

# L450-\_\_ \_\_

## Blue LED Lamp

This series of L450-\_\_ \_\_ is an InGaN LED mounted on a lead frame with a clear epoxy lens. On forward bias, it emits a band of visible light peaks 450nm.

### Specifications

- |                    |                   |
|--------------------|-------------------|
| 1. Chip material   | InGaN             |
| 2. Peak wavelength | 450nm typ.        |
| 3. Resin Material  | Clear epoxy Resin |
| 4. Solder          | Lead free         |



### Absolute Maximum Ratings

| Item                  | Symbol    | Maximum Rated Value | Unit               | Ambient Temperature      |
|-----------------------|-----------|---------------------|--------------------|--------------------------|
| Power Dissipation     | $P_D$     | 200                 | mW                 | $T_a=25^{\circ}\text{C}$ |
| Forward Current       | $I_F$     | 50                  | mA                 | $T_a=25^{\circ}\text{C}$ |
| Reverse Voltage       | $V_R$     | 5                   | V                  | $T_a=25^{\circ}\text{C}$ |
| Operating Temperature | $T_{OPR}$ | -30 ~ +85           | $^{\circ}\text{C}$ | $T_a=25^{\circ}\text{C}$ |
| Storage Temperature   | $T_{STG}$ | -40 ~ +100          | $^{\circ}\text{C}$ |                          |
| Soldering Temperature | $T_{SOL}$ | 265                 | $^{\circ}\text{C}$ |                          |

### Electro-Optical Characteristics ( $T_a=25^{\circ}\text{C}$ )

| Item            | Symbol          | Condition         | Minimum | Typical | Maximum | Unit          |
|-----------------|-----------------|-------------------|---------|---------|---------|---------------|
| Forward Voltage | $V_F$           | $I_F=20\text{mA}$ |         | 3.3     | 4.0     | V             |
| Reverse Current | $I_R$           | $V_R=5\text{V}$   |         |         | 10      | $\mu\text{A}$ |
| Radiated Power  | $P_O$           | $I_F=20\text{mA}$ |         | 20      |         | mW            |
| Peak Wavelength | $\lambda_P$     | $I_F=20\text{mA}$ | 440     | 450     | 460     | nm            |
| Half Width      | $\Delta\lambda$ | $I_F=20\text{mA}$ |         | 25      |         | nm            |

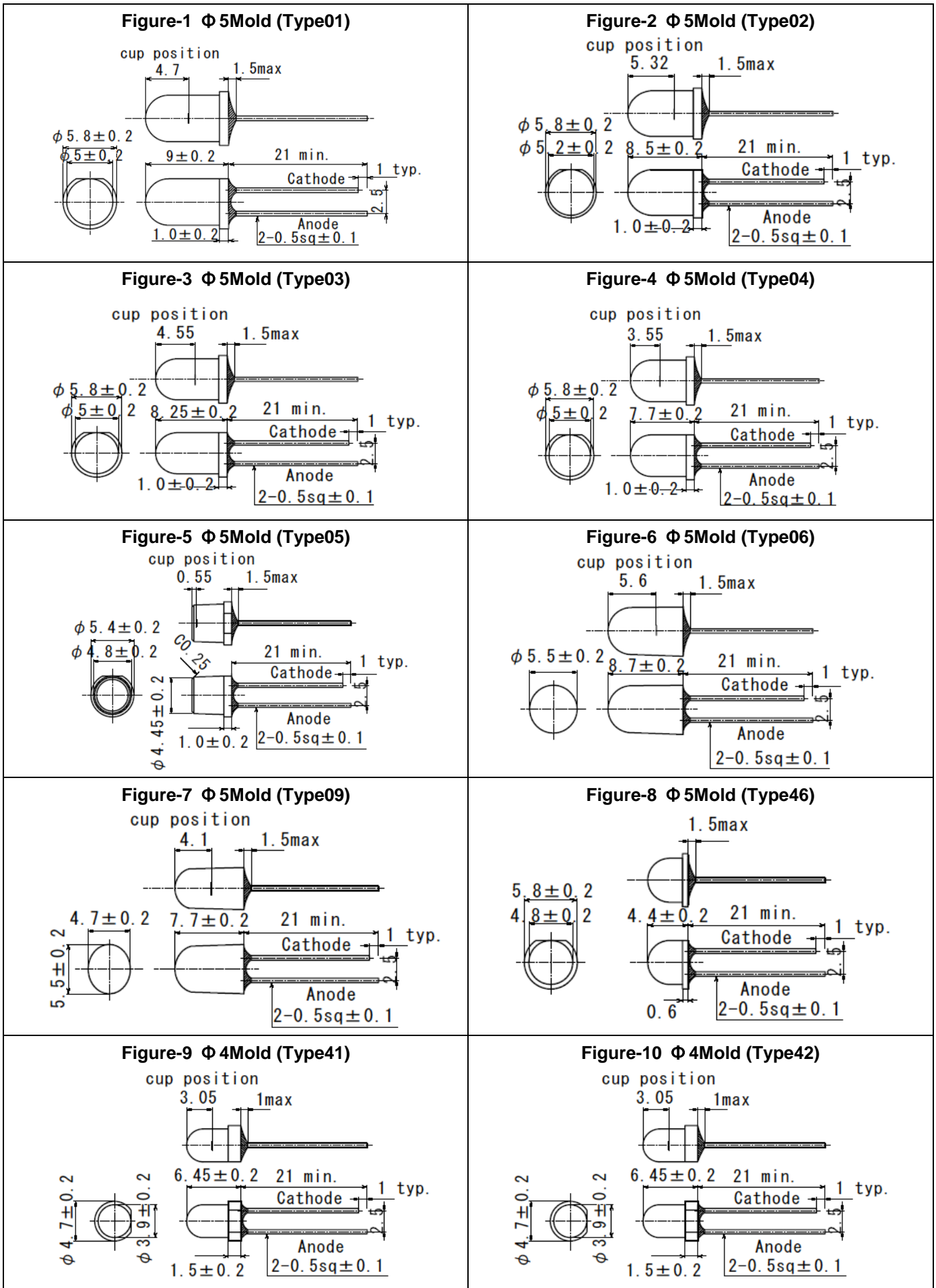
**Characteristics of Radiant Intensity (Ta=25°C)**

| Type    | Viewing<br>Half Angle     | Brightness I <sub>F</sub> =20mA<br>Unit : mcd |         |         | Outer<br>Dimension | Dimension<br>Figure |
|---------|---------------------------|---|---------|---------|--------------------|---------------------|
|         |                           | Minimum                                       | Typical | Maximum |                    |                     |
| L450-01 | ±8°                       |   | 2400    |         | Φ 5                | 1                   |
| L450-02 | ±5°                       |   | 2500    |         | Φ 5                | 2                   |
| L450-03 | ±10°                      |   | 2400    |         | Φ 5                | 3                   |
| L450-04 | ±20°                      |   | 1000    |         | Φ 5                | 4                   |
| L450-05 | ±50°                      |   | 150     |         | Φ 5                | 5                   |
| L450-06 | ±4°                       |   | 4500    |         | Φ 5                | 6                   |
| L450-09 | ±25°(Long)<br>±10°(Short) |   | 1300    |         | Φ 5<br>Oval        | 7                   |
| L450-46 |                           |   |         |         | Φ 5                | 8                   |
| L450-41 | ±14°                      |   |         |         | Φ 4                | 9                   |
| L450-42 | ±20°                      |   |         |         | Φ 4                | 10                  |
| L450-31 |                           |   |         |         | Φ 3                | 11                  |
| L450-33 | ±13°                      |   | 1200    |         | Φ 3                | 12                  |
| L450-34 |                           |   |         |         | Φ 3                | 13                  |
| L450-36 | ±25°                      |   | 500     |         | Φ 3                | 14                  |

Radiated Power is measured by S3584-08.

Brightness is measured by Tektronix J-16

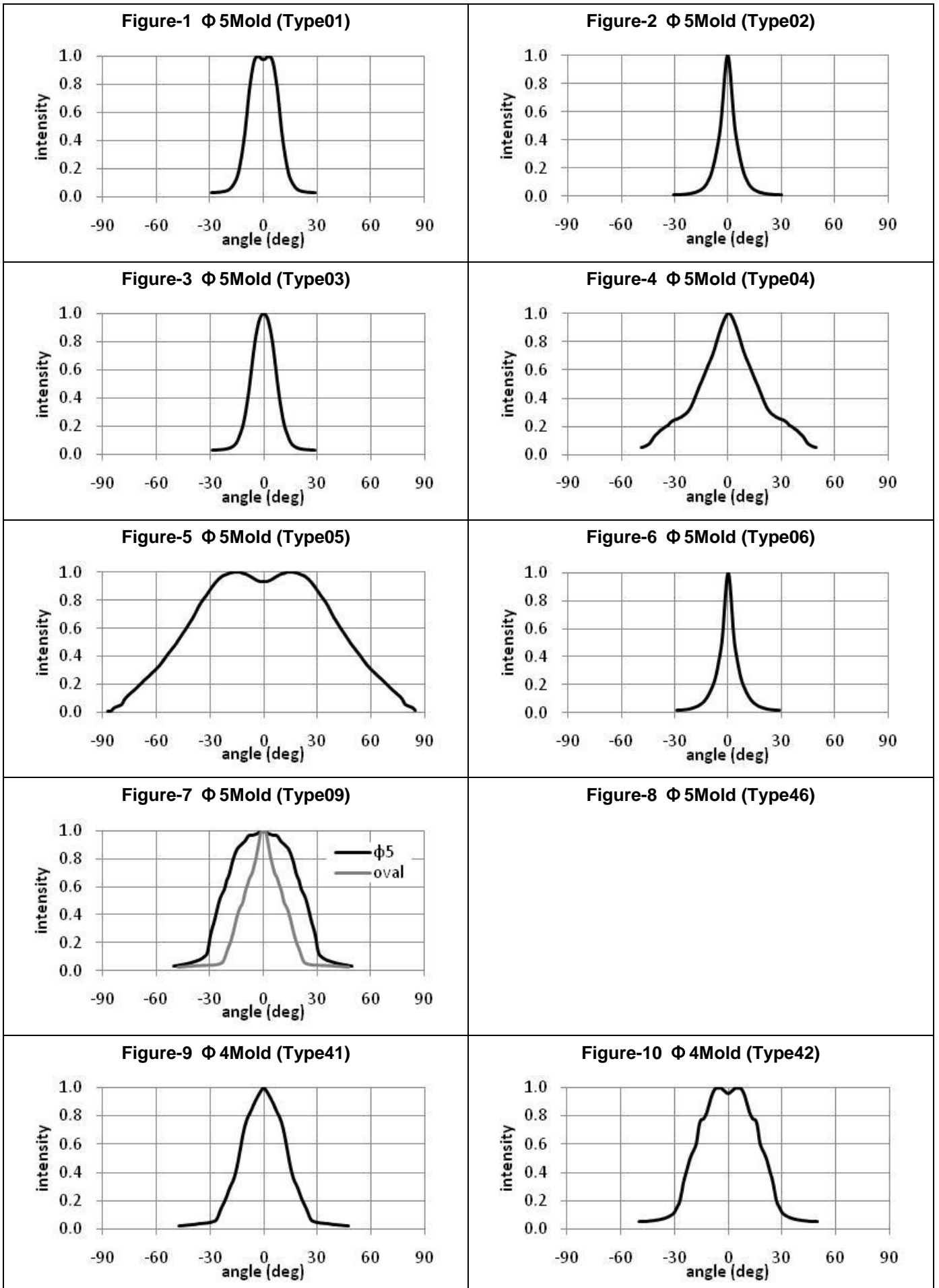
**Outer Dimension of LED Lamp**



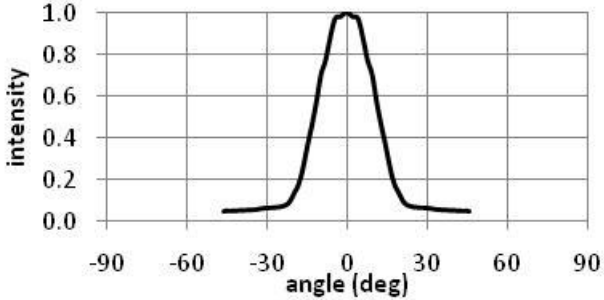
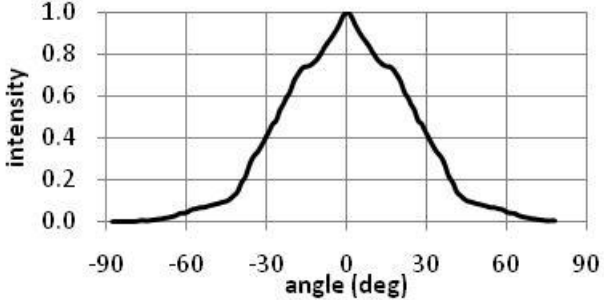
**Outer Dimension of LED Lamp**

|  |   |
|--|---|
| <p><b>Figure-11 <math>\Phi 3</math>Mold (Type31)</b><br/>cup position</p> <p>0.37 1max<br/><math>\phi 3.6 \pm 0.2</math><br/><math>\phi 3 \pm 0.2</math><br/>3.5 <math>\pm 0.2</math> 21 min.<br/>Cathode 1 typ.<br/>Anode 2-0.5sq <math>\pm 0.1</math><br/>1.5 typ.</p> | <p><b>Figure-12 <math>\Phi 3</math>Mold (Type33)</b><br/>cup position</p> <p>2.65 1max<br/><math>\phi 3.8 \pm 0.2</math><br/><math>\phi 3 \pm 0.2</math><br/>5.3 21 min.<br/>Cathode 1 typ.<br/>Anode 2-0.5sq <math>\pm 0.1</math><br/>0.8 typ.</p>                                 |
| <p><b>Figure-13 <math>\Phi 3</math>Mold (Type34)</b><br/>cup position</p> <p>3.25 1max<br/><math>\phi 3.8 \pm 0.2</math><br/><math>\phi 3 \pm 0.2</math><br/>5.3 <math>\pm 0.2</math> 21 min.<br/>Cathode 1 typ.<br/>Anode 2-0.5sq <math>\pm 0.1</math><br/>1.5 typ.</p> | <p><b>Figure-14 <math>\Phi 3</math>Mold (Type36)</b><br/>cup position</p> <p>2.1 1max<br/><math>\phi 4 \pm 0.2</math><br/><math>\phi 3 \pm 0.2</math><br/>5.3 <math>\pm 0.2</math> 21 min.<br/>Cathode 1 typ.<br/>Anode 2-0.5sq <math>\pm 0.1</math><br/>2 <math>\pm 0.4</math></p> |
| <p><b>Figure-15</b></p>  | <p><b>Figure-16</b></p>   |
| <p><b>Figure-17</b></p>  | <p><b>Figure-18</b></p>   |
| <p><b>Figure-19</b></p>  | <p><b>Figure-20</b></p>   |

The Viewing half angle

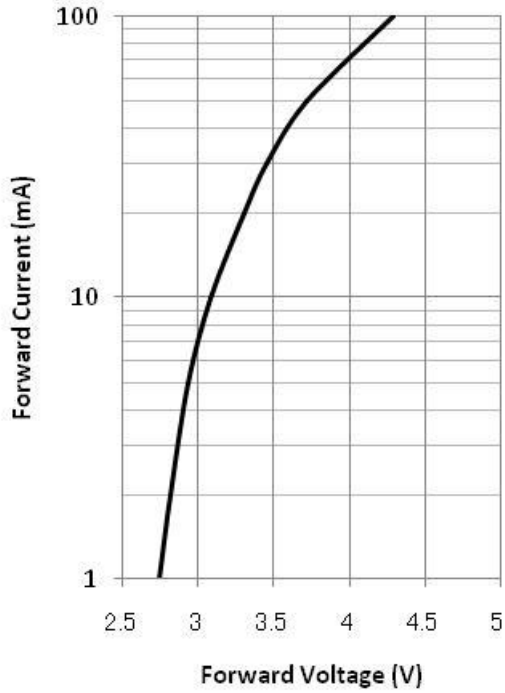


The Viewing half angle

|   |  |
|---|--|
| <p>Figure-11 <math>\Phi</math> 3Mold (Type31)</p> | <p>Figure-12 <math>\Phi</math> 3Mold (Type33)</p>  |
| <p>Figure-13 <math>\Phi</math> 3Mold (Type34)</p> | <p>Figure-14 <math>\Phi</math> 3Mold (Type36)</p>  |
| <p>Figure-15</p>                                  | <p>Figure-16</p>   |
| <p>Figure-17</p>                                  | <p>Figure-18</p>   |
| <p>Figure-19</p>                                  | <p>Figure-20</p>   |

**Forward current-Forward Voltage**

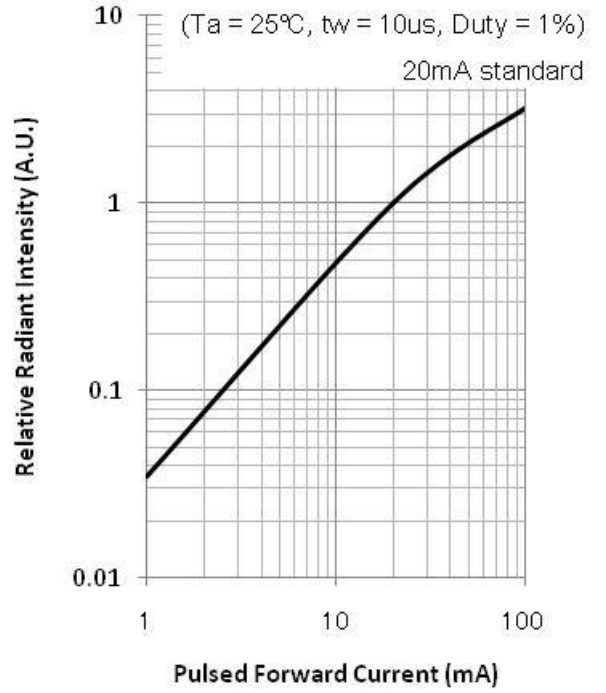
$T_a = 25^\circ\text{C}$ ,  $t_w = 10\mu\text{s}$ , Duty = 1%



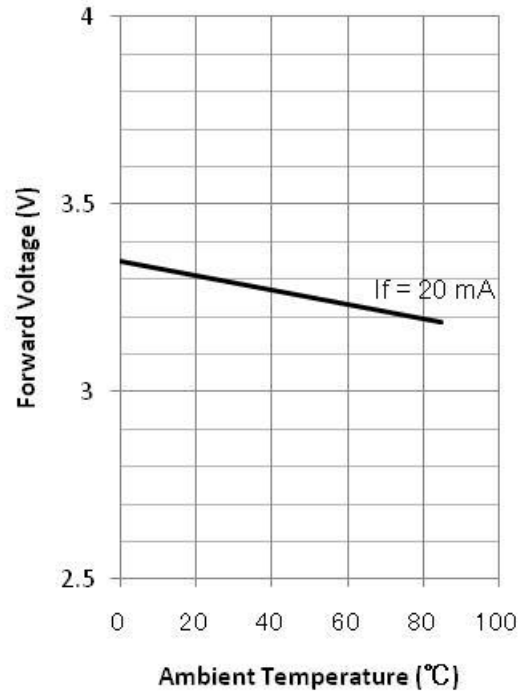
**Relative Radiant Intensity - Pulsed Forward Current**

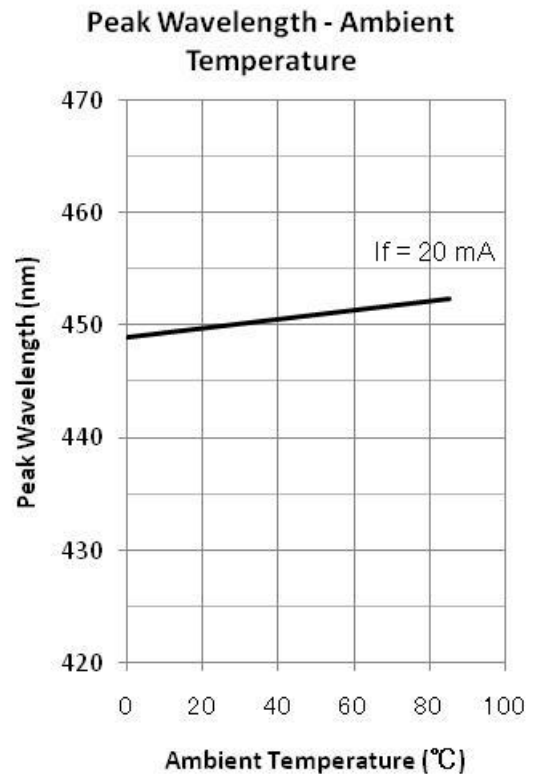
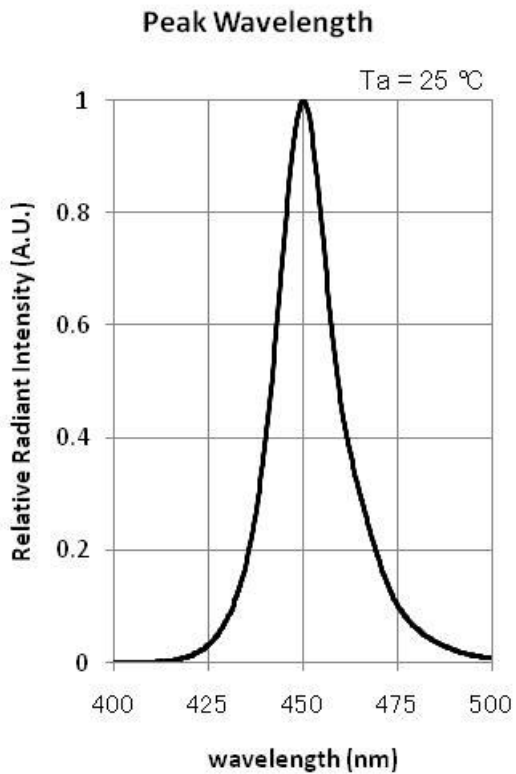
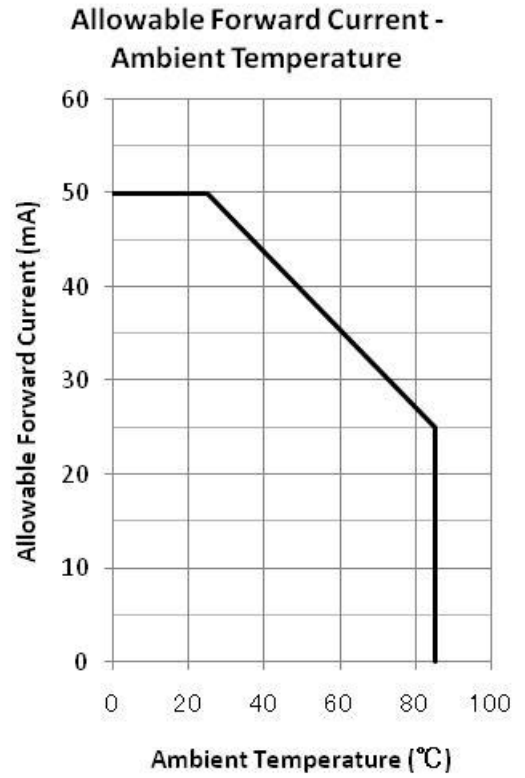
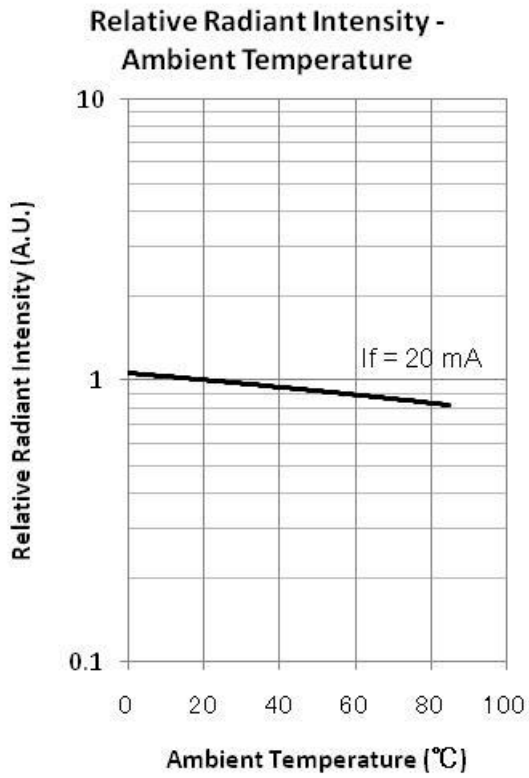
$(T_a = 25^\circ\text{C}, t_w = 10\mu\text{s}, \text{Duty} = 1\%)$

20mA standard

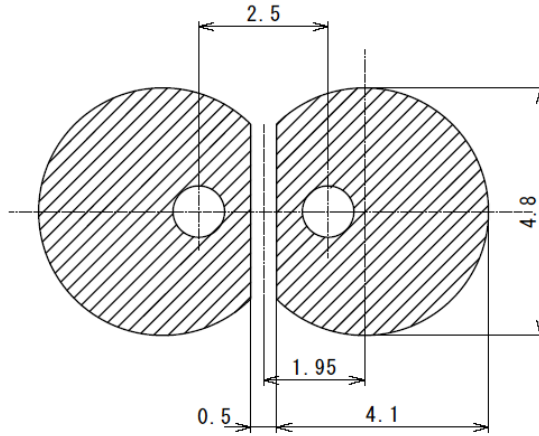


**Forward Voltage - Ambient Temperature**

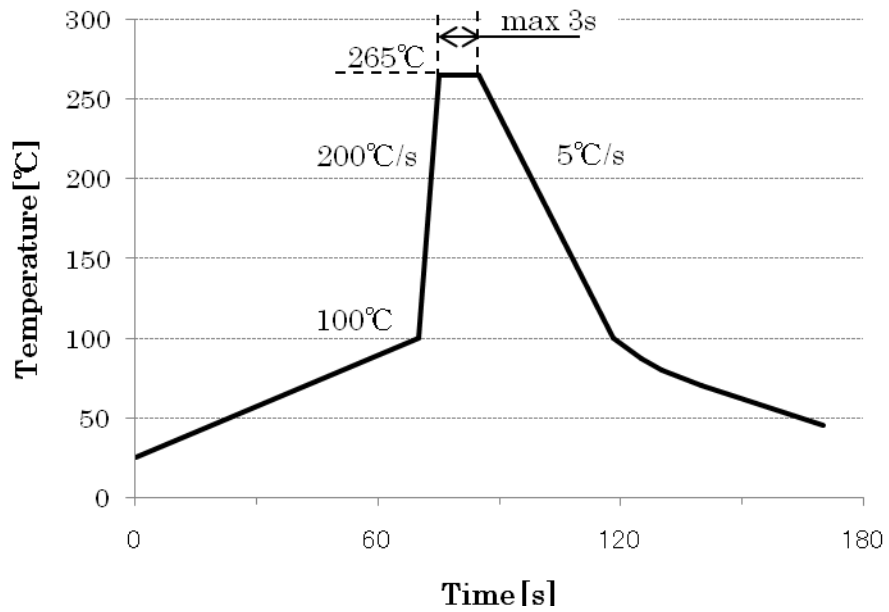




**Recommended Land Layout (unit: mm)**



**Soldering Conditions**



**Marubeni America Corporation**

3945 Freedom Circle, Suite 1000, Santa Clara, CA 95054 408-330-0650 (Ext. 330), 408-330-0655 (Fax), [sales@tech-led.com](mailto:sales@tech-led.com)