

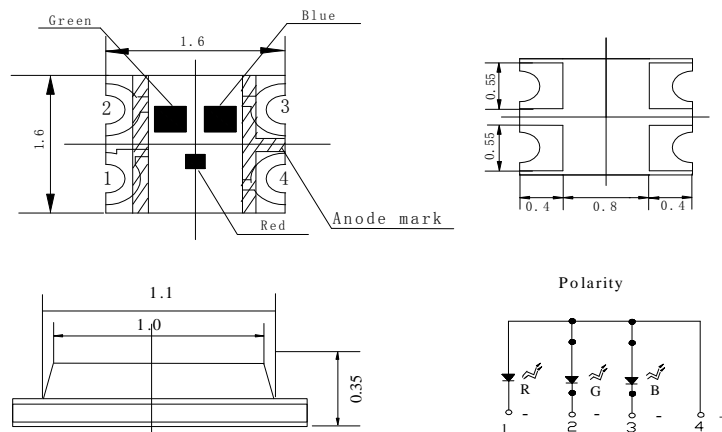
**Features**

- 1.6mm\*1.6mm SMT LED, Super thin (0.35H mm)
- Low Power Consumption
- Wide Viewing Angle
- Various Colors
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow and wave solder process.
- Meet ROHS Green Products
- Package: 3000pcs/Reel

**Applications**

- Backlight and Indicator

**Package Dimensions**



**Notes:**

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.2\text{mm}$  (.0079") unless otherwise noted.
3. Specifications are subject to change without notice
4. This drawing is only for indication, not as a basis for the actual structure.



**Selection Guide**

| Part No                 | Lens Type   | Dice     | Emitted Color |
|-------------------------|-------------|----------|---------------|
| FSL-1616035RPGB-N4TCCJY | Water Clear | AllInGaP | Red           |
|                         |             | InGaN    | Pure Green    |
|                         |             | InGaN    | Blue          |

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

| Symbol | Parameter                |      | Red | Pure Green | Blue | Unit | Test Condition |
|--------|--------------------------|------|-----|------------|------|------|----------------|
| Iv     | Luminous Intensity       | MIN. | 72  | 112        | 28.5 | mcd  | IF=20mA        |
|        |                          | TYP. | 100 | 180        | 50   |      |                |
| 2θ1/2  | Viewing Angle            | TYP. | 130 | 130        | 130  | deg  | IF=20mA        |
| λ Peak | Peak Emission Wavelength | TYP. | 639 | 525        | 468  | nm   | IF=20mA        |
| λ d    | Dominant Wavelength      | TYP. | 631 | 530        | 470  | nm   | IF=20mA        |
| Δλ     | Spectral Line Half-Width | TYP. | 20  | 35         | 35   | nm   | IF=20mA        |
| VF     | Forward Voltage          | TYP. | 2.0 | 3.3        | 3.3  | V    | IF=20mA        |
|        |                          | MAX. | 2.4 | 3.9        | 3.9  |      |                |
| IR     | Reverse Current          | MAX. | 10  | 10         | 10   | uA   | 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                         | Red                 | Pure Green | Blue | Unit  |
|-----------------------------------|---------------------|------------|------|-------|
| Power Dissipation                 | 60                  | 110        | 110  | mW    |
| Peak Forward Current[1]           | 60                  | 100        | 100  | mA    |
| Continuous Forward Current        | 25                  | 25         | 25   | mA    |
| Dreading Linear From 25°C         | 0.4                 | 0.5        | 0.25 | mA/°C |
| Reverse Voltage                   | 5                   | 5          | 5    | V     |
| Electrostatic Discharge Threshold | 2000                | 150        | 150  | V     |
| Operating Temperature Range       | -20°C to + 80°C     |            |      |       |
| Storage Temperature Range         | -30°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**

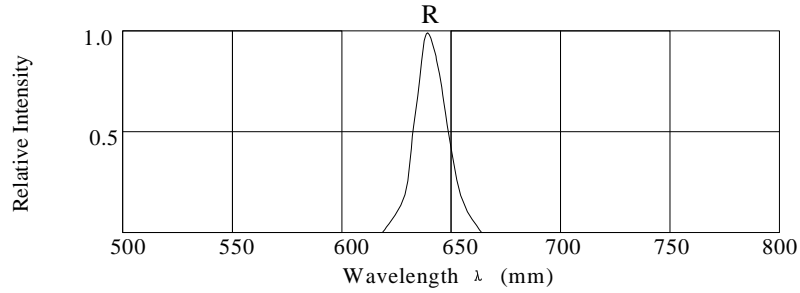


Fig.1 Relative Intensity vs. Wavelength

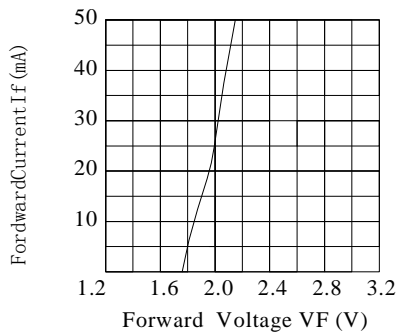


Fig.2 Forward Current VS. Forward Voltage

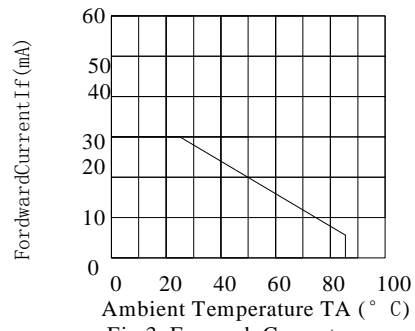


Fig.3 Forward Current Derating Curve

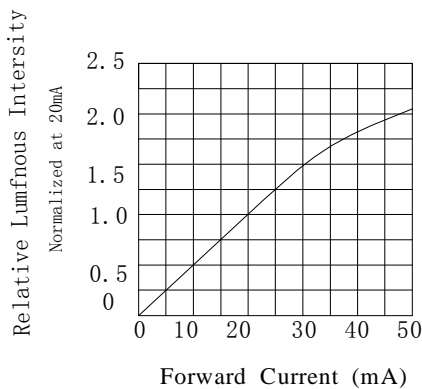


Fig.4 Relative Luminous Intensity vs. Forward Current

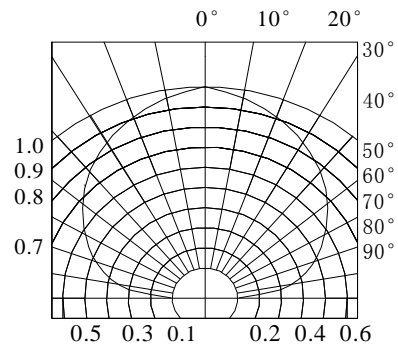


Fig.6 Spatial Distribution

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

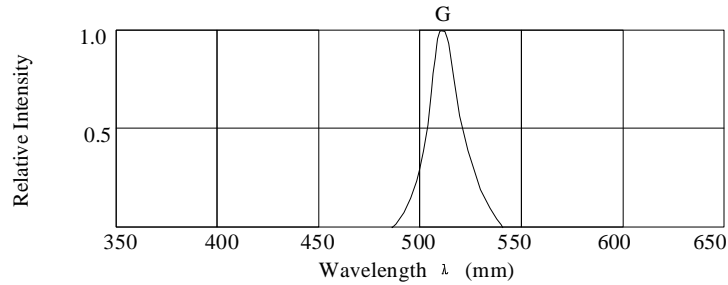


Fig.1 Relative Intensity vs. Wavelength

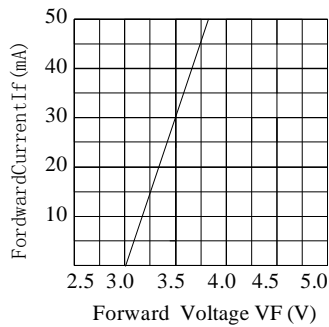


Fig.2 Forward Current VS. Forward Voltage

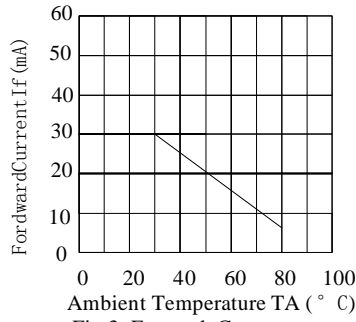


Fig.3 Forward Current Derating Curve

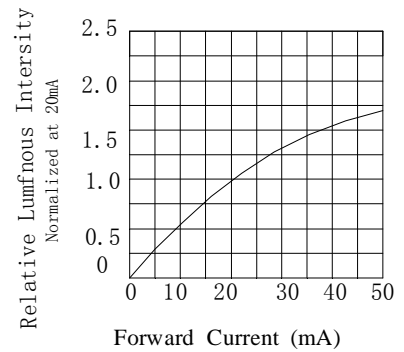


Fig.4 Relative Luminous Intensity vs. Forward Current

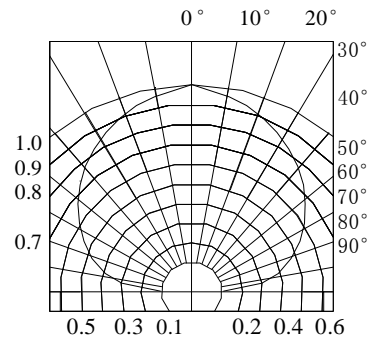
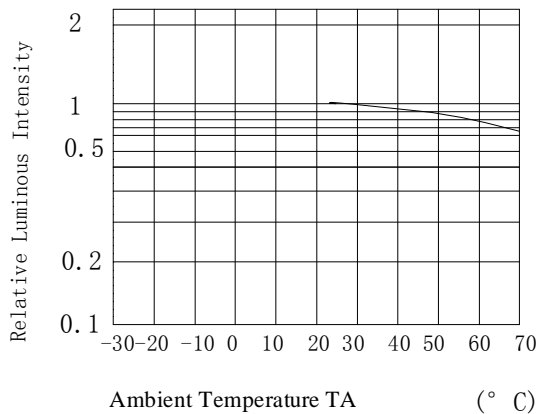


Fig.6 Spatial Distribution

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

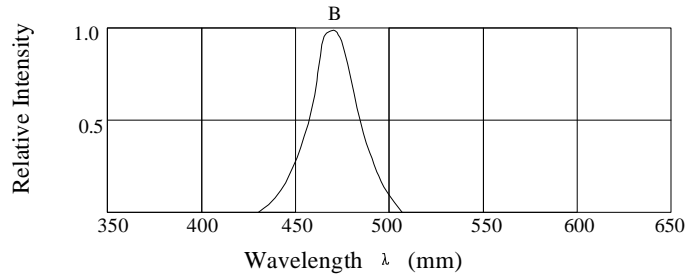


Fig.1 Relative Intensity vs. Wavelength

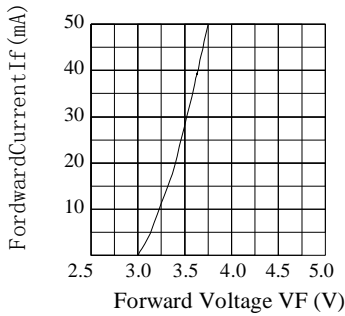


Fig.2 Forward Current VS. Forward Voltage

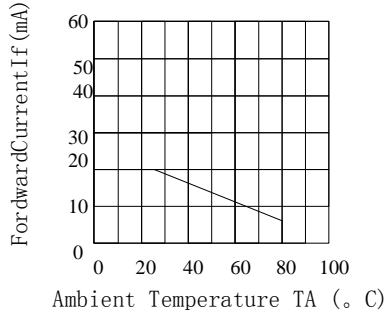


Fig.3 Forward Current Derating Curve

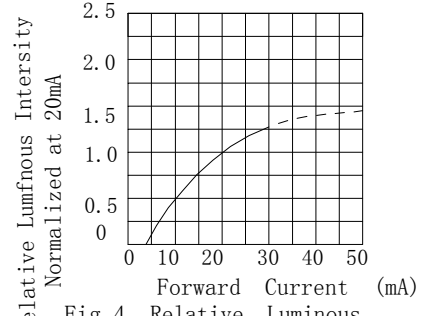


Fig.4 Relative Luminous Intensity VS. Forward Current

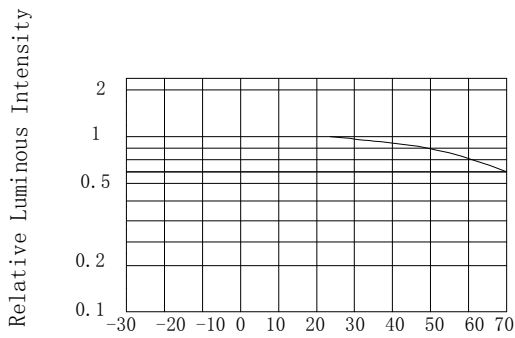


Fig.5 Luminous Intensity vs. Ambient Temperature TA

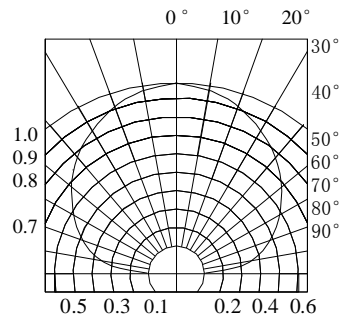
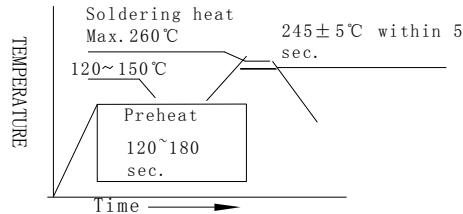


Fig.6 Spatial Distribution

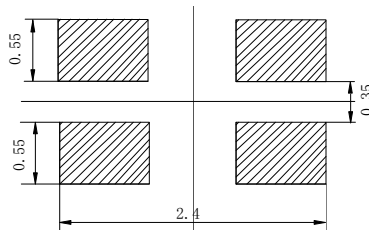
### SMT Reflow Soldering Instructions



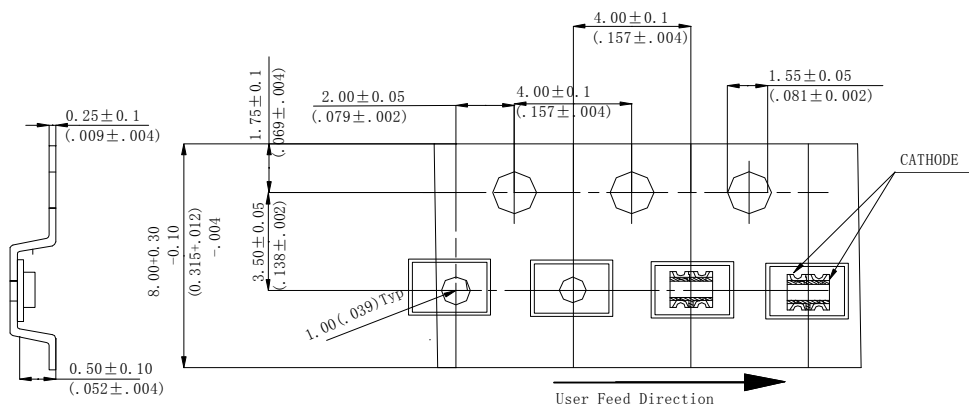
**Notes:**

1. Sells gives no other assurances regarding the ability of to withstand ESD. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.
2. Reflow soldering should not be done more than two times.
3. Do not stress LED when soldering, and do not warp the circuit board after soldering
4. While using Iron, Power dissipation of Iron should be smaller than 25W, and temperature should be controllable. The work should be finished within 2 sec under 320°C for once only.

### Recommended Soldering Pad Dimensions



### Package Specifications (Units: mm (inches))



**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 $I_F=20mA$<br>$T_a$ =Under room temperature  | 1000Hrs    | 0/20   |
|                    | High Temperature<br>High Humidity | $T_a=+65^{\circ}C \pm 5^{\circ}C$<br>RH=90%-95%   | 240Hrs     | 0/20   |
|                    | High Temperature<br>Storage       | High $T_a=+85^{\circ}C \pm 5^{\circ}C$  | 1000Hrs    | 0/20   |
|                    | Low Temperature<br>Storage        | Low $T_a=-35^{\circ}C \pm 5^{\circ}C$<br>Test time=1000hrs  | 1000Hrs    | 0/20   |
| Environmental Test | Temperature<br>Cycling            | $-45^{\circ}C \sim +105^{\circ}C$<br>15min 5min 15min   | 300 Cycles | 0/20   |
|                    | Thermal Shock                     | $-35^{\circ}C \sim \pm 5^{\circ}C \sim +85^{\circ}C \sim \pm 5^{\circ}C$<br>5min 10sec 5min   | 300 Cycles | 0/20   |
|                    | Solder<br>Resistance              | Preheating:<br>$120^{\circ}C-150^{\circ}C$ , within 2 minutes.<br>Operation heating :<br>$260^{\circ}C$ (Max.), within 5 seconds (Max.) | 5Cycles    | 0/20   |

**Judgment criteria of failure for the reliability**

| Measuring items    | Symbol       | Measuring conditions | Judement criteria for failure |
|--------------------|--------------|----------------------|-------------------------------|
| Forward voltage    | $V_F(V)$     | $I_F=20mA$           | Over $U \times 1.2$           |
| Reverse current    | $I_R(\mu A)$ | $V_R=5V$             | Over $U \times 2$             |
| Luminous intensity | $I_v(mcd)$   | $I_F=20mA$           | Below $S \times 0.5$          |

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 returned to normal ambient conditions after completion of each test.