# GP1S25

## Side Lead Type Ultra-compact Photointerrupter

### ■ Features

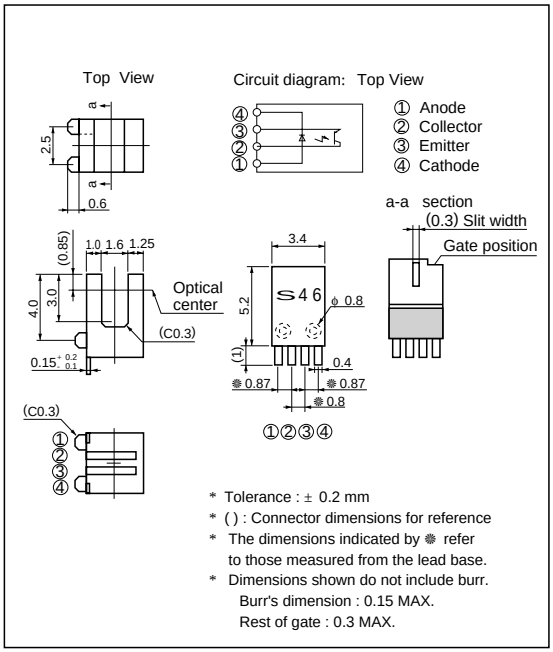
1. Side lead ultra-compact transmission type
2. Conforming to solder reflow
   Pre-heat : 160 ˚C, MAX. 120 sec
   Reflow : (200 ˚C, MAX. 60 sec / 240 ˚C, MAX. 10 sec)
3. Slit : 0.3 mm
4. Gap : 1.6 mm

### ■ Applications

1. CD-ROM drives
2. FDDs

### ■ Outline Dimensions

(Unit : mm)




### ■ Absolute Maximum Ratings

(Ta=25˚C)

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Input | Forward current | $I_F$ | 50 | mA |
| | 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 |
| Total power dissipation | | $P_{tot}$ | 100 | mW |
| Operating temperature | | $T_{opr}$ | - 25 to + 85 | ˚C |
| Storage temperature | | $T_{stg}$ | - 40 to + 100 | ˚C |
| *1Soldering temperature | | $T_{sol}$ | 260 | ˚C |

*1 Soldering time : For 3 seconds (hand soldering)

## ■ 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 |
| | Reverse current | | $I_R$ | $V_R$ = 3V | - | - | 10 | μA |
| Output | Dark current | | $I_{CEO}$ | $V_{CE}$ = 20V | - | - | 100 | nA |
| Transfer characteristics | Collector current | | $I_C$ | $V_{CE}$ = 5V, $I_F$ = 5mA | 50 | - | 300 | μA |
| | Collector-emitter saturation voltage | | $V_{CE(sat)}$ | $I_F$ = 10mA, $I_C$ = 50μA | - | - | 0.4 | V |
| | Response time | Rise time | $t_r$ | $V_{CE}$ = 5V, $I_C$ = 100μA | - | 35 | 100 | μs |
| | | Fall time | $t_f$ | $R_L$ = 1 000Ω | - | 35 | 100 | μs |

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

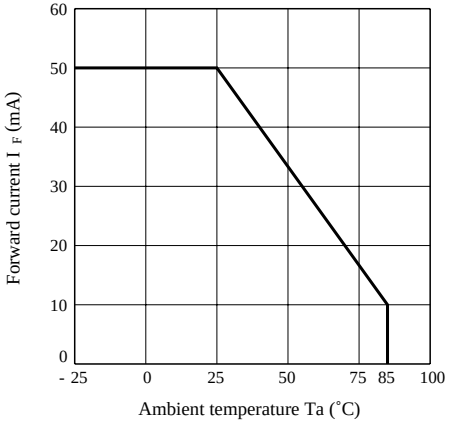



**Fig. 2 Power dissipation vs. Ambient Temperature**

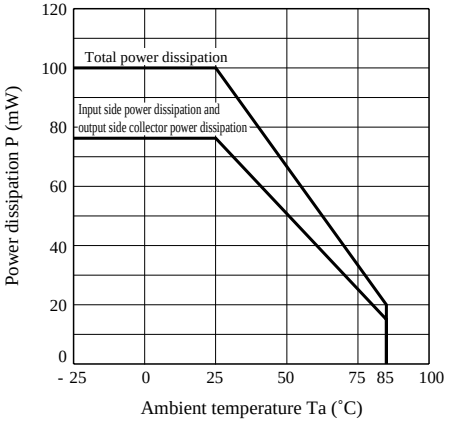



**Fig. 3 Forward Current vs. Forward Voltage**

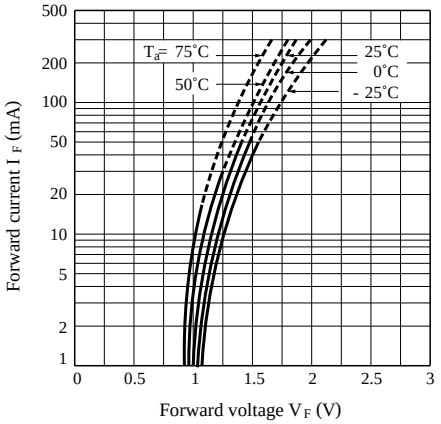



**Fig. 4 Collector Current vs. Forward Current**

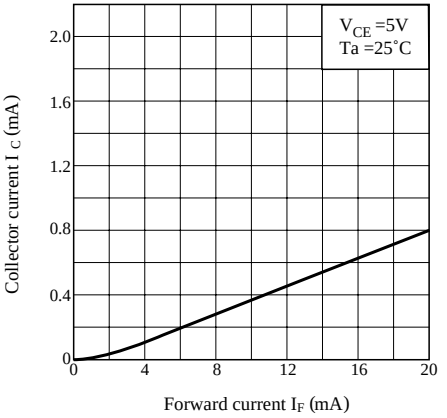


**Fig. 5 Collector Current vs. Collector-emitter Voltage**

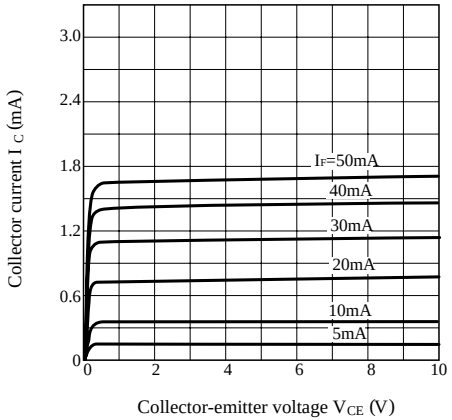



**Fig. 6 Relative Collector Current vs. Ambient Temperature**

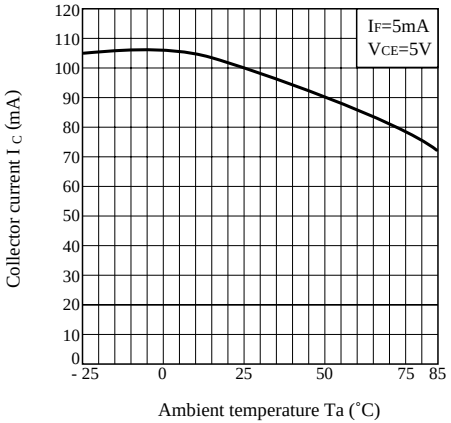



**Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature**

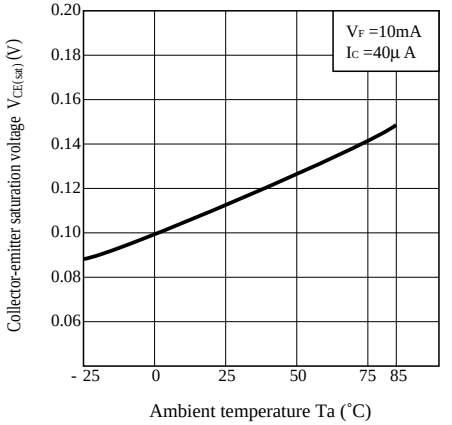



**Fig. 8 Dark Current vs. Ambient Temperature**

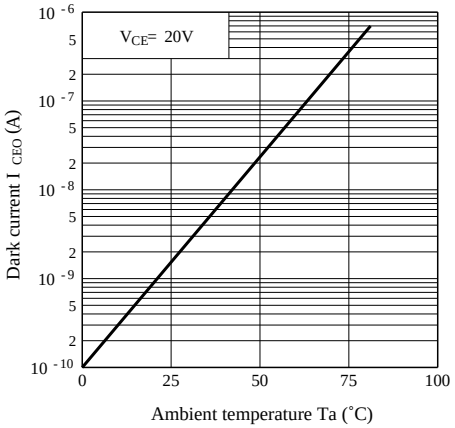
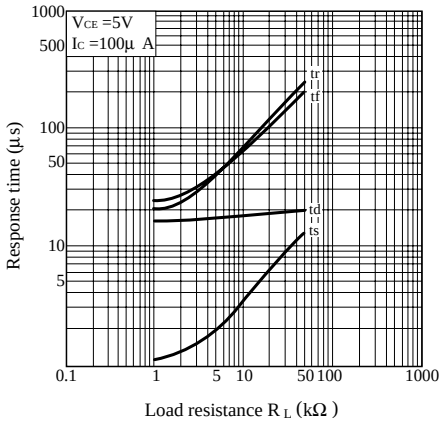



**Fig. 9 Response Time vs. Load Resistance**




**Test Circuit for Response Time**

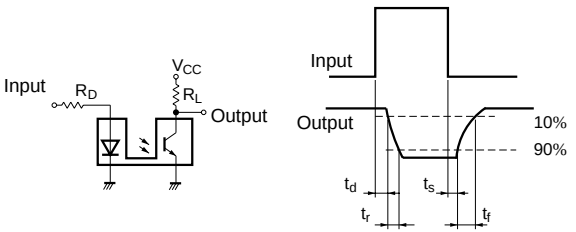


**Fig. 10 Detecting Position Characteristics (1)**

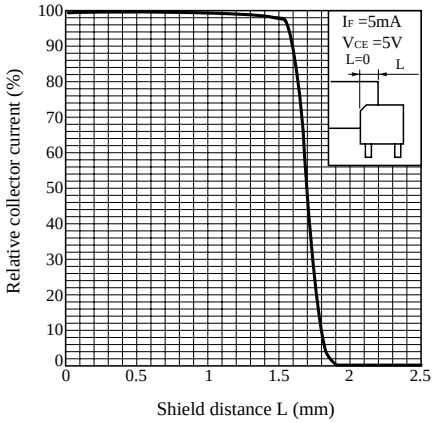
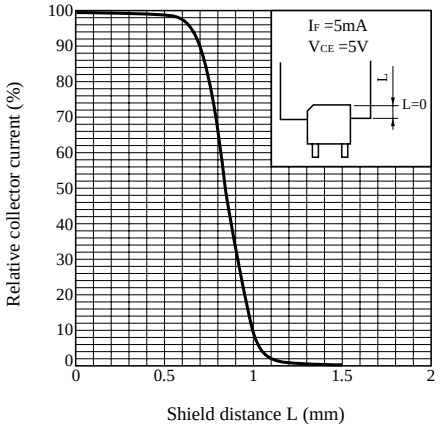



**Fig. 11 Detecting Position Characteristics (2)**




● Please refer to the chapter "Precautions for Use".