

GP1S33

Subminiature, Reflow Soldering Type Photointerrupter

■ Features

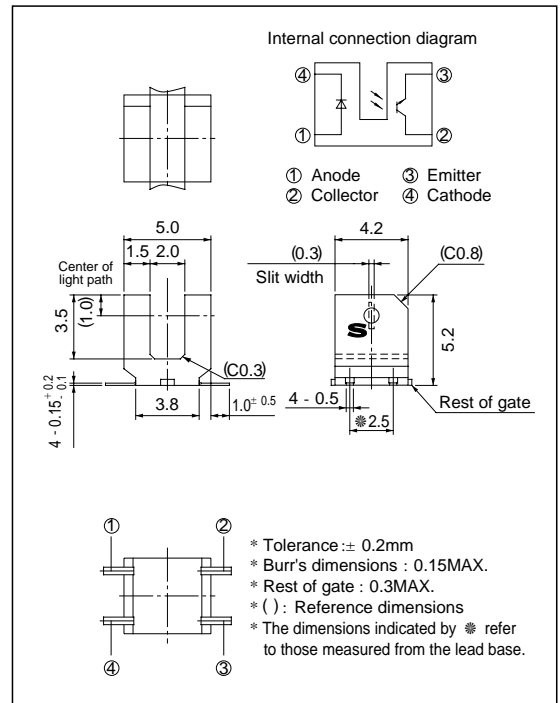
1. Ultra-compact package
2. PWB mounting type
3. High sensing accuracy (Slit width: 0.3mm)
4. Applying to reflow soldering
 - Preheat : 160°C within 120 seconds
 - Reflow : 200°C within 60 seconds
 - (Peak : 240°C)

■ Applications

1. Floppy disk drives
2. Cameras

■ Outline Dimensions

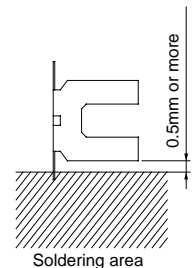
(Unit : mm)



■ Absolute Maximum Ratings

($T_a = 25^\circ\text{C}$)

| 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 | $^\circ\text{C}$ |
| Storage temperature | | T_{sg} | - 40 to + 100 | $^\circ\text{C}$ |
| *1 Soldering temperature | | T_{sol} | 260 | $^\circ\text{C}$ |



*1 For 3 seconds

■ Electro-optical Chara

($T_a = 25^\circ\text{C}$)

| 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 | μA | |
| Output | Collector dark current | I_{CEO} | $V_{CE} = 20\text{V}$ | - | - | 100 | nA | |
| Transfer characteristics | Collector current | I_C | $V_{CE} = 5\text{V}, I_F = 5\text{mA}$ | 100 | - | 600 | μA | |
| | Collector-emitter saturation voltage | $V_{CE(\text{sat})}$ | $I_F = 10\text{mA}, I_C = 40\mu\text{A}$ | - | - | 0.4 | V | |
| | Response time | Rise time | t_r | $V_{CE} = 5\text{V}, I_C = 100\mu\text{A}$ | - | 50 | 150 | μs |
| | | Fall time | t_f | $R_L = 1\,000\Omega$ | - | 50 | 150 | μs |

Fig. 1 Forward Current vs. Ambient Temperature

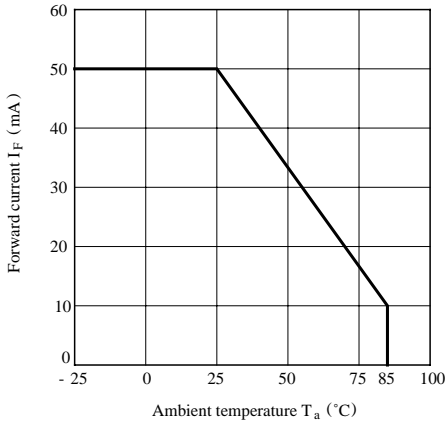


Fig. 2 Power Dissipation vs. Ambient Temperature

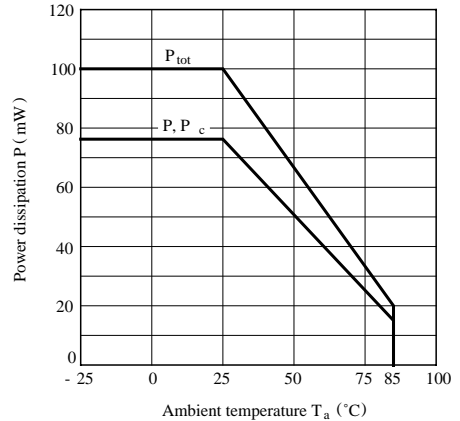


Fig. 3 Forward Current vs. Forward Voltage

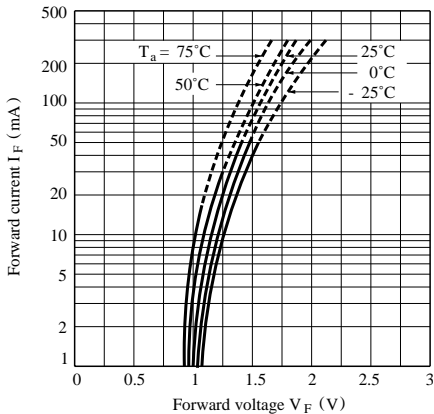


Fig. 4 Collector Current vs. Forward Current

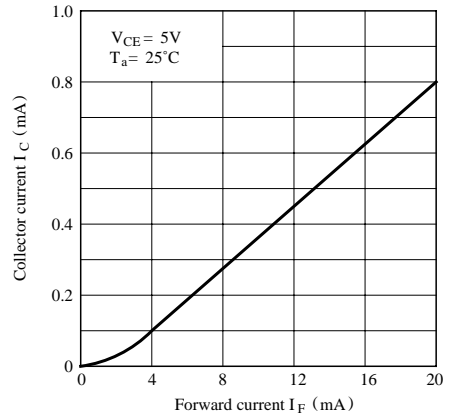


Fig. 5 Collector Current vs. Collector-emitter Voltage

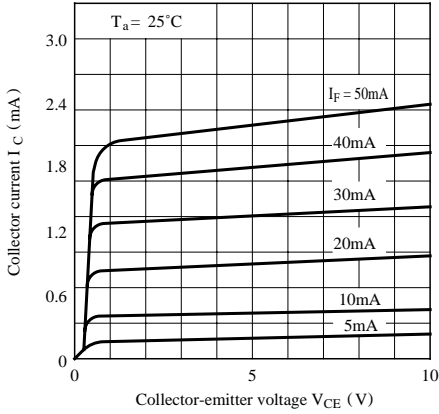


Fig. 6 Collector Current vs. Ambient Temperature

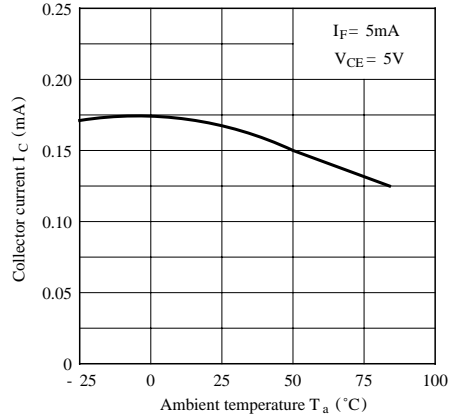


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

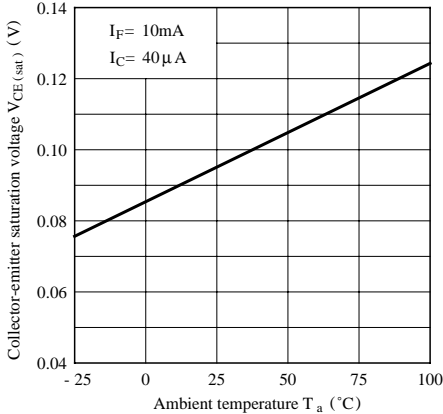


Fig. 8 Collector Dark Current vs. Ambient Temperature

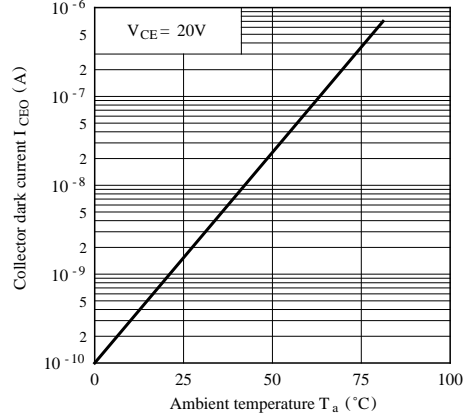
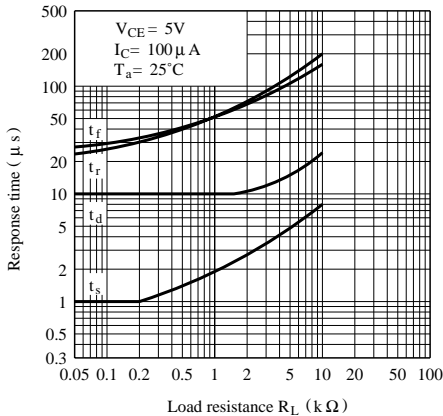


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

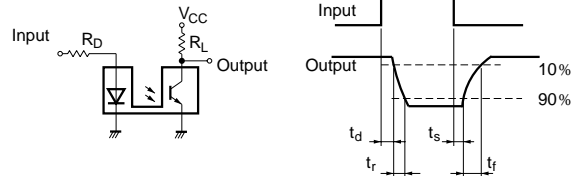


Fig.10 Relative Collector Current vs. Shield Distance (1)

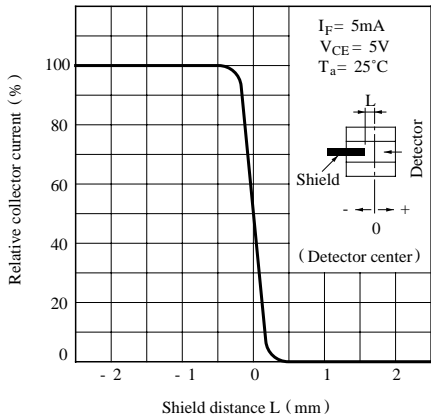
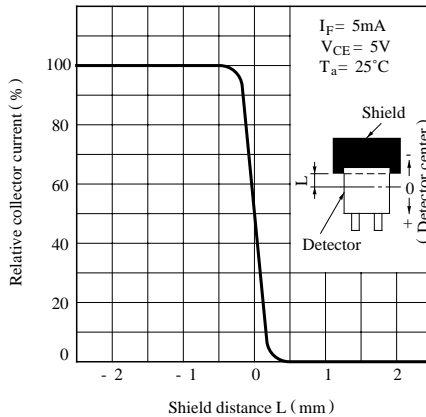


Fig.11 Relative Collector Current vs. Shield Distance (2)



- Please refer to the chapter “Precautions for Use”.