

### LED Surface Mount Device

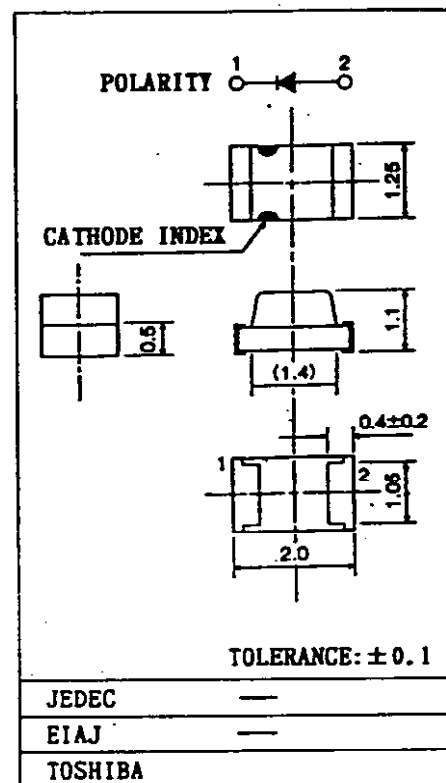
Unit in mm

#### Features

- 2.0(L) x 1.25(W) x 1.1(H) mm Size
  - Small Package - High Density Mounting is Available
- Available for Automounting Machine Use
- Reflow Soldering is Applicable
- Low Drive Current, High Intensity Light Emission
  - Recommended Forward Current:  $I_F = 10 \text{ mA (DC)}$
- Fast Response Time
  - Capable of Pulse Operation
- High Power Luminous Intensity
- Applications:
  - Telephone Cordless/Cellular
  - Portable Instrument
  - Backlight, etc.

#### Line-Up

| Product Name | Color      | Material |
|--------------|------------|----------|
| TLPG1002     | Pure Green | GaP      |
| TLG1002      | Green      | GaP      |
| TLGD1002     | Green      | GaP      |
| TLYE1002     | Yellow     | InGaAlP  |
| TLOE1002     | Orange     | InGaAlP  |
| TLS1002      | Red        | GaAsP    |
| TLRA1002     | Red        | GaAlAs   |



Weight : 2mg

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**TLG1002, TLGD1002, TLPG1002,  
TLOE1002, TLYE1002, TLS1002, TLRA1002**

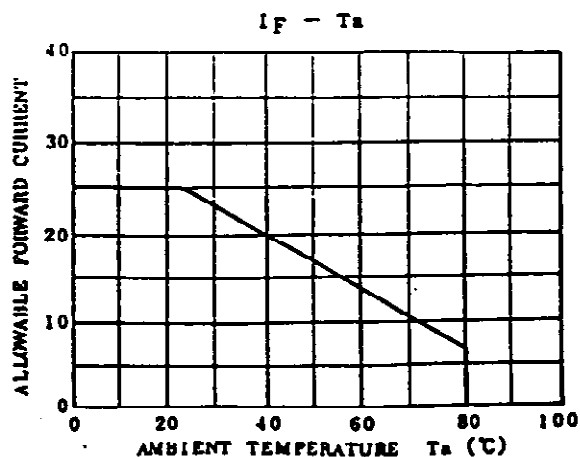
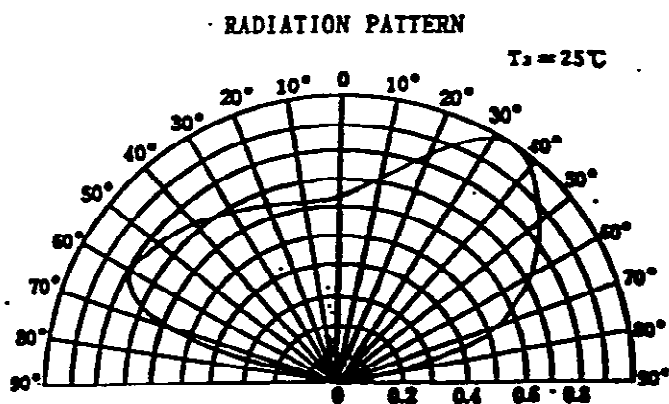
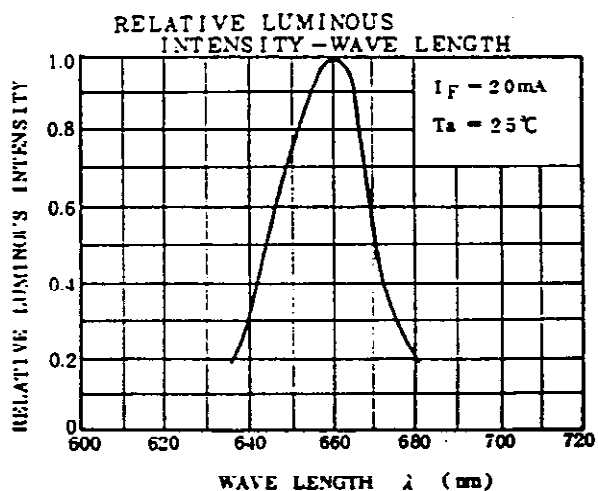
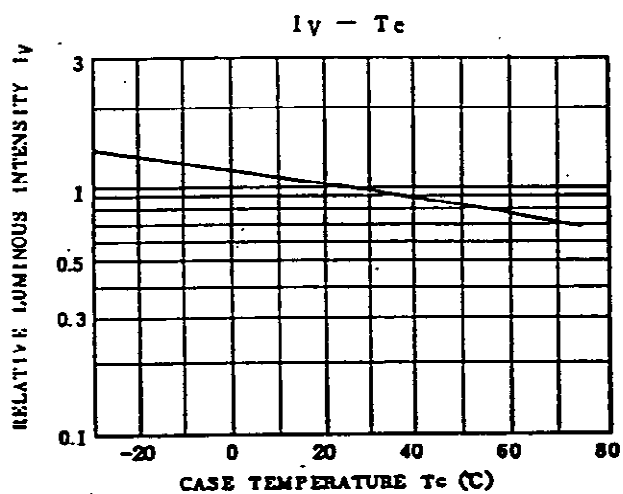
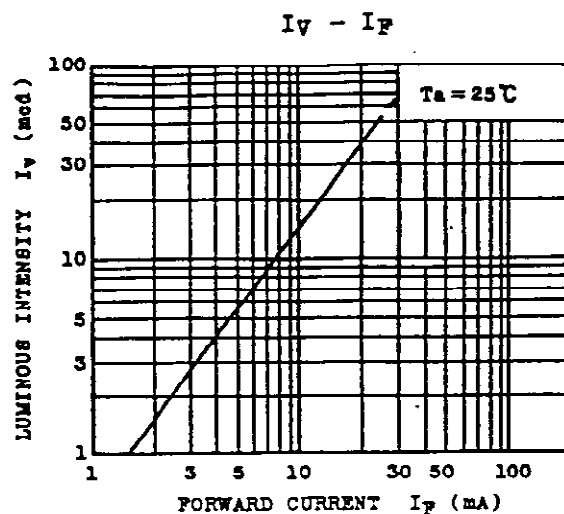
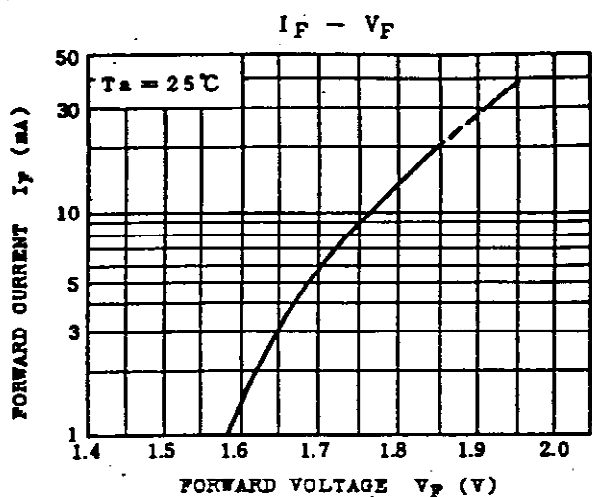
**Maximum Ratings (T<sub>a</sub> = 25°C)**

| Product Name | Forward Current (DC) I <sub>F</sub> (mA) | Reverse Voltage V <sub>R</sub> (V) | Power Dissipation P <sub>D</sub> (mW) | Operating Temperature T <sub>opr</sub> (°C) | Storage Temperature T <sub>stg</sub> (°C) |
|--------------|------------------------------------------|------------------------------------|---------------------------------------|---------------------------------------------|-------------------------------------------|
| TLPG1002     | 25                                       | 4                                  | 65.0                                  | -25 ~ 80                                    | -30 ~ 85                                  |
| TLG1002      | 25                                       | 4                                  | 62.5                                  |                                             |                                           |
| TLGD1002     | 25                                       | 4                                  | 62.5                                  |                                             |                                           |
| TLYE1002     | 25                                       | 4                                  | 62.5                                  |                                             |                                           |
| TLOE1002     | 25                                       | 4                                  | 60.0                                  |                                             |                                           |
| TLS1002      | 25                                       | 4                                  | 65.0                                  |                                             |                                           |
| TLRA1002     | 25                                       | 4                                  | 60.0                                  |                                             |                                           |

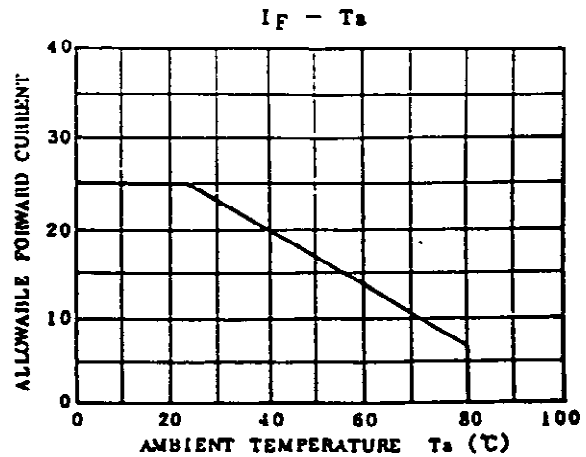
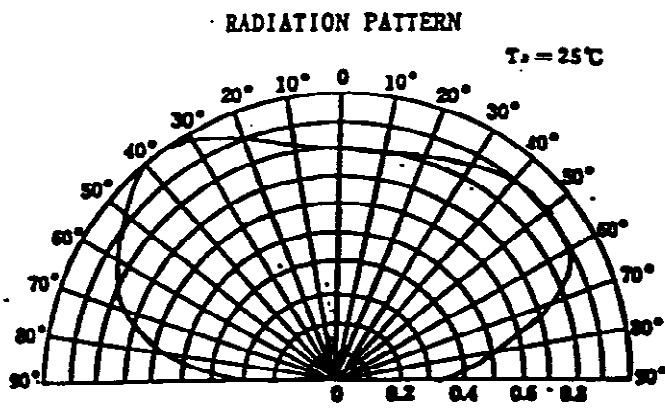
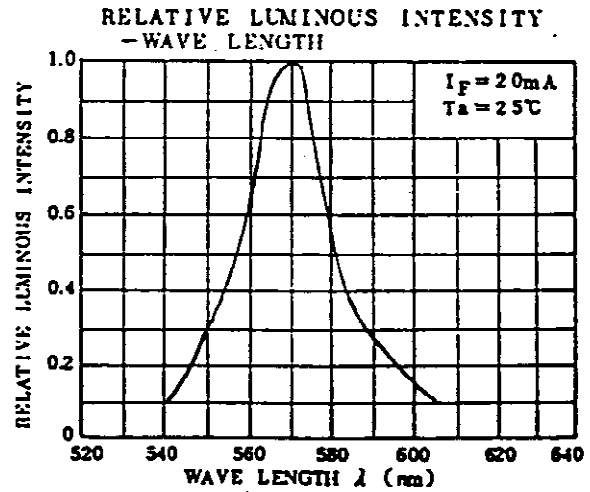
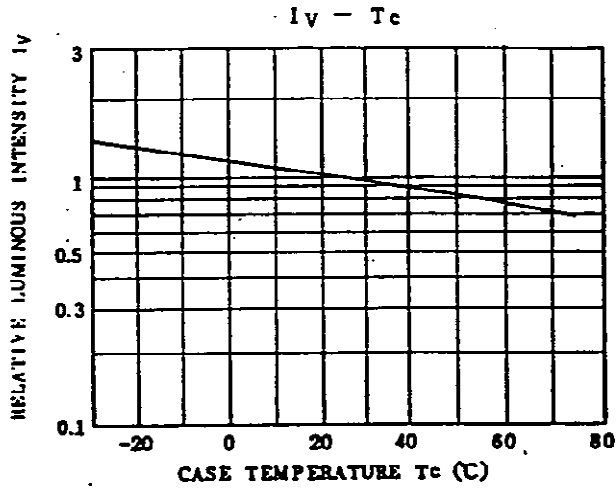
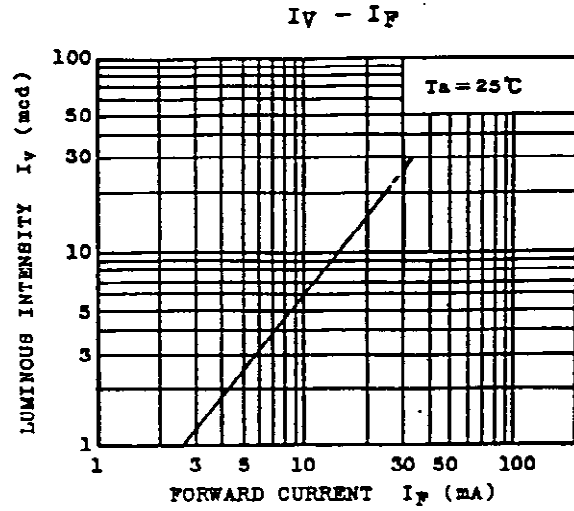
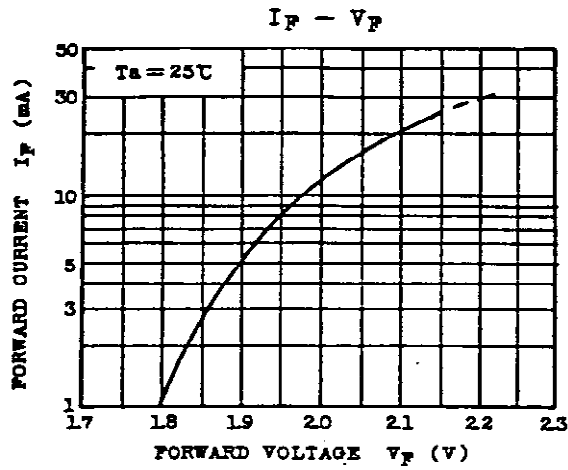
**Electro-Optical Characteristics (T<sub>a</sub> = 25°C)**

| Product Name | Emission Spectrum |      |                | Luminous Intensity |      |                | Forward Voltage |      |                | Reverse Current |                |
|--------------|-------------------|------|----------------|--------------------|------|----------------|-----------------|------|----------------|-----------------|----------------|
|              | λ <sub>p</sub>    | Δλ   |                | I <sub>v</sub>     |      |                | V <sub>F</sub>  |      |                | I <sub>R</sub>  |                |
|              | Typ.              | Typ. | I <sub>F</sub> | Min.               | Typ. | I <sub>F</sub> | Typ.            | Max. | I <sub>F</sub> | Max.            | V <sub>R</sub> |
| TLPG1002     | 555               | 20   | 20             | 0.85               | 2.0  | 20             | 2.15            | 2.6  | 20             | 5               | 4              |
| TLG1002      | 567               | 25   | 20             | 2.72               | 9.0  | 20             | 2.15            | 2.5  | 20             | 5               | 4              |
| TLGD1002     | 570               | 25   | 20             | 4.76               | 15.0 | 20             | 2.1             | 2.5  | 20             | 5               | 4              |
| TLYE1002     | 590               | 13   | 20             | 27.2               | 60.0 | 20             | 2.1             | 2.5  | 20             | 50              | 4              |
| TLOE1002     | 612               | 15   | 20             | 27.2               | 60.0 | 20             | 2.0             | 2.4  | 20             | 50              | 4              |
| TLS1002      | 635               | 40   | 20             | 1.53               | 5.0  | 20             | 2.05            | 2.6  | 20             | 50              | 4              |
| TLRA1002     | 660               | 25   | 20             | 15.3               | 40.0 | 20             | 1.85            | 2.4  | 20             | 50              | 4              |
| UNIT         | nm                |      | mA             | mcd                |      | mA             | V               |      | mA             | μA              | V              |

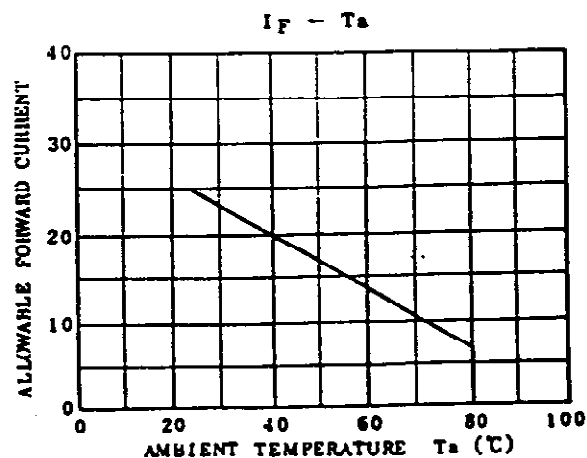
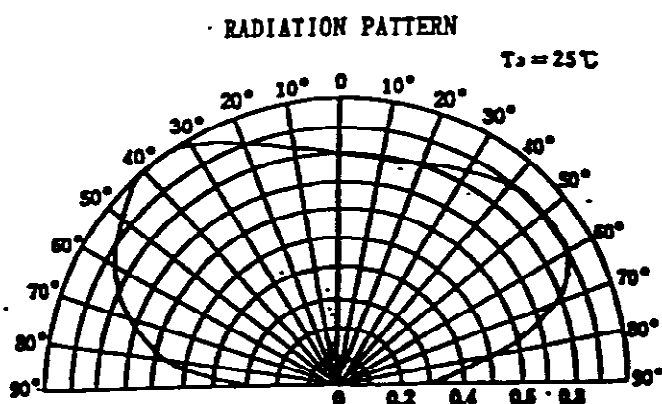
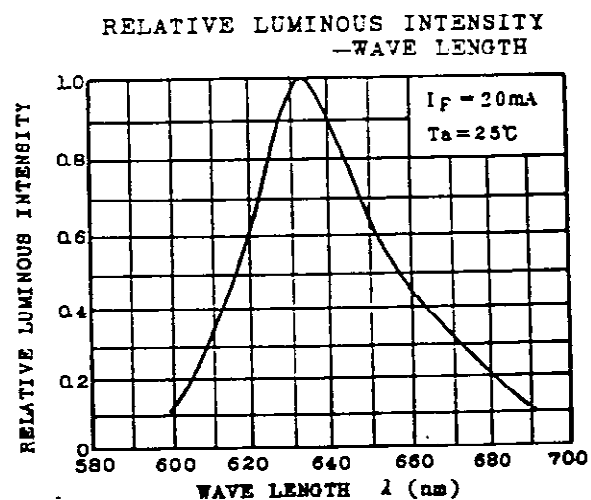
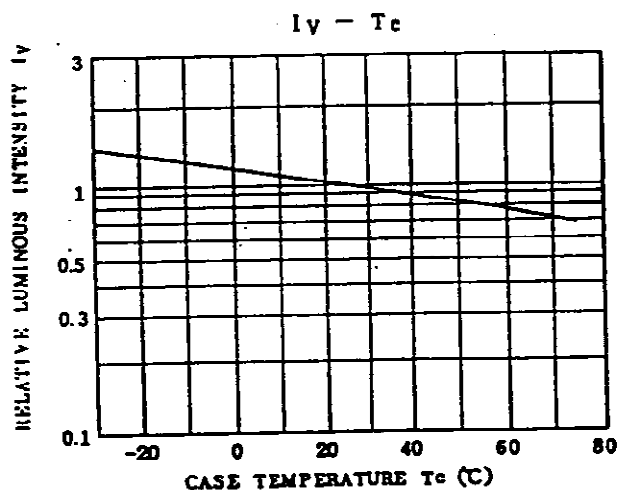
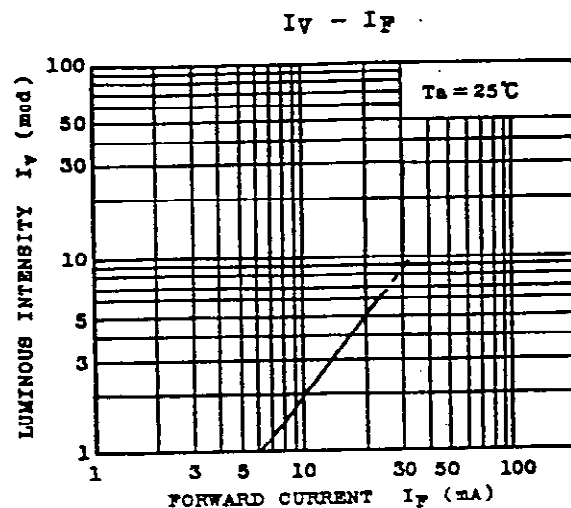
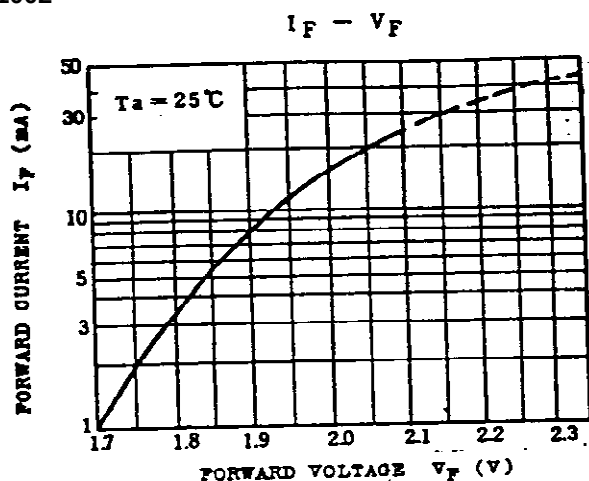
TLRA1002



TLGD1002

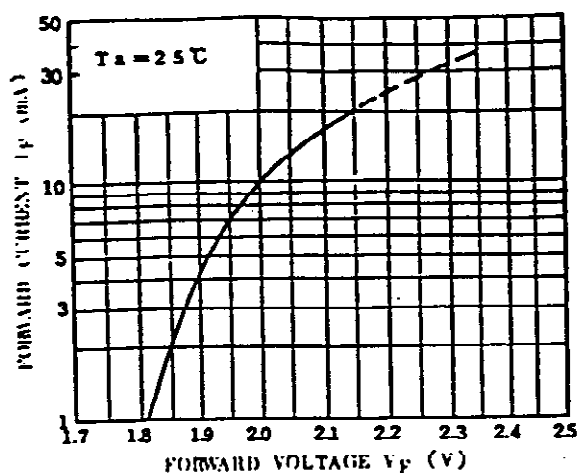


TLS1002

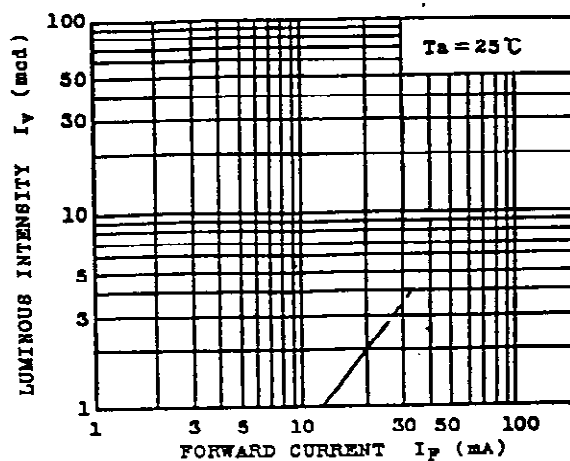


TLPG1002

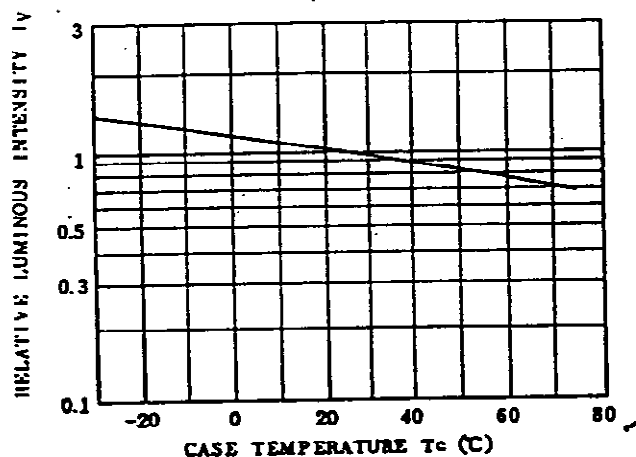
$I_F - V_F$



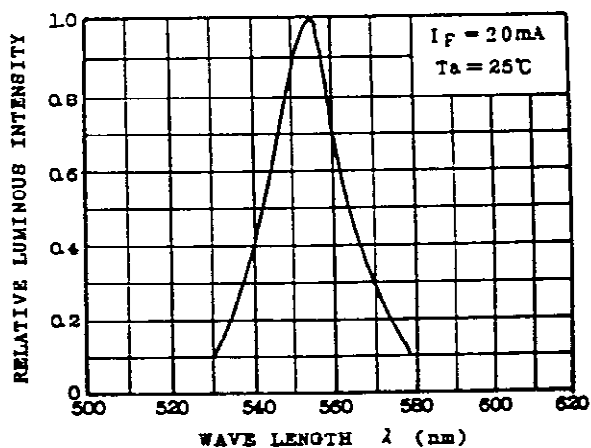
$I_V - I_F$



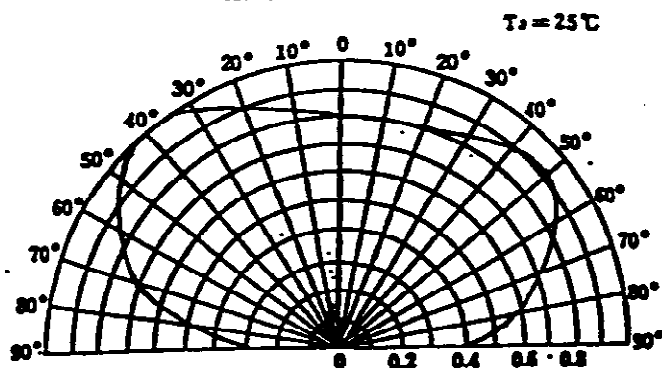
$I_V - T_c$



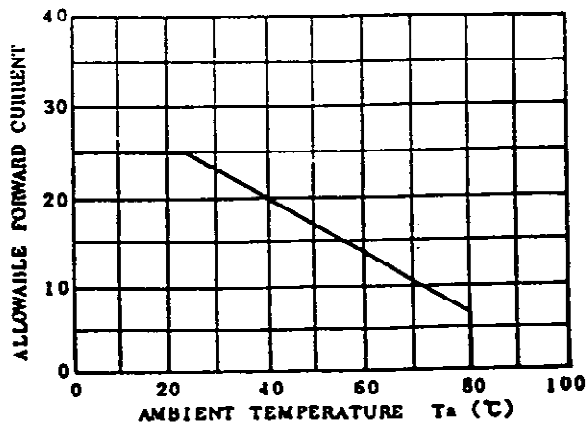
RELATIVE LUMINOUS INTENSITY  
- WAVE LENGTH



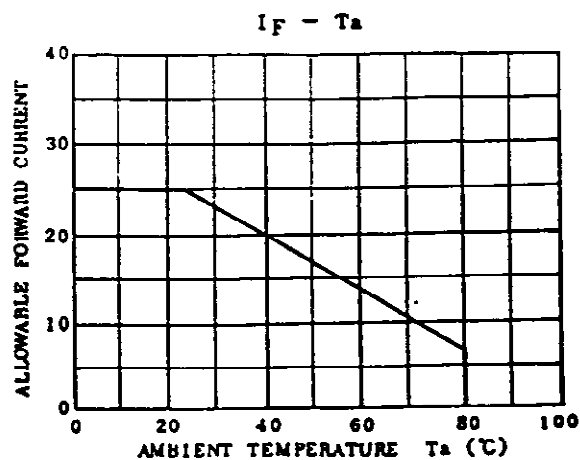
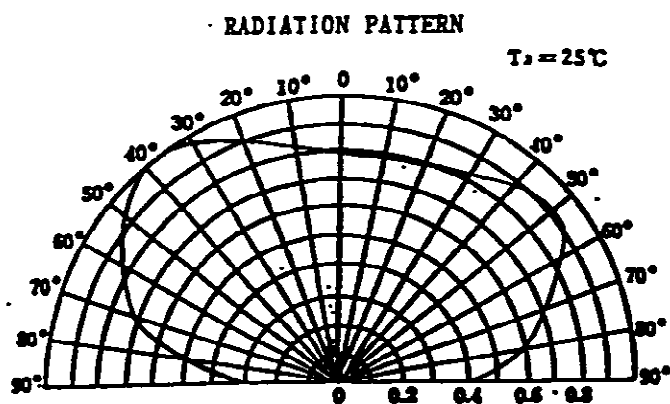
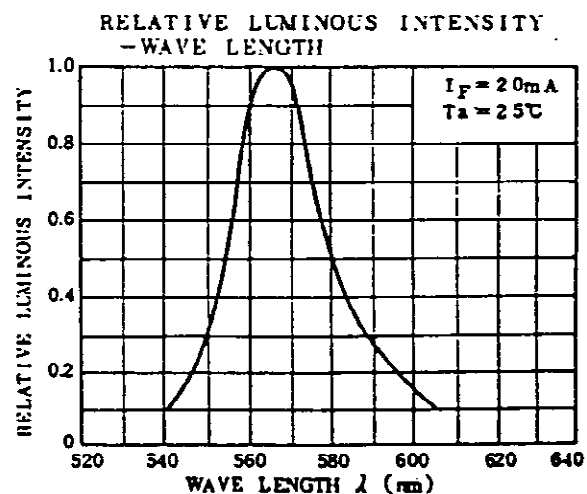
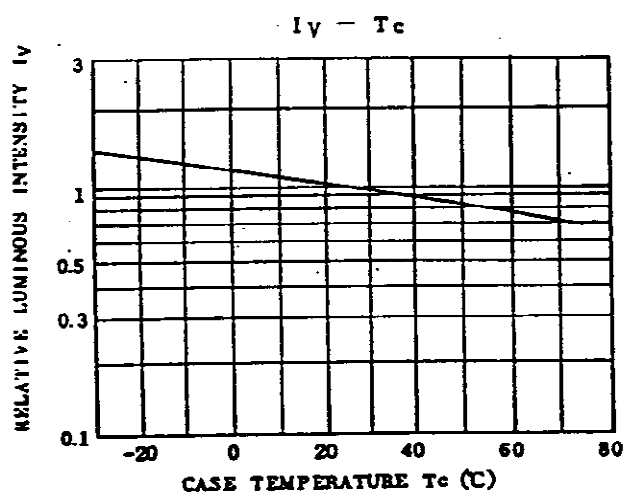
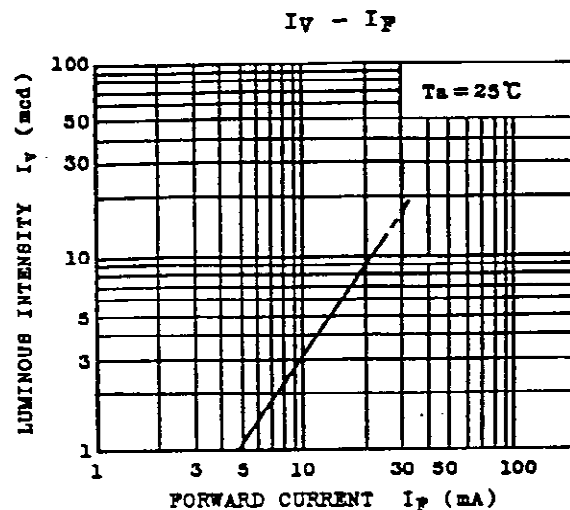
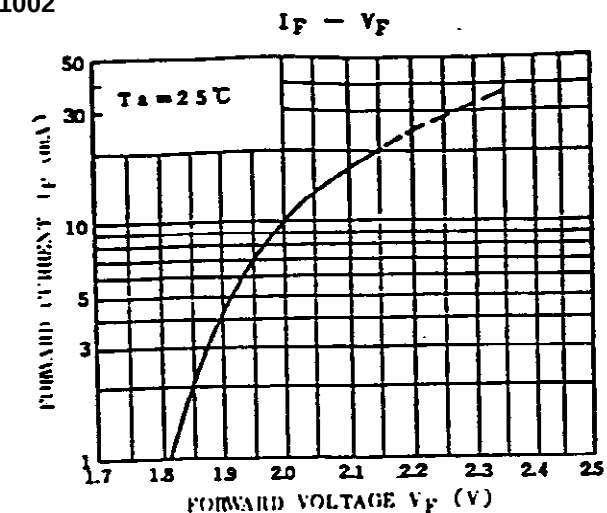
RADIATION PATTERN



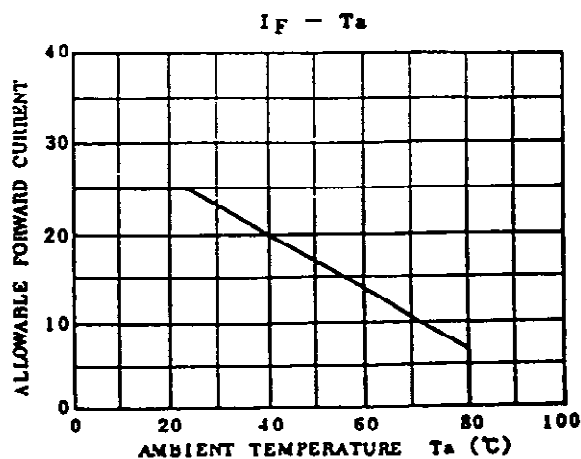
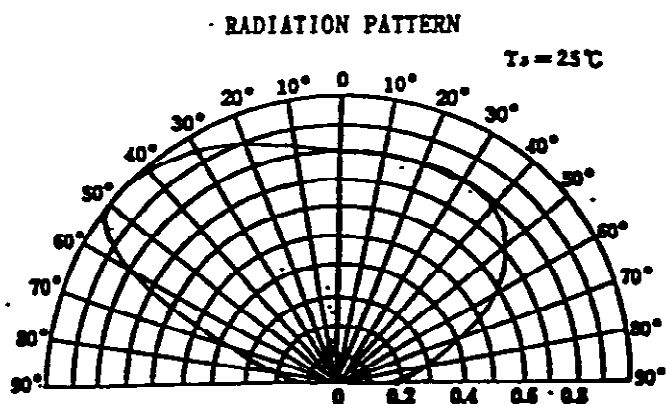
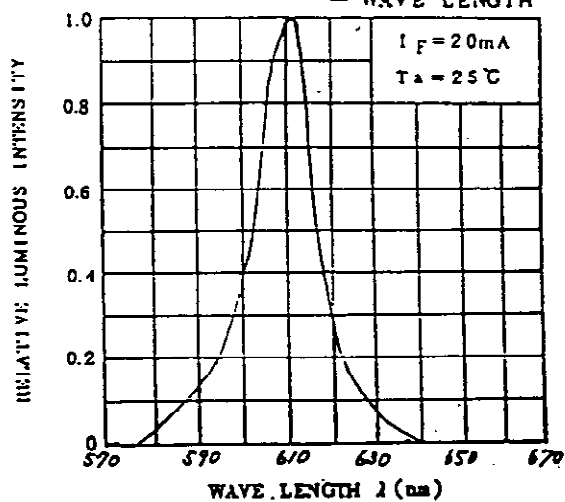
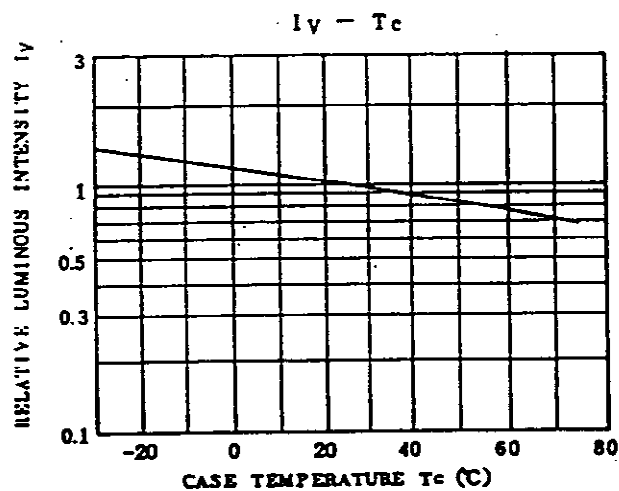
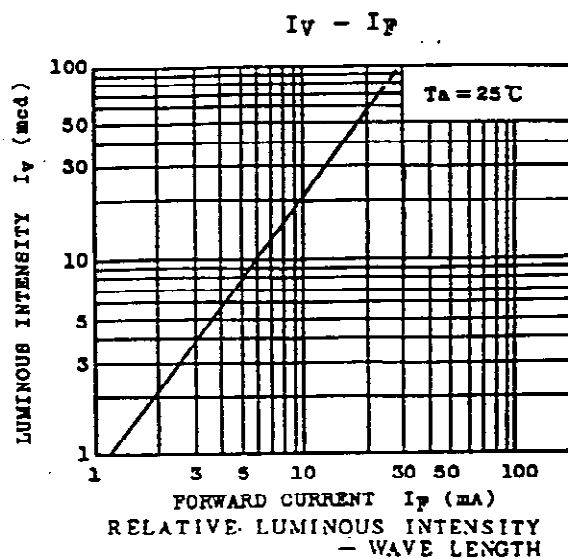
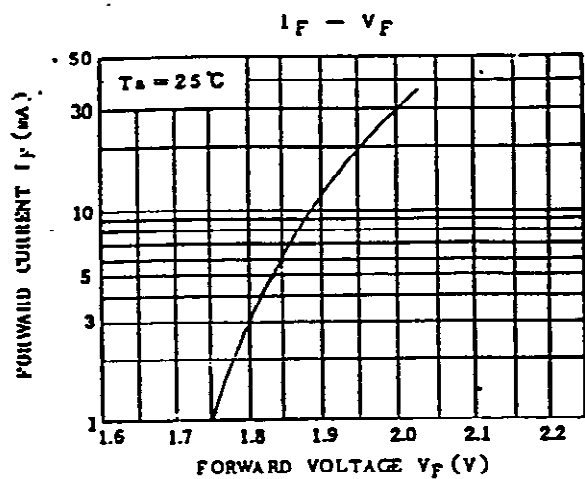
$I_F - T_a$



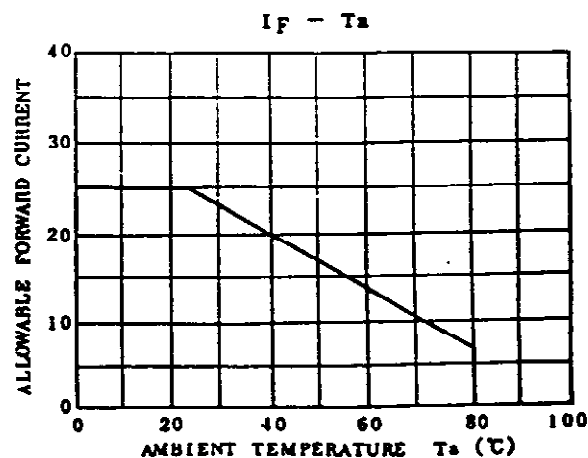
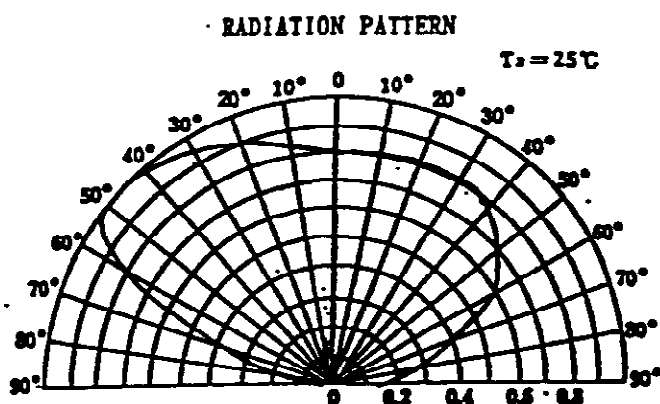
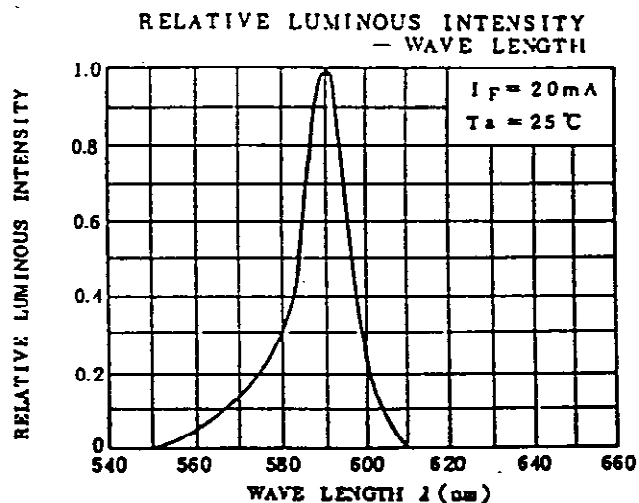
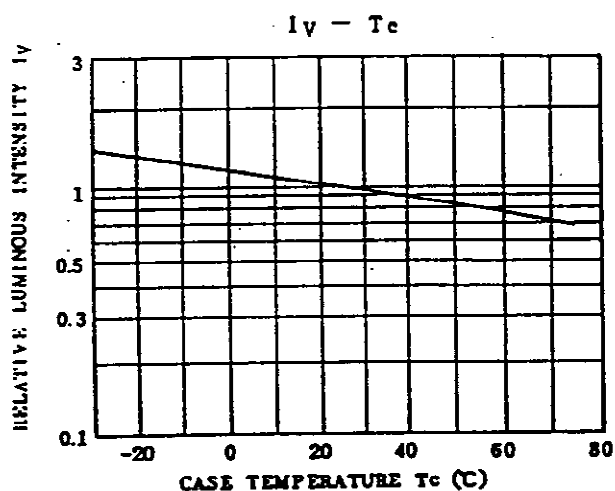
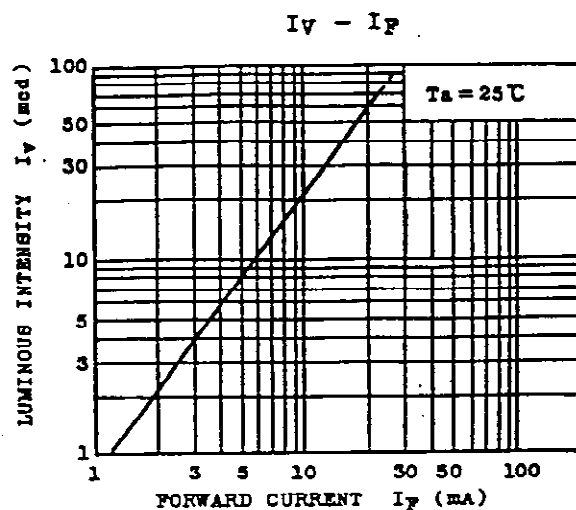
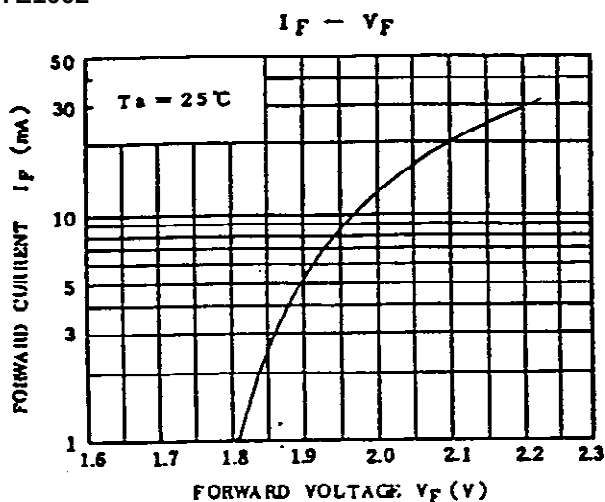
TLG1002



TLOE1002



TLYE1002

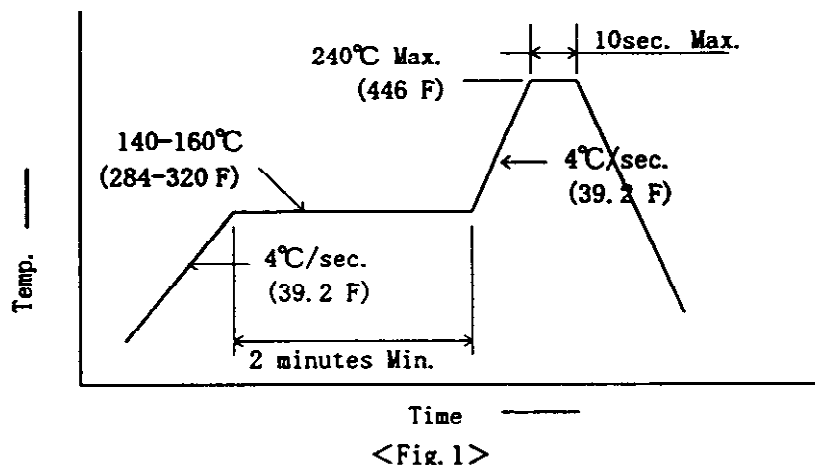




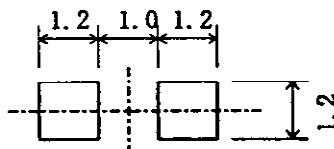
## Soldering

### 1. Reflow soldering:

\* It is recommended to use a reflow furnace of the upper and lower heater type.\* The temperature profile as shown in Fig. 1 is recommended for soldering LEDs by the reflow furnace.



### <Recommend soldering pattern>



|                              |                                         |                                                       |
|------------------------------|-----------------------------------------|-------------------------------------------------------|
| Revision by manual soldering | : Soldering iron<br>Temperature<br>Time | Less than 25W<br>Lower than 300°C<br>Within 3 seconds |
|------------------------------|-----------------------------------------|-------------------------------------------------------|

### 2. Post-solder cleaning:

When cleaning after soldering is needed, the following conditions must be adhered to.

- Cleaning solvents: AK225 or Alcohol
- Temperature: 50°C (122°F) MAX. for 30 seconds, or  
30°C (86°F) MAX. for 3 minutes MAX.
- Ultrasonic: 300W MAX.

## Precaution for Mounting

1. No force to plastic part of LED when LED is under high temperature.
2. No friction using a hard thing to avoid injuring plastic part of LED.
3. No contact between LED and the other parts, when installing an assembled board into the set.