

# GP1S25

## Side Lead Type Ultra-compact Photointerrupter

### ■ Features

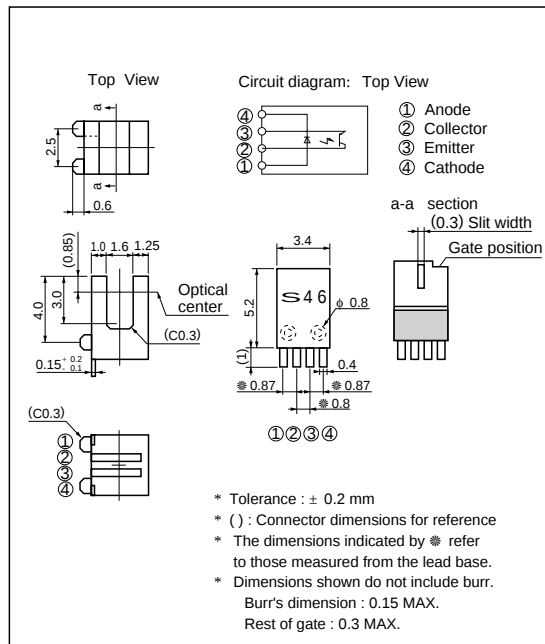
1. Side lead ultra-compact transmission type
2. Conforming to solder reflow  
Pre-heat : 160 °C, MAX. 120 sec  
Reflow : ( 200 °C, MAX. 60 sec )  
( 240 °C, MAX. 10 sec )
3. Slit : 0.3 mm
4. Gap : 1.6 mm

### ■ 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   |
| *1 Soldering 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                      |           | $V_F$                | $I_F = 20\text{mA}$                               | -                      | 1.2  | 1.4  | V             |
|                          | Reverse current                      |           | $I_R$                | $V_R = 3\text{V}$                                 | -                      | -    | 10   | $\mu\text{A}$ |
| Output                   | Dark current                         |           | $I_{\text{CEO}}$     | $V_{\text{CE}} = 20\text{V}$                      | -                      | -    | 100  | nA            |
| Transfer characteristics | Collector current                    |           | $I_C$                | $V_{\text{CE}} = 5\text{V}, I_F = 5\text{mA}$     | 50                     | -    | 300  | $\mu\text{A}$ |
|                          | Collector-emitter saturation voltage |           | $V_{\text{CE(sat)}}$ | $I_F = 10\text{mA}, I_C = 50\mu\text{A}$          | -                      | -    | 0.4  | V             |
|                          | Response time                        | Rise time | $t_r$                | $V_{\text{CE}} = 5\text{V}, I_C = 100\mu\text{A}$ | -                      | 35   | 100  | $\mu\text{s}$ |
|                          |                                      | Fall time | $t_f$                |                                                   | $R_L = 1\,000\,\Omega$ | -    | 35   | 100           |

Fig. 1 Forward Current vs. Ambient Temperature

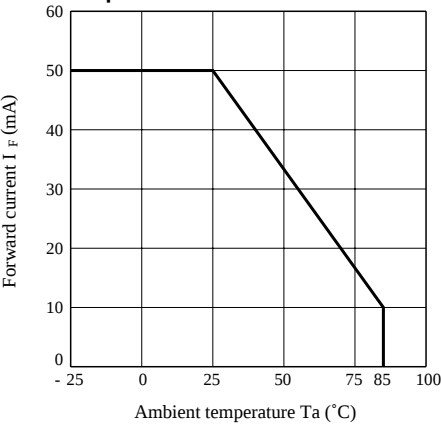


Fig. 2 Power dissipation vs. Ambient Temperature

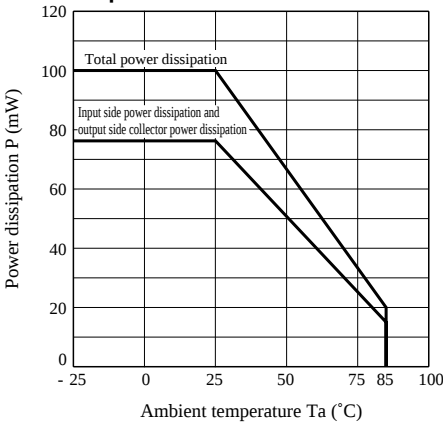


Fig. 3 Forward Current vs. Forward Voltage

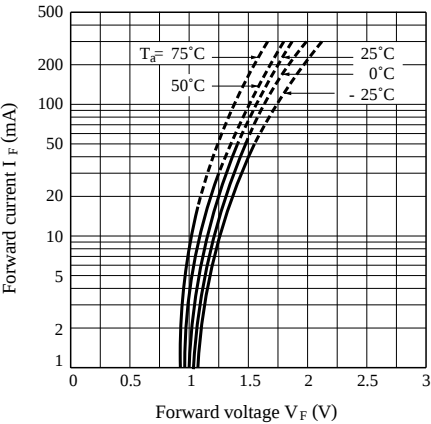


Fig. 4 Collector Current vs. Forward Current

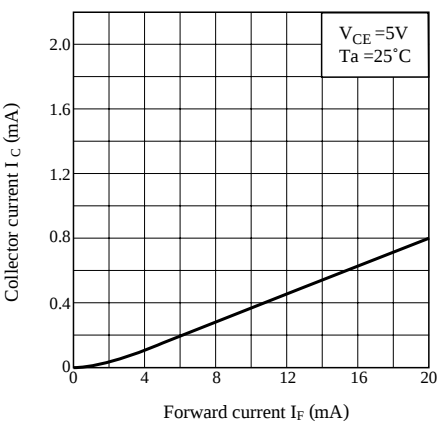


Fig. 5 Collector Current vs. Collector-emitter Voltage

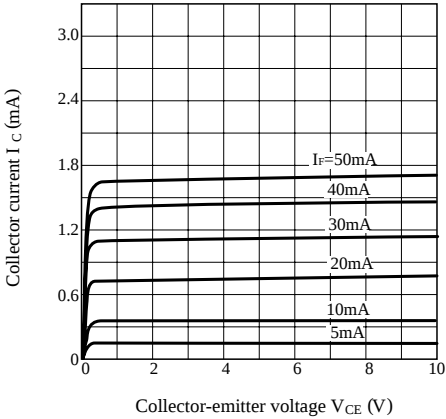


Fig. 6 Relative Collector Current vs. Ambient Temperature

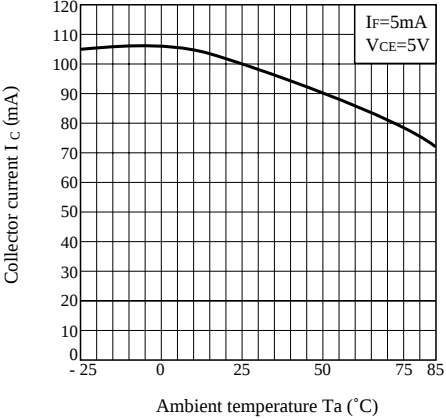


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

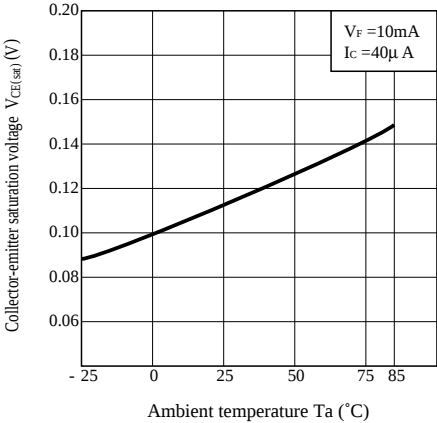


Fig. 8 Dark Current vs. Ambient Temperature

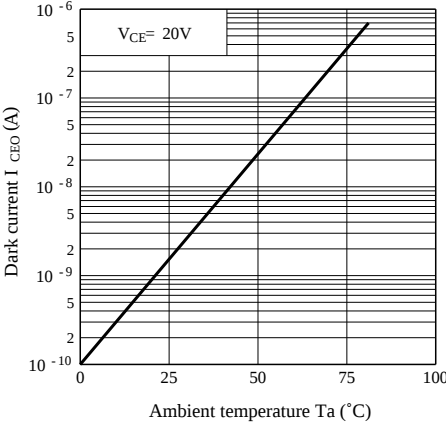
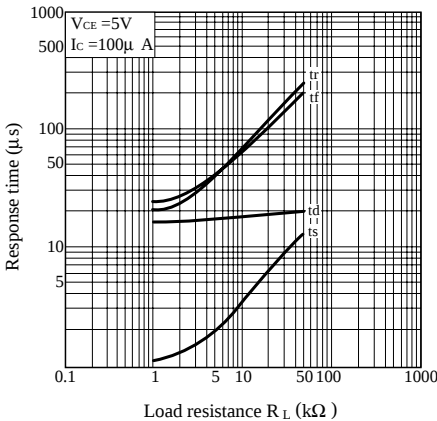


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

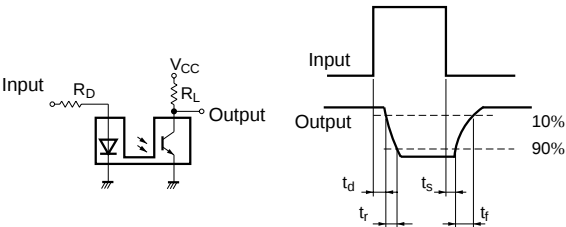


Fig. 10 Detecting Position Characteristics (1)

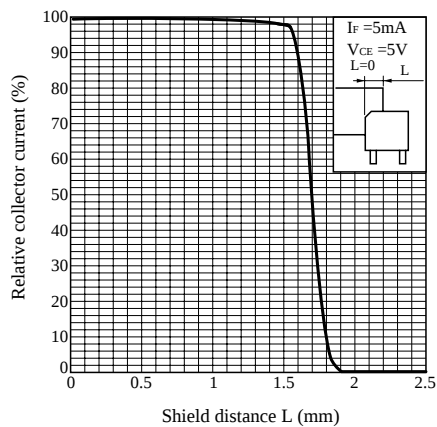
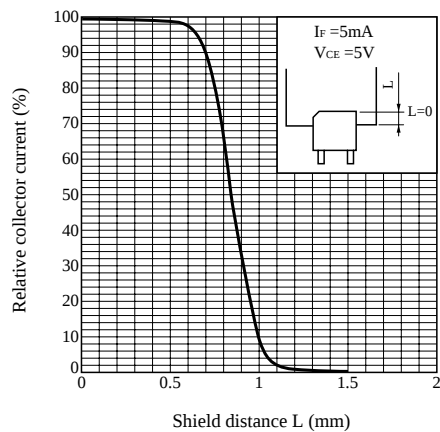


Fig. 11 Detecting Position Characteristics (2)



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