T-41-73

# GP1S56 Compact, High Sensing Accuracy Type Photointerrupter with Positioning Pin

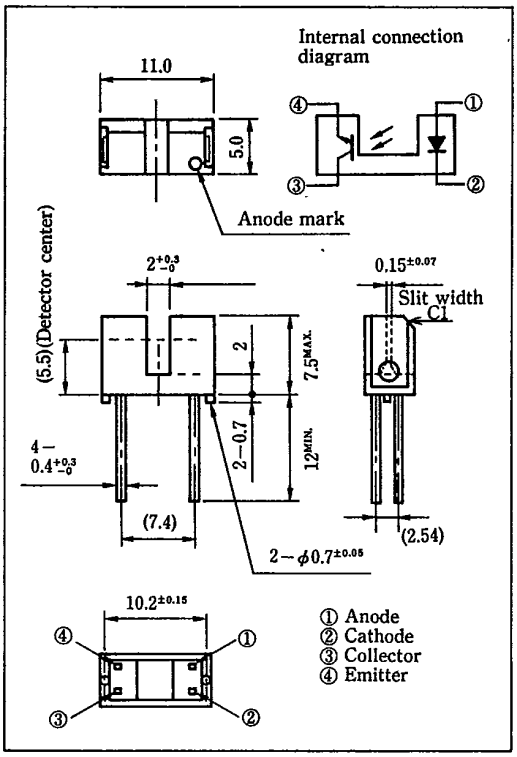
## ■ Features

1. High sensing accuracy (Slit width : 0.15mm)
2. Compact (Case height : 7.5mm)
3. With positioning pin

## ■ Applications

1. Floppy disk drives
2. VCRs, cassette decks
3. Optoelectronic switches

## ■ Outline Dimensions (Unit : mm)




7

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

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Input | Forward current | $I_F$ | 50 | mA |
| | *1Peak 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 | $I_C$ | 20 | mA |
| | Collector power dissipation | $P_C$ | 75 | mW |
| Operating temperature | | $T_{opr}$ | −25～+85 | °C |
| Storage temperature | | $T_{stg}$ | −40～+100 | °C |
| *2Soldering temperature | | $T_{sol}$ | 260 | °C |

*1 Pulse width≦100μs, Duty ratio=0.01
*2 For 5 seconds

## ■ Electro-optical Characteristics

(Ta=25°C)

| Parameter | | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|---|
| Input | Forward voltage | $V_F$ | $I_F$=20mA | — | 1.2 | 1.4 | V |
| | Peak forward voltage | $V_{FM}$ | $I_{FM}$=0.5A | — | 3 | 4 | V |
| | Reverse current | $I_R$ | $V_R$=3V | — | — | 10 | μA |
| Output | Collector dark current | $I_{CEO}$ | $V_{CE}$=20V | — | 1 | 100 | nA |
| | Collector current | CTR | $V_{CE}$=5V, $I_F$=20mA | 20 | — | — | % |
| Transfer characteristics | Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_F$=40mA, $I_C$=0.25mA | — | — | 0.4 | V |
| | Response time (Rise) | $t_r$ | $V_{CE}$=2V, $I_C$=0.5mA, $R_L$=1kΩ | — | 38 | 90 | μs |
| | Response time (Fall) | $t_f$ | | — | 48 | 110 | μs |

**Fig. 1 Forward Current vs. Ambient Temperature**

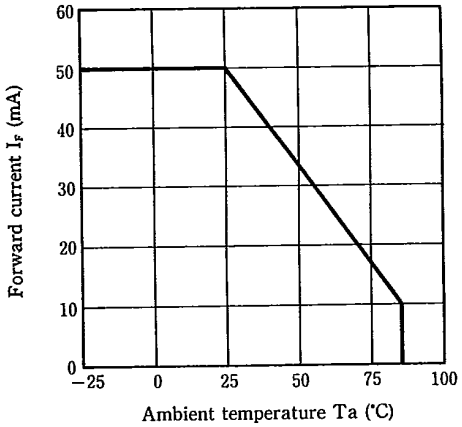



**Fig. 2 Collector Power dissipation vs. Ambient Temperature**

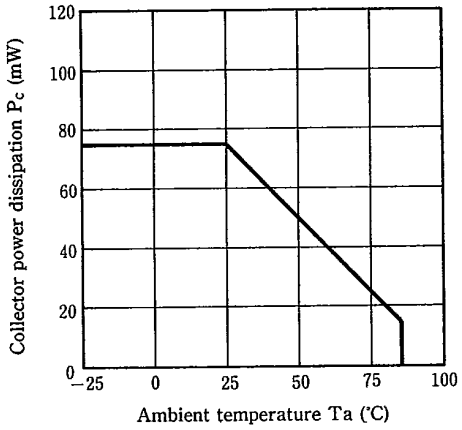



**Fig. 3 Peak Forward Current vs. Duty Ratio**

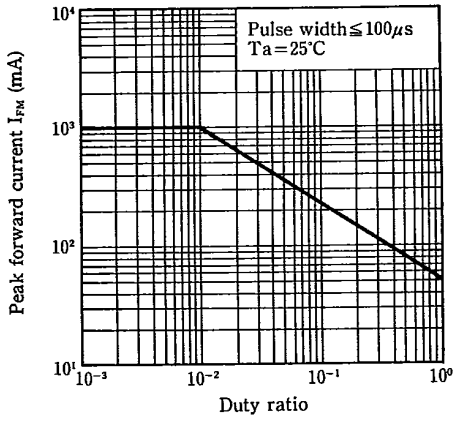



**Fig. 4 Forward Current vs. Forward Voltage**

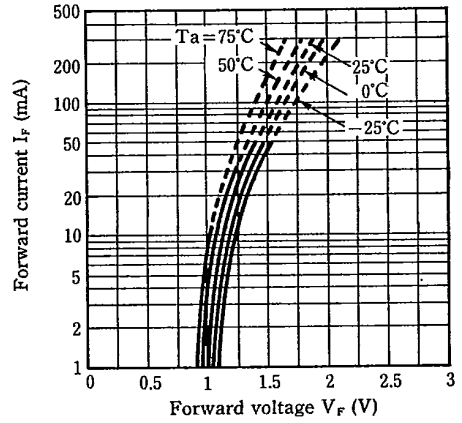


**Fig. 5 Collector Current vs. Forward Current**

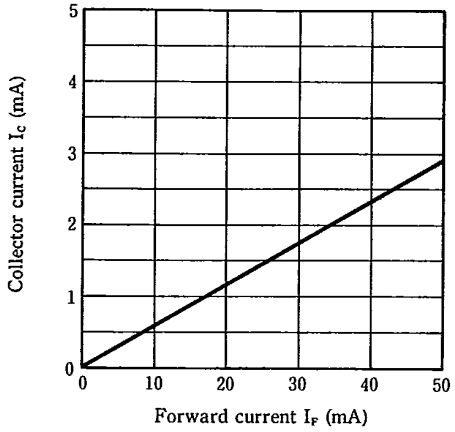



**Fig. 6 Collector Current vs. Collector-emitter Voltage**

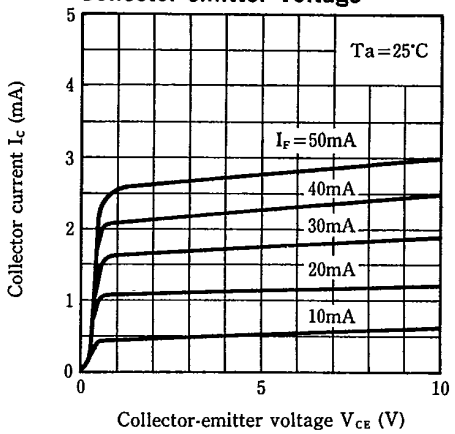



**Fig. 7 Collector Current vs. Ambient Temperature**

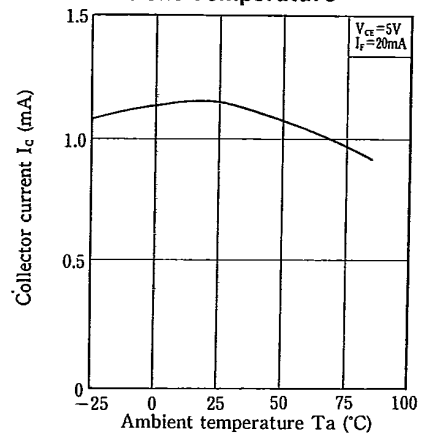



**Fig. 8 Collecor-emitter Saturation Voltage vs. Ambient Temperature**

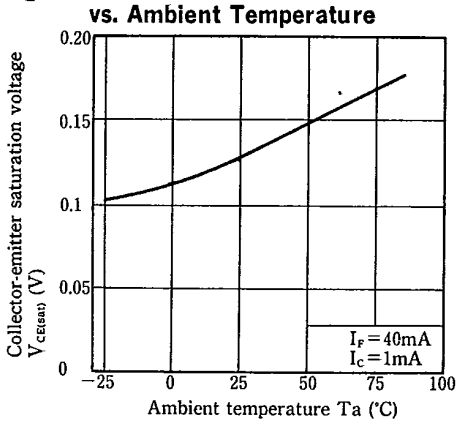
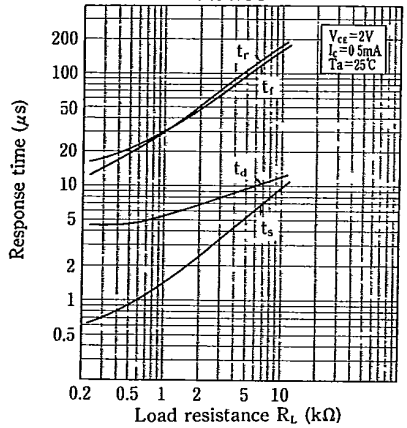
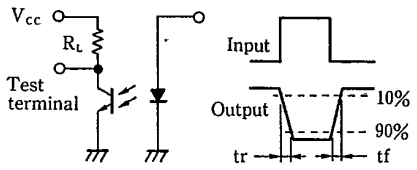



**Fig. 9 Response Time vs. Load Resistance**




Test Circuit for Response Time




7

**Fig. 10 Frequency Response**

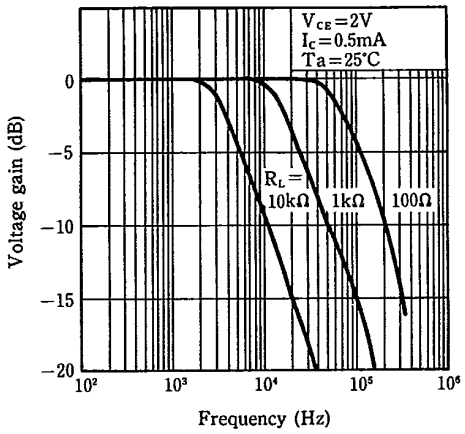



**Fig. 11 Collector Dark Current vs. Ambient Temperature**

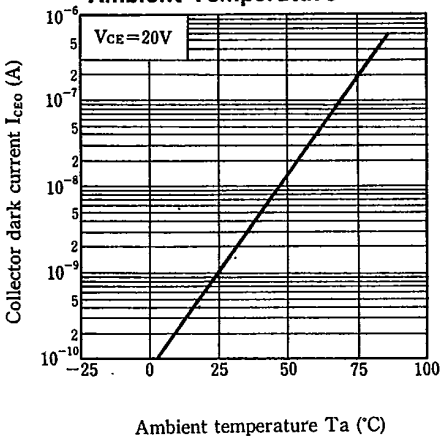



**Fig. 12 Relative collector Current vs. Shield Distance (1)**

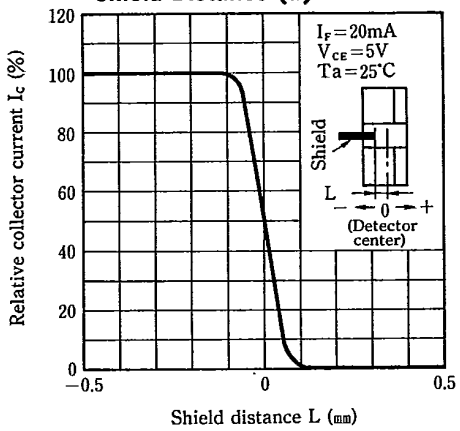



**Fig. 13 Relative Collector Current vs. Shield Distance (2)**

