

GP1S05 Wide Gap, High Sensing Accuracy Type Photointerrupter

■ Features

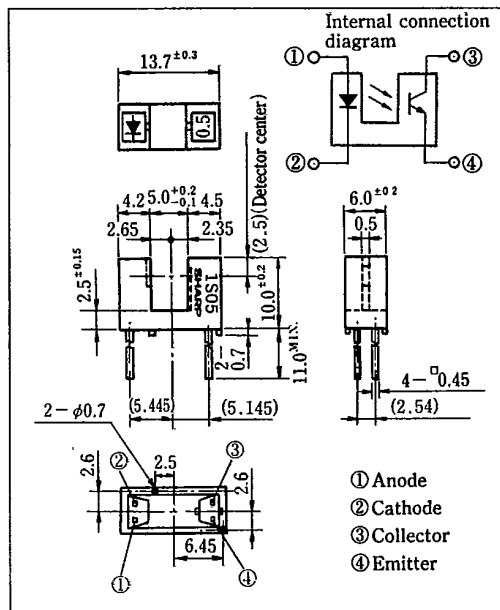
1. High sensing accuracy (Slit width : 0.5mm)
2. Gap between LED and detector : 5mm
3. High speed response (t_r : TYP. $3\mu s$ at $R_L=100\Omega$)
4. PWB direct mounting type package

■ Applications

1. Copiers, printers, facsimiles
2. VCRs, cassette decks
3. Optoelectronic switches, optoelectronic counters

■ Outline Dimensions

(Unit : mm)



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■ Absolute Maximum Ratings

(Ta=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1 Peak 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 ~ +85	°C
	Storage temperature	T_{stg}	-40 ~ +100	°C
	*2 Soldering temperature	T_{sol}	260	°C

*1 Pulse width $\leq 100\mu s$, Duty ratio = 0.01

*2 For 5 seconds

Electro-optical Characteristics

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$I_F = 20\text{mA}$	—	1.2	1.4	V
	Peak forward voltage	$I_{FM} = 0.5\text{A}$	—	3.0	4.0	V
	Reverse current	$V_R = 3\text{V}$	—	—	10	μA
Output	Collector dark current	$V_{CE} = 20\text{V}$	—	10^{-9}	10^{-7}	A
	Current transfer ratio	$I_F = 20\text{mA}, V_{CE} = 5\text{V}$	2.5	—	75	%
Transfer characteristics	Collector-emitter saturation voltage	$I_F = 40\text{mA}, I_C = 0.2\text{mA}$	—	—	0.4	V
	Response time (Rise)	$I_C = 2\text{mA}, V_{CE} = 2\text{V}, R_L = 100\Omega$	—	3	15	μs
	Response time (Fall)		—	4	20	μs

Fig. 1 Forward Current vs. Ambient Temperature

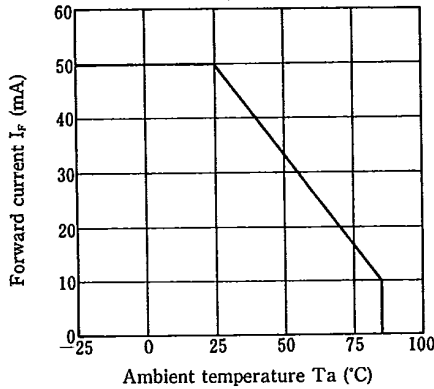


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

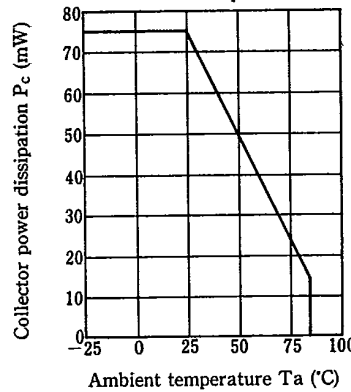


Fig. 3 Peak Forward Current vs. Duty Ratio

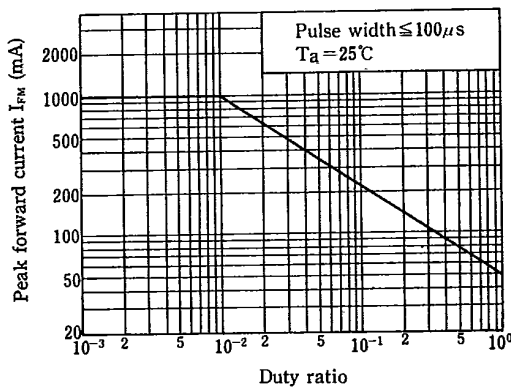


Fig. 4 Forward Current vs. Forward Voltage

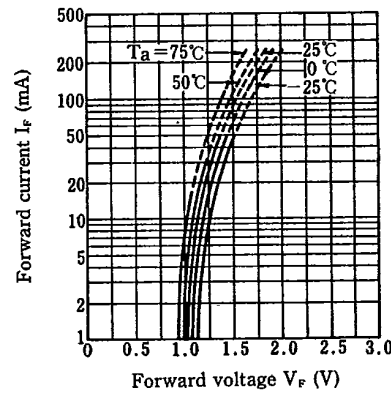


Fig. 5 Collector Current vs. Forward Current

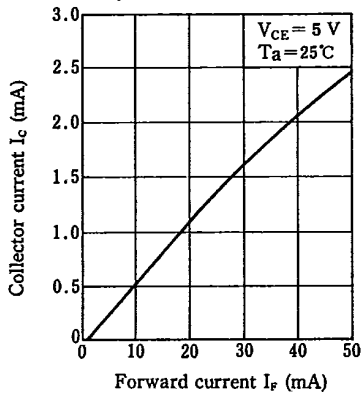


Fig. 6 Collector Current vs. Collector-emitter Voltage

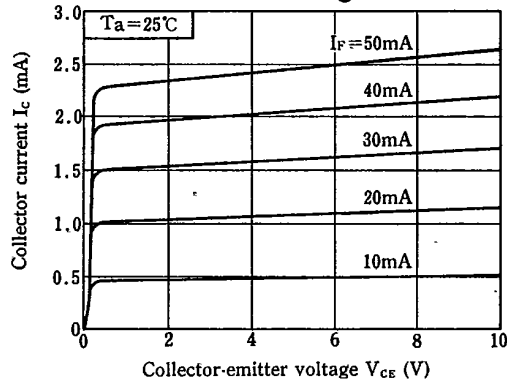


Fig. 7 Collector Current vs. Ambient Temperature

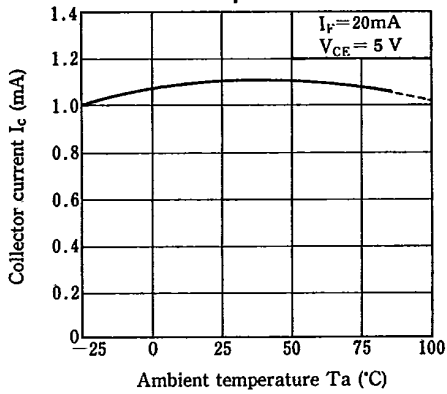


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

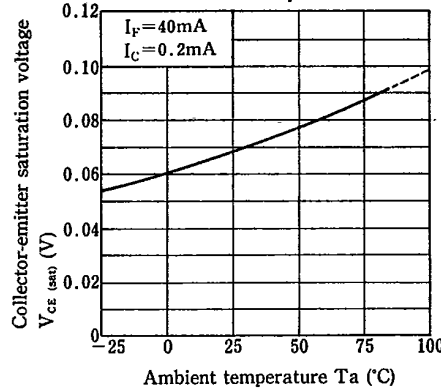
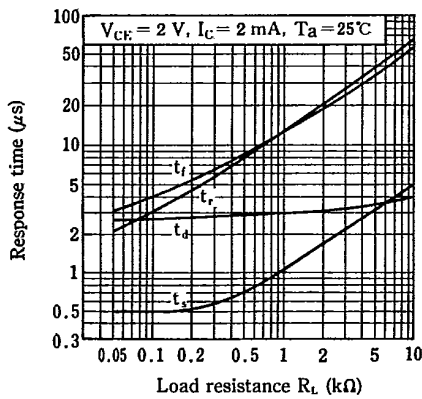


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

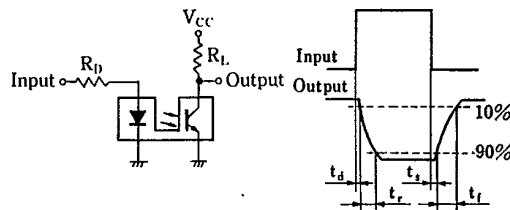


Fig. 10 Frequency Response

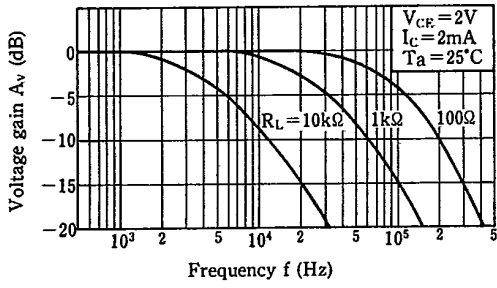


Fig. 11 Collector Dark Current vs. Ambient Temperature

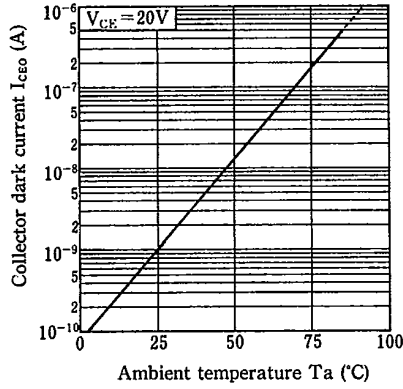


Fig. 12 Relative Collector Current vs. Shield Distance (1)

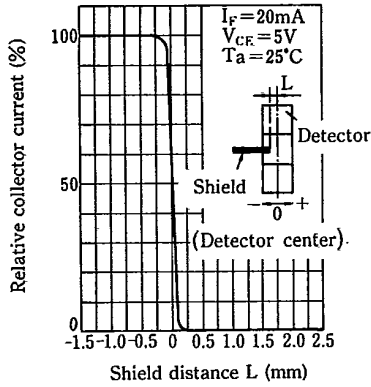


Fig. 13 Relative Collector Current vs. Shield Distance (2)

