



深圳市光贝电子有限公司

承认书

客户名称:

CUSTOMER NAME: _____

经办者:

职称:

DIRECTOR: _____

TITLE: _____

客户料号:

CUSTOMER PART NO.: GB-T5054RGB-3W/6P

品名:

版本:

PART NUMBER: 5054全彩RGB 3W

REVISION: 2.0

发件日期:

回文日期:

ISSUE DATE: _____

RETURN DATE: ____/____/____

一、谨致执事者: 兹提供敝公司产品之有关详细规格及图面数据, 敬请给予办理测试认定手续。

同时敬请送返一份附有贵公司签认之测试认定后之样品认定书。

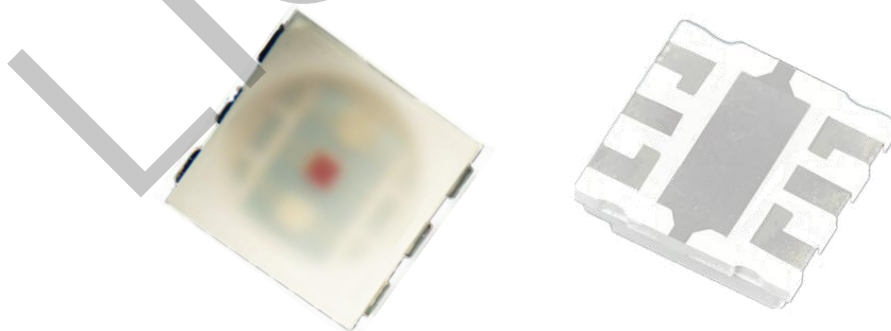
We are please in sending you herewith our specification and drawings for your approval.

Please return to us one copy "For Approval" with your approved signatures.

二、附件:

ACCESSORY: ☐样品 ☐出货检验记录表 ☐封装尺寸图 ☐电气特性曲线

☐内部线路图 ☐焊性建议 ☐PAD 建议 ☐包装方式



深圳市光贝电子有限公司

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扫一扫关注我们公众号

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1、特征 /Feature:

- 1.1 支架有 6 个 PIN 脚/The bracket has six PIN feet
- 1.2 焊接方法: 无铅回流焊/Soldering methods: Pb-Free reflow soldering
- 1.3 低热阻, 光强高, 功耗低, 可靠性好, 寿命长/Low Thermal Resistance, high Luminous Intensity, Low Power Dissipation, good Reliability and Long Life
- 1.4 半功率角度: 120° /Half Angle (2 Θ 1/2):120°
- 1.5 符合欧盟公布的 ROHS 指令要求/ Complied With ROHS Directive
- 1.6 宽角度全彩 LED/Wide angle full-color LED

2、描述/Describe :

本产品属于表面贴装发光器件, 可靠性高、寿命长、视角宽等特点, 是照明、显示、装饰、亮化等领域的理想选择。

This product belongs to the surface mount luminous device, high reliability, long life, wide angle of view and other characteristics, is the ideal choice in lighting, display, decoration, lighting and other fields.

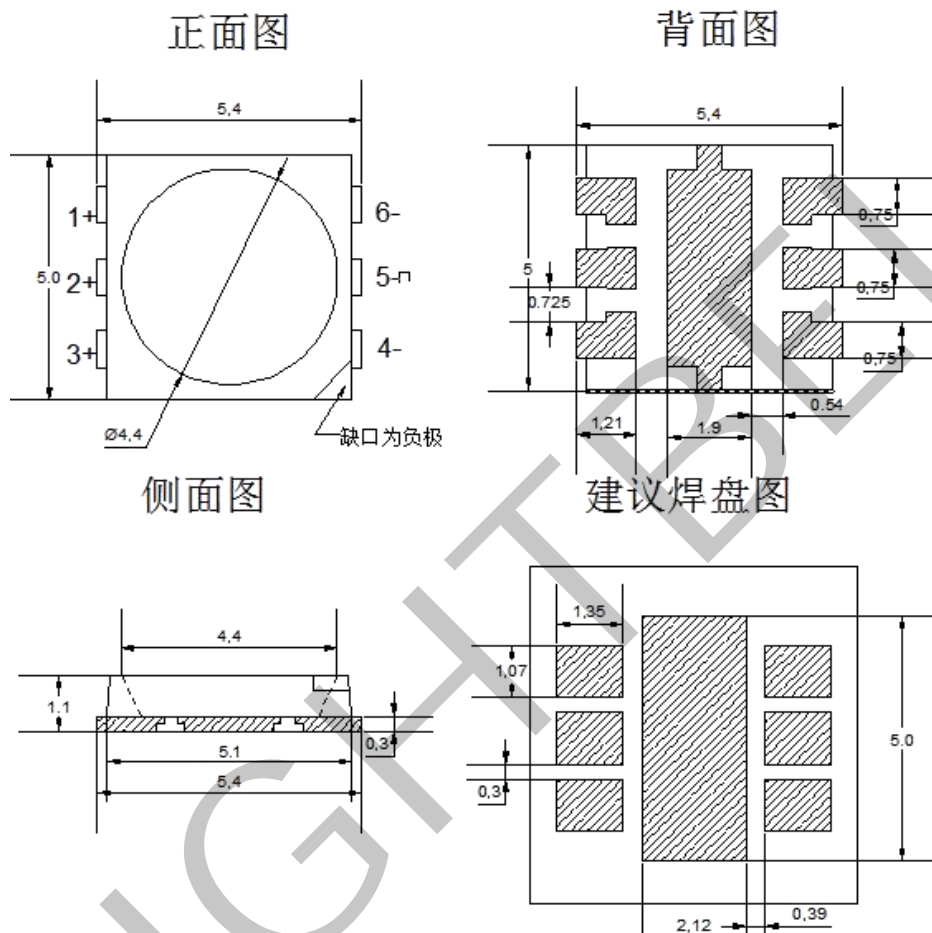
3、应用/Applications:

- 4.1 背光源/Backlight
- 4.2 灯条/Lamp
- 4.3 模组/Modules
- 4.3 其他照明/Other Lighting

4、外观描述 /Appearance description:

型号 Type	发光颜色 Luminescent colors	表面胶体颜色 Surface colloid color
GB-T5054RGB-3W/6P	红/R	半透明胶体 Translucent colloid
	绿/G	
	蓝/B	

5、封装尺寸/Package Size:



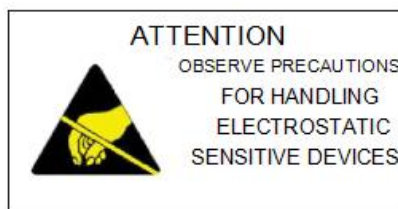
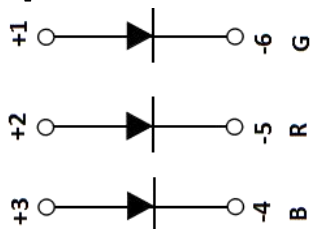
注解/Notes:

1. 所有尺寸以毫米为单位/All dimensions are in millimeters.

2. 未标注公差为: X.X ± 0.10 mm, X.XX ± 0.05 mm/Unmarked tolerances: X.X ± 0.10 mm, X.XX ± 0.05 mm

3. 本 LED 器件采用之引线架由注塑工艺成型, 故塑件受外力即有可能发生形变导致拉裂内部邦线并导致开路缺色, 故在产品设计及生产制程中务必评估并避免因 PCB 基板形变造成 LED 灯珠受损, 否则建议更改灯珠方案。/The lead frame of the LED device is molded by injection molding process. Therefore, the plastic part may be deformed by external forces, which may cause the inner wire to be pulled apart and the open circuit to be short of color, therefore, in the product design and production process must be evaluated and avoid damage caused by PCB substrate deformation LED lights, otherwise, it is recommended to change the scheme of lights.

6、等效电路图/Equivalent circuit diagram:



7、光电参数 (TA=25° C) /Electrical/Optical Characteristics (At TA=25° C):

Parameter 参数	Symbol 符号	Conditions 条件	Min. 最小值	Typ. 典型值	Max. 最大值	Units 单位
DC Forward Voltage 正向压降	V _F	R I _F =300mA	2.0	2.1	2.2	V
		G I _F =300mA	2.8	2.9	3.0	
		B I _F =300mA	2.9	3.0	3.1	
Viewing Angle 发光角度	2Θ _{1/2}	I _F =300*3mA	—	120	—	Deg
Main wavelength 波长	λ D	R I _F =300mA	620	—	625	nm
		G I _F =300mA	520	—	525	
		B I _F =300mA	455	—	460	
Luminous flux 光通量	Φ	R I _F =300mA	30	—	35	Lm
		G I _F =300mA	55	—	60	
		B I _F =300mA	13	—	18	

8、极限参数 (TA=25° C) /Absolute Maximum Rating (At TA=25° C):

Parameter 参数	Symbol 符号	Value 数值	Units 单位
Operating current range 正向电流范围	I _F	300*3	mA
Junction Temperature 结点温度	T _J	125	° C
Operating Temperature Range 工作温度	TOPR	-20° C To +85° C	
Storage Temperature Range 储存温度	Tstg	-20° C To +60° C	
Manual Soldering Temperature 手工焊接温度	TSOL	315° C ± 20° C <3S 1次	
Electrostatic protection 静电防护	ESD	2000	V
Reflow welding maximum temperature 回流焊最高温度	Tsol	255 ± 5	°C
Moisture sensitive level 湿气敏感等级	MSL	5a	—

9、信赖性测试项目与条件/Reliability TEST ITEMS AND RESULTS:

产品的可靠性应满足于下列项目:

信任级别: 90%

LTPD: 10%

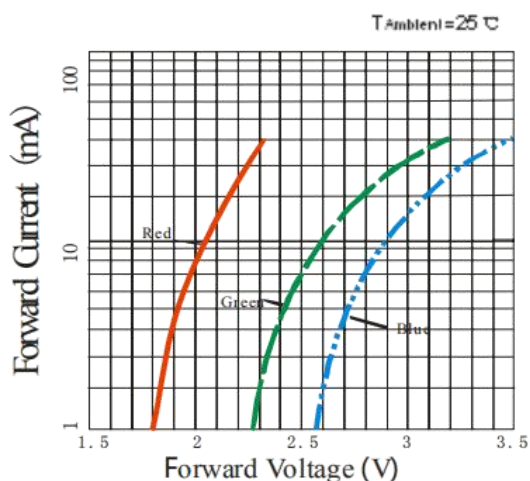
Test Items 测试项目	Reference Standard 参考标准	Test Condition 实验条件	Test Duration 实验时间	Failure Criteria 判定标准	Units Failed/Tested 判据
Temperature Cycle 温度循环	JEITA ED-4701 100 105	-40℃(30min) ~ 25℃(5min) ~ 100℃(30min)	100cycles	Failure determination criteria/失效判定 标准	0/22
High Temperature Storage 高温储存	JEITA ED-4701 200 201	T _A =100℃	1000hours		0/22
High Temperature High Humidity Storage 高温高湿储存	JEITA ED-4701 100 103	T _A =85℃ RH=85%	1000hours		0/22
Low Temperature Storage 低温储存	JEITA ED-4701 200 202	T _A =-40℃	1000hours		0/22
Room Temperature Life Test 常温寿命		T _A =25℃, I _F =300*3mA	1000hours		0/22

10、失效判定标准/Failure determination criteria:

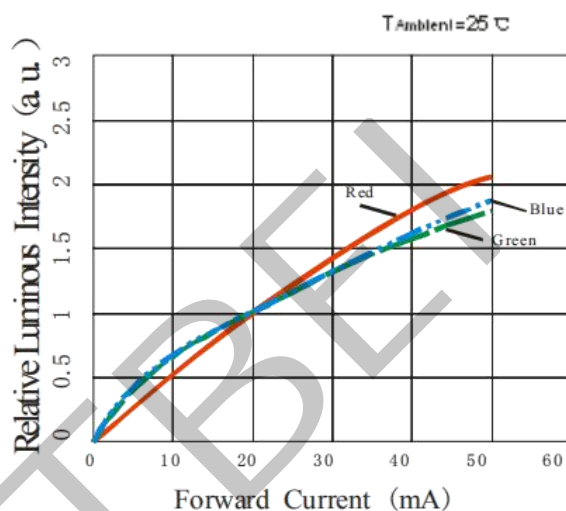
测试项目 Forward Voltage	符号 Symbol	测试条件 Test Conditions	判定标准 Criteria For Judging Damage
正向电压 Forward Voltage	V _F	I _F =I _{FT}	初始值±10% Initial Data±10%
反向电流 Recerse Currernt	I _R	V _R =5V	I _R ≤10uA
光强 Luminous Intensity	I _V	I _F =I _{FT}	平均 IV 衰减≤30%, 单个 IV 衰减≤50% Average IV degradation≤30%, Single LED IV degradation≤50%
耐焊接热 Resistance To Soldering Hert			产品无死灯 No dead light esists

11、典型特性曲线/Typical characteristics curves:

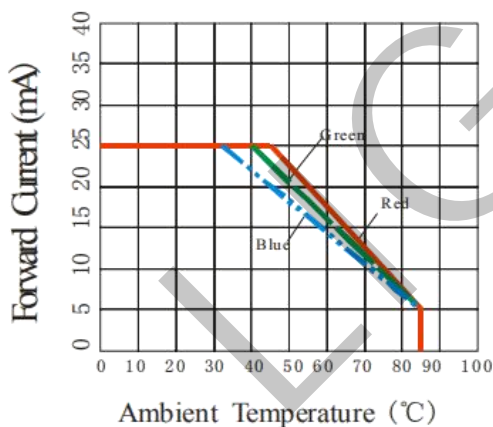
Volt-Ampere Characteristics



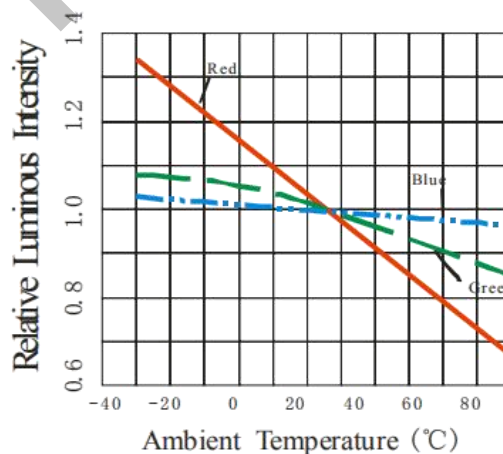
Relative Luminous Intensity VS Forward Current



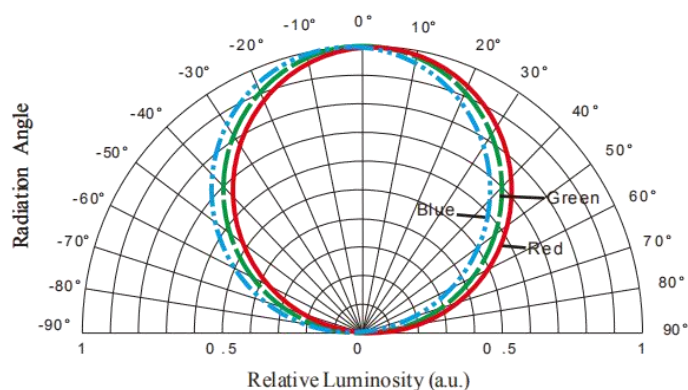
Forward Current Derating Curve



Luminous Intensity VS Ambient Temperature



Typical Spatial Distribution



12、使用注意事项/Precautions:

(一)、关于产品/About the product

1、本 LED 器件的核心组件是 LED 芯片,其主要材料为半导体化合物。故在 LED 器件使用时应特别注意:正向工作电流(IF)、正向工作电压(VF)、允许功耗(Pm)、工作环境(°C/RH)、光色波长(WL)等光 电性参数,详情请参阅敝司提供的《产品规格书》所述相关技术性条款。/The core component of the LED device is LED chip, the main material of which is semiconductor compound. Therefore, special attention should be paid to such optical and electrical parameters as forward operating current (IF) , forward operating voltage (VF) , permissible power consumption (Pm) , working environment (°C/RH) , light color wavelength (WL) , etc. , for details, please refer to the relevant technical terms and conditions as stated in our product specification.

2、本 LED 器件采用之引线架由注塑工艺成型,故塑件受外力即有可能发生形变导致拉裂内部邦线并导致开路缺色,故在产品设计及生产制程中务必评估并避免因 PCB 基板形变造成 LED 灯珠受损,否则建议更改灯珠方案。/The lead frame of the LED device is molded by injection molding process. Therefore, the plastic part may be deformed by external forces, which may cause the inner wire to be pulled apart and the open circuit to be short of color, therefore, in the product design and production process must be evaluated and avoid damage caused by PCB substrate deformation LED lights, otherwise, it is recommended to change the scheme of lights.

3、在高温条件下,衰减会加速,本身应力也会增大,若长期处于高温环境下,极容易出现失效,对于高密度排列使用的情况,建议在使用过程中灯面温度不超过 55°C,灯脚温度不超过 75°C。/Under the high temperature condition, the attenuation will accelerate, and the stress will also increase. If the lamp is under the high temperature environment for a long time, it is very easy to fail. For the case of high density arrangement, it is suggested that the surface temperature of the lamp should not exceed 55 °C during the use, lamp Foot temperature not exceeding 75 °C.

(二)、关于湿敏性/On humidity sensitivity

本 LED 器件属湿敏性元器件,空气中的湿气通过扩散渗透到产品中,当经过高温回流焊时,在高温状态下,渗入其中的湿气快速膨胀产生足够的蒸汽压力损伤或毁坏 LED 元件,从而出现材料内胶裂、分层或金线损失等可靠性失效问题。尽管产品在出厂前对吸湿和防潮进行了严格的除湿和防护措施,但仍需在产品使用时特别注意: /The LED device is a humidity-sensitive component. The moisture in the air can permeate into the product through diffusion. When the LED is rewelded at high temperature, the moisture can rapidly expand and cause enough steam pressure damage or damage to the LED device, the reliability failure problems such as internal GEL crack, delamination or gold line loss appear. Although the products are strictly dehumidified and protected against moisture before they leave the factory, special attention should be paid to the use of the products:

1、推荐储存环境:温度:5° C - 30° C ; 湿度:相对湿度 60%以下; /Recommended Storage Environment: Temperature: 5 ° c-30 ° C; Humidity: relative humidity below 60% ;

2、生产前确认产品真空包装完好且在封口日期起 15 天内,产品拆封后,LED 在温度≤30°C,相对湿度≤60%RH 的条件下,并请贴片上机时边上料边开袋,且确保开袋产品在 4 小时内完成贴片固焊作业!若没有使用完的产品需以 65 ± 5°C/24H 除潮后密封,建议放入干燥柜中存放; /Before production, make sure the vacuum packaging of the product is in good condition and within 15 days after the sealing date. After the product is unsealed, the LED should be opened at the condition of temperature ≤30 °C and relative humidity ≤60% rh, and ensure that the open bag products in 4 hours to complete the patch bonding operation! If the unused product needs to be sealed after dehumidification at 65 ± 5 °c/24 H, it is recommended to store in a drying cabinet;

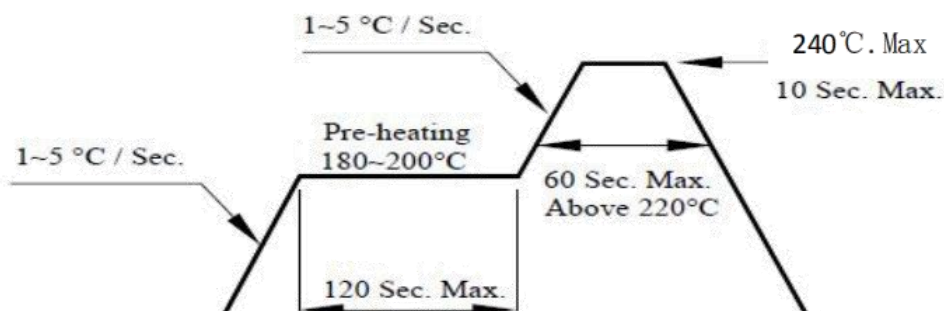
3、生产前检查产品真空包装是否漏气，如漏气请停用！并标识区分后进行低温除湿（低温除湿条件：即去除铝箔袋后将料盘放置在柜式干燥箱内进行温度 $65 \pm 5^{\circ}\text{C}$ 、相对湿度 $\leq 10\% \text{RH}$ 、烘烤时间 ≥ 24 小时的除湿作业，如属热风烤箱则建议除湿时关闭烤箱进风口开关，关键确保箱内相对湿度 $\leq 10\% \text{RH}$ ；且回温过程必须在干燥的环境下进行！建议产品除湿后在 4 个小时内完成贴片固焊作业！）或联系专属客服人员并返厂处理。 /Before production check whether the product vacuum packaging leak, such as leak please stop using! Low temperature dehumidification (low temperature dehumidification condition: After removing the aluminum foil bags, put the tray in the cabinet drying box to do the dehumidification operation with the temperature $65 \pm 5^{\circ}\text{C}$, relative humidity $\leq 10\% \text{rh}$, and baking time ≤ 24 hours. If the oven is a hot air oven, it is suggested to turn off the oven air inlet switch when dehumidifying. The key is to ensure the relative humidity $\leq 10\% \text{RH}$ in the oven! It is recommended that after dehumidifying the product, the bonding operation should be completed within 4 hours!) Or contact customer service personnel and return to factory for processing.

（三）、关于贴片加工/About SMT

1、本 LED 器件容易受到机械外力的破坏，在表面上施加压力将会影响发光二极管的可靠性。在这样的情况下，装配使用产品时必须遵守相应的处理措施，避免任何的压力施加给本 LED 器件的任何部分，所以在使用时请采用气动吸嘴，否则会导致发光二极管损坏和可靠性降低影响其寿命。并检查贴片机设备的吸嘴装置与产品匹配性，以不伤及产品胶体为宜； /The LED device is vulnerable to mechanical forces, and applying pressure to the surface will affect the reliability of the light-emitting diode. In such cases, the assembly of the product must comply with the corresponding treatment measures to avoid any pressure applied to any part of this LED device, so in use, please use pneumatic nozzle, otherwise, it will lead to light-emitting diode damage and reduce the reliability of its life, and check the SMT equipment suction nozzle device and product compatibility, not to hurt the product Gel is appropriate.

2、当手动焊接时，建议采用 20W 的防静电烙铁，焊头的温度必须控制在 360°C 以下/3 秒，焊接次数为 1 次。 /When manual welding, it is recommended to use 20W antistatic soldering iron. The temperature of welding head should be controlled below $360^{\circ}\text{C}/3$ seconds and the welding times should be 1.

3、本 LED 器件属于潮湿敏感性元件，建议作业前检查回流焊设备的峰值温度/时间是否控制在 $240 \pm 5^{\circ}\text{C}/\leq 10$ 秒，无铅锡膏的温度曲线建议： /The LED is a humidity sensitive element. It is recommended that the peak temperature/time of the reflow equipment be controlled at $240 \pm 5^{\circ}\text{C}/\leq 10$ seconds before operation. The temperature curve of lead-free solder paste is recommended:



4、回流焊接次数不可超过 1 次，建议检查终端产品是否需要经历二次回流焊工艺，二次回流焊工艺具有一定品质风险性，如需请自行评估并尽量缩短二次回流焊间隔时间（建议不超过 4 小时）。 /The number of reflow soldering shall not exceed 1 time. It is recommended to check whether the terminal

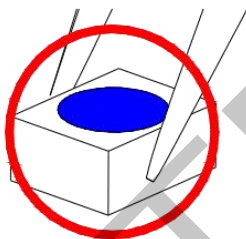
products need to go through reflow soldering process, which has certain quality risk, if necessary, please self-assessment and minimize the reflow interval time (not more than 4 hours is recommended) .

5、焊接期间, 加热时不要在本 LED 器件上添加任何压力。/During welding, do not add any pressure to the LED when heating.

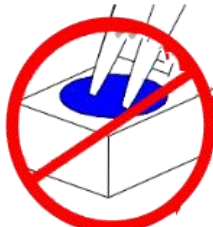
6、焊接后, 正常回温至 40℃ 以下后才可过电流。/After welding, the normal return temperature below 40 °C can be over-current.

7、使用操作示意图:/USE THE ACTION DIAGRAM:

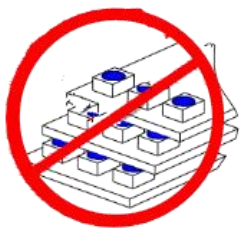
7.1、使用镊子或合适的工具, 沿侧表面夹取元件。/Using tweezers or a suitable tool, clamp the element along the side surface.



7.2、不要接触有机硅的表面, 它可能会破坏 LED 器件的内部电路。/Do not touch the silicone surface, it may destroy the internal circuit of the LED device.

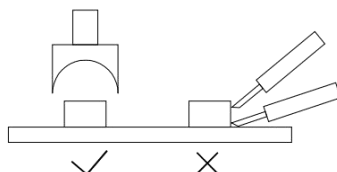


7.3、不要将焊接好的发光二极管堆叠放置, 会导致发光二极管划伤及胶体受损造成死灯。/Do not stack the welded light-emitting diode. This can cause light-emitting diode scratches, Gel damage and a dead light.



(四)、关于修复/About the restoration

当修复发光二极管时, 应事先确认发光二极管是否会被破坏, 修复过程中应避免接触胶体表面, 双焊头烙铁应使用如下图的方式作业。/When repairing the light-emitting Diode, it should be confirmed in advance whether the light-emitting diode will be damaged or not. The repair process should avoid touching the COLLOID surface. The double welding head soldering iron should be used in the way shown below.



(五)、关于清洗/About cleaning

在焊接后推荐使用纯酒精清洗, 清洗擦拭或浸渍不要超过 1 分钟。使用其它类似溶剂清洗前, 请确保溶剂不会对本 LED 器件封装造成损伤。/Pure alcohol cleaning is recommended after welding. Cleaning, wiping or maceration should not exceed 1 minute. Before cleaning with other similar solvents, please ensure that the solvent will not cause damage to the LED packaging.

(六)、关于灌封/About potting

1、使用硅酮胶(玻璃胶)灌封时推荐采用中性、醇型类灌封胶。/It is recommended to use neutral and alcohol type filling sealant when silicone (glass sealant) is used.

2、灌封胶若使用脱肟型中性灌封胶, 请确保灌封胶固化过程中的通风良好, 在未完成固化过程中不可进行密封组装本 LED 器件, 这样会造成镀银层氧化及发光颜色变淡。/If using deoxime neutral filling sealant, please ensure that the filling sealant curing process ventilation is good, in the unfinished curing process can not be sealed assembly of this LED device, which will cause silver coating oxidation and light color.

3、禁止使用醋酸型(酸性)硅酮胶进行灌封。/The use of acetic acid type (acidic) Silicone Gel is prohibited for potting.

4、使用正常灌封胶时建议进行少量灌封试验, 常温点亮测试 168H 确认无异常后再批量作业。/It is recommended to do a small amount of pouring test when using normal pouring sealant and light up at room temperature for 168H before batch operation.

5、更改任何一种灌封材料时, 请先作试样确认是否对我司产品造成侵蚀反应。将灌封材料取 5-10g 和本 LED 器件 10-20pcs 于 100ml 的器皿内密封放置 168H 后确认产品是否有异常。/When changing any kind of filling material, please make sample first to confirm whether it will cause corrosion reaction to our products. 5-10g of the filling material and 10-20pcs of the LED device were sealed in 100ML containers for 168H to confirm whether the product was abnormal.

(七)、防护措施/Protective measures

1、LED 器件封装胶水采用的是硅树脂系原材, 终端产品如需户外使用需对器件做二次防护措施并请特别注意; /Led packaging glue is silicone raw materials, terminal products such as outdoor use of the device to do secondary protection measures and please pay special attention;

2、建议检查各个工艺流程环节应规避产品有堆叠及不规则棱角物伤及产品胶体; /It is suggested that the inspection of each process should avoid product stacking and irregular Arris and product colloid;

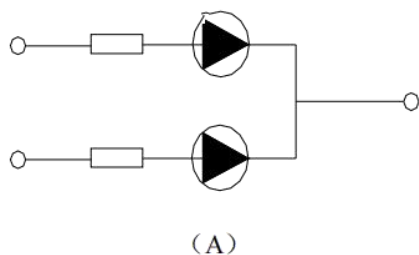
3、建议检查各个工艺流程环节应规避产品与硫、卤、酸、醇、碱、酮类强氧化物、塑化剂等腐蚀性物质接触; /It is suggested that the contact between the products and corrosive substances such as sulfur, halogen, acid, alcohol, Alkali, ketone strong oxide and plasticizer should be avoided

4、建议检查终端产品是否需要封盖、灌胶、裸板高温挤出、超声等二次封装工艺, 如需请评估可能伤及 LED 器件的风险; 是否需要刷胶、涂油、抹漆等二次涂装工艺, 如需请评估可能导致器件胶体表面凹凸、污垢等因素影响发光、导热的风险。/It is recommended to check whether the end product needs secondary packaging processes such as sealing, pouring, high temperature extrusion of bare board, ultrasonic and so on. If so, please assess the risk of possible damage to LED devices, if you need to assess the possible causes of device COLLOIDAL surface bump, dirt and other factors affecting the light, heat conduction risk.

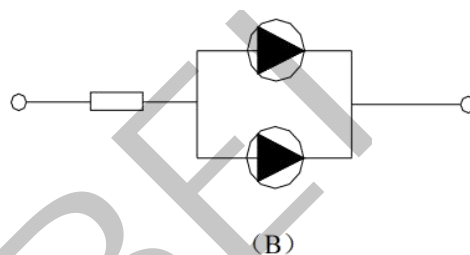


(八)、驱动方式/Driving Mode

1、电路设计时, 建议使用定电流驱动设计, 如以定电压设计, 请考虑不同电压所造成的影响。
/In circuit design, it is recommended to use a constant current drive design, such as a constant voltage design, please consider the impact of different voltage.



(A) 被推荐的电路
(A) the recommended circuit



(B) 每个灯珠可能出现亮度不一致, 是由 I-V 的曲线而导致的。
(B) each bulb may have a different brightness due to the I-V curve.

2、LED 产品为单向导通性, 使用安装前请确认产品极性, 若反向安装, 不能正常点亮, 且在施加电压时容易造成 LED 芯片损伤或失效; /Led products for one-way conduction, please confirm the product polarity before installation, if the reverse installation, can not normally light, and in the application of voltage LED chip damage or failure;

3、注意正确的电路设计, 不当之设计与电流控制, 易造成 LED 失效, 如电流过大引起寿命问题甚至烧毁, 电流过小引起亮度不足等; /Attention to the correct circuit design, improper design and current control, easy to cause LED failure, such as the current is too large to cause life problems or even burn out, the current is too small to cause insufficient brightness, etc.

4、不同 BIN 号之 LED 建议分开使用, 若需安装在同一个组件时, 请先确认是否可满足相关电气及光学特性要求, 如电流是否均衡, 光色、亮度的一致性。/It is recommended that leds of different BIN sizes should be used separately. If they are installed in the same module, please make sure that they can meet the requirements of electrical and optical characteristics, such as current balance, light color, brightness consistency, etc. .

(九)、静电防护/Electrostatic protection

对于整个工序(生产, 测试、包装等)所有与 LED 直接接触的员工都要做好防止和消除静电措施, 主要有: /For the entire process (production, testing, packaging, etc.) all employees in direct contact with the LED to prevent and eliminate static measures, mainly:

1、车间铺设防静电地板并做好接地, 工作台采用防静电工作台, 带电产品接触低阻值的金属表面时, 由于急放电引发产品故障的可能性是很高的, 故要求工作台及与产品相接触之处使用表面电阻为 $10^6 - 10^9 \Omega$ 的桌垫。 /The workshop lays the anti-static floor and makes the ground well, the worktable uses the anti-static worktable, when the live product contacts the low resistance value metal surface, because the sudden discharge causes the product breakdown the possibility is very high, table Mats with a surface resistance of $10^6 - 10^9 \Omega$ are required for the table and for contact with the product.

2、生产机台如: 锡炉、回流焊、SMT 设备、电烙铁, 以及检测设备均需接地良好, 接地交流阻抗小于 1.0Ω 。在容易产生静电的环境与设备上, 还必须安装离子风扇、作业过程中, 操作员穿

防静电服、带防静电手环、手套等,取放时尽可能接触产品的绝缘部分。/Production equipment such as: Tin Furnace, reflow soldering, SMT equipment, electric soldering iron, and testing equipment should be well grounded, grounded AC impedance less than 1.0 Ω . In the environment and equipment prone to static electricity, it is necessary to install an ion fan, during the operation, the operator wearing anti-static clothing, with anti-static bracelet, gloves, etc. .

3、盛装 LED 使用防静电元件盒,包装则采用防静电材料。/Filled with LED anti-static components box, the use of anti-static packaging materials.

4、请保持环境湿度在 60%RH 以下,以免空气过于干燥产生静电。/Please keep the humidity below 60% rh to prevent the air from being too dry to generate static electricity.

5、静电接地需与电源零线、防雷地线分开,接地措施应完全防止静电产生,必须用粗的铜线引入泥土内,在铜线末端系上大铁块,埋入地表 1 米以下,各接地线均需与主线连接在一起。/The static grounding should be separated from the power supply zero wire and the lightning protection ground wire. The grounding measure should prevent static electricity completely. The thick copper wire must be introduced into the soil, each grounding wire must be connected with the main wire

(十)、其他 /Othes

1. 本规格所描述的 LED 定义应用在普通的电子设备范围(例如办公设备、通讯设备等等)。如果有更为严苛的信赖度要求,特别是当元件失效或故障时可能会直接危害到生命和健康时(如航天、运输、交通、医疗器械、安全保护等等),请事先知会敝司业务人员; /The LED definitions described in this specification apply to ordinary electronic devices (such as office equipment, communication equipment, etc.) . If there are more stringent reliability requirements, especially when component failure or failure may directly endanger life and health (such as aerospace, transportation, transportation, medical devices, safety protection, etc.) , please inform our sales staff in advance;

2. 高亮度 LED 产品点亮时可能会对人眼造成伤害,应避免从正上方直视; /High-brightness LED products lighting may cause harm to the human eye, should avoid looking directly from the top;

3. 出于持续改善的目的,产品外观和参数规格可能会在没有预先通知的情况下作改良性变化。 /For the purpose of continuous improvement, the appearance and specifications of the product may be modified without prior notice.

注/Note:

1. 为确保以上注意事项有效进行!建议客户加强各工艺流程环节中的首检及周期性巡检!以最大程度预防异常发生或减少因异常造成的损失! /In order to ensure the above matters needing attention to carry on effectively! We suggest customers to strengthen the process of the first inspection and periodic inspection! To maximize the prevention of abnormal occurrence or reduce the losses caused by abnormal!

2. 如需更加详细产品规格信息请联系销售代表,谢谢! /For more detailed product specifications, please contact the sales representative, thank you!