



厦 门 华 联 电 子 有 限 公 司

Xiamen Hualian Electronics Co., Ltd.

产 品 规 格 书

SPECIFICATION

产品名称：绿色超高亮发光二极管

DESCRIPTION: GREEN SUPER BRIGHT LED

产品型号：HFG803203P/01W01-025(SN)

PART NO.: HFG803203P/01W01-025(SN)

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1、概述 General

该绿色发光器件为 AlGaInP/GaAs 绿色超高亮发光二极管，具有驱动电流低、发光强度高、寿命长、可靠性高等优点，广泛应用于电气设备、仪器仪表中作电源指示或信息显示。

The Super Bright Green source color devices are made with AlGaInP on GaAs Green Light Emitting Diode, with the advantages of low drive current, high luminous intensity, long life and high reliability etc. It is widely used in electrical equipments and instruments as power indicator or information display.

2、特点 Features

- 封装尺寸：Φ3mm。 Size: diameter of 3mm.
- 快速响应时间，可用脉冲驱动。 Fast Response Time , Pulse Driven.
- 环氧树脂绿色散射封装。 Packaged by Green Diffused Epoxy.
- 符合 RoHS 规范。 RoHS Compliant.

3、应用 Applications

- 信号灯。 Electronic Signs and Signals.
- 各种指示灯。 General Purpose Indicators.

4、极限参数 Absolute Maximum Ratings

表 1 极限参数

Table1 Absolute Maximum Ratings

参数名称 Parameters	符号 Symbol	额定值 Rated value	单位 Unit
正向脉冲电流 ^a Forward Pulse Current	I_{FPM}	80	mA
正向电流 Forward Current	I_{FM}	25	mA
反向电压 Reverse Voltage	V_R	5	V
耗散功率 Power Dissipation	P_M	60	mW
工作环境温度 Operating Ambiance Temperature	T_{aop}^c	-25~+85	℃
贮存温度 Storage Temperature	T_{stg}	-40~+100	℃
焊接温度(5 秒) ^b Soldering Heat	T_{sld}	260	℃

^a 占空比 Duty: 1/10, 频率 Frequency: 1kHz。

^b 离器件本体 2mm 以上。 Up to 2 mm from the body.

^c 工作环境温度参数符号只在极限参数表中用 T_{aop} 表示，其他地方用 T_a 表示。

Parameter symbol of Operating Ambiance Temperature uses T_{aop} only in table 1 Absolute Maximum Ratings, and uses T_a at other places.

5、光电参数 Opto-Electrical Characteristics

表 2 光电参数

Table2 Opto-Electrical Characteristics

T_a=25℃

参数名称 PARAMETER	符号 SYMBOL	测试条件 TEST CONDITION	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
正向电压 Forward Voltage	V _F	I _F =10mA	—	2.0	2.5	V
反向电流 Reverse Current	I _R	V _R =5V	—	—	10	μ A
发光强度 Luminous Intensity	I _V	I _F =10mA	20	50	—	mcd
主波长 Dominate Wave Length	λ _D	I _F =10mA	—	573	—	nm
峰值波长 Peak Wave Length	λ _P	I _F =10mA	—	575	—	nm
光谱半宽度 Spectral Line Half Width	△λ	I _F =10mA	—	20	—	nm
半强角度 Viewing Angle	θ _{1/2}	I _F =10mA	—	60	—	°

6、外形尺寸 Dimension

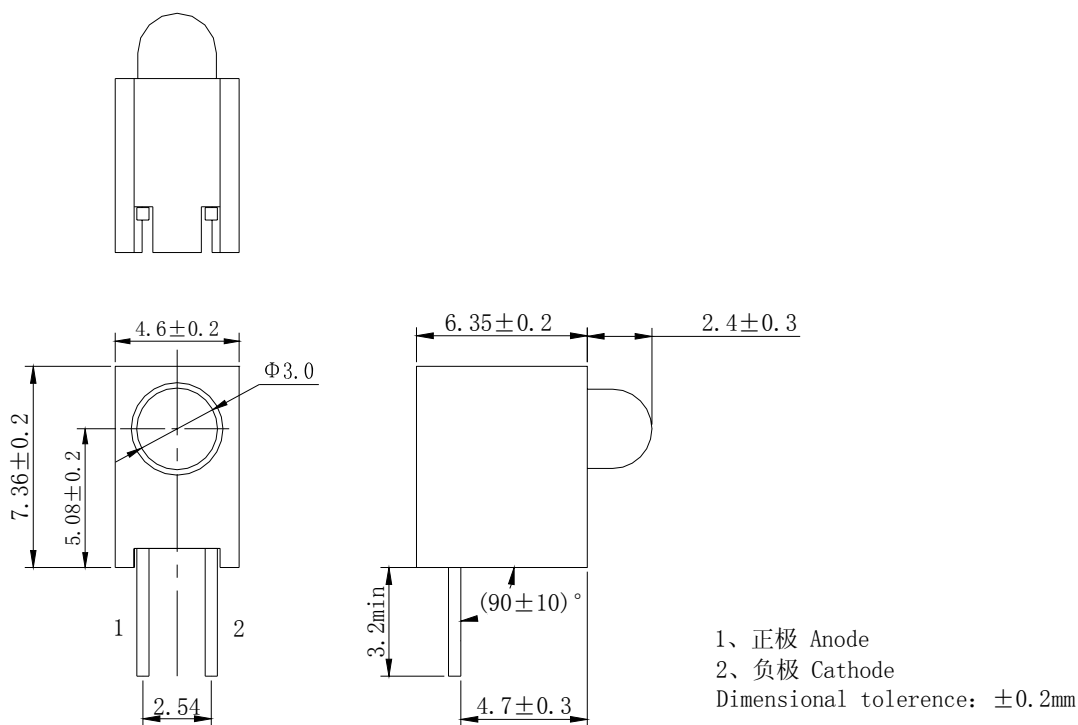
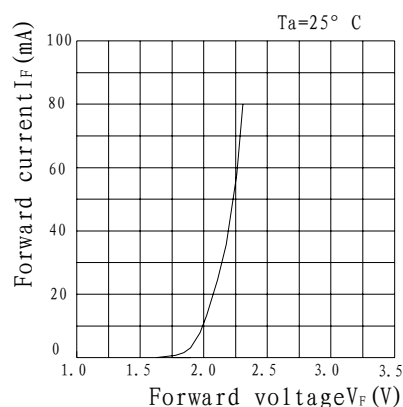
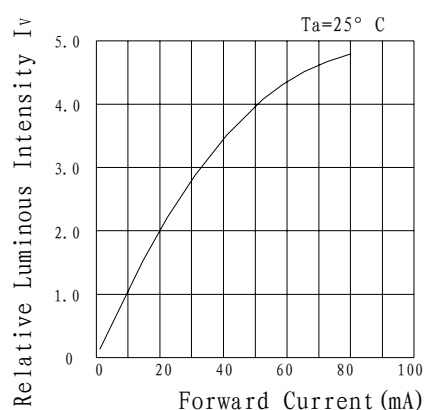


图 1 外形尺寸 Figure 1 Dimension

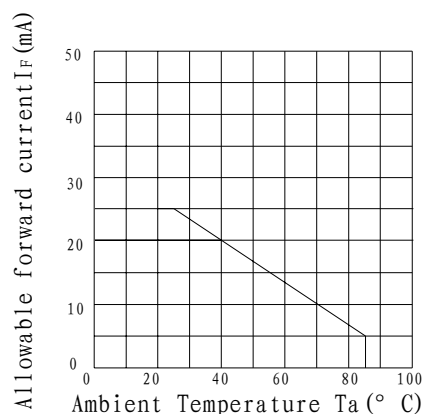
7、特性曲线 Characteristics Curve



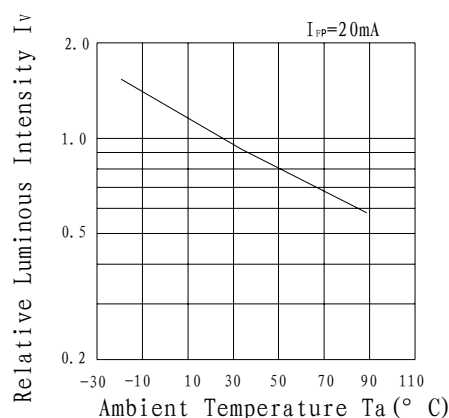
a) FORWARD CURRENT VS. FORWARD VOLTAGE
正向电流--正向电压



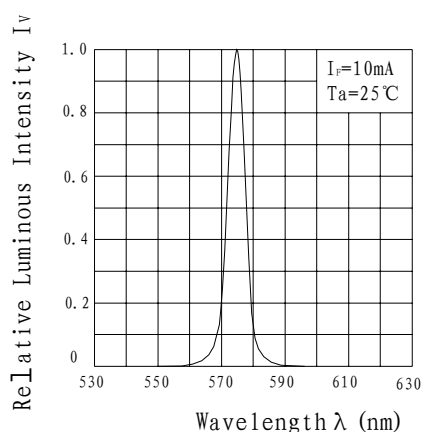
b) RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT
相对光强--正向电流



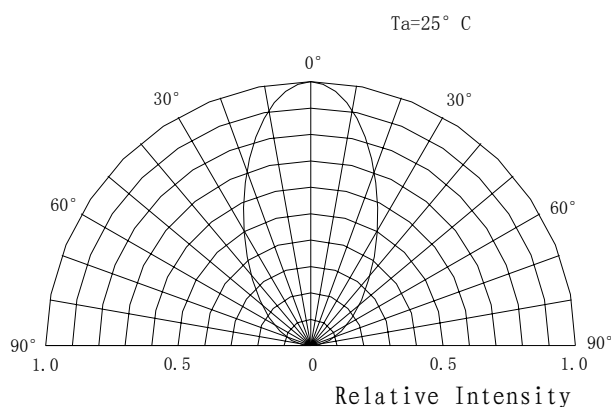
c) FORWARD CURRENT VS. AMBIENT TEMPERATURE
正向电流--环境温度



d) RELATIVE INTENSITY VS. AMBIENT TEMPERATURE
相对光强--环境温度



e) RELATIVE INTENSITY VS. WAVELENGTH
相对光强--波长



f) RADIATION PATTERN
辐射图

图 2 特性曲线 Figure 2 Characteristics Curve

8 包装方式 Packing

8.1 用 220mm×110mm×80mm 防静电塑料袋内包装，1000 只/袋。

Internally packed with 220mm×110mm×80mm plastic bag anti-statically, 1000pcs/bag.

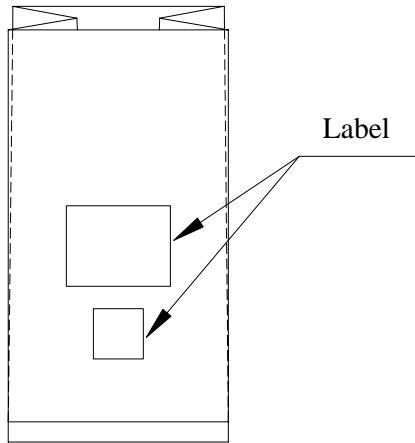


图 3 内包装 Figure 3 Internally bag g

8.2 外包装用纸盒 220mm×220mm×190mm， 10000 只/盒。

Externally Packed with 220mm×220mm×190mm cartons, 10000 pcs/carton.

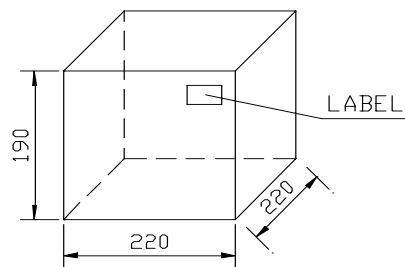


图 4 外包装盒 Figure 4 Externally cartons

8.3 标识 Label

合格证	
型号: _____	
批号: _____	
数量: _____	
检验员: _____	
分档: _____	日期: _____



图 5 标识 Figure 5 Label

9. 使用注意事项 Precautions for Use

9.1 引线成型 Forming

9.1.1 引线成型需在焊接前完成。

Leads should be formed before soldering.

9.1.2 不能以靠近环氧体的支架根部为支点成型。

Do not form the leads with their bases near the epoxy body as a fulcrum.

9.1.3 成型位置应离环氧本体 5mm 以上，特殊情况需在 5mm 以下（但应 $\geq 2\text{mm}$ ）成型的，应制作特制的夹具，成型时固定住靠近环氧体的管脚部位，尽量减少对环氧体的作用应力，防止因应力过大造成 LED 开路及其环氧体裂损。

Forming location should be up to 5mm from the epoxy body, if it has to be formed under 5mm ($\geq 2\text{mm}$), special fixture should be made. When forming, the leadframe near to epoxy body should be secured to lessen the stress on the body in order to avoid LED open circuit and crack because of over stress.

9.2 储存 Storage

9.2.1 LED 产品出厂后贮存的条件应为 $0\sim+30^{\circ}\text{C}$ 、相对湿度不大于 70%，贮存期限为 6 个月。若贮存超过 6 个月，则应放在带有氮气和干燥剂的密闭容器内，贮存时间可达一年。

The LEDs should be stored at 30°C or less and 70%RH or less after being shipped from HUALIAN and the storage life limits are 6 months. If the LEDs are stored for 6 months or more, they can be stored for a year in a sealed container with a nitrogen atmosphere and moisture absorbent material.

9.2.2 拆袋使用，应尽可能短时间内用完。若用不完，应满足贮存条件应为 $0\sim+30^{\circ}\text{C}$ 、相对湿度不大于 60%，并在 15 天内安装完。

After the bag is opened, It is recommended that the LEDs be used as soon as possible. Mounted within 15 days at factory conditions of $\leq 30^{\circ}\text{C} / 60\%\text{RH}$.

9.3 安装 Installation

9.3.1 LED 安装在 PCB 上，不能造成对引线施加压力。

Installation on PCB does not apply physical stress to the leads when mounting LED lamps on PCB.

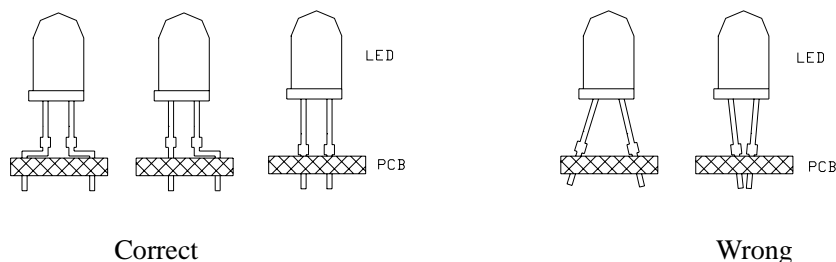


图 6 LED 安装方式 Figure 6 LED installation way

9.3.2 LED 安装在 PCB 后，负极引线弯曲到与 PCB 最小夹角为 15° ，正极引线弯曲到与 PCB 最小夹角为 45° 。After mounting LED lamps on PCB, the leads should be bent, the angle between the cathode leads and PCB should be 15° min. while the angle between the anode leads and the PCB 45° min..

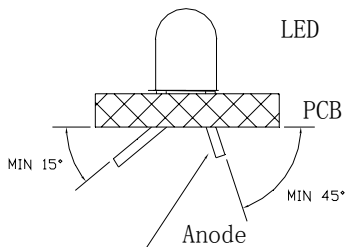


图 7 引线极限角度 Figure 7 down-lead's limit angle

9.4 焊接 Soldering

9.4.1 环氧不可浸入锡槽内。

Do not dip epoxy body into solder bath.

9.4.2 加热过程中不能对引线施加压力。

Do not apply stress to leads while they are heated.

9.4.3 推荐焊接条件 Recommended soldering conditions:

表 3 推荐焊接条件

Table 3 Recommended soldering conditions

波峰焊 Wave Soldering		手工焊 Hand Soldering	
预热温度 Pre-heat Temperature	120℃ Max.	Temperature	340℃ Max.
预热时间 Pre-heat Time	60 seconds Max.	Dwell Time	5 seconds Max.
最高温度 Peak Temperature	260℃ Max.		
加热时间 Dwell Time	5 seconds Max.		

9.5 推荐使用电路 Recommended Electric Circuit

LED 使用时，需串联一限流电阻，以保证 LED 工作电流稳定性，进而保证 LED 的可靠性以及亮度的一致性。

When LED is used, it is needed a current limiting resistor in series for the stability of LED operating current,

to ensure the LED reliability and keep the luminous intensity coherence.

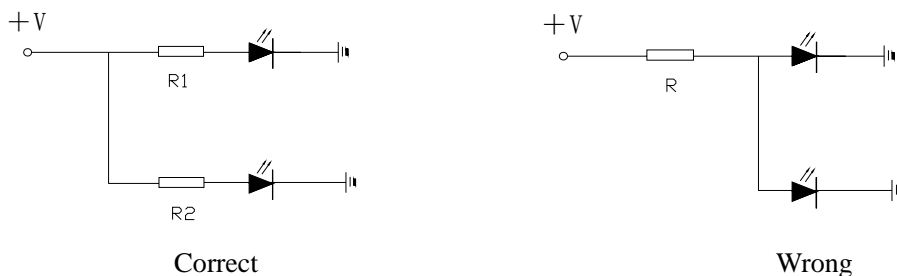


图 8 推荐使用电路 Figure 8 Recommended Electric Circuit

9.6 清洗 Cleaning

9.6.1 在任何情况下，清洗时间应在常温 1 分钟之内进行。

In any case, the cleaning time should be 1 minute or less at a normal temperature.

9.6.2 清洗 LEDs 时推荐使用酒精作为清洗剂。如使用其他清洗剂，需先确认清洗剂是否会腐蚀环氧体。氟利昂不能作为清洗剂。

It is recommended that isopropyl alcohol be used as a solvent for cleaning the LEDs. When use other solvents, it should be confirmed beforehand whether the solvents will dissolve the resin or not. Freon solvent should not be used to cleaning the LEDs because of worldwide regulations.

9.6.3 不可用水清洗，以免腐蚀引线，建议使用酒精。

Do not clean LEDs with water as the remains may rust the leads. Alcohol is suggested to be used.

9.6.4 用超声波清洗 LED 时，超声功率和时间应分别小于 300W 和 30 秒；PCB 和 LED 不能接触振荡器；不能使 PCB 上 LED 产生共振。

When LEDs are ultrasonic-washed, use the ultrasonic output power of less than 300W and the time of less than 30s; Do not let the PCB and LEDs touch on the oscillator; Do not resonate the LEDs attached on the PCB.

9.7 本型号 LED 为静电敏感器件，所以静电和电涌会损坏 LED。要求使用时佩带防静电腕带，所有的装置、设备、机器、桌子、地面都必须防静电接地。

This type of LED is an electrostatic insensitive device, so static electricity and surge will damage the LED. It is required to wear a wrist-band when handling the LED. All device, equipment, machinery, desk and ground must be properly grounded.

更改记录表

Engineering Change Notice-Record

版次 EDITION	更改日期 DATE	主要更改内容 MAIN CONTENT	拟 制 PREPARED	确 认 CHECKED
1.0	2013-07-26	新版发行 New edition	曾维燕	