# GL496

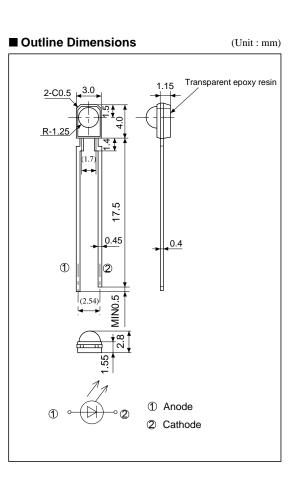
# High Speed Infrared Emitting Diode

### Features

- 1. High speed response (response frequency : 40MHz)
- 2. Peak emission wavelength  $\lambda p$  : TYP. 880 mm
- 3. Half intensity angle  $\Delta \theta : \pm 22^{\circ}$
- 4. Lead bending type may be used.

### Applications

- 1. AV equipment
- 2. Personal computers
- 3. Portable information terminal equipment



| ■ Absolute Maximum Ratings (Ta=25°C |                  |              |      |  |  |
|-------------------------------------|------------------|--------------|------|--|--|
| Parameter                           | Symbol           | Rating       | Unit |  |  |
| Forward current                     | IF               | 50           | mA   |  |  |
| *1Peak forward current              | IFM              | 0.5          | Α    |  |  |
| Reverse voltage                     | VR               | 4            | V    |  |  |
| Power dissipation                   | Р                | 87.5         | mW   |  |  |
| Operating temperature               | Topr             | - 25 to + 85 | °C   |  |  |
| Storage temperature                 | T <sub>stg</sub> | - 40 to + 90 | °C   |  |  |
| *2Soldering temperature             | T <sub>sol</sub> | 260          | °C   |  |  |

\*1 Pulse width 100 µ s, Duty ratio=0.01

\*2 For MAX. 5 seconds at the position of 1.4 mm from the resin edge

<sup>44</sup> In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device."

# Electro-optical Characteristics

| (Ta | =25 | °C) |
|-----|-----|-----|
|     |     |     |

| Parameter                 | Symbol          | Conditions             | MIN. | TYP. | MAX. | Unit  |
|---------------------------|-----------------|------------------------|------|------|------|-------|
| Forward voltage           | V <sub>F</sub>  | $I_F = 50 m A$         | -    | 1.55 | 1.75 | V     |
| Peak forward voltage      | V <sub>FM</sub> | $I_{FM} = 0.5A$        | -    | 2.6  | 3.6  | V     |
| Reverse current           | IR              | $V_R = 3V$             | -    | -    | 10   | μA    |
| *3 Radiant intensity      | IE              | $I_F = 50 m A$         | 3.0  | 10.0 | -    | mW/sr |
| Radiant flux              | $\Phi_{\rm E}$  | $I_F = 50 m A$         | -    | 12   | -    | mW    |
| Peak emission wavelength  | λp              | $I_F = 50 m A$         | 850  | 880  | 900  | nm    |
| Half intensity wavelength | Δλ              | $I_F = 50 m A$         | -    | 50   | -    | nm    |
| Terminal capacitance      | Ct              | $V_R = 0V, f = 1MHz$   | -    | 60   | -    | pF    |
| *4 Response frequency     | fc              | $I_F = 50mA + 10mAp-p$ | -    | 40   | -    | MHz   |
| Half intensity angle      | Δθ              | $I_F = 50 m A$         | -    | ± 22 | -    | •     |

\*3 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 or all those emitted from the light emitting diode.

\*4 Frequency to bring about -3dB reduction of modulated radiant intensity from 100kHz

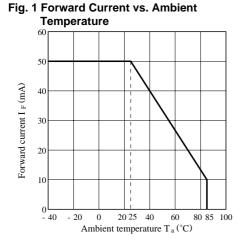
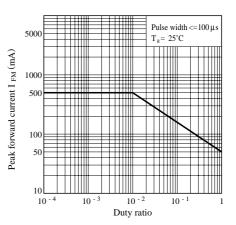


Fig. 2 Peak Forward Current vs. Duty Ratio



## Fig. 3 Spectral Distribution

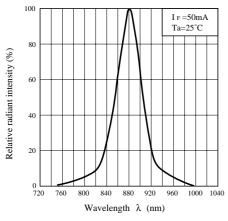


Fig. 5 Forward Current vs. Forward Voltage

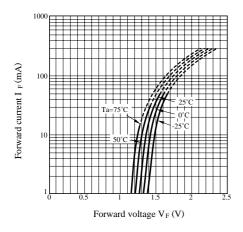


Fig. 7 Radiant Intensity vs. Forward Current

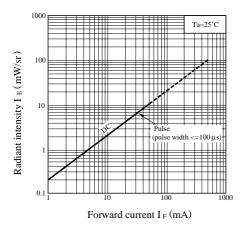


Fig. 4 Peak Emission Wavelength vs. Ambient Temperature

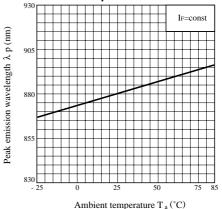


Fig. 6 Relative Radiant Flux vs. Ambient Temperature

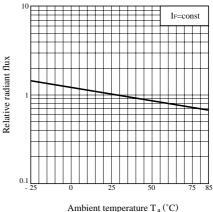
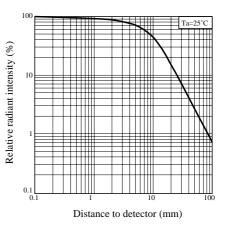


Fig. 8 Relative Radiant Intensity vs. Distance



#### Fig. 9 Relative Radiant Intensity vs. Frequency

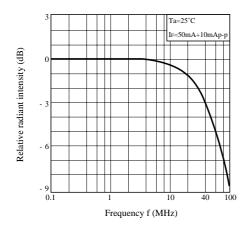
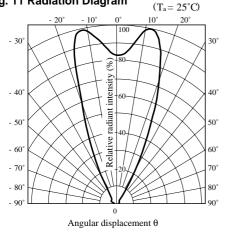
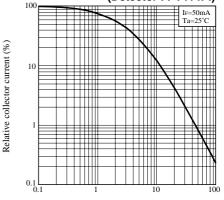


Fig. 11 Radiation Diagram



• Please refer to the chapter "Precautions for Use". (Page 78 to 93)

#### Fig. 10 Relative Collector Current vs. Distance (Detector : PT414PI)



Distance between emitter and detector d (mm)

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