

# GL537/GL538

## φ 5mm Resin Mold Type Infrared Emitting Diode

### ■ Features

1. High output power  
 $I_E$ : TYP. 30mW/sr at  $I_F = 50\text{mA}$  (**GL538**)
2. Beam angle  
**GL538**  $\Delta\theta$ : TYP.  $\pm 13^\circ$   
**GL537**  $\Delta\theta$ : TYP.  $\pm 25^\circ$
3. φ 5mm epoxy resin package

### ■ Applications

1. Infrared remote controllers for TVs, VCRs, audio equipment and air conditioners

### ■ Absolute Maximum Ratings (Ta = 25°C)

| Parameter                | Symbol    | Rating       | Unit |
|--------------------------|-----------|--------------|------|
| Power dissipation        | P         | 150          | mW   |
| Forward current          | $I_F$     | 100          | mA   |
| *1 Peak forward current  | $I_{FM}$  | 1            | A    |
| Reverse voltage          | $V_R$     | 6            | V    |
| Operating temperature    | $T_{opr}$ | - 25 to + 85 | °C   |
| Storage temperature      | $T_{stg}$ | - 40 to + 85 | °C   |
| *2 Soldering temperature | $T_{sol}$ | 260          | °C   |

\*1 Pulse width  $\leq 100\mu\text{s}$ , Duty ratio = 0.01

\*2 For 3 seconds at the position of 2.6mm from the bottom face of resin package.

### ■ Electro-optical Characteristics (Ta = 25°C)

| Parameter                 | Symbol          | Conditions                 | MIN. | TYP.     | MAX. | Unit          |
|---------------------------|-----------------|----------------------------|------|----------|------|---------------|
| Forward voltage           | $V_F$           | $I_F = 50\text{mA}$        | -    | 1.3      | 1.5  | V             |
| Peak forward voltage      | $V_{FM}$        | $I_{FM} = 0.5\text{A}$     | -    | 1.9      | 3.0  | V             |
| Reverse current           | $I_R$           | $V_R = 3\text{V}$          | -    | -        | 10   | $\mu\text{A}$ |
| Peak emission wavelength  | $\lambda_p$     | $I_F = 5\text{mA}$         | -    | 950      | -    | nm            |
| Half intensity wavelength | $\Delta\lambda$ | $I_F = 5\text{mA}$         | -    | 45       | -    | nm            |
| *3 Radiation intensity    | <b>GL537</b>    | $I_F = 50\text{mA}$        | 6    | 13       | -    | mW/sr         |
|                           | <b>GL538</b>    |                            | 15   | 30       | -    |               |
| Terminal capacitance      | $C_t$           | $V_R = 0, f = 1\text{kHz}$ | -    | 50       | -    | pF            |
| Response frequency        | $f_c$           | -                          | -    | 300      | -    | kHz           |
| Half intensity angle      | <b>GL537</b>    | $I_F = 20\text{mA}$        | -    | $\pm 25$ | -    | °             |
|                           | <b>GL538</b>    |                            | -    | $\pm 13$ | -    |               |

\*3  $I_E$ : Value obtained by converting the value in power of radiant fluxes emitted at the solid angle of 0.01 sr (steradian) in the direction of mechanical axis of the lens portion into 1 sr of all those emitted from the light emitting diode.

### ■ Outline Dimensions (Unit : mm)

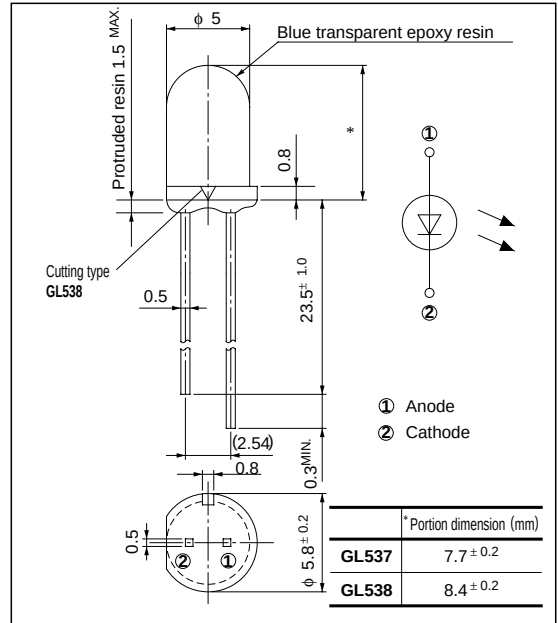


Fig. 1 Forward Current vs. Ambient Temperature

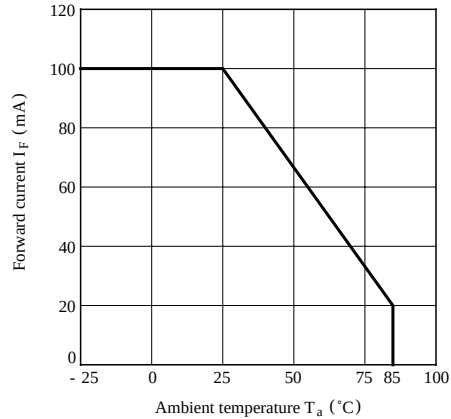


Fig. 2 Peak Forward Current vs. Duty Ratio

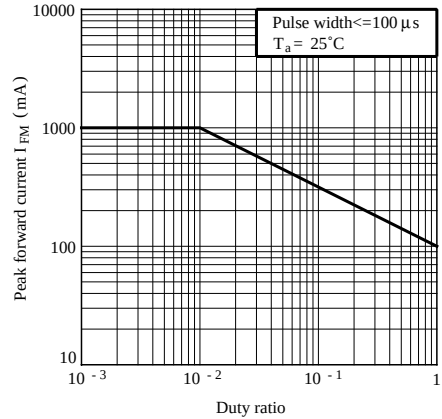


Fig. 3 Spectral Distribution

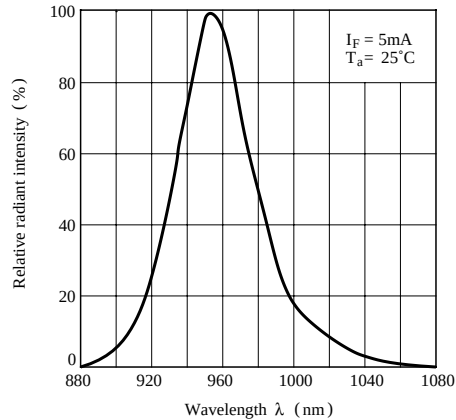


Fig. 4 Peak Emission Wave length vs. Ambient Temperature

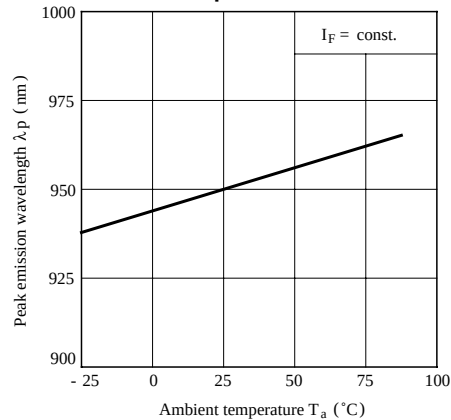


Fig. 5 Forward Current vs. Forward Voltage

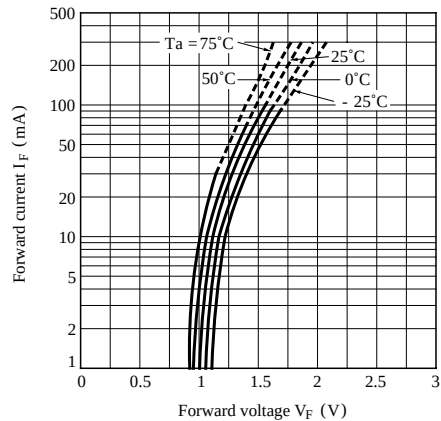


Fig. 6 Relative Forward Voltage vs. Ambient Temperature

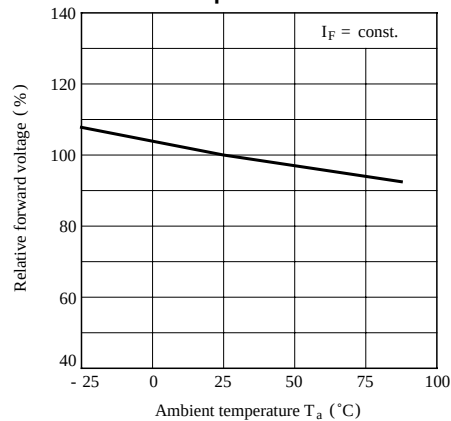


Fig. 7 Relative Output vs. Ambient Temperature  
(Detector : PD410PI)

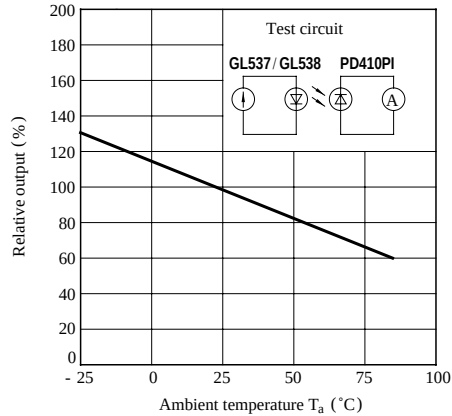


Fig. 8 Radiation Intensity vs. Peak Forward Current

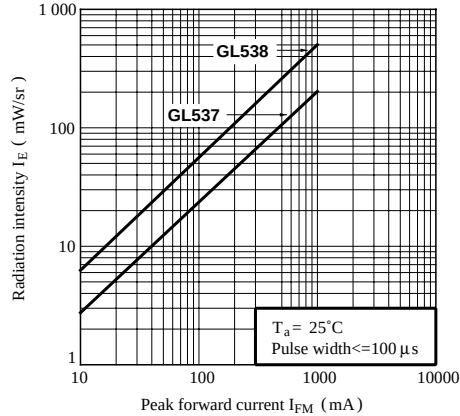


Fig. 9 Relative Collector Current vs. Distance  
(Detector : PD410PI)

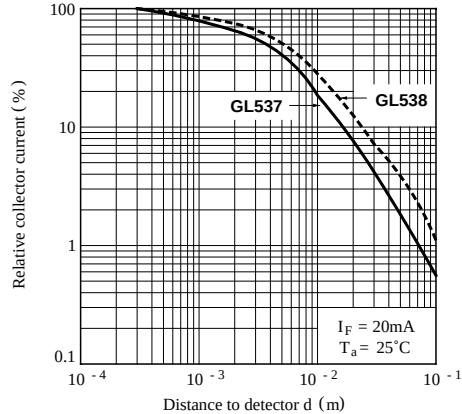


Fig.10 Relative Collector Current vs. Distance  
(Detector : PD49PI)

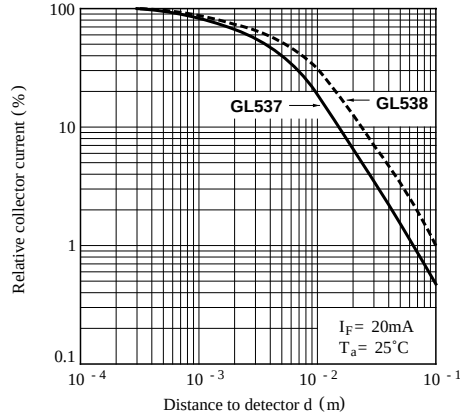


Fig.11-a Radiation Diagram (GL537)  
( $T_a = 25^\circ\text{C}$ )

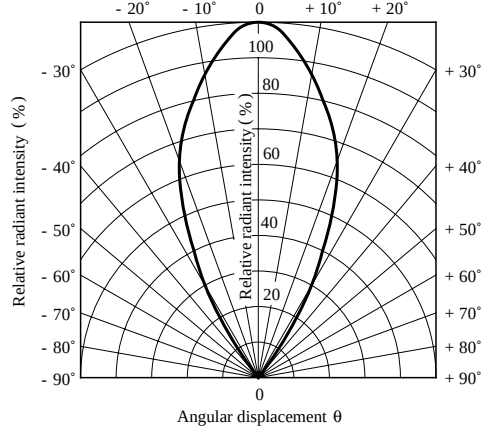


Fig.11-b Radiation Diagram (GL538)  
( $T_a = 25^\circ\text{C}$ )

