

承認書

SPECIFICATION FOR APPROVAL

● 客戶名称	
● Customer	
● 客戶品號	
● Customer Part No.	
● 产品品號	HC-409U33A3C-RGB-AAA-LLL
● Brightek Part No.	
● 产品規格描述	255无边透明四脚全彩共阳极
● Specification	
● 製錶人	王清
● Prepared By	
● 審 核	李东平
● Checkedy	
● 客 戶 回 簽	
● Customer Comfirmation	
● 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

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东莞市弘呈光电有限公司

DongGuan Hong cheng Optoelectronics Co., Ltd.

工厂地址: 广东省东莞市樟木头镇莞樟路樟木头段 15 号 15 栋 2108 号

ADD: Room 2108, No.1 building, Wanhui Garden, East Guanzhang Road, Zhangmutou, Dongguan, Guangdong, China

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业务联系人: 李顺阳 13925714318 (微信同号) 销售总监 企业邮箱: sales@led-hc.com



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

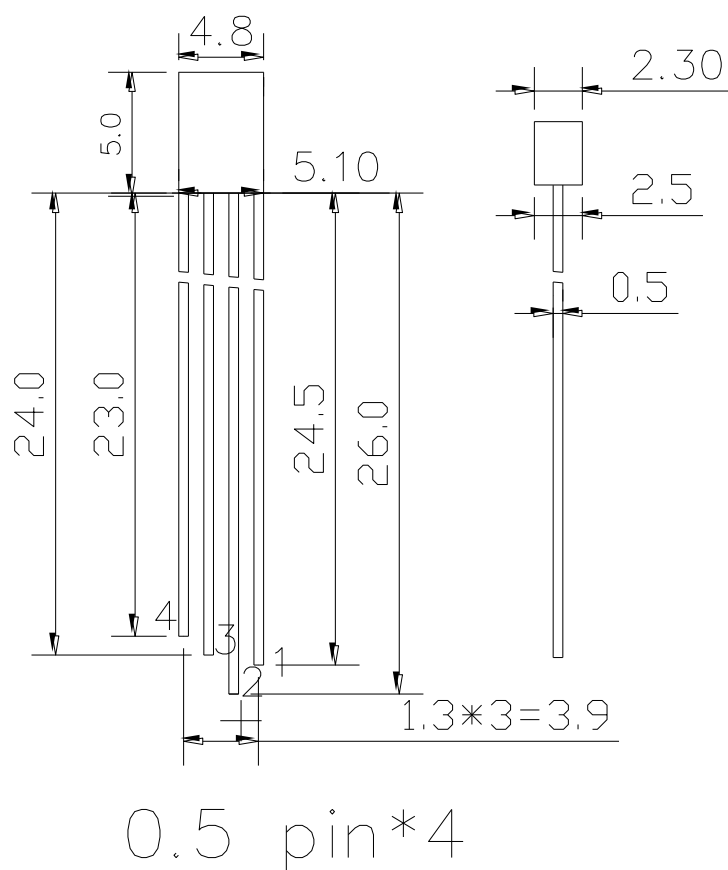
Note: this specification does not recommend using ac, such as improper operation, cause accidental death lamp or other adverse phenomenon, this company is not responsible for! Advising clients to set the current to use this product, please let us know if they set the voltage to use the product.

1. overview

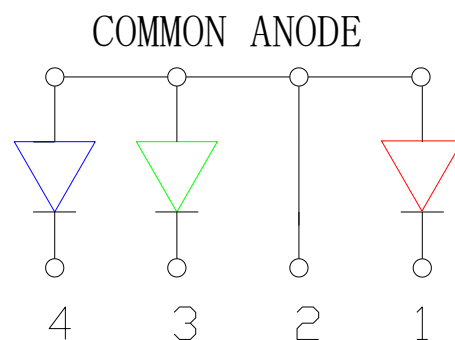
- * Low power consumption
- * Low power
- * General equipment on the PCB board or panel
- * with IC supporting the use/Low current requirement

2. Product appearance size figure

(unit: mm)



- 1, RED
- 2, COMMON
- 3, GREEN
- 4, BLUE



Note:

- 1: All dimensions are in millimeters (inches).
- 2: Tolerance is $\pm 0.25\text{mm}$ (.010") unless otherwise noted.
- 3: Specifications are subject to change without notices.
- 4: This specification is for reference only for one year

4. parameter

4.1 The limit parameter (room temperature 25°C)

parameter	The numerical	Unit
Dissipation power	70	mW
Pulse current (1/10 work loops 0.1 millisecond pulse width)	100	mA
Working current (IF)	20	mA
Reverse voltage (VR)	5	V
Working temperature range	-40°C ~ +80°C	
Storage temperature range	-40°C ~ +80°C	
Soldering temperature from the roots (4.0 mm)	260°C for 5 Seconds	

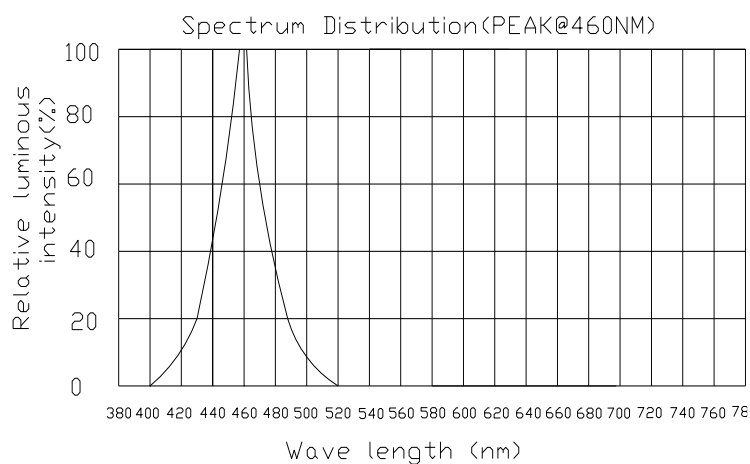
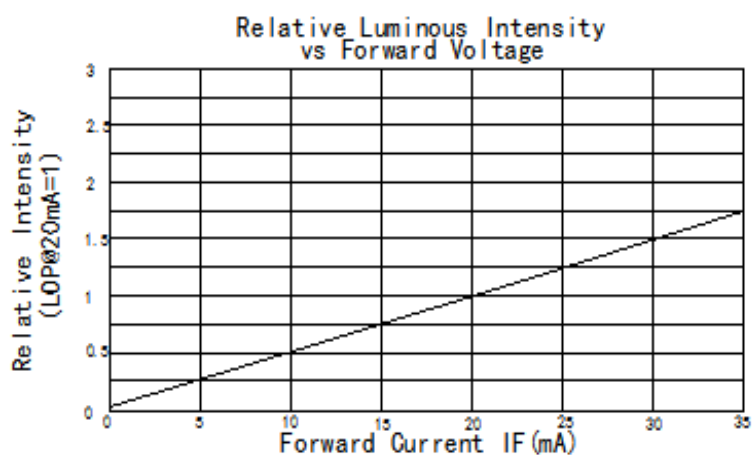
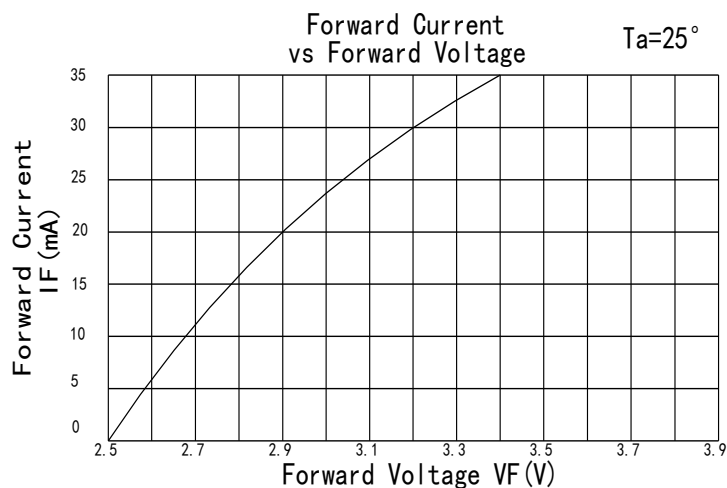
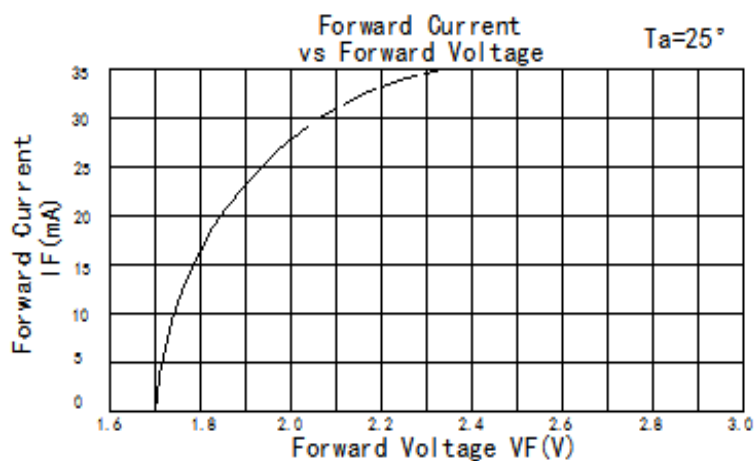
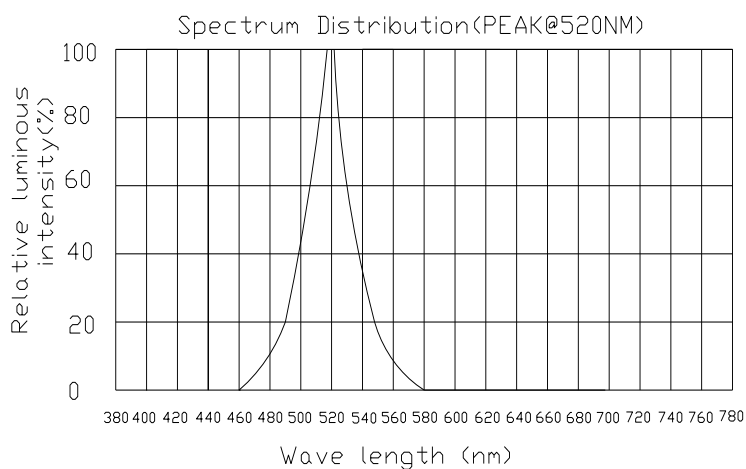
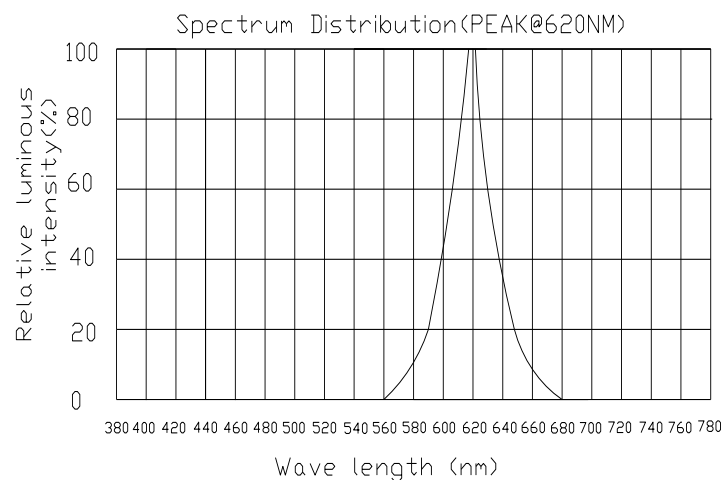
Photoelectric parameters At room temperature 25°C

Parameter		min	Avg	max	Unit	Test Condition
Luminous intensity	Red	200	———	400	mcd	If=20mA
	Green	400	———	800	mcd	If=20mA
	Blue	100	———	300	mcd	If=20mA
The wavelength(λ)	Red	620	———	630	Nm	If=20mA
	Green	520	———	525	Nm	If=20mA
	Blue	460	———	465	Nm	If=20mA
electric voltage	Red	1.8	———	2.4	V	If=20mA
	Green	2.8	———	3.4	V	If=20mA
	Blue	2.8	———	3.4	V	If=20mA
Reverse current			———	5	μA	Vr=5V

Selection Guide

Colloid color	Chip		
Water clear	Material	Emitting light colors	λp (nm)
	GaASP/Gap	Red	620
	InGaN/GaN	Green	520
	InGaN/GaN	Blue	460

5、Under the condition of 25 °C electrical diagram:



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6. Not dry glue label

P/N: Product number

VF: Forward voltage

BIN: points light

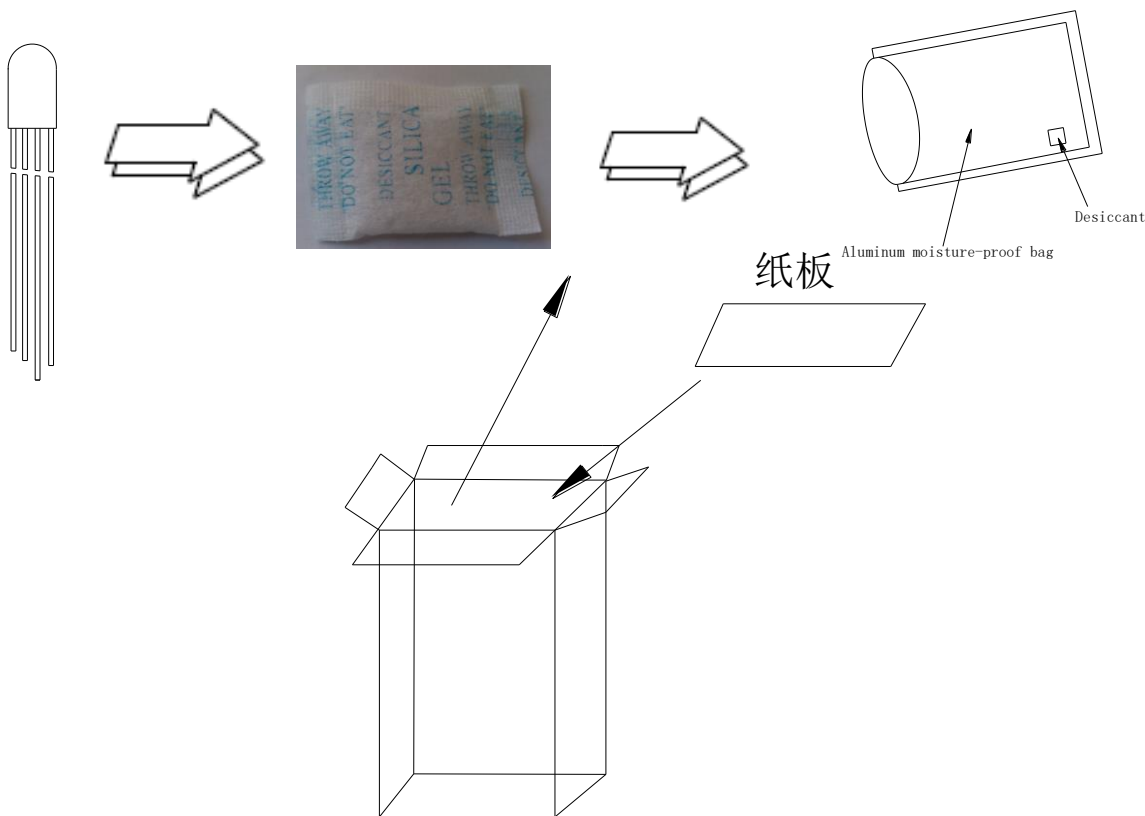
IV: Luminous intensity

WL: Color/wavelength

QTY: number

QC: Production order

7. packaging



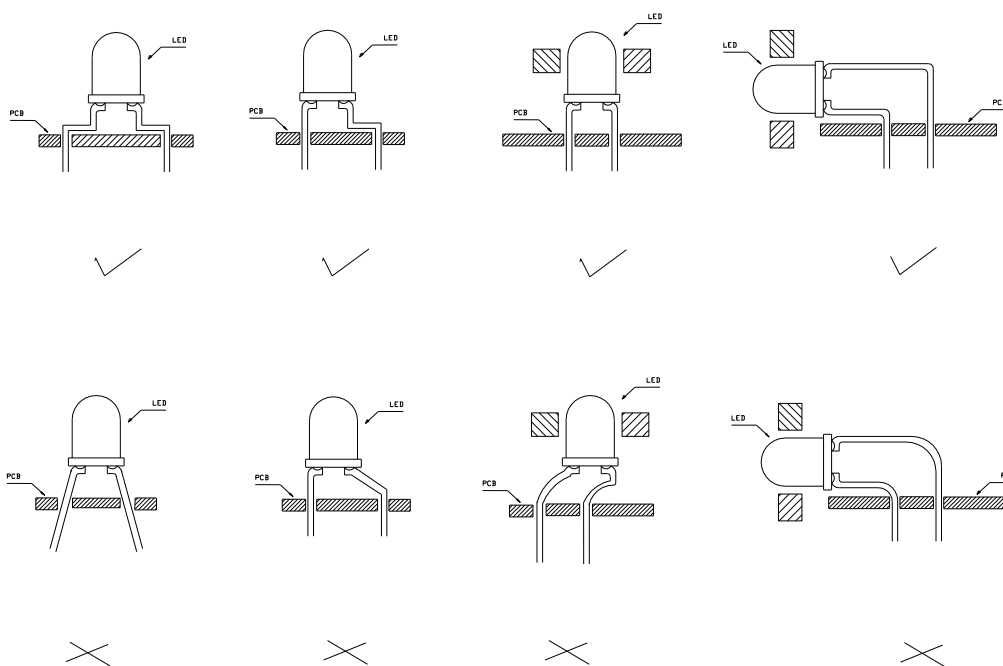
The packing way: Electrostatic bag packing

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

8. 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

9. Reliability of the experimental project and conditions

serial number	Test project	The test conditions	The sample quantity	Acceptance/rejection
1	Life test	Test current: 20MA The temperature: 25°C The test of time: 1000 hours	20	0/1
2	High temperature high humidity (static test)	The temperature: $\pm 65^{\circ}\text{C}$ humidity: 90% RH The test of time: 240 hours	20	0/1
3	Cold and hot shock	$-40^{\circ}\text{C} \sim +100^{\circ}\text{C}$ 20min 10s 20min Test time: 100 loops	20	0/1
4	High temperature storage	The high temperature: 100°C The test of time: 1000 hours	20	0/1
5	Low temperature storage	The low temperature: -40°C The test of time: 1000 hours	20	0/1
6	Temperature loop	$-40^{\circ}\text{C} \sim +100^{\circ}\text{C}$ 60min 20s 60min Test time: 20 loops	20	0/1
7	Reflow soldering	260°C (Max), the maximum of no more than 5 seconds	20	0/1

Reliability experiment unqualified judgement standard

IV: Attenuation is more 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.

11. 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.

11.1 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.

11.2 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.

11.3 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.

CAUTIONS- Super Bright LED

(1) Lead Forming

- a. At least 3mm from the base of the epoxy bulb should be kept when forming leads.
- b. Do not use the base of the leadframe as a fulcrum during lead forming. Lead forming should be done before soldering.
- c. Because the stress to the base may damage the characteristics or it may break the LEDs, do not apply any bending stress to the base of the lead.
- d. When mounting the LEDs onto a PCB, the holes on the circuit board should be exactly aligned with the leads of the LEDs. Stress at the leads should be avoided when the LEDs are mounted on the PCB, because it causes damage to the epoxy resin and this will degrade the LEDs.

(2) Storage

- a. The LEDs should be stored at 30°C or less and 70%RH or less after being shipped and the storage life limits are 3 months.
- b. If the LEDs are stored more than 3 months, they can be stored for a year in a sealed container with a nitrogen atmosphere and moisture absorbent material.
- c. Please avoid rapid transitions in ambient temperature, especially, in high humidity environments where condensation can occur.

(3) Static Electricity

- a. Static electricity or surge voltage damages the LEDs.
- b. It is recommended that a wristband or an anti-electrostatic glove be used when handling the LEDs.
- c. All devices, equipment and machinery must be properly grounded.
- d. It is recommended that measures be taken against surge voltage to the equipment that mounts the LEDs.
- e. Damaged LEDs will show some unusual characteristics such as the leak current remarkably increases, the forward voltage becomes lower, or the LEDs do not light at the low current.

Criteria: (VF>2.0V at IF=0.5mA)

(4) Heat Generation

- a. Thermal design of the end product was most importance. Please consider the heat generation of the LED when making the system design.
- b. The thermal resistance of the circuit board and density of LED placement on the board, as well as other components was the important factor affecting the coefficient of temperature increase per input electric power. It must be avoid intense heat generation and operate within the maximum ratings given in the specification.
- c. The operating current should be decided after considering the ambient maximum temperature of LEDs.

(5) Cleaning

- a. It is recommended that isopropyl alcohol be used as a solvent for cleaning the LEDs. When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the resin or not. Freon solvents should not be used to clean the LEDs because of worldwide regulations.
- b. Do not clean the LEDs by the ultrasonic. When it is absolutely necessary, the influence of ultrasonic cleaning on the LEDs depends on factors such as ultrasonic power and the assembled condition. Before cleaning, a pre-test should be done to confirm whether any damage to the LEDs would occur.

(6) Safety Guideline for Human Eyes

- a. In 1993, the International Electric Committee (IEC) issued a standard concerning laser product safety (IEC 825- 1). Since then, this standard has been applied for diffused light sources (LEDs) as well as lasers. In 1998 IEC 60825-1 Edition 1.1 evaluated the magnitude of the light source.
- b. In 2001 IC 60825-1 Amendment 2 converted the laser class into 7 classes for end products.
- c. Components are excluded from this system. Products which contain visible LEDs are now classified as class 1. Products containing UV LEDs can be classified as class 2 in cases

where viewing angles are narrow, optical manipulation intensifies the light, and/or the energy emitted is high. For these systems it is recommended to avoid long term exposure. It is also recommended to follow the ICE regulations regarding safety and labeling of products.

(7) Soldering Condition for LED Lamps

- Careful attention should be paid during soldering.
- Solder the LED no closer than 3mm from the base of the epoxy bulb. Soldering beyond the base of the tie bar is recommender.
- Recommender soldering conditions

Dip Soldering		Soldering	
Pre-Heat	120° C Max	Temperature	350° C Max
Pre-Heat Time	60 seconds Max 260°	Soldering Time	3 seconds Max No
Solder Bath	C Max	Position	closer than 3 mm
Temperature	10 seconds Max		from the base of the
Dipping Time	No lower than 3 mm from		epoxy bulb.
Dipping	the base of the epoxy		
Position	bulb.		

- For manual soldering, it is recommended a fixture be used to prevent damage to the inner structure of the LED. The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component placement. Stress applied on the lead, particularly when heated, may cause damage to the conducting elements inside the LED.
- For auto-soldering, ensure the PCB is of proper orientation as otherwise the lead may be bent slightly after soldered, which also apply stress on the LED. Use specific fixture whenever necessary.
- NO stress should be applied on the LED during soldering or other heating processes, the LED should NOT be repositioned after soldering.

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Avoid any mechanical stress or shock to the epoxy lens until the LED is cooled

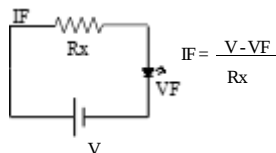
down to the room temperature. Minimize the mechanical stress applied onto the

LED.

Cut the LED leadframes at room temperature. Cutting the leadframes at high temperatures may cause failure of the LEDs.

(8) Others

- a. Care must be taken to ensure that the reverse voltage will not exceed the absolute maximum rating when using the LEDs with matrix drive. Keeping the Normal Forward to 20 mA.
- b. The LEDs described in this manual are intended to be used for ordinary electronic equipments (such as office equipment, communications equipment, measurement instruments and household appliances). Consult Wah Wang' s sales staff in advance for information on the applications in which exceptional quality and reliability are required, particularly when the failure or malfunction of the LEDs may directly jeopardize life or health (such as for airplanes, aerospace, submersible repeaters, nuclear reactor control systems, automobiles, traffic control equipment, life support systems and safety devices).



- c. User shall not reverse engineer by disassembling or analysis of the LEDs without having prior written consent from Wah Wang. When defective LEDs are found, the User shall inform Wah Wang directly before disassembling or analysis.
- d. The formal specifications must be exchanged and signed by both parties before large volume purchase begins.
- e. The appearance and specifications of the product may be modified for improvement without notice.