

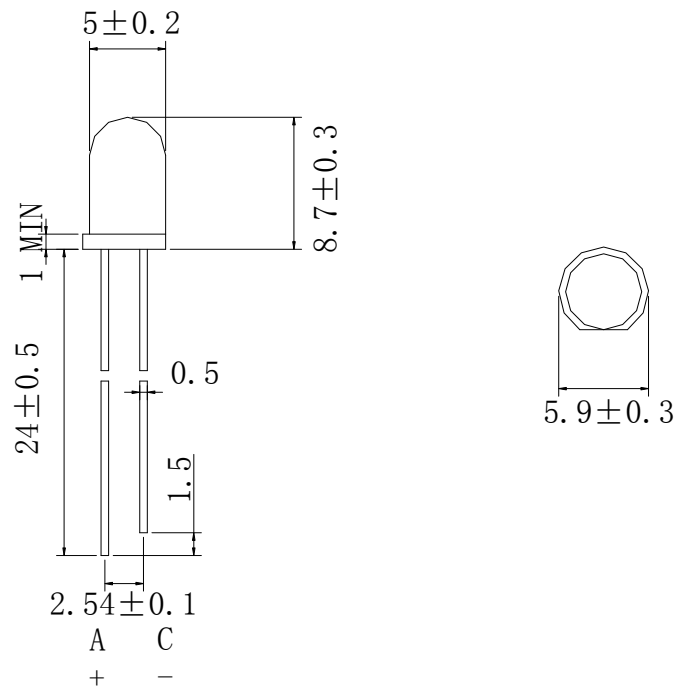
**Features**

- 5mm DIA LED Lamp
- Low Power Consumption
- High Efficiency
- Various Colors and Viewing Angle
- Long Solid State Reliability

**Applications**

- Indicator

**Package Dimensions**



**Notes:**

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25\text{mm}(.01\text{'})$  unless otherwise noted.
3. Protruded Resin under flange is  $1.0\text{mm}(0.04\text{'})$  max.
4. Specifications are subject to change without notice.



**Selection Guide**

Part No	Lens Type	Dice	Emitted Color
FDL-5861B-TWCL	Water Clear	GaAsP	Blue

**Electrical / Optical Characteristics At Ta=25°C**

Symbol	Parameter		Blue	Unit	Test Condition
Iv	Luminous Intensity	MIN.	1950	mcd	IF=20mA
		TYP.	4300		
2θ1/2	Viewing Angle	TYP.	15	deg	IF=20mA
λPeak	Peak Emission Wavelength	TYP.	-	nm	IF=20mA
λd	Dominant Wavelength	TYP.	465	nm	IF=20mA
Δλ	Spectral Line Half-Width	TYP.	-	nm	IF=20mA
VF	Forward Voltage	TYP.	3.2	V	IF=20mA
		MAX.	4		
IR	Reverse Current	MAX.	10	μA	VR=5V

Note:

1.θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 optical centerline value

**Absolute Maximum Ratings At Ta=25°C**

Parameter	Blue	Unit
Power Dissipation	110	mW
Peak Forward Current[1]	100	mA
Continuous Forward Current	30	mA
Reverse Voltage	5	V
Electrostatic Discharge(HBM)	150	V
Operating Temperature Range	-25°C to □ 85°C	
Storage Temperature Range	-40°C to □ 85°C	
Soldering Condition	260°C For 5 Seconds	

Note:

1. 1/10DutyCycle, 0.1ms Pulse Width

**Electrical Optical Characteristics Curves At Ta=25°C**

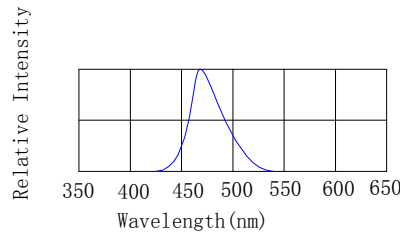


Fig 1. Relative Intensity vs. Wavelength (nm)

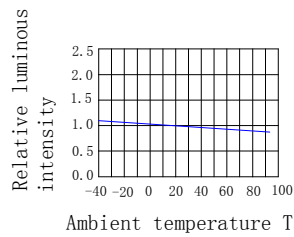


Fig 2. Relative Luminous Intensity vs. Ambient temperature

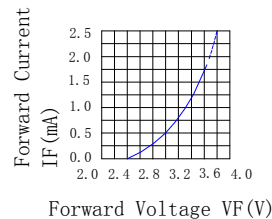


Fig 3. Forward Current vs. Forward Voltage

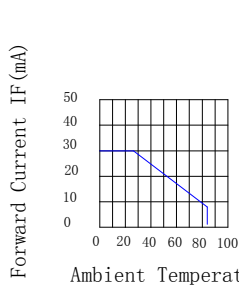


Fig 4. Forward Current Derating Curve

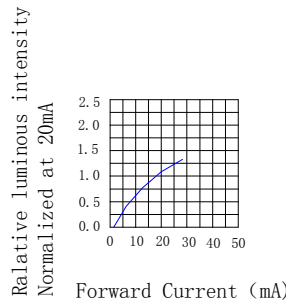


Fig 5. Forward Intensity vs. Forward Current

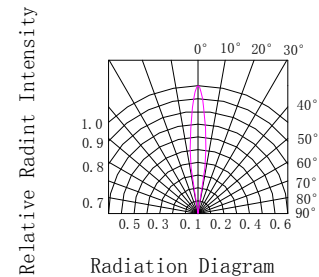
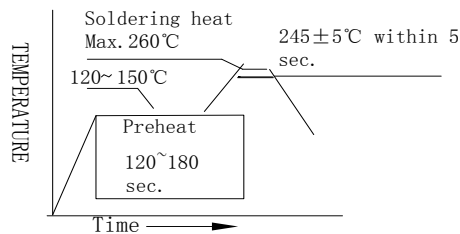


Fig 6. Radiation Diagram

**Reflow Soldering Instructions**



Notes:

1. The LEDs should be used within a year.
2. The LEDs should be kept in 5~30°C and 60% RH for less.
3. The LEDs should be used within 24 hours, or else should be kept a 5~30°C and 30% RH or less. And LEDs should be used within 7 days after opening the package.

**Reliability Test Items Conditions**

Classification	Test Item	Test Conditions	Test hours	Result
Endurance Test	Operation Life	Connect with a power I <sub>F</sub> =20mA T <sub>a</sub> =Under room temperature	1000Hrs	0/20
	High Temperature High Humidity	T <sub>a</sub> =+65°C±5°C RH=90%-95%	240Hrs	0/20
	High Temperature Storage	High T <sub>a</sub> =+85°C±5°C	1000Hrs	0/20
	Low Temperature Storage	Low T <sub>a</sub> =-35°C±5°C Test time=1000hrs	1000Hrs	0/20
Environmental Test	Temperature Cycling	-45°C ~+105°C 15min 5min 15min	300 Cycles	0/20
	Thermal Shock	-35°C ~±5°C ~+85°C ~±5°C 5min 10sec 5min	300 Cycles	0/20
	Solder Resistance	Preheating: 120°C-150°C, within 2 minutes. Operation heating : 260°C (Max.), within 5 seconds (Max.)	5Cycles	0/20

**Judgment criteria of failure for the reliability**

Measuring items	Symbol	Measuring conditions	Judgment criteria for failure
Forward voltage	V <sub>F</sub> (V)	I <sub>F</sub> =20mA	Over U×1.2
Reverse current	I <sub>R</sub> (μA)	V <sub>R</sub> =5V	Over U×2
Luminous intensity	I <sub>v</sub> (mcd)	I <sub>F</sub> =20mA	Below S×0.5

Note: 1.U means the upper limit of specified characteristics. S means initial value.  
2.Measurement shall be taken between 2 hours after the test pieces have been