

GP1L57

Wide Gap Type Photointerrupter

■ Features

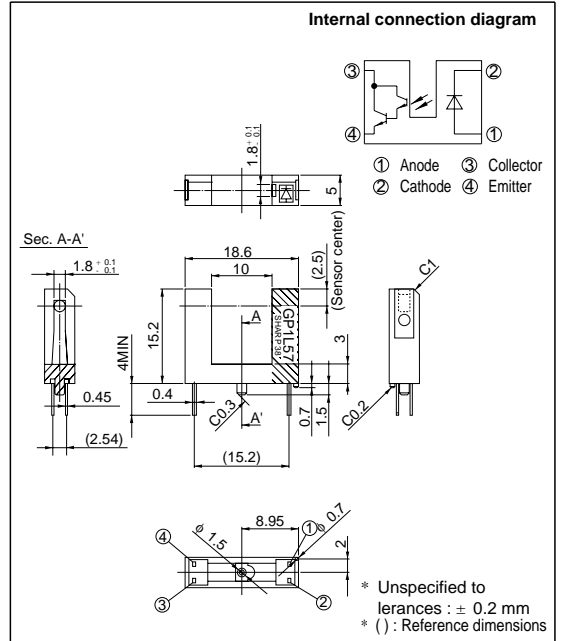
1. Wide gap between emitter and detector (Gap width : 10 mm)
2. Deep groove type (Depth : 12.2 mm)
3. With positioning pin
4. PWB direct mounting type package

■ Applications

1. Analytical equipment, measuring instruments
2. Amusement equipment
3. Optoelectronic switches, optoelectronic counters

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta=25°C)

| Parameter | | Symbol | Rating | Unit |
|--------------------------|-----------------------------|-----------|---------------|------|
| Input | Forward current | I_F | 50 | mA |
| | *1 Peak forward current | I_{FM} | 1 | A |
| | Reverse voltage | V_R | 6 | V |
| | Power dissipation | P | 75 | mW |
| Output | Collector-emitter voltage | V_{CEO} | 35 | V |
| | Emitter-collector voltage | V_{ECO} | 6 | V |
| | Collector current | I_C | 40 | mA |
| | Collector power dissipation | P_C | 75 | mW |
| Operating temperature | | T_{opr} | - 25 to + 85 | °C |
| Storage temperature | | T_{stg} | - 40 to + 100 | °C |
| *2 Soldering temperature | | T_{sol} | 260 | °C |

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

*2 For 5 seconds

■ Electro-optical Characteristics

(Ta=25 °C)

| Parameter | | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|--------------------------|--------------------------------------|---------------|--|--|------|-----------|---------------|
| Input | Forward voltage | V_F | $I_F = 20\text{mA}$ | - | 1.25 | 1.4 | V |
| | Peak forward voltage | V_{FM} | $I_{FM} = 0.5\text{A}$ | - | 3 | 4 | V |
| | Reverse current | I_R | $V_R = 3\text{V}$ | - | - | 10 | μA |
| Output | Dark current | I_{CEO} | $V_{CE} = 10\text{V}$ | - | - | 10^{-6} | A |
| Transfer characteristics | Collector current | I_C | $I_F = 1\text{mA}, V_{CE} = 2\text{V}$ | 0.7 | - | 28 | mA |
| | Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_F = 4\text{mA}, I_C = 0.6\text{mA}$ | - | - | 1 | V |
| | Response time | Rise time | t_r | $V_{CE} = 2\text{V}, I_C = 2\text{mA}$ | - | 130 | 400 |
| Fall time | | t_f | $R_L = 100\ \Omega$ | - | 100 | 350 | μs |

Fig. 1 Forward Current vs. Ambient Temperature

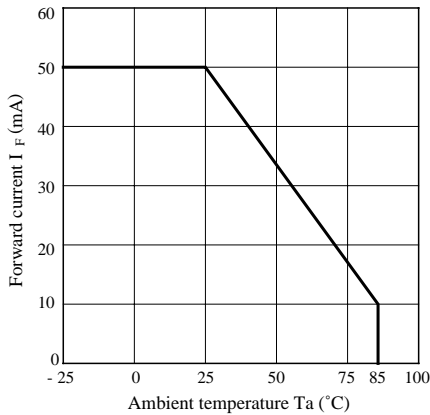


Fig. 2 Collector power Dissipation vs. Ambient Temperature

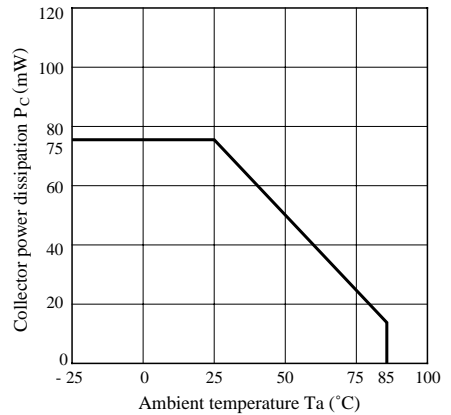


Fig. 3 Peak Forward Current vs. Duty Ratio

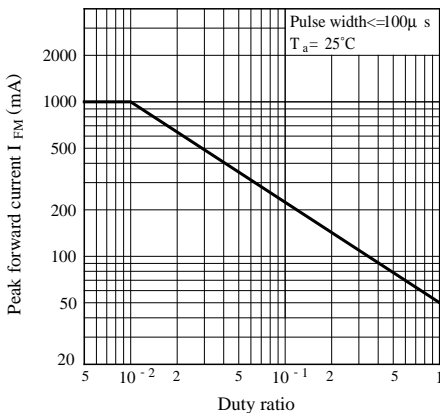


Fig. 4 Forward Current vs. Forward Voltage

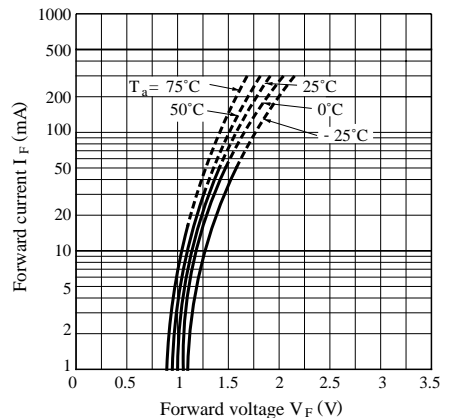


Fig. 5 Collector Current vs. Forward Current

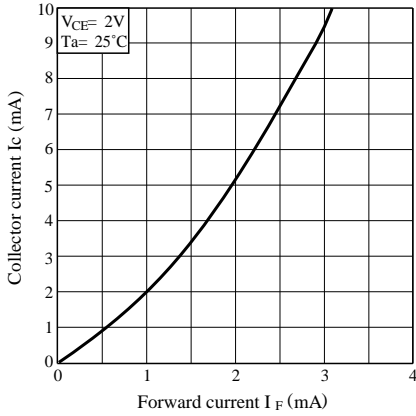


Fig. 6 Collector Current vs. Collector-emitter Voltage

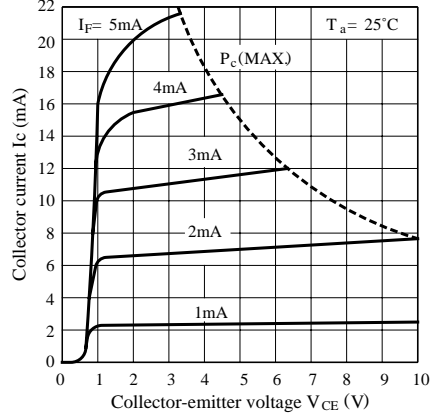


Fig. 7 Collector Current vs. Ambient temperature

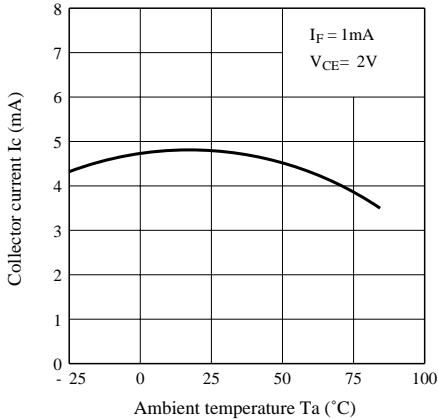


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

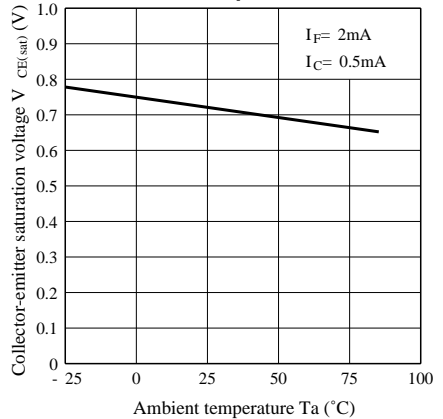
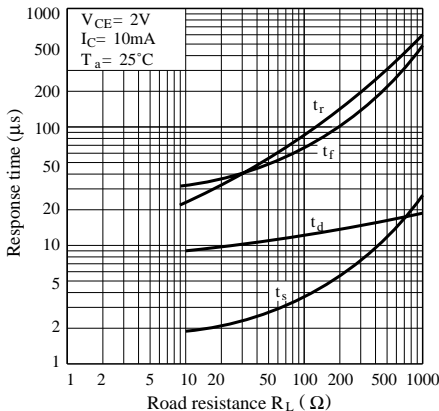


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

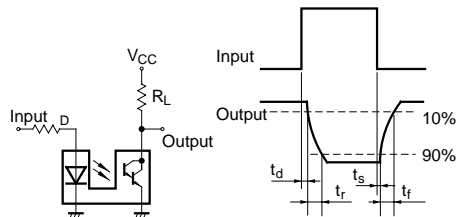


Fig. 10 Frequency characteristics

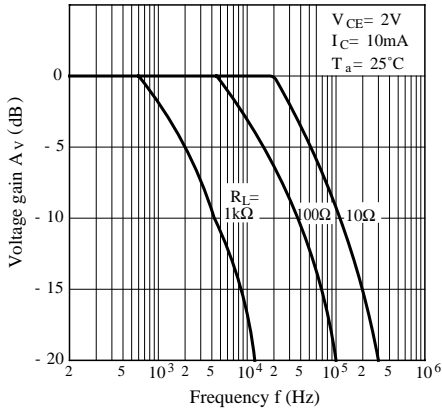


Fig. 11 Dark Current vs. Ambient Temperature

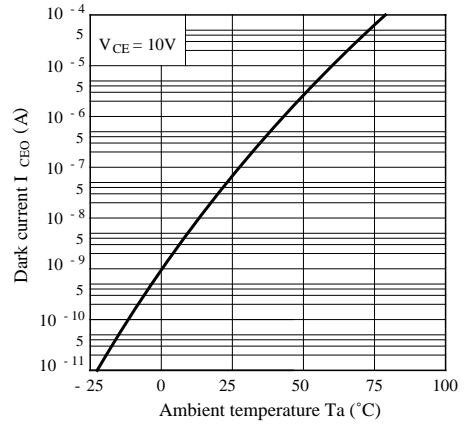


Fig. 12 Detecting Position Characteristics (1)

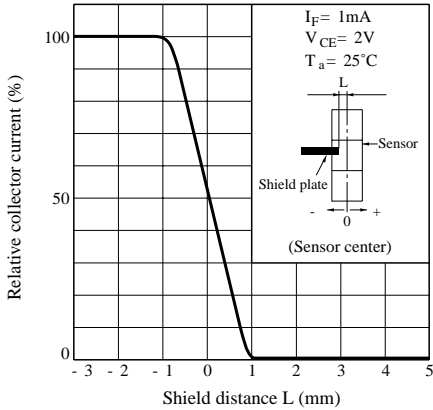
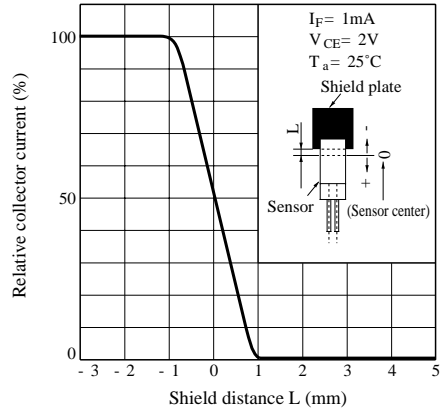


Fig. 13 Detecting Position Characteristics (2)



(Precautions for Operation)

In case of cleaning, use only the following type of cleaning solvent.

Ethyl alcohol, Methyl alcohol, Isopropyl alcohol

- As for other general precautions, please refer to the chapter "Precautions for Use".

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