

## SPECIFICATION FOR APPROVAL

Customer : \_\_\_\_\_

Customer Part No : \_\_\_\_\_

Xmbrightek Part No: 9L0370G41B0DA0G3

Specification : 3mm 厚帽沿绿色雾状黄绿光（编带）

Time : 2020.06.24

Customer Confirmation	Approval	Audit	Production
	Lewis	Jelly	MARK
Parameter confirmation:			

# 9L0370G41B0DA0G3

- Outline (L\*H): **3.86\*5.3mm**
- Low flux efficiency & Energy conservation
- Good thermal dissipation & Optical uniformity

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## Features

- Forward current:  $\leq 25\text{mA}$
- RoHS and REACH-compliant
- Lens color: **Colored Diffused**
- ESD level **2kV**

## Applications

- Indoor signage display applications
- Indoor decorating and entertainment design
- consumer electronics
- Others applications

## ● Absolute Maximum Ratings ( Ta=25°C )

Characteristics	Symbol	Value	Unit
Power Dissipation	PD	60	mW
DC Forward Current	IF	25	mA
Pulsed Forward Current	IFP	100	mA
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr	-40~ +85°	°C
Storage Temperature Range	Tstg	-40 ~ +100°	°C
Soldering Temperature	Tsol	250for5sec <sup>Δ</sup>	°C

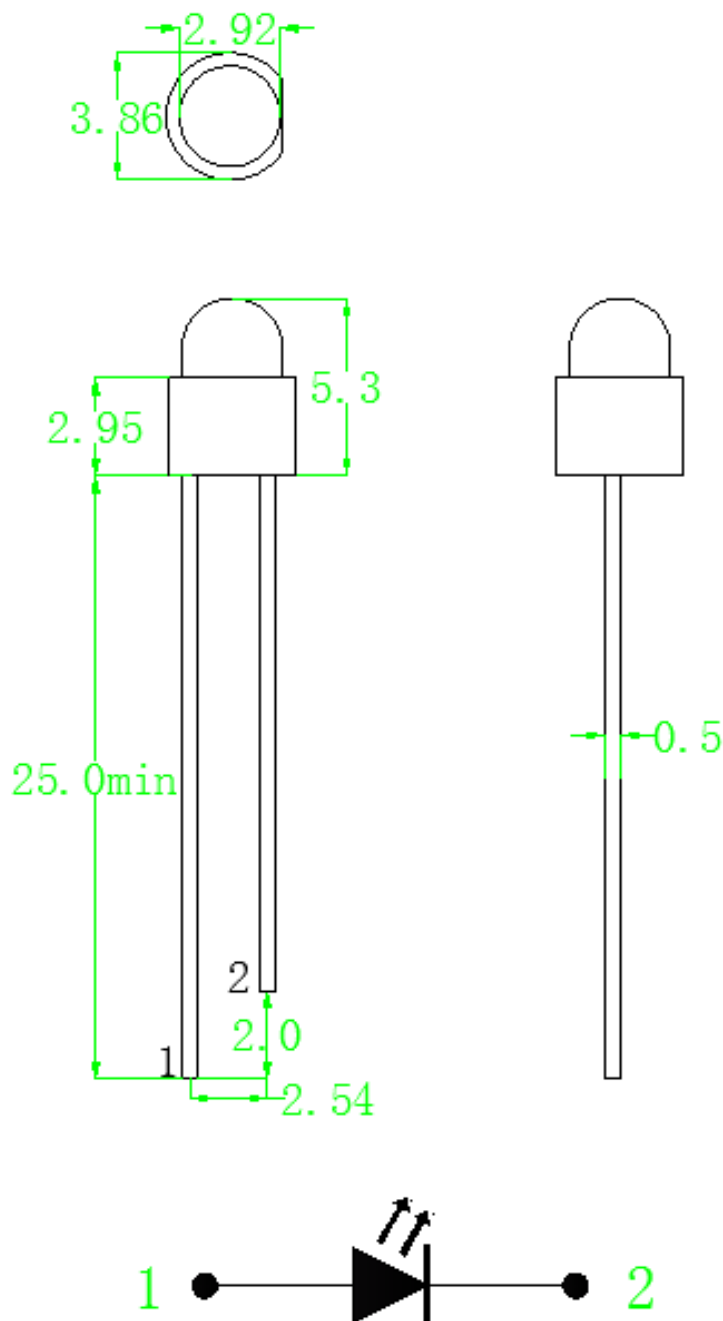
## ● Electrical-Optical Characteristics ( Ta=25°C )

Characteristics	Symbol	Value			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	Vf	1.8	---	2.4	V	If=20mA
Luminous intensity	Iv	50	70	---	mcd	If=20mA
Wavelength	λd	565	---	574	nm	If=20mA
Reverse Current	Ir	---	---	10	μ A	Vr=5V
Viewing angle	2θ1/2	---	---	---	Deg	If=20mA

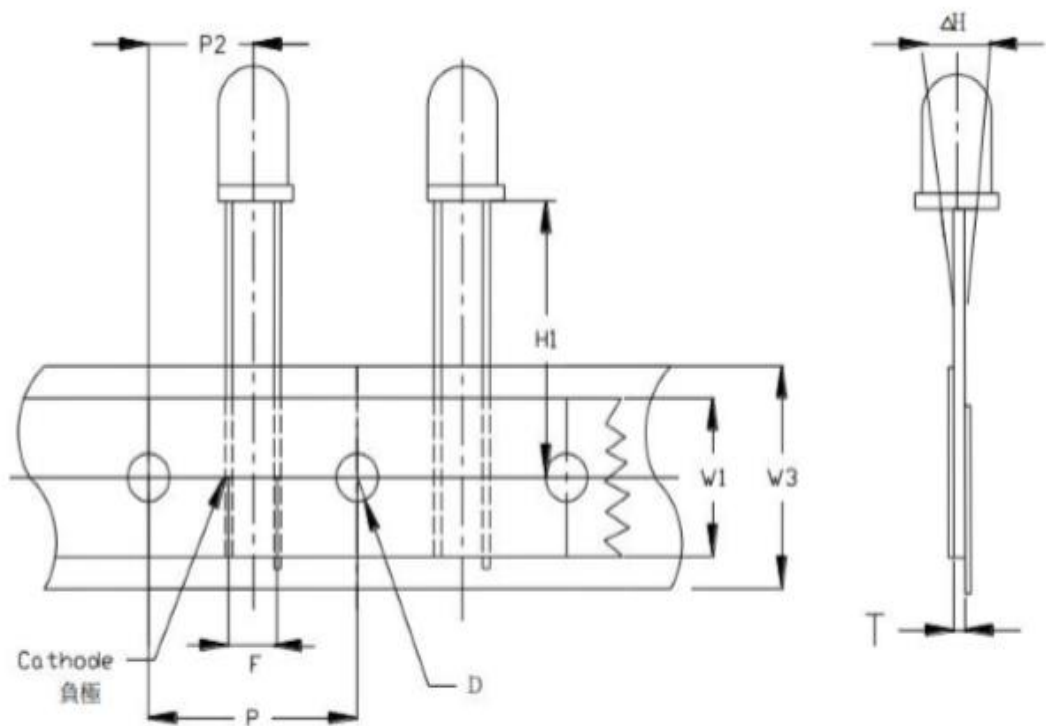
Notes:

1. Measurement Errors: Forward Voltage:  $\pm 0.1V$  ; Luminous Intensity:  $\pm 15\%$  ; Iv: Dominant Wavelength  $\pm 1.0nm$  ; Color Coordinate:  $\pm 0.006$  ; Viewing Angle ( $2\theta_{1/2}$ )  $\pm 5\%$
2. Electrical-Optical Characteristics (Ta=25°C)

## ● Outline Dimensions



- All dimensions are in millimeters ( inches ) .
- Tolerance is  $\pm 0.15$  mm unless otherwise noted.
- Specifications are subject to change without notice.



ITEM	SYMBOL	SPECIFICATION			
		millimeter		inch	
		Size	tolerance	Size	tolerance
Tape Feed Hole Diameter	D	4.0	±0.2	0.157	±0.001
Component Lead PITCH	F	2.5	±0.5	0.098	±0.020
Front To Rear Deflection	ΔH	-	MAX2.0	-	MAX0.079
Feed Hole To Bottom Of Component	H1	19.0	±1.0	0.846	±0.020
Feed Hole Pitch	P	12.7	±0.3	0.5	±0.012
Center Component Location	P2	6.35	±0.4	0.25	±0.016
Adhesive Tape Width	W1	12.0	±0.3	0.512	±0.012
Taped Width	W3	18.0	±0.5	0.709	±0.020

## ● Electrical-Optical Characteristics

Fig.1 Electrical Characteristics

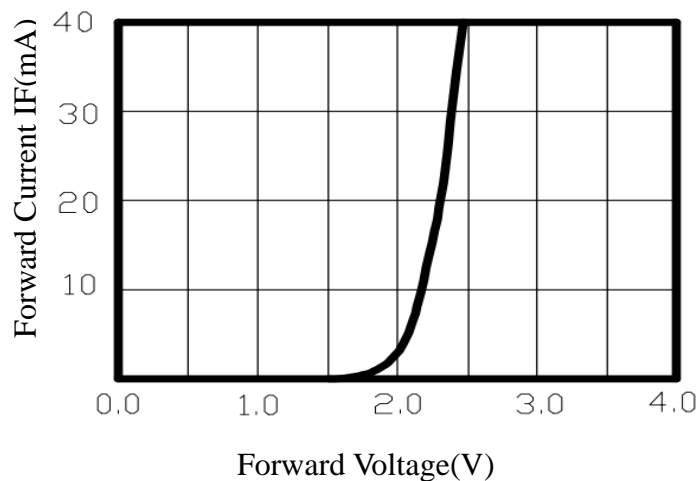


Fig.2 Relative Luminous Flux (%) - Current

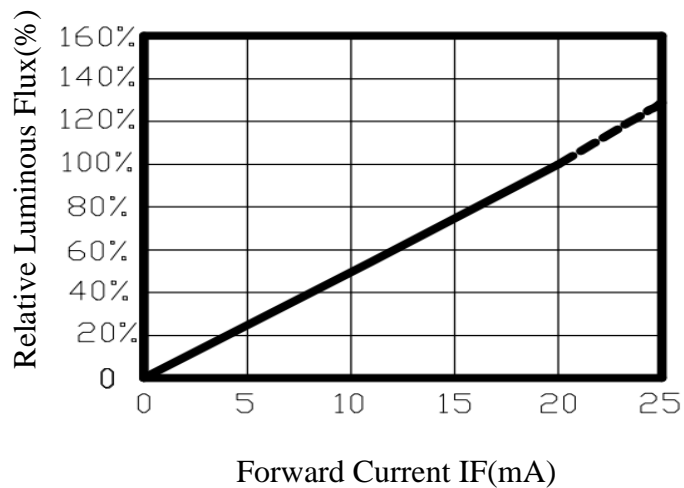


Fig.3 Relative Spectral Distribution

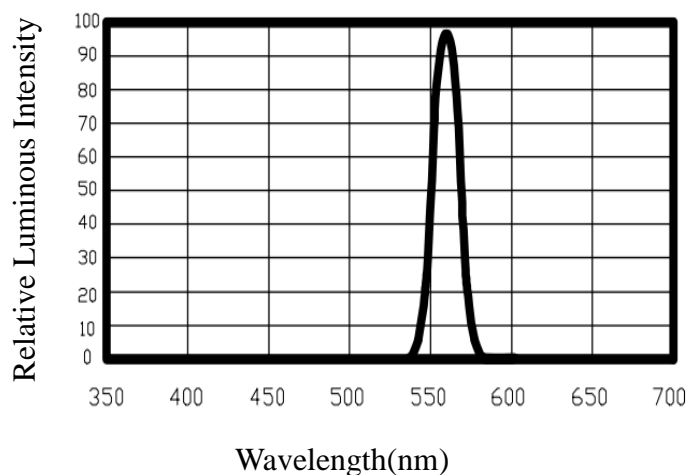


Fig.4 Relative Luminous Flux - Ta

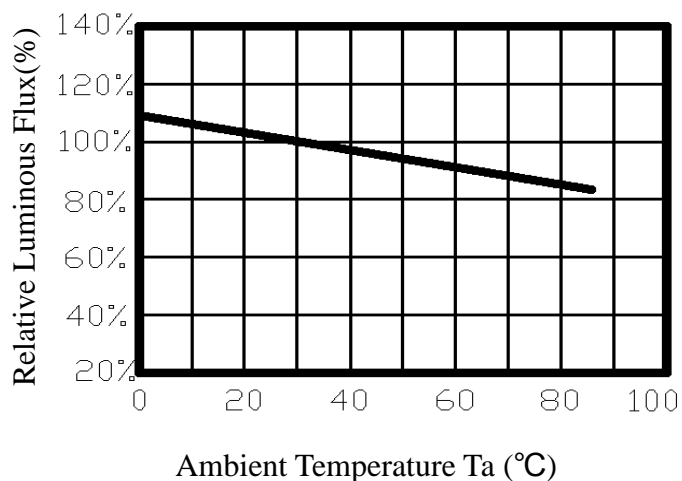
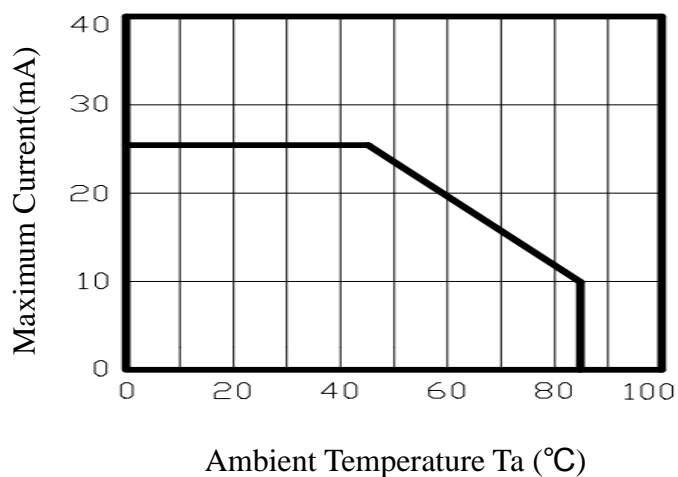


Fig.5 Thermal Design



## ● Rang of Bins

### ● Forward Voltage Bins(V)

Bin Code	Min	Max	Test Condition
C1	1.7	1.8	IF=20mA
C2	1.8	1.9	
C3	1.9	2.0	
C4	2.0	2.1	
C5	2.1	2.2	
C6	2.2	2.3	
C7	2.3	2.4	

### ● Luminous Intensity Bins(mcd)

Bin	51	52	53	54	55	56	57
Iv(mcd)	3-6	6-9	9-13	13-20	20-30	30-40	40-50
Bin	58	59	60	61	62	63	64
Iv(mcd)	50-70	70-90	90-120	120-160	160-200	200-260	260-330
Bin	65	66	67	68	69	70	71
Iv(mcd)	330-400	400-500	500-600	600-780	780-1000	1000-1300	1300-1700
Bin	72	73	74	75	76	77	78
Iv(mcd)	1700-2200	2200-2800	2800-3600	3600-4600	4600-6000	6000-7800	7800-10100
Bin	79	80	81	82	83	84	85
Iv(mcd)	10100-13130	13130-17000	17000-22100	22100-28700			

### ● Dominant Wavelength Bins(nm)

Bin Code	Min	Max	Test Condition
H1	565	568	IF=20mA
H2	568	571	
H3	571	574	

## ● LED Usage and Handling

Dear valued clients:

Thank you for choose our LED products. LEDs are delicate semiconductor product that should be handle according to the below instructions.

### A. Storage:

1. LEDs should be stored in an environment with ambient temperature of  $23 \pm 5^{\circ}\text{C}$  and relative humidity of 40 ~ 70 %.
2. LEDs should be used within three months of being taken out of their original packages to avoid lead frame rusting.

### B. Cleaning:

1. Do not use any unidentified chemical to clean LEDs, it could damage or crack the LED epoxy surface. If necessary, soak LED in alcohol for a time not exceeding one minute in normal temperature.

### C. Lead Frames Shaping & Trimming

1. The shaping should be done underneath the wedge point. No pressure should be exerted to the epoxy shell of the LED during shaping.
2. Bending of the leads should be done at a point at least 4 mm from the base of the LED lens.
3. Shaping of the leads should be done before soldering.
4. Lead trimming should only be done at normal temperature.

### D. Soldering

1. When soldering, the soldering iron needs to be at least 2mm away from the epoxy edge. After soldering, allow at least 3 minutes for LEDs to cool back to normal temperature. Do not apply any pressure to the epoxy encapsulation or the lead frame during the soldering process.
2. When reflow soldering or wave soldering, please solder once for less than 5 seconds at a maximum temperature of  $260^{\circ}\text{C}$ . During the soldering process, if the temperature or timing is not controlled within limits, it would cause the epoxy to deform or cause the die or wires within the LED to be damaged.

When using soldering iron, please solder once for less than 5 seconds at a maximum temperature of  $300^{\circ}\text{C}$ . When soldering a row of LED on a PCB,

3. please do not solder both leads of a LED in sequence. (Solder all the positive lead first, then all the negative leads)



4. Do not dip the epoxy encapsulation part of LED into any soldering paste liquid.
5. After soldering, do not adjust the location of the LED anymore.
6. When attaching electronic parts to a PCB with LEDs, the curing time for the whole PCB should be less than 60 seconds, at less than a temperature of 120 °C.

#### E. Installation

1. During the installation process, do not apply any pressure to the leads.
2. Please make sure the installation holes on the PCB matches the leads of the LED.

#### F. ESD (Electrostatic Discharge)

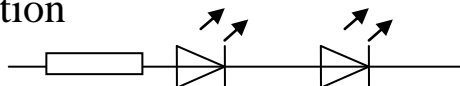
1. LED is very sensitive to ESD; please make sure during the whole usage and installation process, that no ESD exist to affect the LED. Excessive ESD could damage the LED chip and result in performance degradation.
2. LED can also be damaged by electrical surge, please make sure any driving electrical circuits are equipped with surge protection.
3. During the installation process, please make sure all the equipment and personnel are grounded properly. Make use ESD protection equipment such as anti-static gloves, anti-static wrist bands, anti-static mats, anti-static clothes, anti-static shoes, and anti-static containers.
4. When LED come into contact with low electrical resistance metallic surfaces, the ESD could damage the LED due to sudden discharge of ESD. Please make sure all surfaces that will be in contact with LED are covered with anti-static mats (Surface electrical resistance of  $10^6 \sim 10^8 \Omega/\text{sq}$ ). LED should be placed in anti-static containers and anti-static bags.
5. All soldering irons should be grounded and production environment should make use of ion-blowers.
6. The diameter of the dip holes on PCB should be at least 0.8mm . The distance between the centers of the two dip holes should be within  $\pm 0.02\text{mm}$  of the LED lead pitch (standard LED lead pitch is 2.54mm ). For special LED lead pitch specifications, the distance should be adjusted accordingly.

## G. Recommended Usage Guidelines

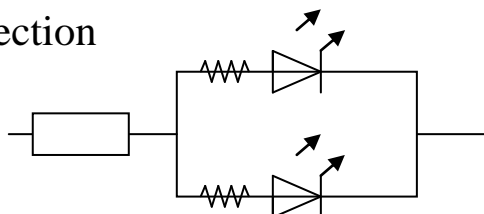
1. Please only use 20mA (Lamp LED) and 30mA (High Flux LED) of forward current to drive LEDs whether one LED or multiple LEDs are being used.

2. Circuit connections

- i. Serial connection



- ii. Parallel connection



3. Sudden surge could damage the LED interior connections. Please design circuit with care so no sudden voltage surge or current surge will show when turning the circuit on or off.
4. When color or brightness uniformity is required while using multiple LEDs, the LED driver condition is critical. Our company guarantees the uniformity of the LEDs from the same bin when the driver current is 20mA (Lamp LED) and 30mA (High Flux LED)

## H. Safety

1. Please comply with government electrical safety code while using the LEDs.
2. Do not look directly into a lit LED; it could damage the eyes after only a few seconds.
3. Do not look directly into powered UV LEDs; it could damage the eyes after only a few seconds. (UV LEDs are mainly used in currency validating machines)

## ● Test items and results of reliability

Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature shock	-45°C 30min ↑↓20 min 105°C 30min	1008 hrs	0/22
	High Temperature Storage	Ta=100°C	1008 hrs	0/22
	High Humidity Heat Storage	Ta=85°C RH=85%	1008 hrs	0/22
	Low Temperature Storage	Ta=-40°C	1008 hrs	0/22
Operation Sequence	Normal Temperature Life	Ta=23°C(±5°C) IF=20mA	1008 hrs	0/22
	High Humidity Heat Life	Ta=85°C(±5°C) RH=85% IF=20mA	1008 hrs	0/22
	High Temperature Life	Ta=85°C(±5°C) IF=20mA	1008 hrs	0/22

● Content revision

NO	Date	Content revision	Maker	Audit	Approved