
LED Lamps Specification

Model No.: YCG 103-ID



Device No.:	YCL2006486-G
Rev.:	2.0

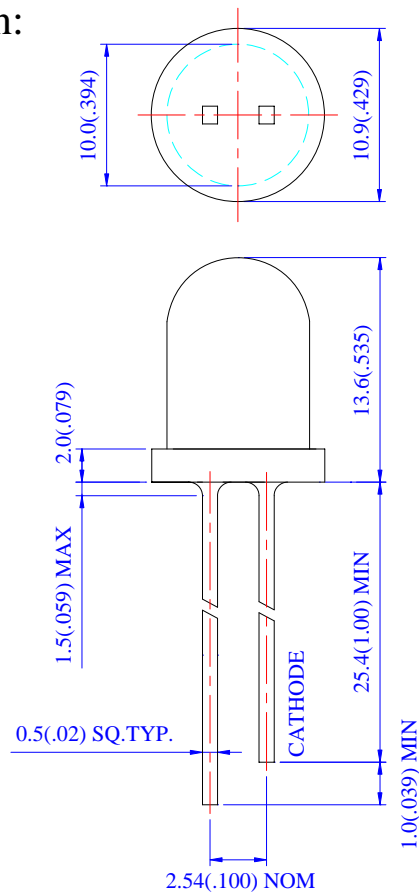
- Features:

1. Low Power consumption.
2. High efficiency.
3. Versatile mounting on P.C Board or panel.
4. Low current requirement.
5. This product don't contained restriction substance, compliance ROHS standard.

- Applications:

1. TV set.
2. Monitor.
3. Telephone.
4. Computer.
5. Circuit board.

- Package Dimension:



Part Number	Chip		Lens Color
	Material	Emitting Color	
YCG 103-ID	GaAsP/GaP	Hi-Eff Red	Red Diffused

NOTES:

1. All dimensions are millimeters (inches).
2. Tolerance is $\pm 0.25\text{mm}$ (0.01") unless otherwise specified.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.

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● Absolute Maximum Rating

(Ta=25°C)

Item	Symbol	Absolute Maximum Rating	Unit
Forward Current	IF	30	mA
Peak Forward Current *1	IFP	150	mA
Power Dissipation	PD	80	mW
Reverse Voltage	VR	5	V
Operating Temperature	Topr	-40°C~80°C	°C
Storage Temperature	Tstg	-40°C~85°C	°C
Lead Soldering Temperature	Tsol	260°C FOR 5 SECONDS	

*1 Condition for IFP is Pulse of 1/10 duty and 0.1msec width

● Initial Electrical/Optical Characteristics

(Ta=25°C)

Item	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	VF	IF=20(mA)	/	2.0	2.6	V
Reverse Current	IR	VR=5(V)	/	/	10	μA
Luminous Intensity	IV	IF=20(mA)	/	100	/	mcd
Peak Wavelength	λ p	IF=20(mA)	/	635	/	nm
Dominant Wavelength	λ d	IF=20(mA)	/	/	/	nm
Spectral Line Half-width	△ λ	IF=20(mA)	/	45	/	nm
Viewing Angle	2 θ 1/2	/	/	50	/	deg

● TYPICAL INITIAL OPTICAL/ELECTRICAL CHARACTERISTICS

Please refer to Figures: in Page 2

● OUTLINE DIMENSIONS AND MATERIALS

Please refer to drawing: in Page 1

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• Typical Electro-Optical Characteristic Curves:

Fig1. Spectral Distribution

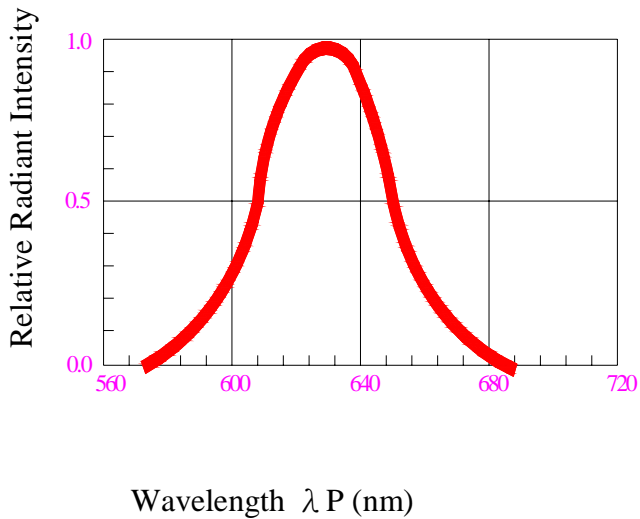


Fig2. Forward Current vs. Forward Voltage

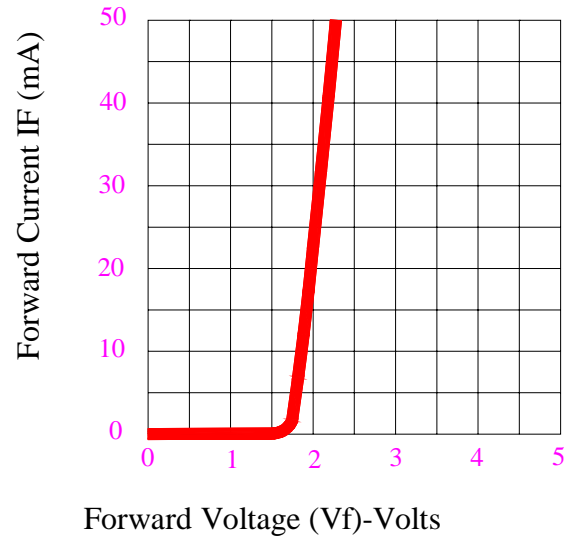


Fig3. Relative Luminous Intensity vs. Ambient Temperature

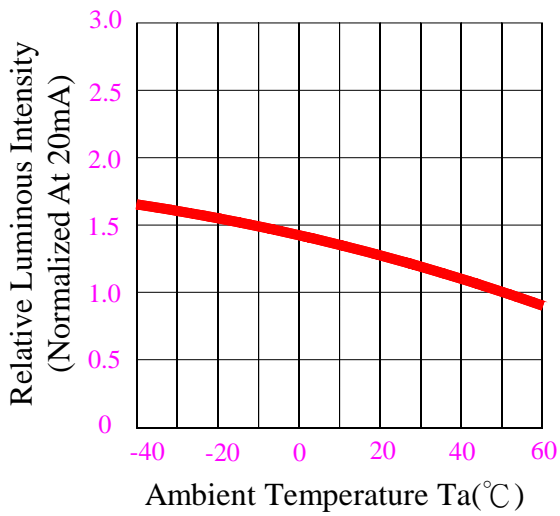


Fig4. Forward Current Debating Curve vs. Ambient Temperature

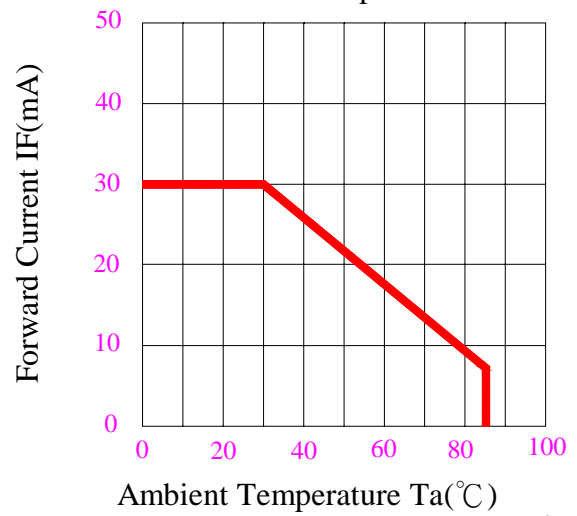


Fig5. Relative Luminous Intensity vs. Forward Current

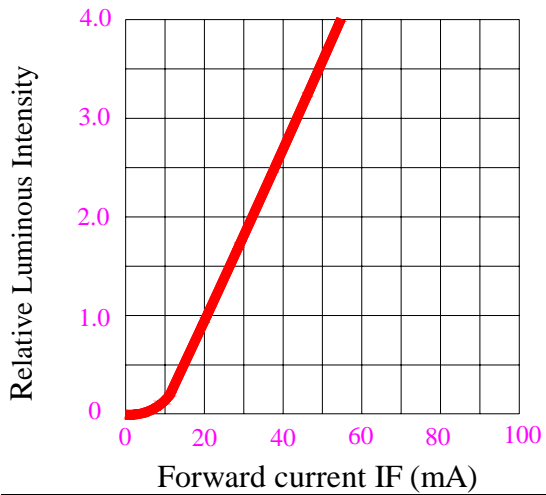
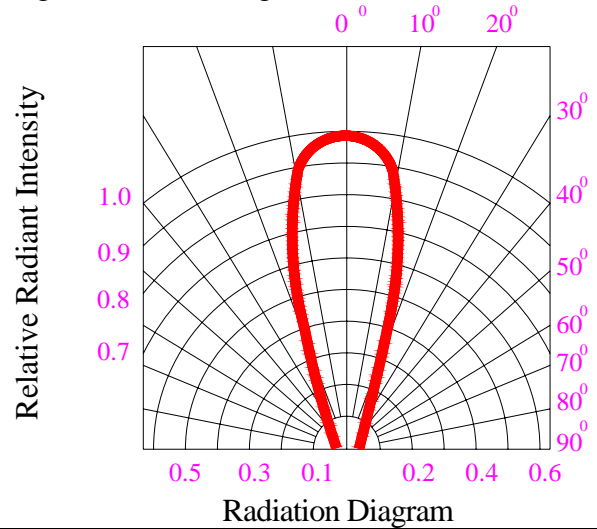


Fig6. Rodiation Diagram Ta=25°C



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● RELIABILITY TEST:

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021 B:-1	Connect with a power IF=20mA Ta=Under room temperature Test time=1,000hrs	0/100
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS C 7021 B:-11	Ta=+85°C±5°C RH=90%~95% Test time=240hrs	0/100
	High Temperature Storage	MIL-STD-883:1008 JIS C 7021 B:-10	High Ta=+105°C±5°C Test time=1,000hrs	0/100
	Low Temperature Storage	JIS C 7021 B:-12	Low Ta=-55°C±5°C Test time=1,000hrs	0/100
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021 A:-4	-55°C~+25°C~+105°C~+25°C 30min 5min 30min 5min Test Time= 10 cycle	0/100
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	-55°C±5°C ~ +105°C±5°C 10min 10min Test Time=10cycle	0/100
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS C 7021 :A-1	T.sol=260±5°C Dwell Time=5±1 sec.	0/100
	Solder ability	MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2003 JIS C 7021 A:-2	T.sol=230±5°C Dwell Time=5±1 sec.	0/50
	Lead Bending Stress	MIL-STD-750:2036 JIS C 7021 :A-11	0° ~ 90° ~ 0° bend , 3 cycles Weight 250g	0/50

● JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

Measuring items	Symbol	Measuring conditions	Judgment criteria for failure
Forward voltage	VF(V)	If=20mA	Over Mx1.2
Reverse current	Ir(μA)	Vr=5V	Over Mx2
Luminous intensity	Iv(mcd)	If=20mA	Below Nx0.5

Note:

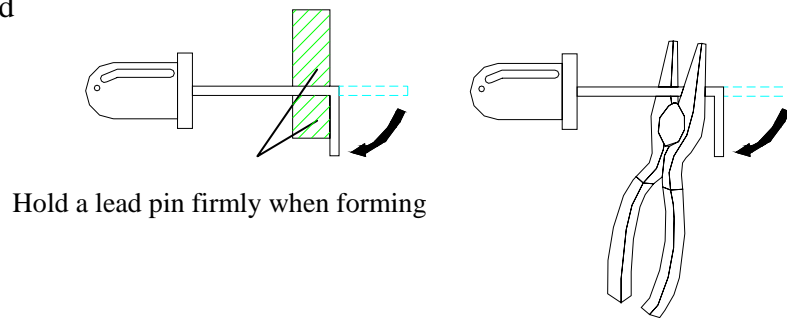
1. M means the upper limit of specified characteristics. N means initial value.
2. Measurement shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

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• Application Notes for LED LAMP

(I) Lead Forming Method

- ◆ Avoid forming a lead pin with the lead pin base as a fulcrum: be sure to hold a lead pin firmly when forming.
- ◆ Lead pins should be formed before soldering.



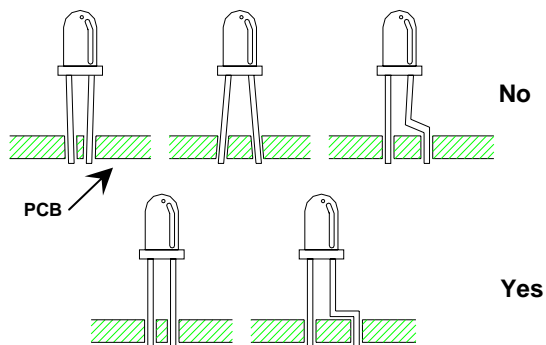
(II) Installations

(1) Installation on a PCB

When mounting and LED lamp on a PCB, do not apply physical stress to the lead pins.

(Notes)

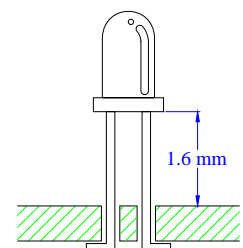
- ◆ The lead pin pitch should match the PCB pin-hole pitch: absolutely avoid widening or narrowing the lead pins.
- ◆ When positioning LED lamp, basically employ and LED with tie-bar cut or use a spacer.



(2)When an LED lamp is mounted directly on a PCB

If the bottom face of an LED lamp is mounted directly on single-sided PCB, the base of the lead pins may be subjected to physical stress due to PCB warp, cutting or clinching of lead pins, prior to use, be sure to check that no disconnection inside of the resin or damage to resin etc., is found.

When an LED lamp is mounted on a double-sided PCB, the heat during soldering affects the resin; therefore, keep the LED lamp more than 1.6 mm afloat above the PCB.



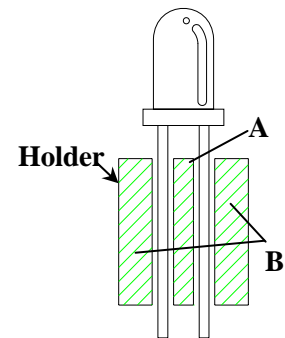
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(3) Installation using a holder

During an LED lamp positioning in case of using a holder, Holder A should be designed to be smaller than the inside diameter of lead pins. Holder B should be designed to be larger than the outside diameter of lead pins.

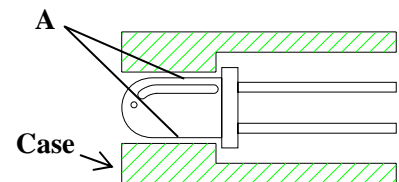
(Notes)

- ◆ Pay attention to the thermal expansion coefficient of the material used for the holder. Since the holder expands and contracts due to preheat and soldering heat, mechanical stress may be applied to the lead pins, resulting in disconnection.



(4) Installation to the case

Do not fix part A with adhesives when fixed to the case as shown in the Figure. A hole of the case should be designed not to be smaller than the outside diameter or LED lamp resin.



(III) Soldering Conditions

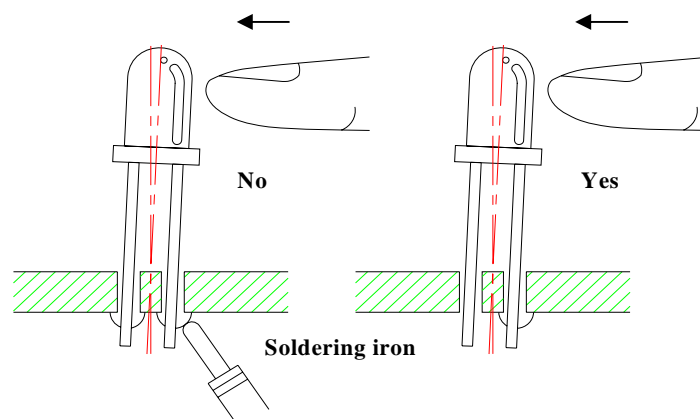
Solder the lead pins under the following conditions.

Type of Soldering	Conditions
1. Manual Soldering	350°C ±5°C, within 2 seconds
2. Wave Soldering	260°C ±5°C, within 5 seconds
3. Reflow Soldering	Preheating 70°C to 90°C, within 30 seconds Soldering 245°C to 265°C ±5°C, Within 3~5 seconds

(Notes)

- ◆ Avoid dipping resin into soldering bath.
- ◆ Avoid applying stress to lead pins while they are heated. For example, when the LED lamp is moved with the heat applied to the lead pins during manual soldering or solder repair, disconnection may occur.

(IV) Cleaning



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(1) Solvents

The package resin may be penetrated by solvents used in cleaning. Refer to the table below for usable solvents.

Solvent	Usable
Ethyl alcohol	Yes
Isopropyl alcohol	Yes
Chlorosen	No
Acetone	No
Trichloroethylene	No

(Notes)

- ◆ There is a world-wide movement to restrict the use of chlorofluorocarbon (CFC) based solvents and we recommend that you avoid their use. However, before using a CFC substitute solvent, carefully check that it will not penetrate the package resin.

(2) Cleaning Methods

Cleaning Method	Usable	Remarks
Solvent cleaning	Yes	Immersion up to one minute at room temperature
Ultrasonic cleaning	Yes/No	Test the cleaning under actual conditions and check for abnormalities before actual use.

(Notes)

- ◆ The affect on the device from ultrasonic cleaning differs depending on the size of the cleaning bath, ultrasonic output, duration, board size and device mounting method. Test the cleaning method under actual conditions and check for abnormalities before actual use.
- ◆ Cleaning with water is not allowed with the lead pins resin-tabulated: water may remain, thus causing rust to the lead pins.
- ◆ Please contact our representative before using a cleaning solvent or method not given above.

(V) Warranty

- ◆ YIOW CHIE warrants that its LED's conform to the foregoing specifications and that YIOW CHIE will convey good title to all LED's sold.
- ◆ YIOW CHIE disclaims all other warranties including the implied warranties of merchantability and fitness for a particular purpose.
- ◆ In the event any LED supplied by YIOW CHIE is found not to conform to the foregoing specifications within ninety days of receipt ,YIOW CHIE will repair or replace the LED, at YIOW CHIE's option, provided that User.

- (1) Promptly notifies YIOW CHIE in writing of the details of the defect.
- (2) Ships the LED at User's expense to YIOW CHIE for examination.

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(3) The defect is due to the negligence of YIOW CHIE and not mishandling or misuse by User.

- ◆ YIOW CHIE cannot take any responsibility for any troubles that are caused by using the LED's at conditions exceeding our specifications.
- ◆ These specifications are applied only when a LED stands alone and it is strongly recommended that the User of the LED confirms the properties upon assembly. YIOW CHIE is not responsible for failures caused during and after assembling.
- ◆ These LED's are designed and manufactured for standard applications such as electric home appliances, communication equipment, office equipment, electronic instrumentation and so on.
- ◆ It is recommended to consult with YIOW CHIE in advance if User's application requires any particular quality or reliability which concerns human life. Examples would medical equipment, aerospace applications, traffic signals, safety system equipment and so on.
- ◆ YIOW CHIE's liability for defective lamps shall be limited to replacement and in no event shall YIOW CHIE be liable for consequential damages or lost profits.

(VI) Others

- (1) Both parties shall sincerely try to find a solution when any inconvenience is found in these specifications.
- (2) The User's approval shall be required when YIOW CHIE modifies the design or the manufacturing process which would affect the characteristics, performance reliability and so on.
- (3) These specifications can be revised on mutual agreement.
- (4) YIOW CHIE understands that User accepts the content of this specification, if User does not return these specifications with your signature within 3 weeks after your receipt.

--END of SPECIFICATIONS--
