

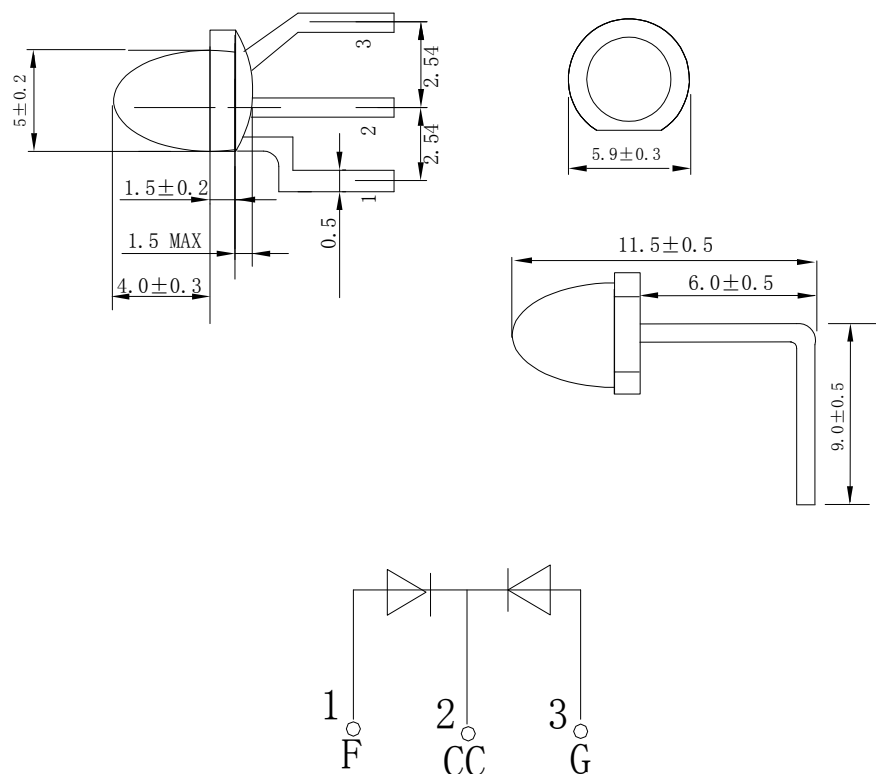
## Features

- 5mm 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.

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### Selection Guide

| Part No                      | Lens Type   | Dice  | Emitted Color               |
|------------------------------|-------------|-------|-----------------------------|
| FDL-5451SFHG-ZC1HQ-CC-L6 0-9 | Water Clear | GaAsP | Super Orange<br>Super Green |

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

| Symbol | Parameter                |      | Super Orange | Super Green | Unit | Test Condition |
|--------|--------------------------|------|--------------|-------------|------|----------------|
| Iv     | Luminous Intensity       | MIN. | 50.0         | 45.0        | mcd  | IF=20mA        |
|        |                          | TYP. | 112.0        | 90.0        |      |                |
| 2θ1/2  | Viewing Angle            | TYP. | 80           | 80          | deg  | IF=20mA        |
| λ Peak | Peak Emission Wavelength | TYP. | 612          | 574         | nm   | IF=20mA        |
| λ d    | Dominant Wavelength      | TYP. | 605          | 571         | nm   | IF=20mA        |
| △λ     | Spectral Line Half-Width | TYP. | 20           | 20          | nm   | IF=20mA        |
| VF     | Forward Voltage          | TYP. | 2.0          | 2.1         | V    | IF=20mA        |
|        |                          | MAX. | 2.4          | 2.4         |      |                |
| IR     | Reverse Current          | MAX. | 50           | 50          | 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                   | Super Green         | Super Orange | Unit |
|-----------------------------|---------------------|--------------|------|
| Power Dissipation           | 80                  | 75           | mW   |
| Peak Forward Current[1]     | 150                 | 150          | mA   |
| Continuous Forward Current  | 30                  | 30           | mA   |
| Reverse Voltage             | 5                   | 5            | V    |
| Operating Temperature Range | -40°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

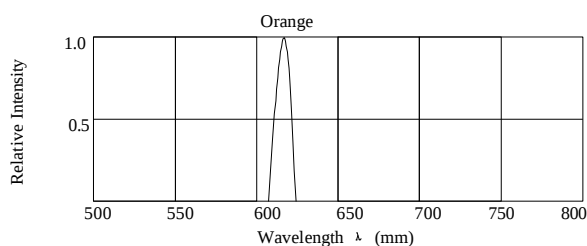


Fig.1 Relative Intensity vs. Wavelength

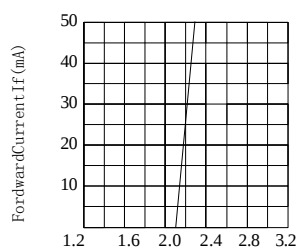


Fig.2 Forward Current vs. Forward Voltage

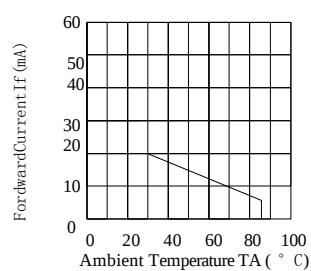


Fig.3 Forward Current Derating Curve

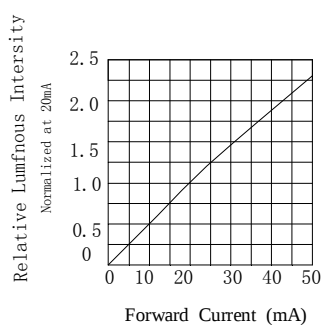


Fig.4 Relative Luminous Intensity vs. Forward Current

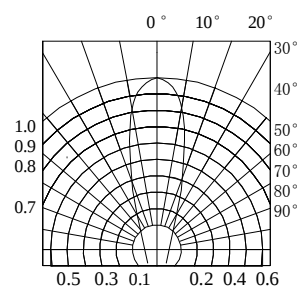
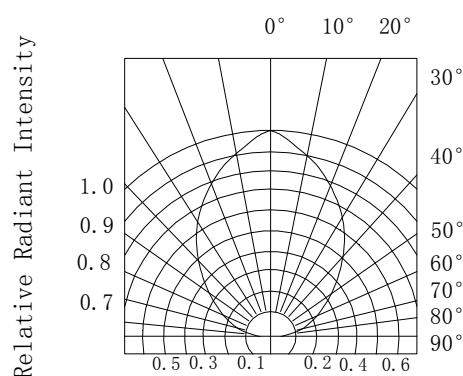
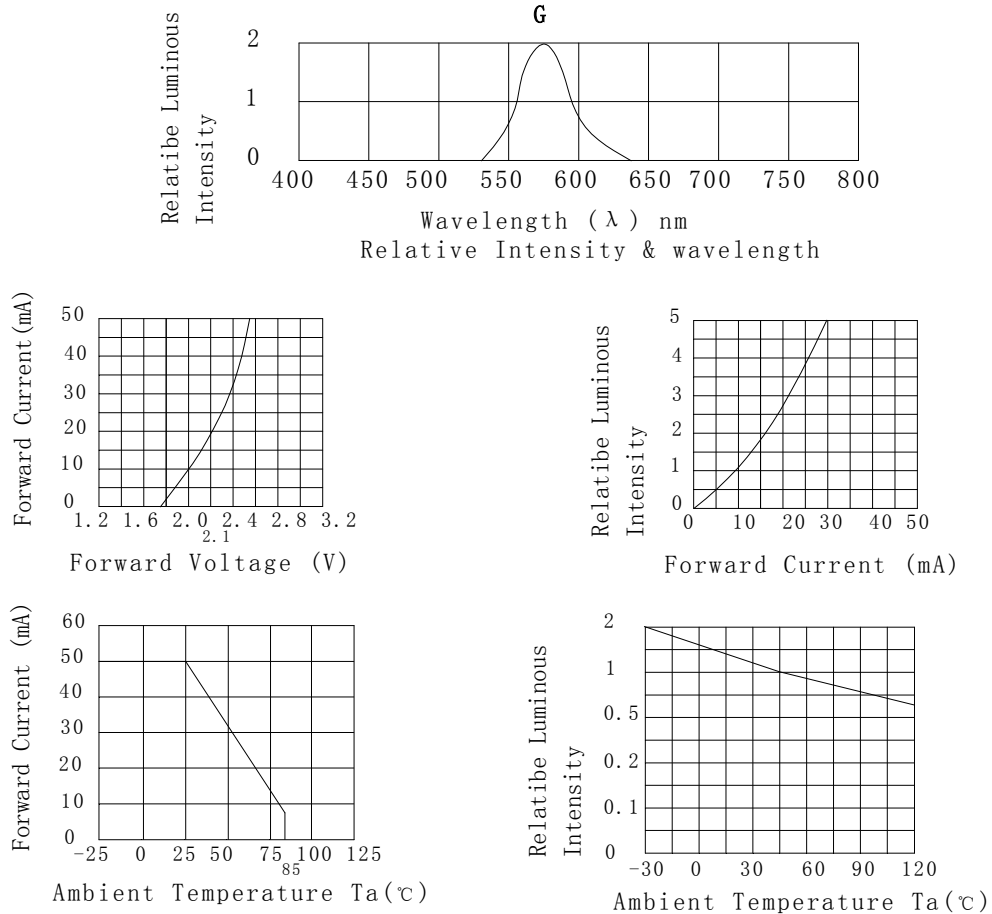


Fig.5 Spatial Distribution

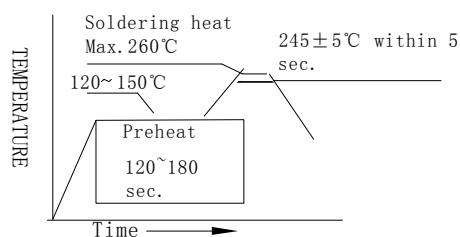


Radiation Diagram

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



### 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     | 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.