产品规格书

■产品名称: 发光二极管
Product Name: Light emitting diode patch

■产品型号: GL-2012UG01 翠绿灯 高亮
Product model : 2012 Green light

■发布日期: 2023 年 5 月
Release date : May 2023

■环保产品，符合 ROHS 要求
Environmental protection products meet ROHS requirements

■湿气敏感性等级（MSL）:4-5 级
Moisture sensitivity level（MSL）: 4-5 levels

■EIA 规范标准包装
EIA standard packaging

■使用寿命长
long service life

■高能效、启动快
High energy efficiency, fast startup

■低电压有流驱动
Low voltage current drive

应用范围
APPLICATION AREA

■汽车电子
Lighting decoration

■医疗美容仪器
Medical beauty instruments

■工业与特种照明
Industrial and Specialty Lighting

■照明灯饰
Lighting fixtures

■照明灯饰
Automotive Electronics

■电子教学设备
Electronic teaching equipment

■家电、数码
Home appliances, digital,

■城市亮化
urban lighting

外观与尺寸
APPEARANCE AND SIZE

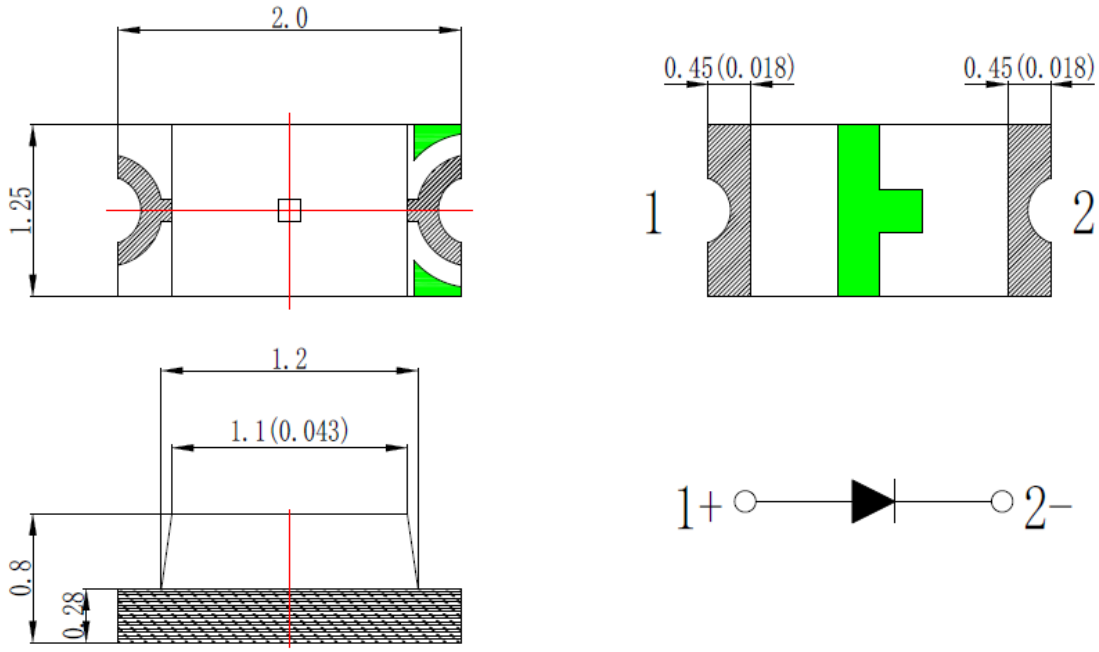
■外观尺寸/Package (L/W/H):2.0*1.25*0.8 mm

■颜色/Color:翠绿光/green light

■胶体/Lens:透明平面胶体/Transparent planar colloid

■用于自动贴片机/Compatible With SMT Automatic Equipment

■适用于红外线回流焊制程/Compatible With Infrared Reflow Solder Process



■备注(Note)

■标注尺寸单位为毫米/Dimensions are in millimeters.

■除特别标注外，所有尺寸允许公差± 0.1mm /Tolerances unless mentioned are ± 0.1mm.

电性参数

ELECTRICAL PARAMETERS

■1、最大绝对标称值（环境温度=25°C）

Maximum absolute nominal value(Environmental temperature=25 ° C)

参数/parameter	缩写/abbreviation	标称值/ Nominalvalue	单位/ unit
顺向电流 forward current	IF	30	mA
顺向峰值电流 *1 Forward peakcurrent * 1	IFP	60	mA
反向电压 Reverse voltage	VR	5	V
焊接温度 welding temperature	Tsol	回流焊/ Reflow Soldering：250 °C，8sec. 手工焊/ manual welding：300 °C，3sec.	
使用温度 Usage temperature	Topr	-40°C~+85	
储存温度 storage temperature	Tstg	-40°C~+85	

■*IFP 条件：脉宽≤0.1msec,周期≤1/10

■*IFP condition: Pulse width ≤ 0.1nsec, cycle ≤ 1/1

■2、光电特性参数（环境温度=25°C）

Optoelectronic characteristic parameters (ambient temperature=25 ° C)

参数 Parameter	缩写 abbreviation	最小值 Min	典型值 Typ	最大值 Max	单位 Unit	条件 Condition
顺向电压 forward voltage	Vf	2.5	-	3.0	V	IF=5mA
亮度 brightness	Iv	144	-	300	mcd	
波长 wavelength	λd	510	-	531	nm	
发光角度 viewing angle	2Θ1/2	-	120	-	deg	
反向电流 reverse current	IR	-	-	2	μA	VR=5V

■备注（Notes）：

■亮度偏差：±10%　Brightness deviation: ±10%

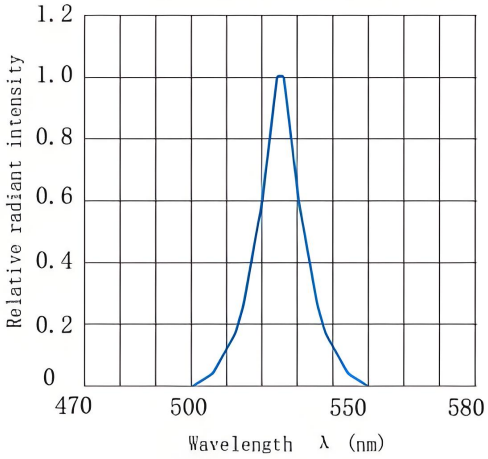
■电压偏差：±0.1V　Voltage deviation: ±0.1V

■波长偏差：±1nm　Wavelength deviation:±1nm

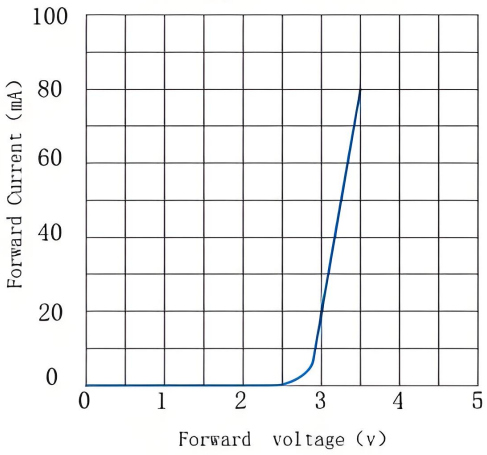
典型曲线图

TYPICAL CHARACTERISTIC CURVE

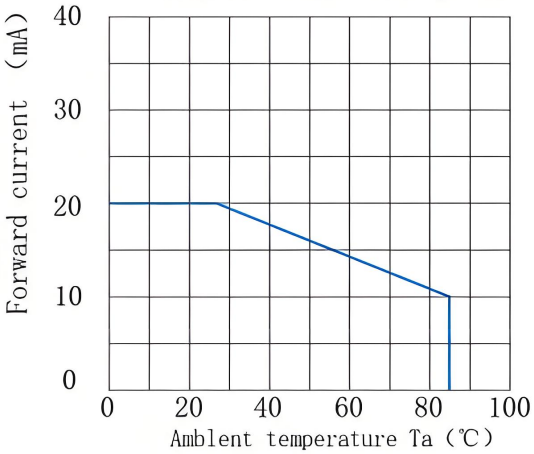
光谱分布曲线
Relative Spectral Distrbution



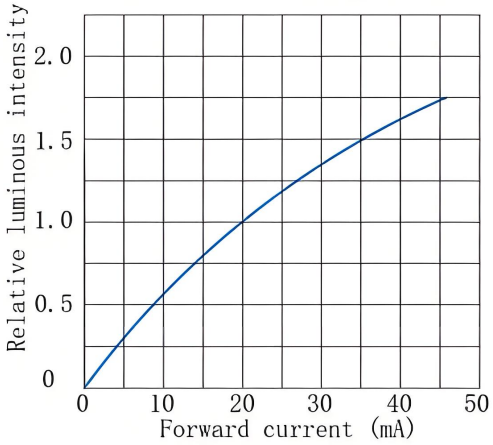
伏安特性
Volt ampere characteristic



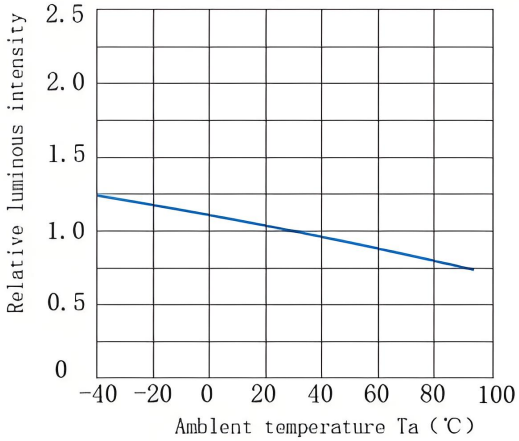
正向电流降额曲线
Forward current derating curve



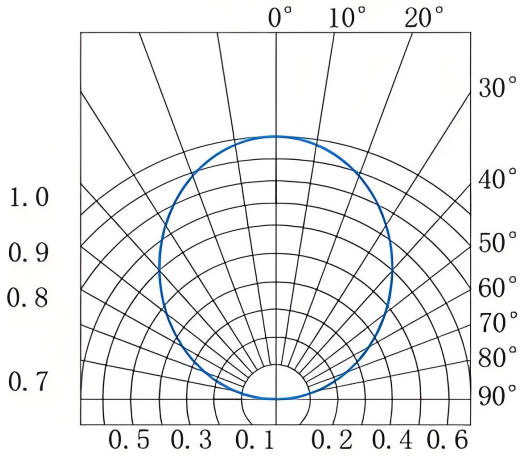
相对光强与正向电流特性
Relative Luminous VS Forward Current



光强与环境温度曲线
Luminous Intensity VS Ambient Temperature

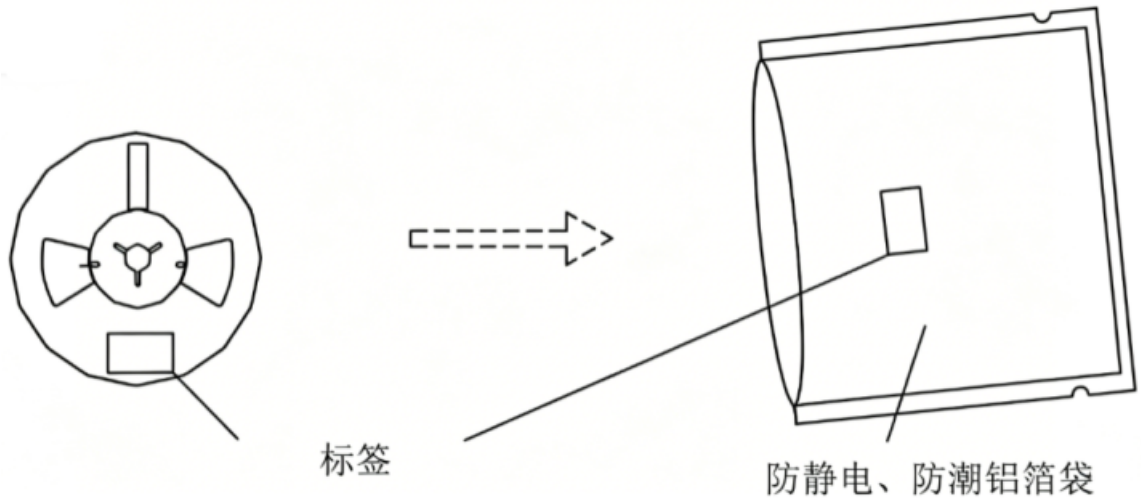


相对辐射强度与空间角度关系
Radiation diagram



包装与标签说明

PACKAGING AND LABELING INSTRUCTIONS



■包装数量:3000PCS/卷（Packaging quantity: 3000 pcs/roll）

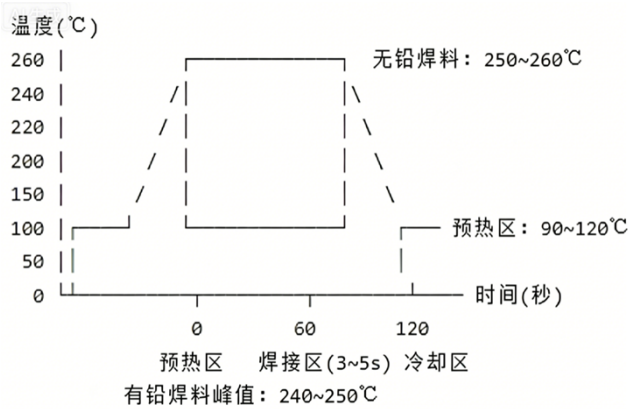
■标签说明（Label description）
LOT NO:批次信息（Batch Information）
PART NO:产品型号（product model）
BIN CODE:产品名称（product name）
WL:波长范围（wavelength range）
LV:光强范围（Light intensity range）
VF:电压范围（Voltage range）

■运输要求（Transportation requirements）
（1）箱体上不易压重物（No Heavy Load On Top）
（2）正面朝上（face up）
（3）不易受潮（Not easily affected by moisture）

焊接指导

WELDING CONDITIONS

■焊接
■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
■建议使用锡洗型的助焊剂，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，异物会影响发光颜色。
■仅在修补时进行手动焊接，建议使用 25W 防静电烙铁，铁子、烙铁焊头不可碰及发光面和塑料件，焊接时间不超赤 3 秒钟。
■焊接及实验过程中，不能用力扭曲 LED，否则，容易使 LED 死灯



使用注意事项
PRECAUTIONS FOR USE

■1、清洗（clean）

（1）不能用超声波清洗。建议使用异丙醇、纯酒精擦拭或浸渍，不要超过 1 钟，在室温下放置 15 分钟再使用。清洗后，确保 LED 发光面干净，异物会影响发光颜色。

Ultrasonic cleaning is not allowed. It is recommended to wipe or soak with isopropyl alcohol or pure alcohol for no more than 1 minute, and let it sit at room temperature for 15 minutes before use. After cleaning, ensure that the LED emitting surface is clean, as foreign objects can affect the color of the light

（2）应避免接触或污染天那水，三氯乙烯、丙酮、硫化物、氮化物、酸、碱、盐类，这些物质会损伤 LED.

Avoid contact with or contamination of Tian Na water, trichloroethylene, acetone, sulfides, nitrides, acids, bases, and salts, as these substances can damage LED

■2、灌封（Potting）

（1）纳离子、硫化物会使荧光娄颜色变淡（中毒），灌封时，避免使用含纳离子、硫化物的灌封胶。

Nano ions and sulfides can cause the fluorescent color of Lou to become lighter (toxic). When sealing, avoid using sealing adhesives containing nano ions and sulfides

（2）使用正常灌封胶时，建议先以少量试验，常温点亮 168 小时，确定没有问题再作业。

When using normal sealant, it is recommended to conduct a small test first, light it up at room temperature for 168 hours, and confirm that there are no problems before starting work

■3、保存（Save）

（1）打开包装前，LED 应存储在温度 30℃或以下，相对湿度在 RH60%以下，一年内使用。

Before opening the packaging, the LED should be stored at a temperature of 30 ℃ or below and a relative humidity of RH60% or below, and used within one year

（2）打开包装后，LED 应在温度 30℃或以下、相对湿度在 RH30-35%或更低环境下，使用时间 7 天。LED 吸潮后，回流焊时可能裂胶，影响发光颜色。对于未使用的散件，请去潮处理（对于卷装品：烘烤 60℃±5℃，12 小时；对于散装品：烘烤 105℃±5℃，1 小时），然后再用铝箔袋密封后保存。

After opening the packaging, the LED should be used for 7 days in an environment with a temperature of 30℃ or below and a relative humidity of RH30-35% or lower. After the LED absorbs moisture, it may crack during reflow soldering, affecting the color of the light emission. For unused loose parts, please remove moisture (for roll products: bake at 60℃±5℃for 12 hours; for bulk products: bake at 105℃±5℃ for 1 hour), then seal with aluminum foil bag and store

（3）保存环境中避免有酸、碱以及腐蚀气体存在，同时避免强烈震动及强磁场作用。

Avoid the presence of acids, alkalis, and corrosive gases in the storage environment, while also avoiding strong vibrations and strong magnetic fields

■4、静电防护（electrostatic protection）

（1）静电或峰值浪涌电压会损坏 LED, 避免在开灯、关灯时产生瞬时电压

Static electricity or peak surge voltage can damage LEDs, avoiding the generation of instantaneous voltage when turning on or off lights

（2）注意：使用时人体放电模式 HBM<1000V；机器放电模式<100V。
Attention: When using, the human body discharge mode HBM should be less than 1000V; Machine discharge mode<100V.

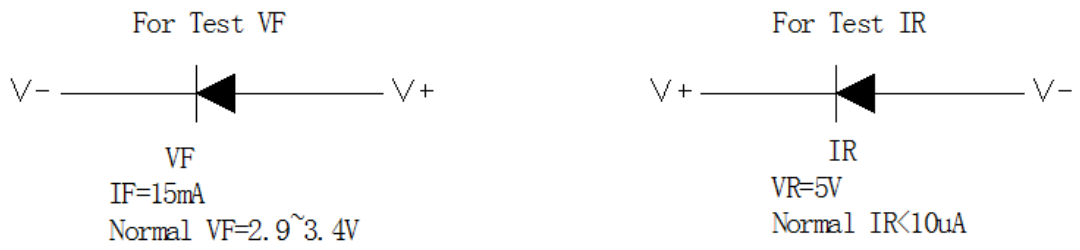
（3）建议使用 LED 时佩戴防静电手腕带、防静电手套，穿防静电鞋，使用的设备、仪器正确接地。LED 损坏后，表现出漏电流明显增加，低电流正向电压变低，低电流点不亮等现象。
It is recommended to wear anti-static wrist straps, anti-static gloves, anti-static shoes when using LEDs, and ensure that the equipment and instruments used are properly grounded. After the LED is damaged, it shows a significant increase in leakage current, a decrease in forward voltage at low current, and the low current point does not light up

■5、测试（test）

（1）LED 要在额定电流下驱动，同时电路中需要加限流电阻保护，否则，轻微的电压变化就会引起较大的电流变化，从而破坏 LED.
LED need to be driven at rated current, and current limiting resistors need to be added to the circuit for protection.Otherwise, slight voltage changes can cause significant current changes, which can damage the LED

（2）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 turned on or off, it is necessary to avoid the generation of transient surge voltage, otherwise the LED will be burned out.

（3）请参照下图示检测 LED
Please refer to the diagram below to test the LED



（4）顺向电压VF过高或反向电压VR过高，均会损坏LED.
Excessive forward voltage VF or excessive reverse voltage VR can damage the LED

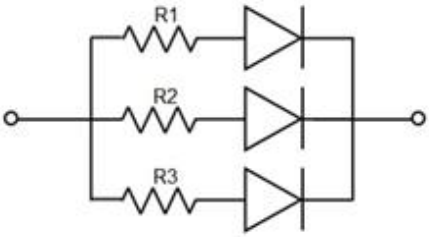
（5）点亮或测试LED时，加在LED两端的反向电压不得高于5V，否则容易击伤LED
When lighting or testing the LED, the reverse voltage applied to both ends of the LED should not exceed 5V, otherwise it is easy to damage the LED

■6、本规格所描述的 LED 定义应用在普通的的电子设备范围（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 definition described in this specification is applicable to ordinary electronic devices (such as office equipment, communication equipment, etc.). If there are stricter reliability requirements, especially when component failure or malfunction may directly endanger life and health (such as aerospace, transportation, traffic, medical equipment, safety protection, etc.),please inform our business personnel in advance

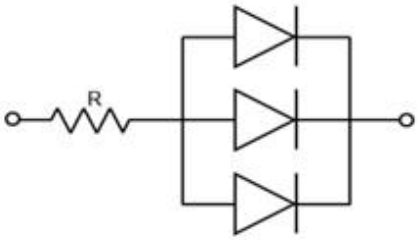
■7、高亮度 LED 产品点亮时可能会对人眼造成伤害，应避免从正上方直视
High brightness LED products may cause harm to the human eye when lit up, and should beavoided from looking directly at them from above

■8、为了确保多颗LED并联使用时光色一致，建议每条支路使用单独阻，如下图模式A所示；
To ensure color consistency when multiple LEDs are used in parallel, it is recommended to use separate resistors for each branch, as shown in Mode A in the following figure;

如采用下图模式 B 所示电路，LED 光色可能因每一颗 LED 不同的伏安特性而造成光色差异。
If the circuit shown in pattern B is used, the color of LED may vary due to the different volt ampere characteristics of each LED.



电路模式 A



电路模式 B