

GP1S07 Subminiature PhotoInterrupter

■ Features

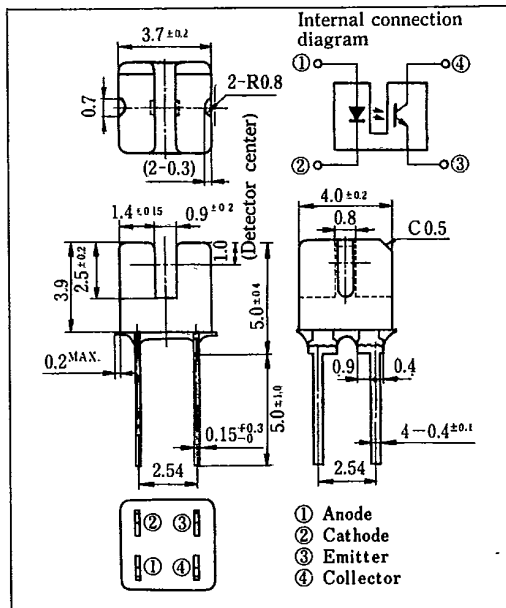
1. Ultra-colmpact (Capacity: 0.06cc) and light
2. PWB mounting type package
3. High sensing accuracy (Slit width: 0.8mm)

■ Applications

1. Still camera
2. Miniprinter
3. Microfloppy disk
4. Compact equipment

■ 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
	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 3 seconds

SHARP

T-41-73

■ 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	μA
Output	Collector dark current	I_{CEO}	$V_{CE}=20\text{V}$	—	—	10^{-7}	A
	Current transfer ratio	CTR	$I_F=1.5\text{mA}$, $V_{CE}=5\text{V}$	4.3	7.3	13.3	%
Transfer characteristics	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=3\text{mA}$, $I_C=30\mu\text{A}$	—	0.08	0.4	V
	Response time (Rise)	t_r	$I_C=0.1\text{mA}$, $V_{CE}=5\text{V}$, $R_L=$	—	50	150	μs
	Response time (Fall)	t_f	$1\text{k}\Omega$	—	50	150	μs

Fig. 1 Forward Current vs. Ambient Temperature

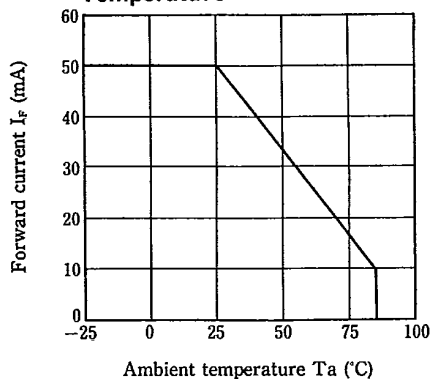


Fig. 2 Power Dissipation vs. Ambient Temperature

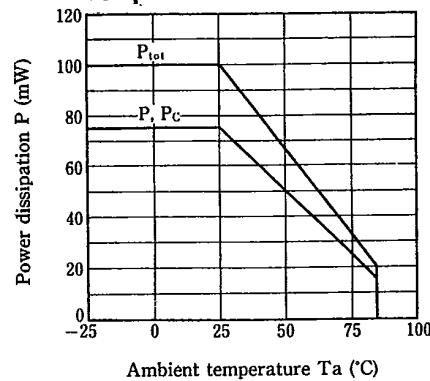


Fig. 3 Forward Current vs. Forward Voltage

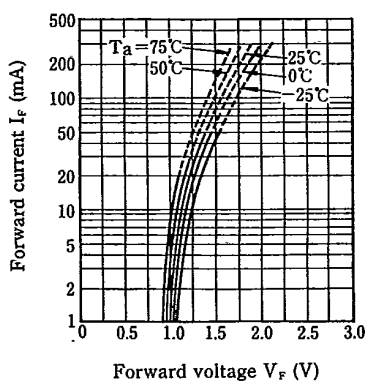
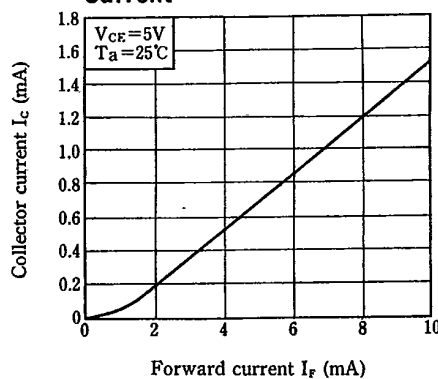


Fig. 4 Collector Current vs. Forward Current



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Fig. 5 Collector Current vs. Collector-emitter Voltage

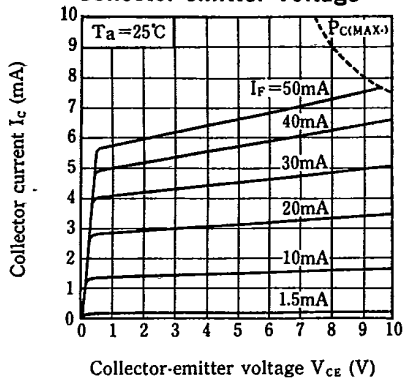


Fig. 6 Collector Current vs. Ambient Temperature

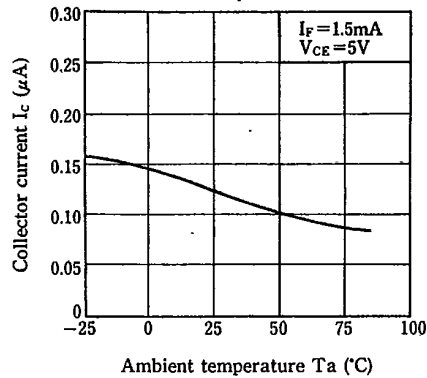


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

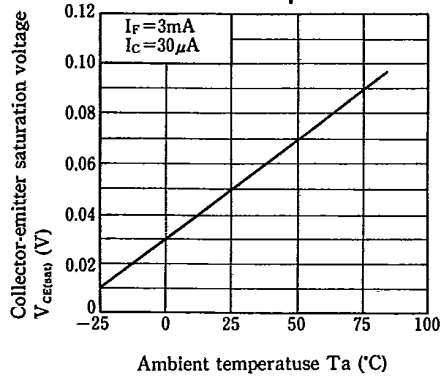


Fig. 8 Collector Dark Current vs. Ambient Temperature

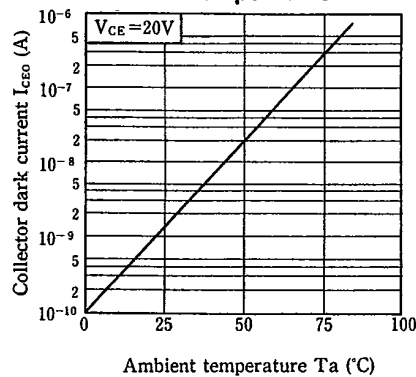
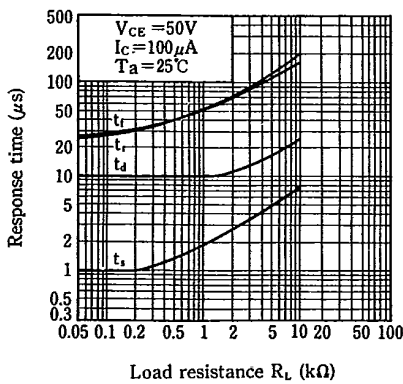


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

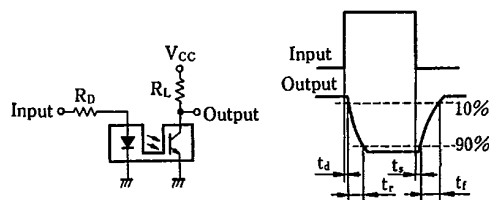


Fig. 10 Relative Collector Current vs. Shield Distance (1)

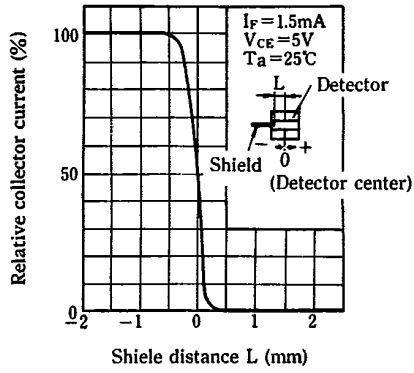


Fig. 11 Relative Collector Current vs. Shield Distance (2)

