# GP1S10

## Photointerrupter with Dust Cover

### ■ Features

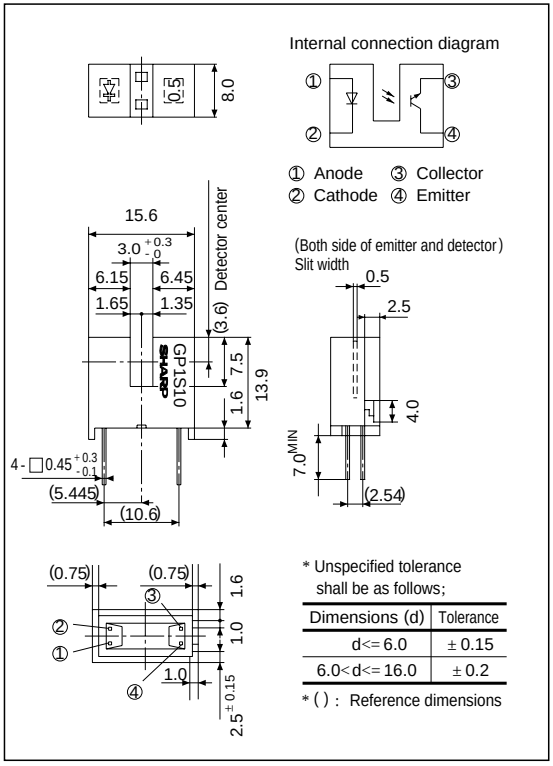
1. With dust cover
2. High sensing accuracy（Slit width: 0.5mm）
3. PWB direct mounting type package

### ■ Applications

1. Copiers, printers, facsimiles
2. Ticket vending machines

### ■ Outline Dimensions

（Unit : mm）




### ■ 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 to + 85 | ˚C |
| Storage temperature | | $T_{stg}$ | - 40 to + 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 | - | $10^{-9}$ | $10^{-7}$ | A |
| Transfer characteristics | Collector Current | | Ic | $I_F$ = 20mA, $V_{CE}$ = 5V | 0.4 | - | 15 | mA |
| | Collector-emitter saturation voltage | | $V_{CE(sat)}$ | $I_F$ = 40mA, $I_C$ = 0.2mA | - | - | 0.4 | V |
| | Response time | Rise time | $t_r$ | $V_{CE}$ = 2V, $I_C$ = 2mA | - | 3 | 15 | μs |
| | | Fall time | $t_f$ | $R_L$ = 100 Ω | - | 4 | 20 | μs |

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

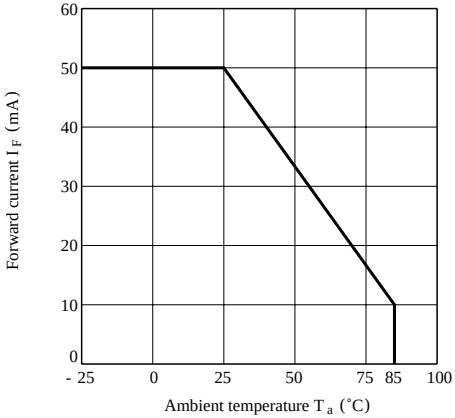



**Fig. 2 Collector Power Dissipation vs. Ambient Temperature**

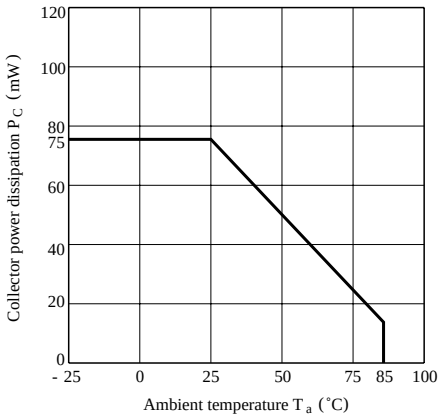



**Fig. 3 Peak Forward Current vs. Duty Ratio**

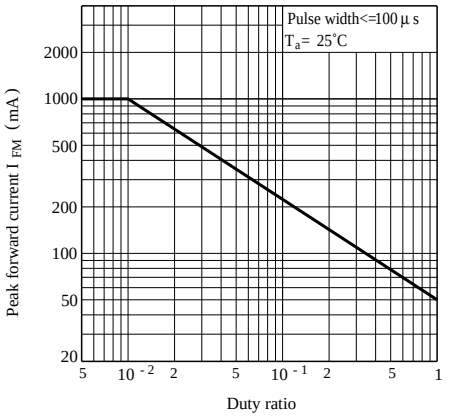



**Fig. 4 Forward Current vs. Forward Voltage**

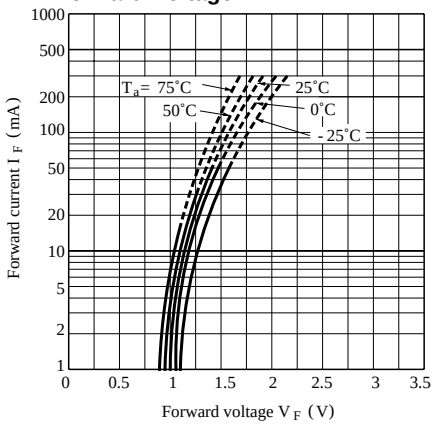


**Fig. 5 Collector Current vs. Forward Current**

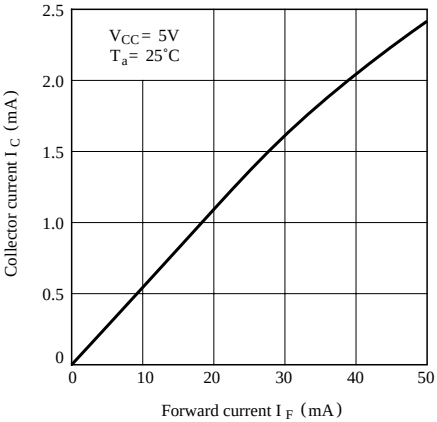



**Fig. 6 Collector Current vs. Collector-emitter Voltage**

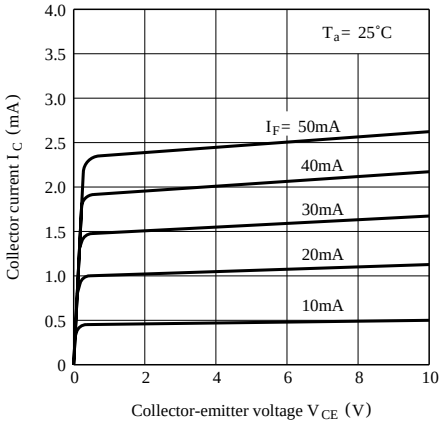



**Fig. 7 Collector Current vs. Ambient Temperature**

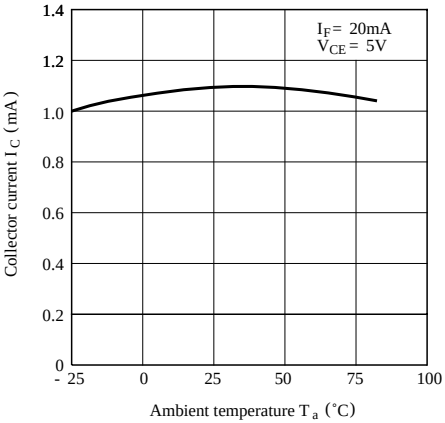



**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**

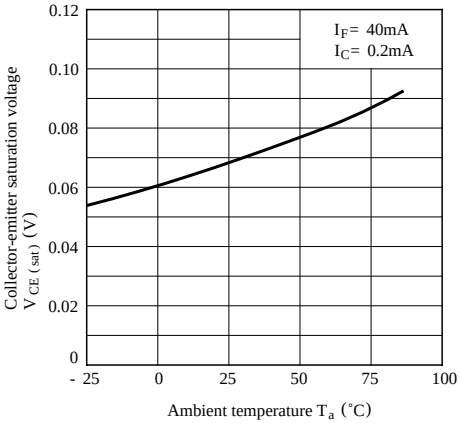
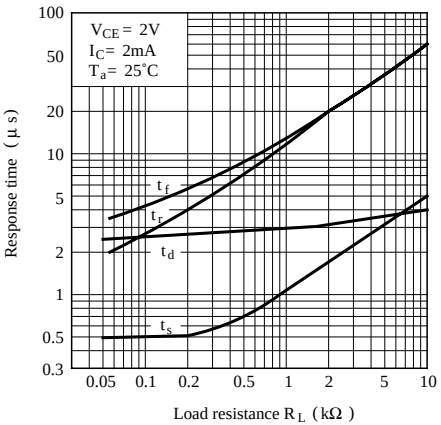



**Fig. 9 Response Time vs. Load Resistance**




**Test Circuit for Response Time**

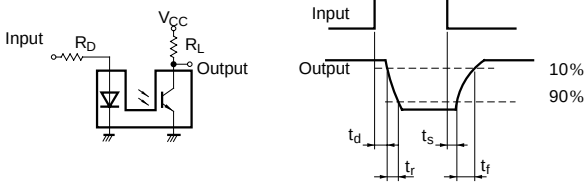


**Fig.10 Frequency Response**

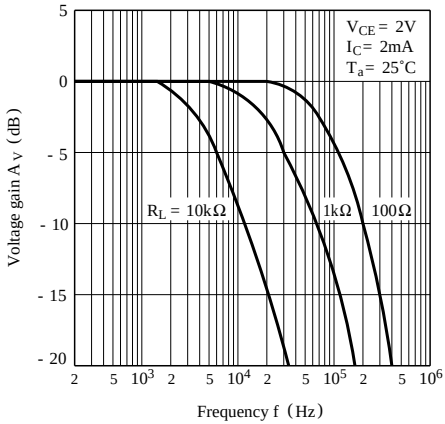



**Fig.11 Collector Dark Current vs. Ambient Temperature**

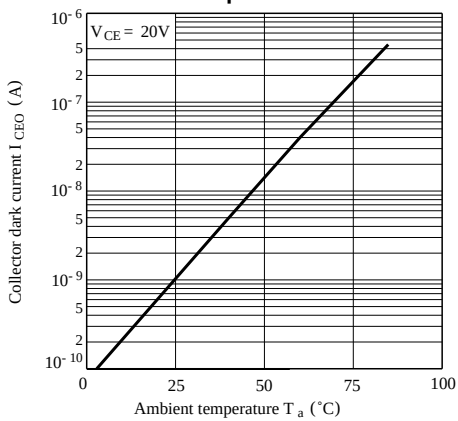



**Fig.12 Relative Collector Current vs. Shield Distance (1)**

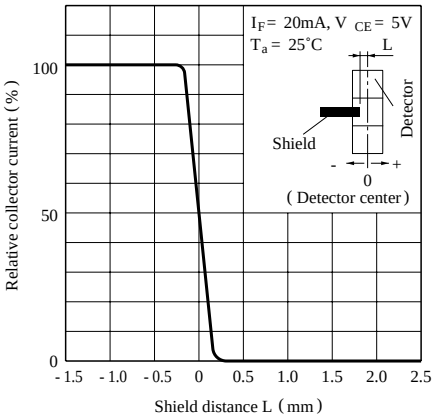
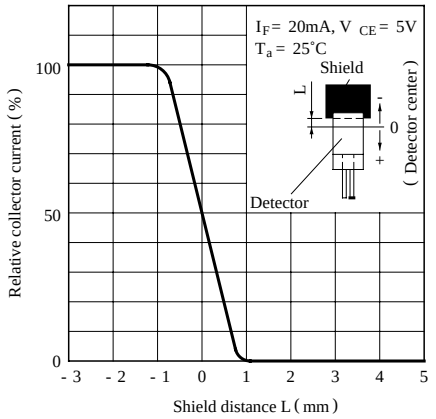



**Fig.13 Relative Collector Current vs. Shield Distance (2)**




## ■ Precautions for Use

(1) In this product, flux in the cleaning solvent may remain inside the slit of holder. It sometimes causes lower output; therefore, cleaning is prohibited.

(2) As for other general cautions, refer to the chapter "Precautions for Use".