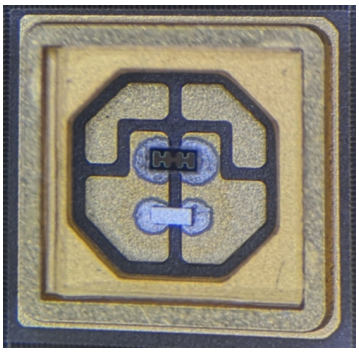
SPECIFICATIONS FOR APPROVAL
审批规格书

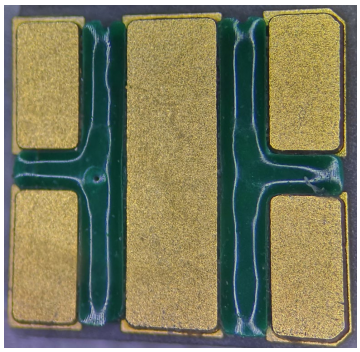
Product Name：Deep UV LED

品名：深紫外 LED

Model Name：GS3535DUV-D-P10

型号：GS3535DUV-D-P10





Designed/制作	Checked/核实	Approved/核准
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Version: V1.2

版本：V1.2

样 品 承 认 书

SPECIFICATIONS FOR APPROVAL

客户 **Customer:**

品名 **Product Name:** **Deep UV LED**

型号 **Model number:** **GS3535DUV-D-P10**

交期 **Deliver date:**

制造确认 Product confirmed and signed

工程部 Engineering department	制作 Manufactured By	批准 Approved By

客户确认 Customer confirmed and signed

客户 Customer	审查 Checked By	批准 Approved By

确认后请回传，谢谢！Please confirm and fax to us, thank you！

Address：Building 2，Qifang Industrial Park, Tongyi Industrial district, Guzhen Town, Zhongshan City
Tel： Fax：0760-85321091
E-mail: greatshine002@163.com http://www.greatshine.cn

1. Features/特性

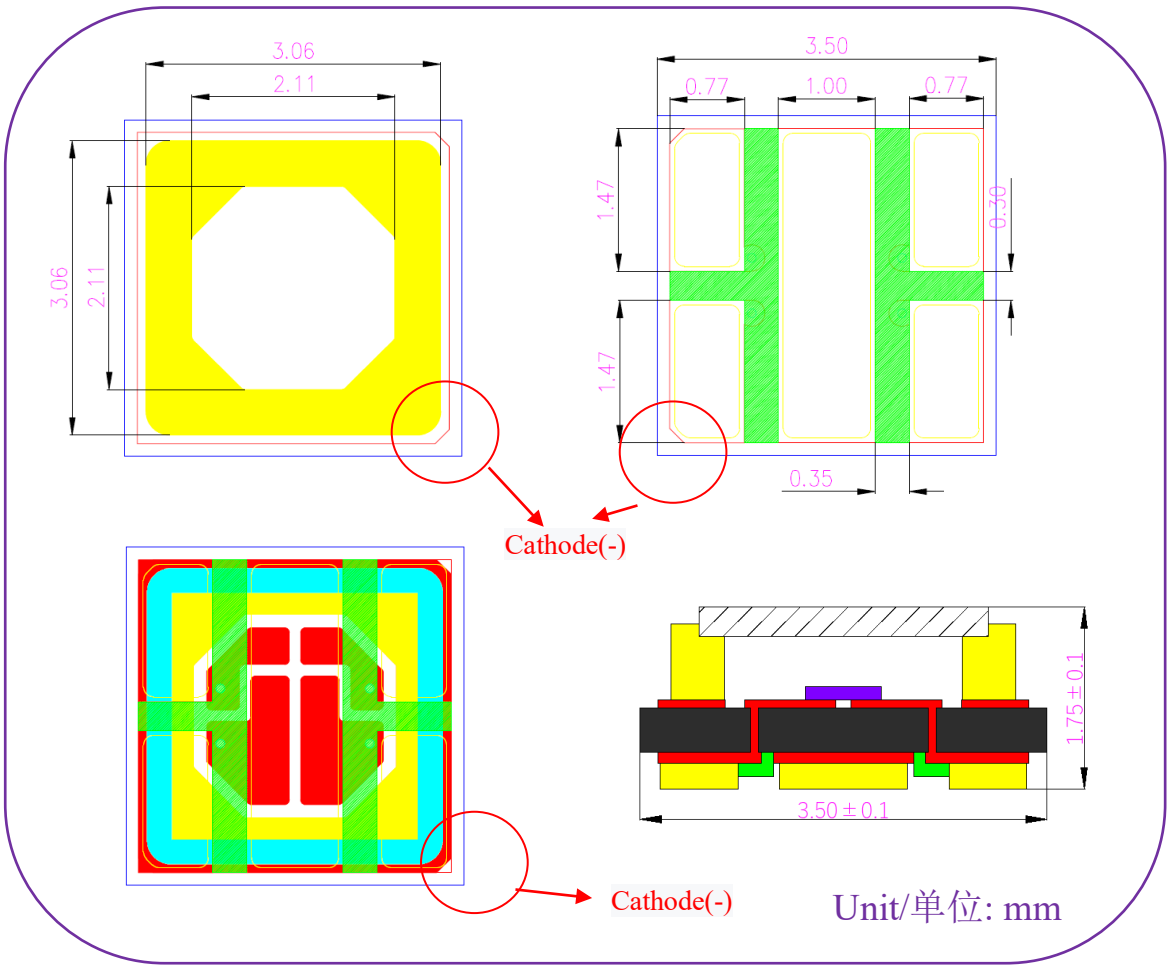
- Peak Wavelength/峰值波长: 270~280 nm

- Surface Mount Type LED Package/SMT 封装方式: 3.5 x 3.5 x 1.75(±0.1) (L x W x H) [Unit/单位 : mm]

- Viewing Angle/发光角度 : 120°

- Soldering Methods/焊接方式 : Pb-Free Reflow Soldering/无铅回流焊

2. Outline Dimensions/外形尺寸



3. Applications/应用

- Disinfection, Sterilization, Phototherapy, Fluorescent Spectroscopy, Sensor Light, Bio-Analysis / Detection, Counterfeit Detectors, etc.

-消毒、杀菌、光疗、荧光光谱分析、光传感、生物分析/侦测、防伪探测器等。

4. Absolute Maximum Ratings/绝对最大限定值（T_a=25 ℃）

Items/项目	Symbols /符号	Ratings/限定值	Unit /单位
Forward Current/正向电流	I_f	100	**mA**
Power Dissipation/功耗	P_d	0.75	**W**
Operating Temperature/工作温度	T_o	-40 ~ +60	℃
Storage Temperature/贮存温度	T_s	-40 ~ +100	℃
Junction Temperature/结温	T_j	<85	℃
Soldering Temperature /焊接温度		Lower Than 200 ℃(低于200℃)	
ESD Classification/防静电等级		Class 2（二级）	

※ 1)Operating the LED exceed the listed maximum ratings may affect device reliability and cause permanent damage;

2)These or any other conditions beyond those indicated under maximum rating operating conditions are not implied;

3)The exposure to the maximum rated conditions may affect device reliability.

※ 1）LED 在超过所列的最大限定值下工作，可能会影响其可靠性或永久性损坏;

2）在任何条件下，并不暗示 LED 总能在限定值条件下工作;

3）暴露在最大限定条件下可能会影响设备的可靠性。

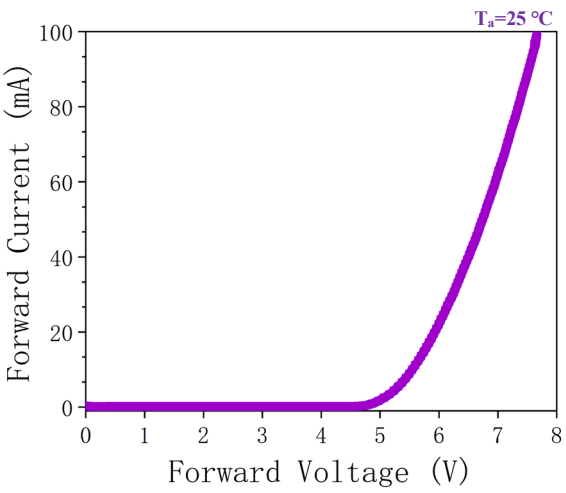
5. Electro-Optical Characteristics/光电参数

Items /项目	Symbol /符号	Condition /工况	Target Spec./目标规范			Unit /单位
			Min. /最小	Typ. /典型	Max. /最大	
Forward Voltage /正向电压（±0.2）	V_f	I_f = 50 mA	5.5	6.0	6.5	V
Radiant Flux /辐射通量(±10%)	Φe		3.5	4	4.5	mW
Peak Wavelength /主波峰(±3)	λp		270	275	280	nm
Spectrum Half Width/半峰宽	△λ		-	15	-	nm
Viewing Angle /发光角度	2θ1/2		-	120	-	deg

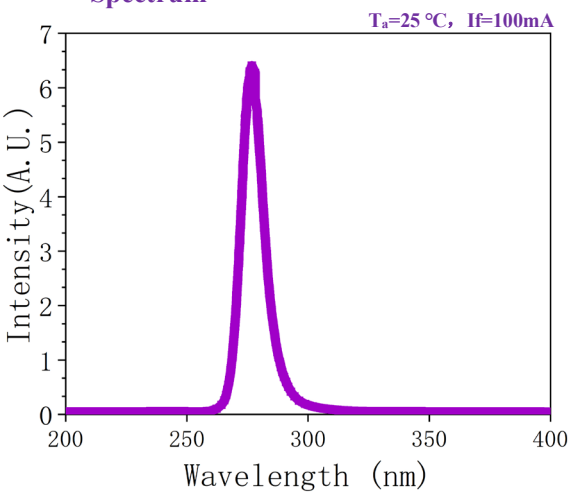
※ Although all LEDs are tested by Greatshine semiconductor Tech, some values may vary slightly depending on the conditions of the test equipment.
※虽然所有的 LED 都经过本司测试，但是由于测试设备的不同和测量误差存在，一些值可能会有所不同。

6. Typical Characteristic Curves/特征曲线

·Forward Voltage vs. Forward Current



·Spectrum



7. Cautions/注意事项

Dear customers,

Thank you for using the UV LED products produced by Greatshine semiconductor. In order to avoid failures during using our products, the following installation and usage suggestions are hereby put forward for reference only.

- Moisture-proof

1) Avoiding moisture absorption during transportation and storage.

2) Please do not open the moisture-proof package before using. Please store the products in the following recommended environment.

Humidity: 60%RH Max.

Temperature: 0 to 30 ℃.

3) Please finish the welding within 24 hours after the products are unsealed. If the products can not be used up, they should be stored and kept below 30 ℃ and below 30% humidity.

4) If the welding or storage conditions of the products can not meet the above requirements, the products should be baked before using at the temperature of (60± 3) ℃ for 24 hours.

- Heat dissipation

1) Heat dissipation fins' shape and materials demands

If the finished products' sealing requirements are not high, but with outside air convection environment directly, the proposal way is aluminum or copper heat sink with fins.

2) Effective heat dissipation area

For 1 w high power LED (the same for other colors), we recommend effective heat dissipation fin a combined 50 to 60 or more square centimeters. For 3 w products, we recommend effective heat dissipation fin a total surface area of 150 square centimeters, or a higher surface square depending on the power increasing situation and the experiment results, kept heat sink temperature less than 60 ℃.

- ESD protection

1) The harm of static electricity to LED products

① The generated heat by the electric field or electric current in an instant, which would make the local damage for LED products. The leakage current is rapidly increasing and still works, but the brightness is reduced (white light will change color) and the lifetime is impaired.

② Due to the electric field or current damaged LED products' active layer, so that the devices can not work (complete destruction), such as LED damage.

2) Electrostatic protection and elimination measures

①For the whole process (production, testing, packaging, etc.), all the staff who

contact with LED products in directly should to do a good job to prevent and eliminate electrostatic measures, mainly including:

② Laying anti-static workshop floor and ground.

③ The workstation is anti-static, production machines grounding is good.

④ Operators should wear anti-static clothing and anti-static bracelet, gloves or foot ring.

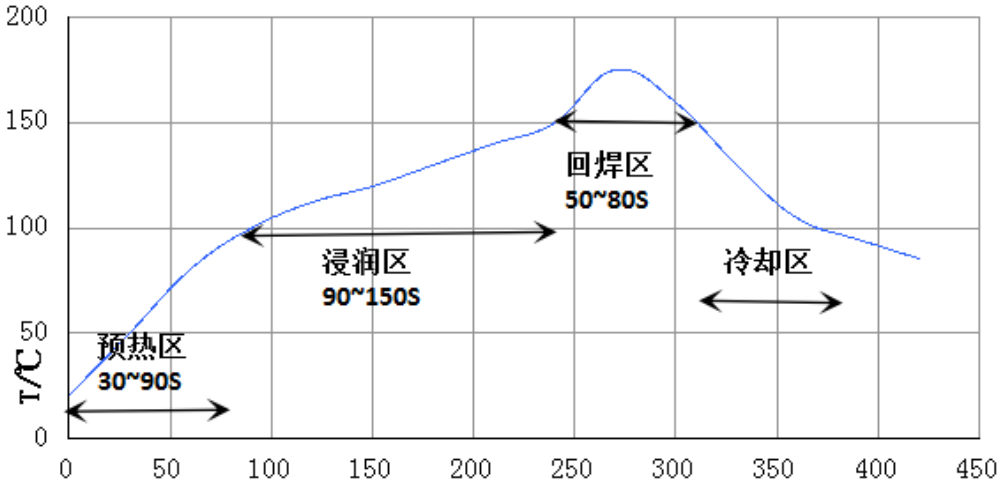
⑤ Appling the ion fan, and welding iron should do grounding measures.

⑥ Packaging should use the anti – static materials.

- Welding guidance

  Reflow welding

  The following lead-free reflow soldering temperature curve is recommended.



Notes :(1) Reflow welding can only be done twice at most; (2) During the heating process of reflow welding, please do not apply any pressure to the LED; (3) After the completed of welding, please wait for the product temperature to drop to room temperature before other treatment.

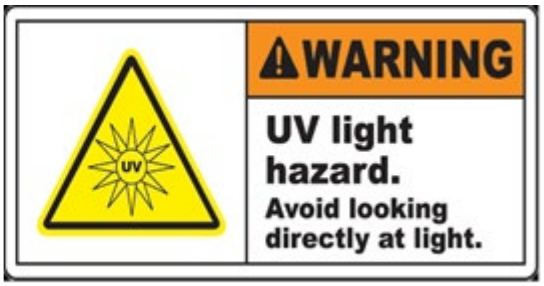
- Drive circuit

① Since LED products follow the volt-ampere characteristic curve of the diode, if the driving voltage floats, the corresponding driving current drift is large, which is easy to damage the LED products. Therefore, it is recommended that customers use a stable constant-current driving power supply or IC, but not a constant-voltage driving power supply or IC.

② In the application process of LED products and devices, heat dissipation, electrostatic protection and welding have a great impact on their performances, which need to be paid great attention by the application end customers. Any application must ensure that the application conditions do not exceed the limit parameters of the device.

- Pay attention to the UV damage

When ultraviolet (UV) chip with electricity, it would emit ultraviolet light, which may cause serious damage to exposed skin or eyes. When using these products, protective clothing must be used to protect exposed skin. Protective UV glasses must be worn to prevent damage to the eyes.



尊敬的客户：

感谢您使用光圣半导体生产的 UV LED 产品，为了避免客户使用过程中出现故障，特提出以下安装使用建议，仅供参考。

一、防潮

1、 运输及储存中避免吸潮。

2、 产品未使用前请不要拆开防潮包装，请在以下推荐环境下储存本产品。

湿度：60%RH Max。

温度：0-30℃

3、 产品拆封后请在 24 小时内完成焊接工作，如无法用完应在 30 度以下，30%湿度以下保存。

4、 如产品焊接时间或保存条件不能符合上面要求，产品使用前需进行烘烤，烘烤条件：温度（60 ±3）℃，时间 24 小时。

二、散热

1、 散热片外型与材质要求

如果成品密封要求不高，可与外界空气环境直接发生对流，建议采用带鳍片的铝材或铜材散热片。

2、 有效散热面积

对于 1W 大功率 LED（其它颜色基本相同），我司推荐散热片有效散热面积总和≥50-60 平方厘米。对于 3W 产品，推荐散热片有效散热表面积总和≥150 平方厘米，更高功率视情况和试验结果增加，尽量保证散热片温度不超过 60℃。

三、静电防护

1、 静电对 LED 产品的危害：

① 因瞬间的电场或电流产生的热，使 LED 产品局部受伤，表现为漏电流迅速增加，仍能工作，但亮度降低（白光将会变色），寿命受损。

② 因电场或电流破坏 LED 产品的有源层，使器件无法工作（完全破坏），表现为死灯。

2、 静电防护及消除措施

对于整个工序（生产、测试、包装等）所有与 LED 产品直接接触的工作人员都要做好防止和消除静电措施，主要有：

① 车间铺设防静电地板并做好接地

② 工作台为防静电工作台，生产机台接地良好。

③ 操作员穿防静电服、带防静电手环、手套或脚环。

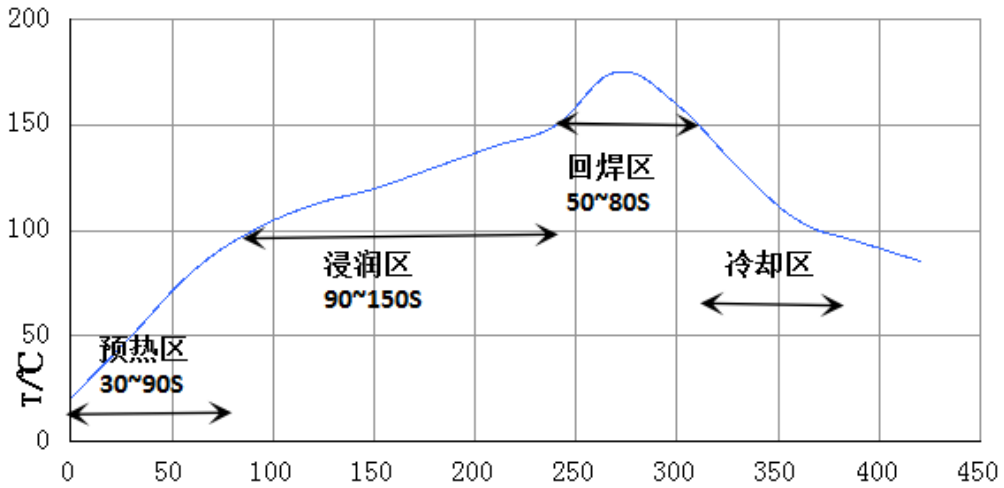
④ 应用离子风机，焊接电烙铁做好接地措施。

⑤ 包装采用防静电材料。

四、焊接指导

回流焊接

推荐使用以下无铅回流焊接温度图进行。



注意：1、回流焊接最多只能焊接两次；

2、在回流焊接升温过程中，请不要对 LED 施加任何压力；

3、在焊接完成后，待产品温度下降到室温后再进行其他处理。

五、驱动电路

因 LED 产品遵循二极管的伏安特性曲线，如果驱动电压浮动则相应的驱动电流漂移很大，容易损坏 LED 产品，因此建议客户使用较稳定的恒流驱动电源或 IC，而不建议采用恒压驱动电源或 IC。

LED 产品及器件在应用过程中，散热、静电防护、焊接对其特性有着很大影响，需要引起应用端客户的高度重视，任何应用必须保证应用条件不超过器件极限参数的范围。

六、注意紫外线伤害

当紫外线芯片与通电时，会发出紫外线，这可能会对裸露的皮肤或眼睛造成严重的伤害。在使用本产品时，必须使用防护服来保护裸露的皮肤。必须戴防护性的紫外线眼镜，以防止伤害眼睛。