

T-41-73

GP1S20 Subminiature Photointerrupter

■ Features

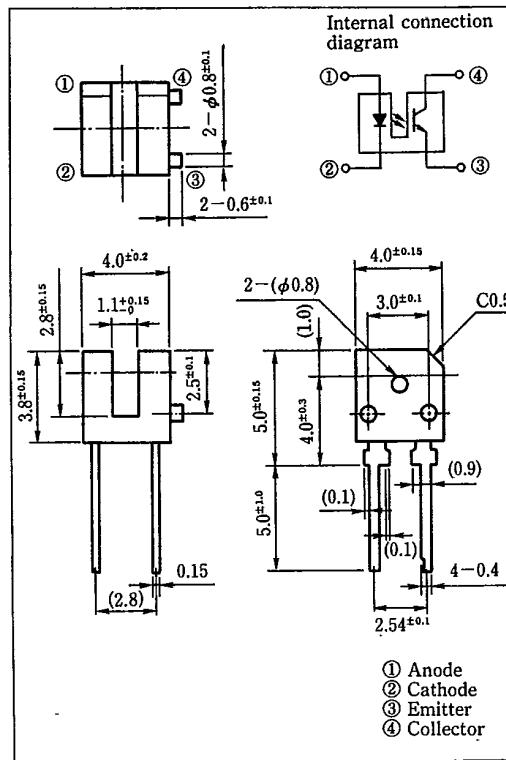
1. Ultra-compact
2. High sensing accuracy (Slit width : 0.3mm)
3. With positioning boss

■ Applications

1. Still cameras
2. Miniprinters
3. Microfloppy disk drives

■ 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 ~ +85	°C
Storage temperature		T_{stg}	-40 ~ +100	°C
*1 Soldering temperature		T_{sol}	260	°C

*1 For 5 seconds

SHARP

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(Ta=25°C)

Electro-optical Characteristics

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}	$V_{CE}=20\text{V}$	—	—	10^{-7}	A
	Current transfer ratio	CTR	$I_F=1.5\text{mA}, V_{CE}=5\text{V}$	1.6	—	16	%
Transfer characteristics	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=3\text{mA}, I_C=15\mu\text{A}$	—	0.07	0.4	V
	Response time (Rise)	t_r	$I_C=0.1\text{mA}, V_{CE}=5\text{V}, R_L=1\text{k}\Omega$	—	50	150	μs
	Response time (Fall)	t_f		—	50	150	μs

Fig. 1 Forward Current vs. Ambient Temperature

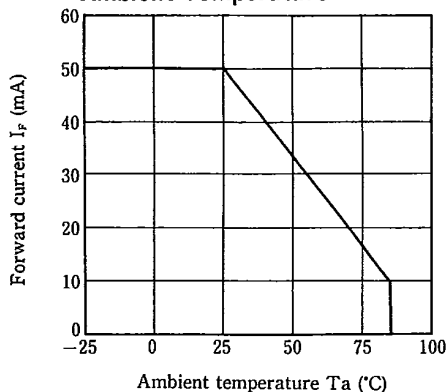


Fig. 2 Power Dissipation vs. Ambient Temperature

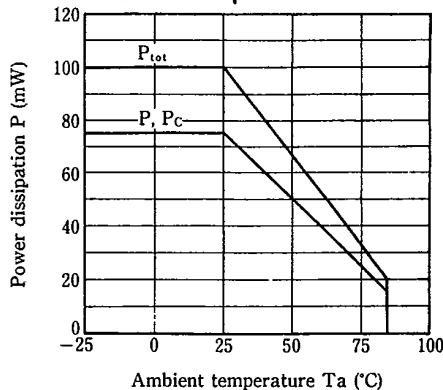


Fig. 3 Forward Current vs. Forward Voltage

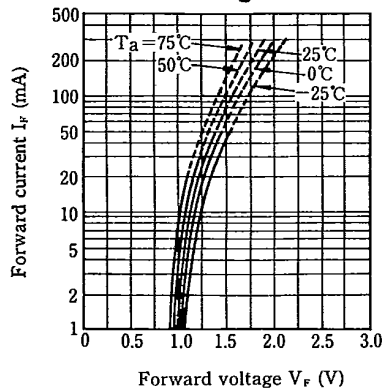
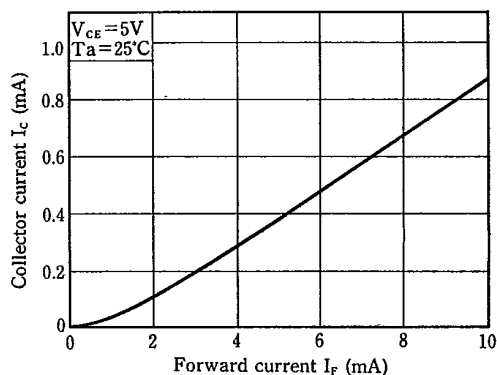


Fig. 4 Collector Current vs. Forward Current



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Fig. 5 Collector Current vs. Collector-emitter Voltage

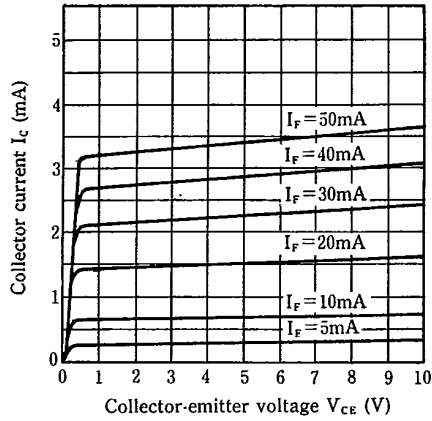


Fig. 6 Relative Collector Current vs. Ambient Temperature

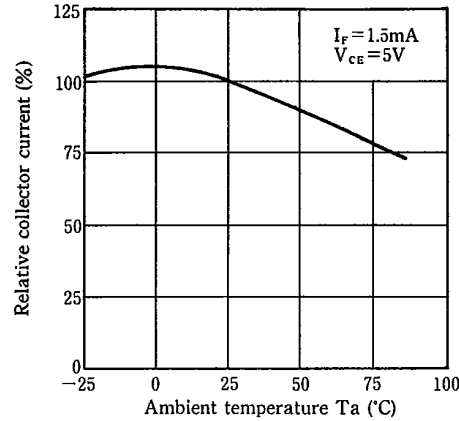


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

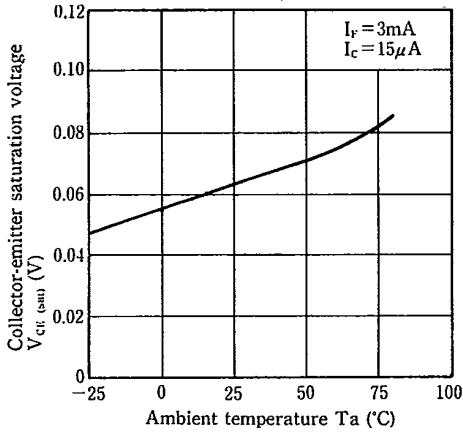


Fig. 8 Collector Dark Current vs. Ambient Temperature

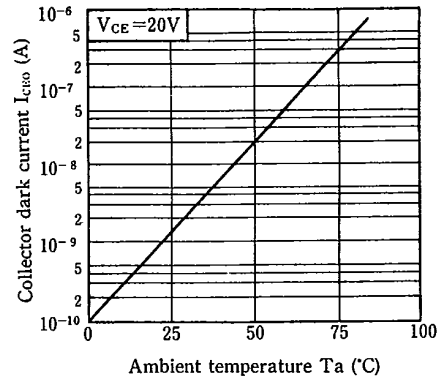
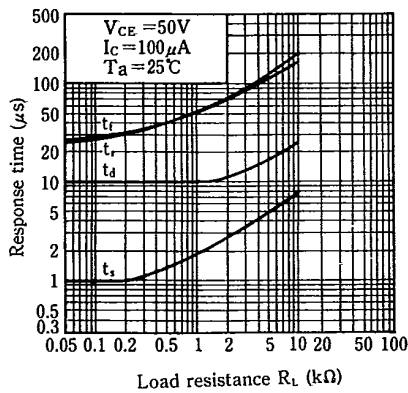
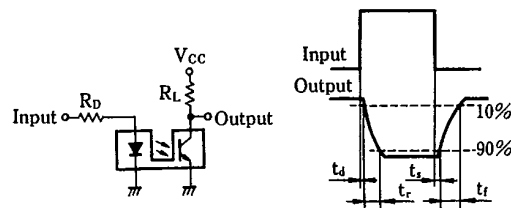


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time



Photointerrupter

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

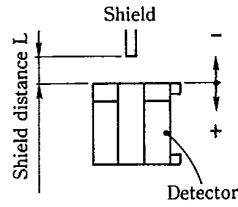
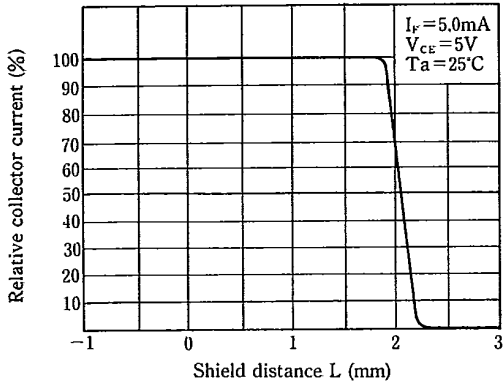


Fig. 11 Relative Collector Current vs. Shield Distance (2)

