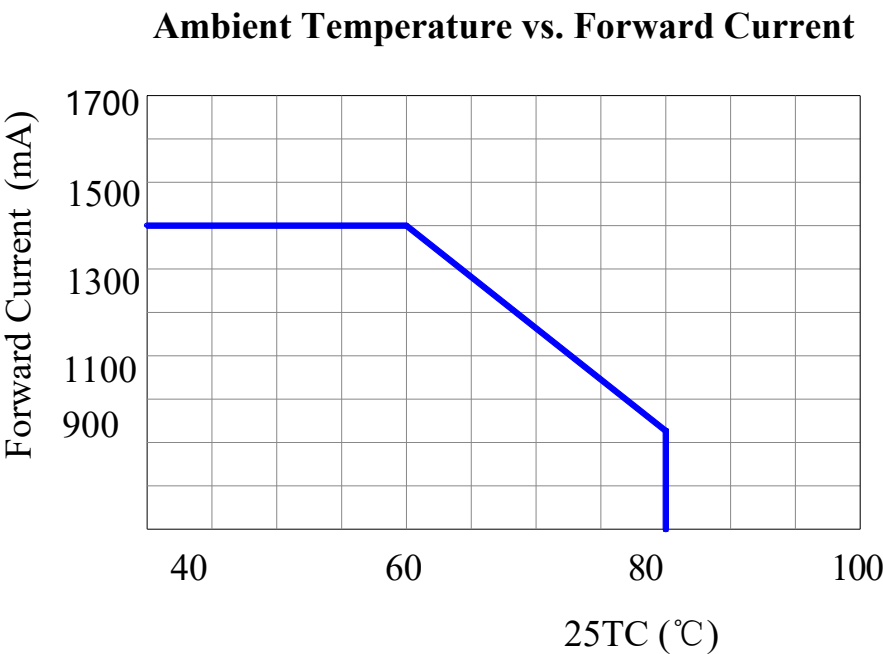
Beam Patter



亮度 VS. 角度关系图

3-4. Derating Characteristics 降额特性

环境温度 VS. 允许的正向电流



环境温度 VS. 正向电流关系图

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=1400mA Ta=25℃ × 1000hrs
	IF=1400mA Tj=140℃ × 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=1000mA	$>U \times 1.1$
Total Luminous Flux 总光通量	Φ_v	If=1000mA	$<S \times 0.85$

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。

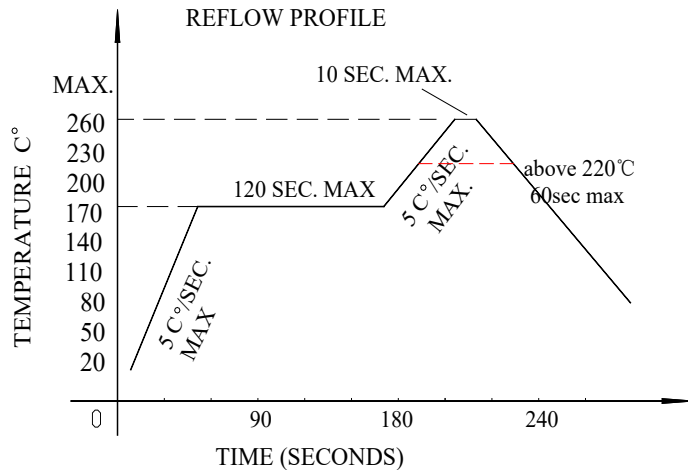
Note : Measurement shall be taken between 2 hours and 24 hours, and the test pieces should bereturn to the normal ambient conditions after the completion of each test.

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。

5. Recommend for soldering 推荐焊接条

◆ Reflow profile (焊接说明)

■ SMD Reflow Soldering Instructions (回流焊简介)



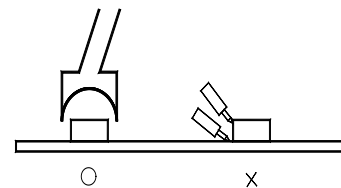
1. Reflow soldering should not be done more than two times
回流焊次数不应超过2次
2. When soldering ,do not put stress on the LEDs during heating
焊接时，在加热过程中不能有应力作用于LED灯珠

■ Soldering iron (烙铁)

1. When hand soldering, keep the temperature of the iron under 300°C, and at that temperature keep the time under 3 sec.
手工焊接时，烙铁温度控制在300°C以下，且时间不可超过3秒
2. The hand soldering should be done only a time
手工焊接只可焊接一次

■ Rework (返工)

1. Customer must finish rework within 5 sec under 260°C
温度保持在260°C以下，5秒内完成返工作业
2. The head of iron can not touch the LEDs
烙铁不能碰触到LED灯珠
3. Twin-head type is preferred.
双头形烙铁为最佳



■ CAUTIONS (注意事项)

The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the picking up nozzle, the pressure on the silicone resin should be proper.

封装的LED为硅材料。该LED具有软表面的封装顶部。顶部表面的压力会影响LED的可靠性。应采取预防措施，以避免有过大的压力作用于在封装件上。因此，在选用吸嘴时，应适用于有机硅树脂的压力。

6. Precaution使用注意事项

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

-Because of the LED lens 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 灯珠的透镜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°C，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。