

承認書

SPECIFICATION FOR APPROVAL

● 客戶名称	
● Customer	
● 客戶品號	
● Customer Part No.	
● 產品品號	HC-SS-5G9RGC/C
● Brightek Part No.	
● 產品規格描述	5mm 正常圆头有边透明红翠绿双色共阴极加长脚
● Specification	42mm
● 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，体现光的价值。

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

工厂地址：东莞市寮步镇松湖智谷 A2 栋 3 楼

东莞市弘呈光电有限公司

DongGuan Hong cheng Optoelectronics Co.,Ltd.

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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

■ Absolute Maximum Rating

Item	Symbol	Absolute Maximum Rating	Unit
Forward Current	I_F	20	mA
Peak Forward Current*	I_{FP}	160	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	45	mW
Electrostatic discharge	E_{SD}	2000	V
Operation Temperature	T_{opr}	-25~+80	°C
Storage Temperature	T_{stg}	-40~+80	°C
Lead Soldering Temperature*	T_{sol}	Max. 260°C for 5sec Max.	

* I_{FP} Conditions: Pulse Width $\leq 10\text{msec}$ duty $\leq 1/10$

* T_{sol} Conditions: 3mm from the base of the epoxy bulb

■ Typical Optical/ Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F=20\text{mA}$	1.9	2.1	2.4	V
Reverse Current	I_R	$V_R=5\text{V}$	--	--	10	uA
50% Power Angle	$2\theta_{1/2}$	$I_F=20\text{mA}$	--	30	--	deg
Luminous Intensity	I_v	$I_F=20\text{mA}$	600	--	800	mcd
Peak Wavelength	λ_P	$I_F=20\text{mA}$	620	--	630	nm
Recommend Forward Current	$I_F(\text{rec})$	--	--	10~20	--	mA

Notes:

- 1.Absolute maximum ratings $T_a=25^\circ\text{C}$.
- 2.Tolerance of measurement of forward voltage $\pm 0.1\text{V}$.
- 3.Tolerance of measurement of peak Wavelength $\pm 2.0\text{nm}$.
- 4.Tolerance of measurement of luminous intensity $\pm 15\%$.

■ Absolute Maximum Rating

Item	Symbol	Absolute Maximum Rating	Unit
Forward Current	I_F	20	mA
Peak Forward Current*	I_{FP}	160	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	70	mW
Electrostatic discharge	E_{SD}	400	V
Operation Temperature	T_{opr}	-25~+80	°C
Storage Temperature	T_{stg}	-40~+80	°C
Lead Soldering Temperature*	T_{sol}	Max. 260°C for 5sec Max.	

* I_{FP} Conditions: Pulse Width $\leq 10\text{msec}$ duty $\leq 1/10$

* T_{sol} Conditions: 3mm from the base of the epoxy bulb

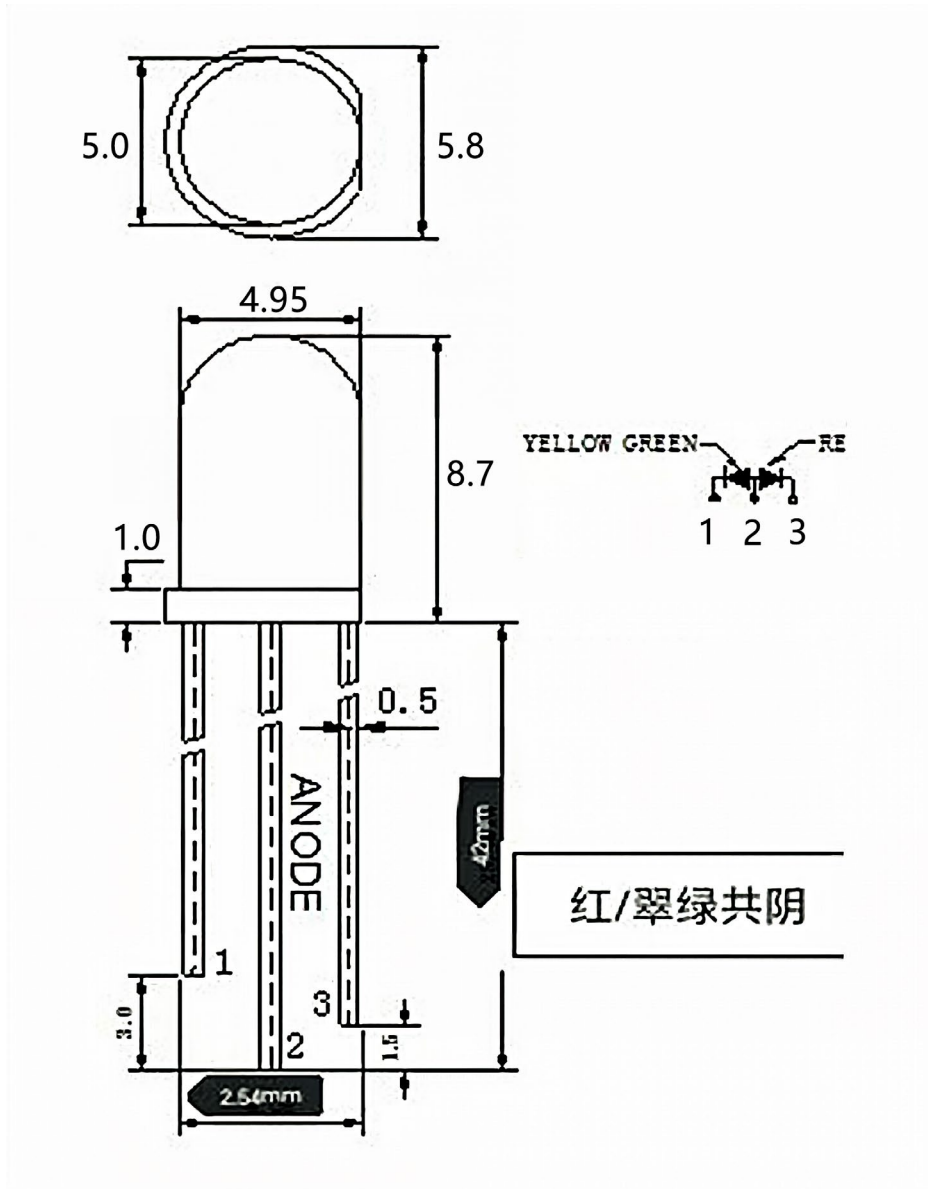
■ Typical Optical/ Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F=20\text{mA}$	2.8	3.0	3.2	V
Reverse Current	I_R	$V_R=5\text{V}$	--	--	10	μA
50% Power Angle	$2\theta_{1/2}$	$I_F=20\text{mA}$	--	30	--	deg
Luminous Intensity	I_v	$I_F=20\text{mA}$	800	--	1200	mcd
Peak Wavelength	λ_P	$I_F=20\text{mA}$	520	--	525	nm
Recommend Forward Current	$I_F(\text{rec})$	--	--	10~20	--	mA

Notes:

1. Absolute maximum ratings $T_a=25^\circ\text{C}$.
2. Tolerance of measurement of forward voltage $\pm 0.1\text{V}$.
3. Tolerance of measurement of peak Wavelength $\pm 2.0\text{nm}$.
4. Tolerance of measurement of luminous intensity $\pm 15\%$.

■ Package Dimensions And Materials



Chip		Lens Color
Material	Emitting Color	
GaAsP/GaP/InGaN	RED/Green	透明

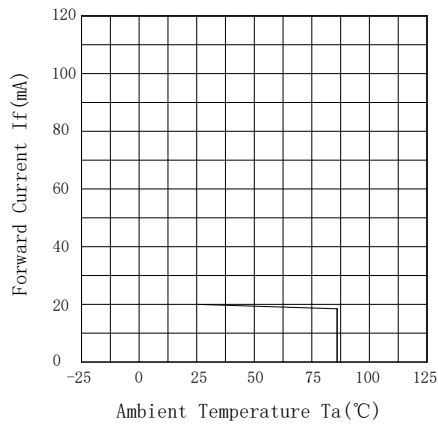
Notes:

1. All dimension units are millimeters.
2. All dimension tolerance is $\pm 0.2\text{mm}$ unless otherwise noted.
3. An epoxy meniscus may extend about 1.5mm down the leads.
4. Burr around bottom of epoxy may be 0.5mm max..

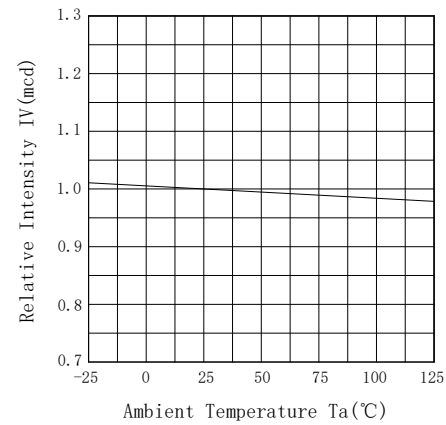
■ Typical Optical/Electrical Characteristics Curves

(Ta=25°C Unless Otherwise Noted)

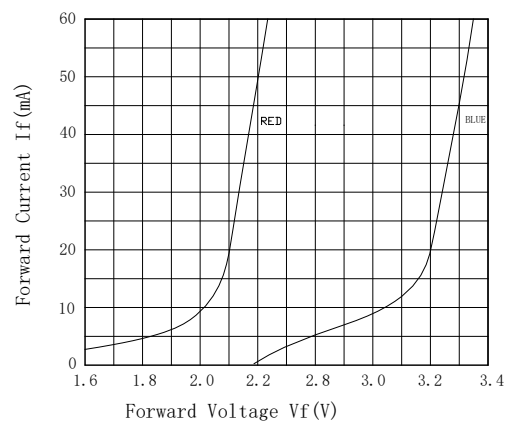
Forward Current vs.Ambient Temperature



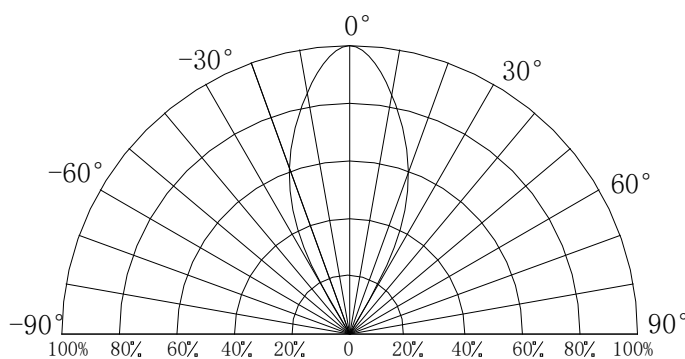
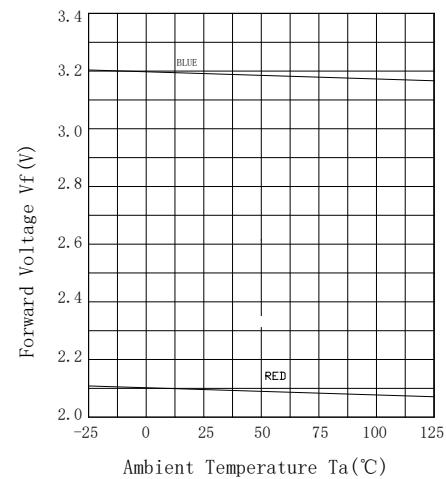
Relative Intensity vs.Ambient Temperature



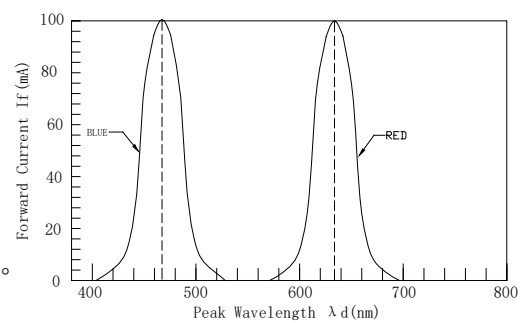
Forward Current vs.Forward Voltage



Forward Voltage vs.Ambient Temperature



Luminous Spertum (Ta=25°C) SPECTRAL RADIANCE



5. Not dry glue label

P/N: Product number

VF: Forward voltage

BIN: points light

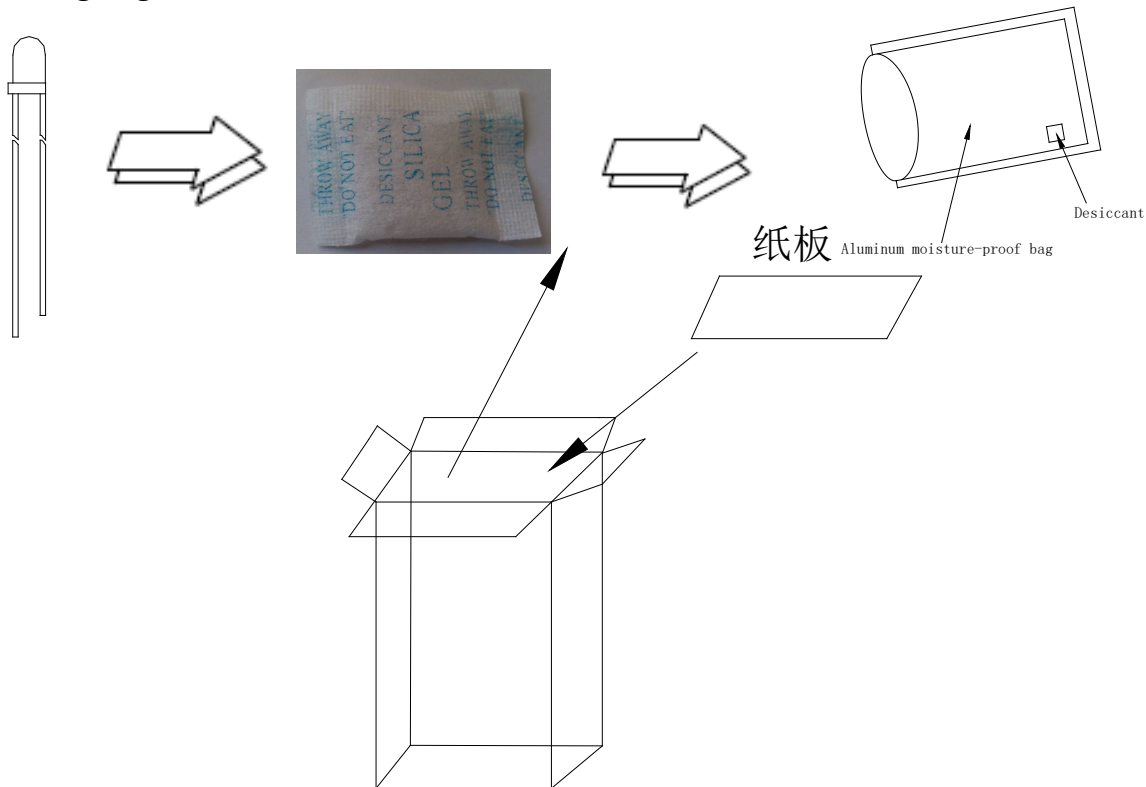
IV: Luminous intensity

WL: Color/wavelength

QTY: number

QC: Production order

6. packaging



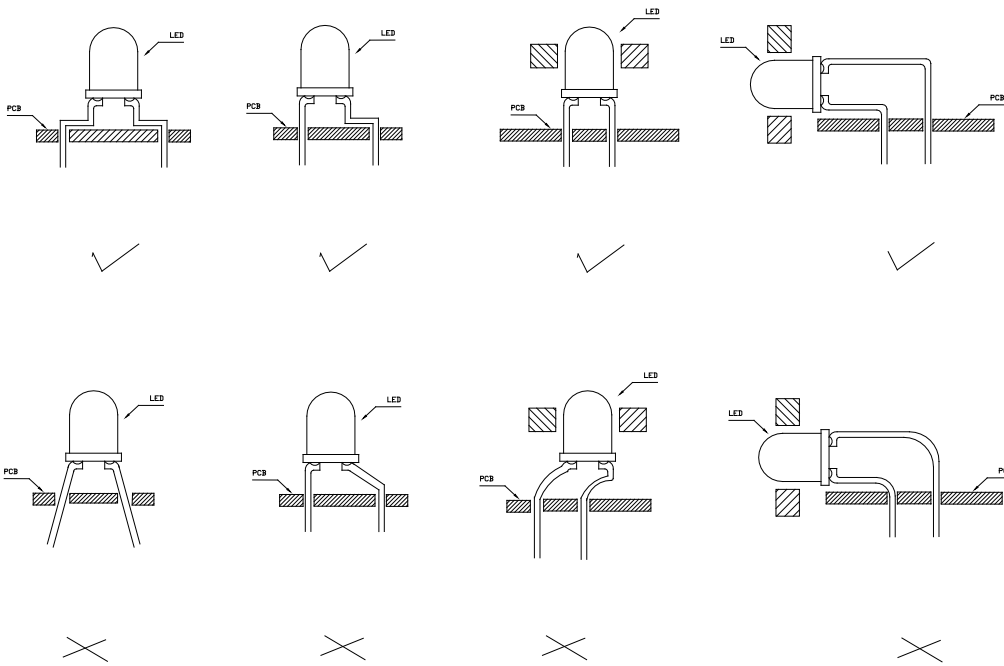
The packing way: Electrostatic bag packing

Packing specification: White light color packing 500 PCS/bag, puguang 500 PCS/bag.

Pay attention to: Above belongs to the normal packing specification, if you have any special requirements according to customer requirements

7. The cautions of stent deformation

Stent deformation must be conducted before welding, plastic, stent bend position must be at least 3 mm at the bottom of the encapsulating resin, at the same time, avoid bent many times on the same position. When the deformation, fixed bracket, please use the right tools to avoid resin pressure. Especially not as a pivot pin connected with the resin part, so the stress within the product on light emitting structure directly into damage, lead to the change of product features and even damaged. For the same reason, in the assembly of products, the distance between welding PCB hole must be in the pin spacing of the products strictly match, as shown in the figure below:



✓ correct mounting methods

✗ Incorrect mounting methods

8. Reliability of the experimental project and conditions

Test Item 测试项目	Ref. Standard 参考标准	Test Conditions 测试条件	Note 备注	Conclusion 结论
Life Test 老化测试	JESD22-A108	Ta=25℃ IF=20mA	1000 hrs	0/100
Temperature Cycle 温度循环	JESD22-A104	-20℃ 30min ↑↓15min 80℃ 30min	200 cycle	0/100
Thermal Shock 冷热冲击	JESD22-A106	-20℃ 15min ↑↓15sec 80℃ 15min	200 cycle	0/100
High Temperature Storage 高温存储	JESD22-A103	Ta=100℃	1000 hrs	0/100
Low Temperature Storage 低温存储	JESD22-A119	Ta=-20℃	1000 hrs	0/100
Power Temperature Cycling 点亮高低温循环	JESD22-A105	On5min-20℃>15min ↑↓ ↑↓ <15min Off5min80℃>15min	200 cycle	0/100
High Humidity Heat Life Test 高温高湿	JESD22-A101	60℃ RH=90% IF=20mA	1000 hrs	0/100
Wave soldering 波峰焊	JESD22-B106	260℃ for 3 sec	3 times	0/22

Reliability experiment unqualified judgement standard

IV: Attenuation less than 30%

VF: Change is more than 20%

note: 1) Same project the results of the test must be completed within 2 hours.

2) Testing must be completed in each experiment. Material return to normal conditions.

9. ESD protective

LED is a semiconductor device, the static sensitive, especially for white, green, blue, purple LED to make efforts to prevent electrostatic generation and eliminate static electricity.

9.1 The generation of static electricity

a. Friction: in daily life, any two objects of different material contact after the separation, can produce static, and the one of the most common method of generation of static electricity, is the electrification. The insulation material, the better, the easier the electrification. In addition, any two objects of different material contact again after separation, also can produce static electricity.

b. Induction: in view of the conductive material, because electrons can flow freely in its surface, such as to be put in the electric field, due to the same, opposites attract, the positive and negative ions will move, can produce electric charge on the surface.

c. Conduction: in view of the conductive material, because electrons can flow freely in surface, such as contact with a charged object, the charge transfer will occur.

9.2 The dangers of static electricity on the LED:

a. For the moment's electric field or electric current produced by the heat, the LED local injury.

b. Because of destruction of the electric field or current LED insulation layer, the device will not work (destroyed) characterized by death lamp.

9.3 Electrostatic protection and measures to eliminate

For the entire process (production, testing, packaging, etc.) all employees in direct contact with the LED to measures to prevent and eliminate static electricity, mainly:

- a. Laying anti-static workshop floor and well grounded.
- b. Workbench for ESD workstation, production machines grounding is good.
- c. Operators wear anti-static clothing, anti-static hand ring, gloves or foot ring.
- d. Application of ion fan, the welding electric grounding measures.
- e. Packing with antistatic materials.