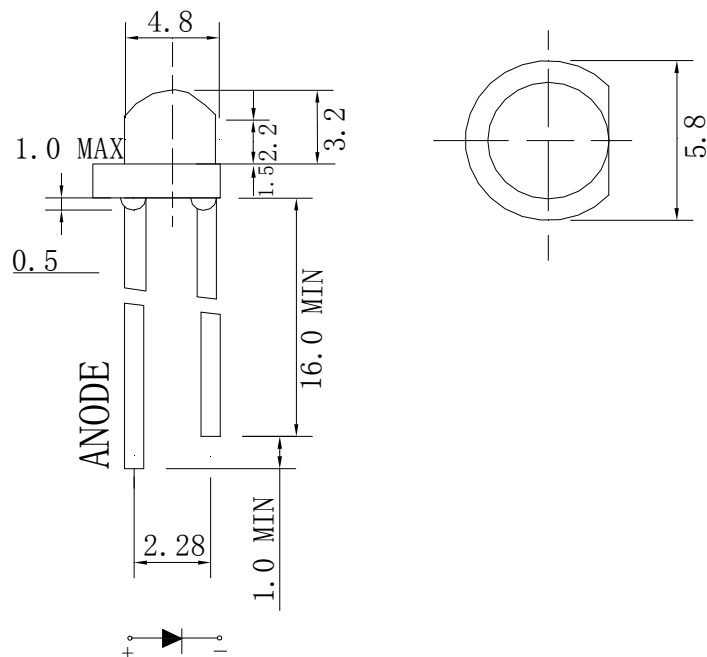


**Features**

- 4.8mm DIA LED Lamp
- Low Power Consumption
- High Efficiency
- Various Colors and Viewing Angle
- Long Solid State Reliability
- Package: 1000pcs/Packing

**Applications**

- Indicator

**Package Dimensions**

**Notes:**

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

**Selection Guide**

| Part No      | Lens Type   | Dice    | Emitted Color |
|--------------|-------------|---------|---------------|
| FDL-48SB-ZT1 | Water Clear | InGaALN | Blue          |

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

| Symbol | Parameter                | Min. | Typ. | Max. | Unit | Test Condition |
|--------|--------------------------|------|------|------|------|----------------|
| Iv     | Luminous Intensity       | 800  | 1000 | 1200 | mcd  | IF=20mA        |
| 2θ1/2  | Viewing Angle            |      | 150  |      | deg  | IF=20mA        |
| λ Peak | Peak Emission Wavelength | 462  | 465  | 468  | nm   | IF=20mA        |
| λ D    | Dominant Wavelength      | 460  | 463  | 465  | nm   | IF=20mA        |
| △λ     | Spectral Line Half-Width |      | 30   |      | nm   | IF=20mA        |
| VF     | Forward Voltage          | 2.8  | 3.3  | 3.8  | V    | IF=20mA        |
| IR     | Reverse Current          |      |      | 40   | μ A  | VR 5V          |

Note:

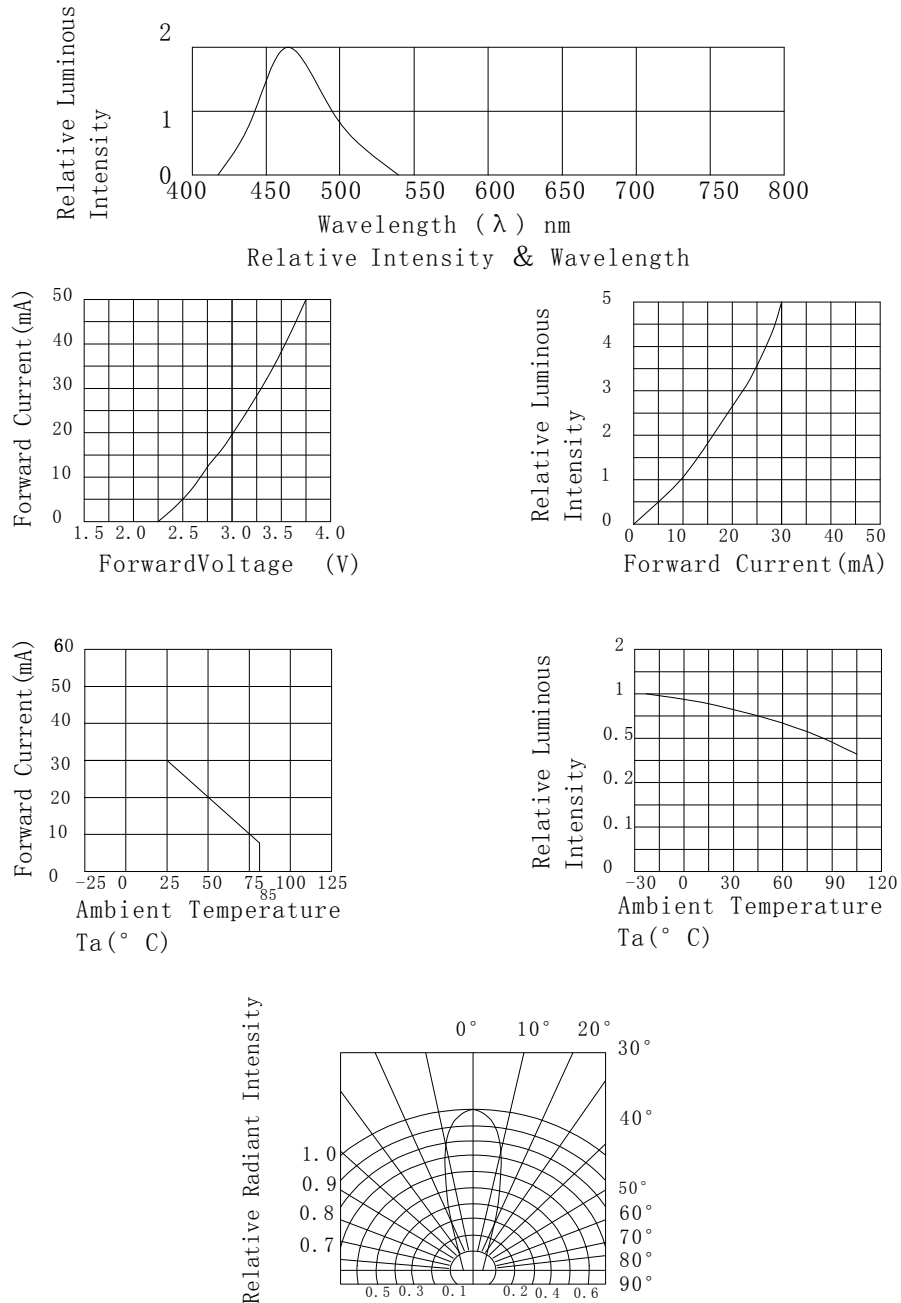
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 optical centerline value

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

| Parameter                   | Blue                | Unit |
|-----------------------------|---------------------|------|
| Power Dissipation           | 100                 | mW   |
| Peak Forward Current[1]     | 60                  | mA   |
| Continuous Forward Current  | 30                  | mA   |
| Reverse Voltage             | 5                   | V    |
| Operating Temperature Range | -20°C to + 80°C     |      |
| Storage Temperature Range   | -40°C to + 100°C    |      |
| Soldering Condition         | 260°C For 5 Seconds |      |

Note:

1. 1/10DutyCycle, 0.1msPulseWidth

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

**Fig.6 Radiation Diagram**
**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     | Opertion Life                     | Connect with a power if=20mA<br>Ta=Under room temperature                                              | 1000Hrs    | 0/20   |
|                    | Hige Temperature<br>High Humidity | Ta=+ 65℃±5℃<br>RH=90%-95%                                                                              | 240Hrs     | 0/20   |
|                    | Hige Temperature<br>Storage       | High Ta=+ 85℃±5℃                                                                                       | 1000Hrs    | 0/20   |
|                    | Low Temperature<br>Storage        | Low Ta=-35℃±5℃<br>Test time=1000hrs                                                                    | 1000Hrs    | 0/20   |
| Environmental Test | Temperature Cycling               | -45℃～+105℃<br>15min 5min 15min                                                                         | 300 Cycles | 0/20   |
|                    | Thermal Shock                     | -35℃～±5℃～+85℃～±5℃<br>5min 10sec 5min                                                                   | 300 Cycles | 0/20   |
|                    | Solder Resistance                 | Preheating:<br>120℃-150℃,within 2 minutes.<br>Operation heating :<br>260℃ (Max.),within5 seconds(Max.) | 5Cycles    | 0/20   |

**Judgment criteria of fialure for the reliability**

| Measuring items    | Symbol               | Measuring conditions | Judement criteria for failure |
|--------------------|----------------------|----------------------|-------------------------------|
| Forward voltage    | V <sub>F</sub> (V)   | I <sub>F</sub> =20mA | Over U×1.2                    |
| Rvevrse 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.Meansurment shall be taken between 2 hours after the test pieces have been returnde to normal ambient cnditions after completion of each test.