

# GP1S56

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

### ■ Features

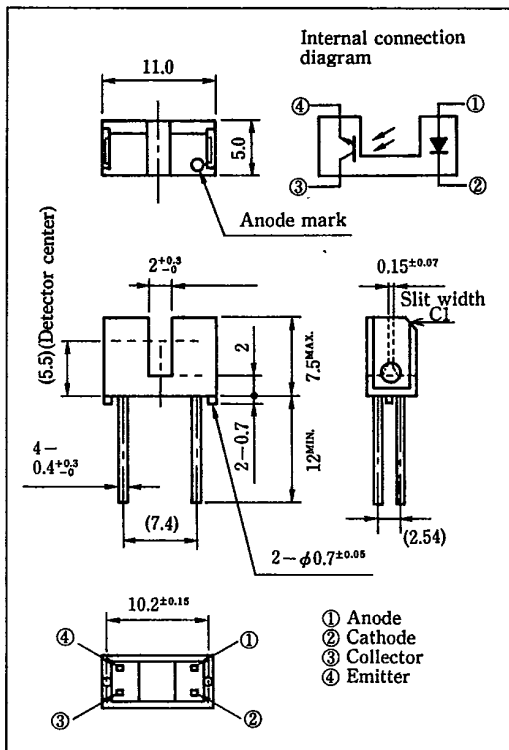
1. High sensing accuracy (Slit width : 0.15mm)
2. Compact (Case height : 7.5mm)
3. With positioning pin

### ■ Applications

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

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

(T<sub>a</sub>=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I <sub>F</sub>	50	mA
	*1 Peak forward current	I <sub>FM</sub>	1	A
	Reverse voltage	V <sub>R</sub>	6	V
	Power dissipation	P	75	mW
Output	Collector-emitter voltage	V <sub>CEO</sub>	35	V
	Emitter-collector voltage	V <sub>ECO</sub>	6	V
	Collector current	I <sub>C</sub>	20	mA
	Collector power dissipation	P <sub>C</sub>	75	mW
Operating temperature		T <sub>opr</sub>	-25~+85	°C
Storage temperature		T <sub>stg</sub>	-40~+100	°C
*2 Soldering temperature		T <sub>sol</sub>	260	°C

\*1 Pulse width ≤ 100 μs, Duty ratio = 0.01

\*2 For 5 seconds

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

Fig. 1 Forward Current vs. Ambient Temperature

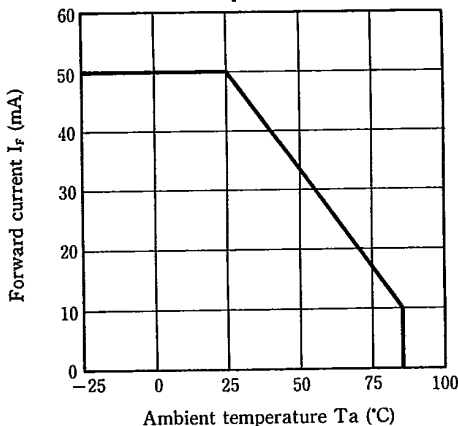


Fig. 2 Collector Power dissipation vs. Ambient Temperature

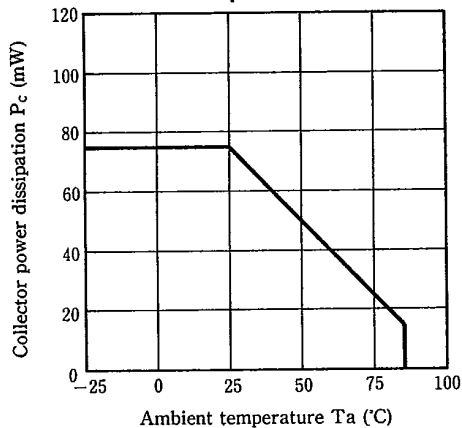


Fig. 3 Peak Forward Current vs. Duty Ratio

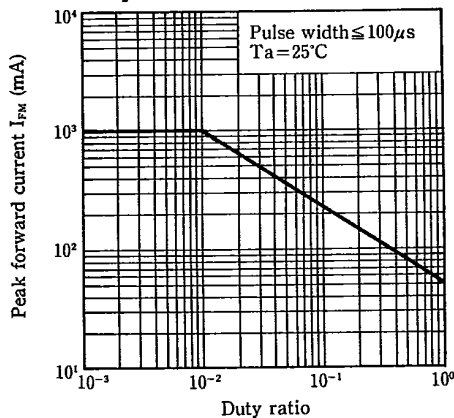
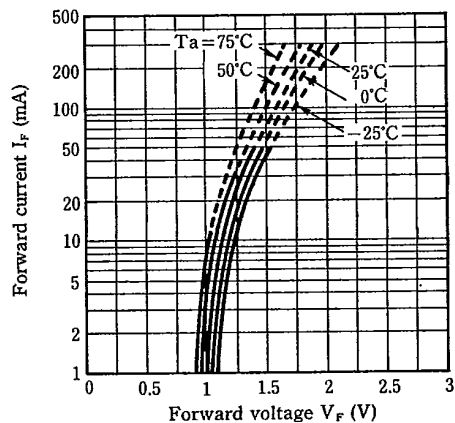
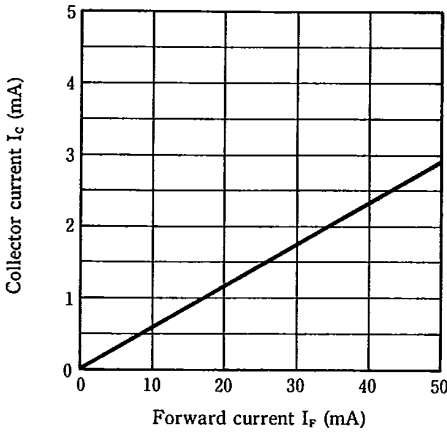


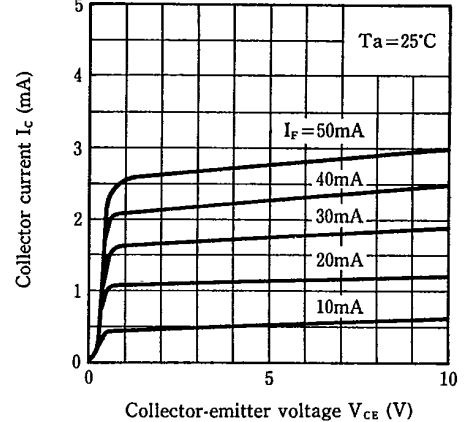
Fig. 4 Forward Current vs. Forward Voltage



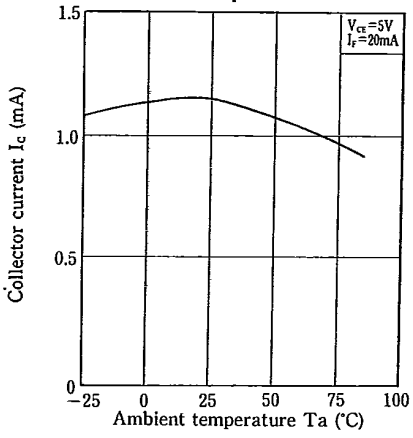
**Fig. 5 Collector Current vs. Forward Current**



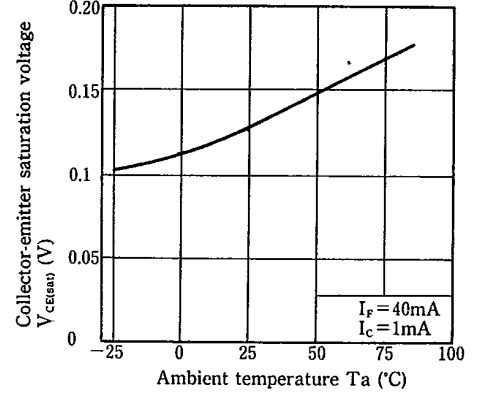
**Fig. 6 Collector Current vs. Collector-emitter Voltage**



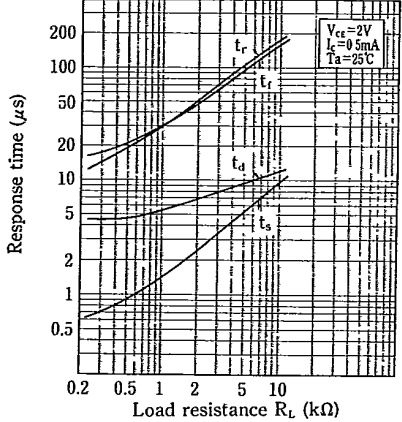
**Fig. 7 Collector Current vs. Ambient Temperature**



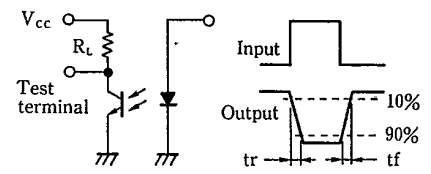
**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



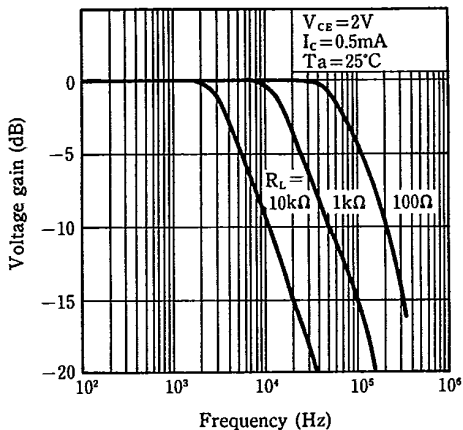
**Fig. 9 Response Time vs. Load Resistance**



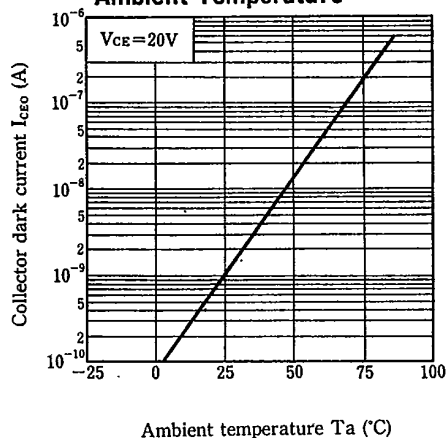
**Test Circuit for Response Time**



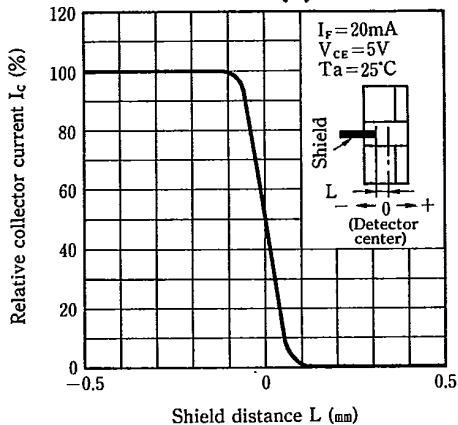
**Fig. 10** Frequency Response



**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)

