

Photointerrupter

GP1L06 Wide Gap Type, High Sensitivity Photointerrupter

T-41.73

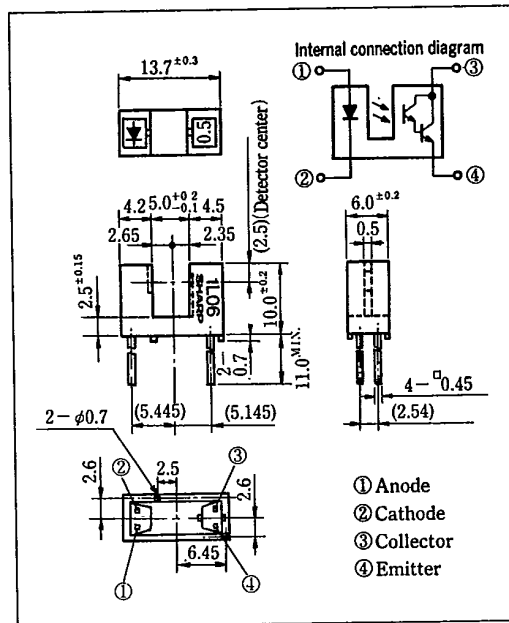
Features

1. Wide gap between light emitter and detector : 5mm
2. High sensing accuracy (slit width : 0.5mm)
3. High current transfer ratio (CTR : MIN. 30% at $I_F=1\text{mA}$)
4. PWB direct mounting type package

Applications

1. Copiers, printers, facsimiles
2. Automatic vending machines

Outline Dimensions (Unit : mm)



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	40	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 $\leq 100\mu\text{s}$, Duty ratio = 0.01

*2 For 5 seconds

SHARP

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Electro-optical Characteristics

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	$I_F=20mA$	—	1.2	1.4	V
	Peak forward voltage	V_{FM}	$I_{FM}=0.5A$	—	3	4	V
	Reverse current	I_R	$V_R=3V$	—	—	10	μA
Output	Collector dark current	I_{CEO}	$V_{CE}=10V$	—	—	10^{-6}	A
	Current transfer ratio	CTR	$I_F=1mA, V_{CE}=2V$	30	—	2,000	%
Transfer characteristics	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=2mA, I_C=0.3mA$	—	—	1.0	V
	Response time (Rise)	t_r	$V_{CE}=2V, I_C=2mA$	—	130	400	μs
	Response time (Fall)	t_f	$R_L=100\Omega$	—	100	350	μs

Fig. 1 Forward Current vs. Ambient Temperature

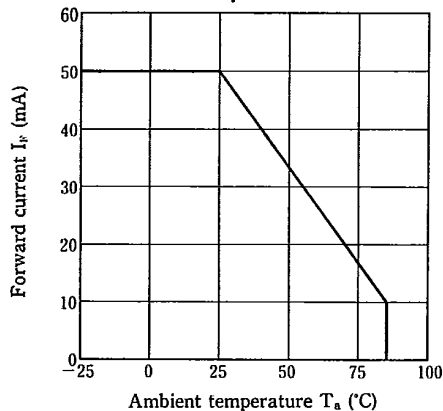


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

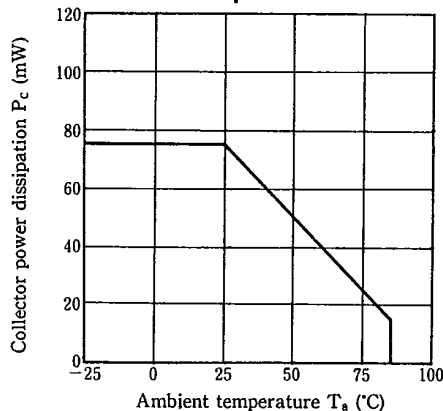


Fig. 3 Peak Forward Current vs. Duty Ratio

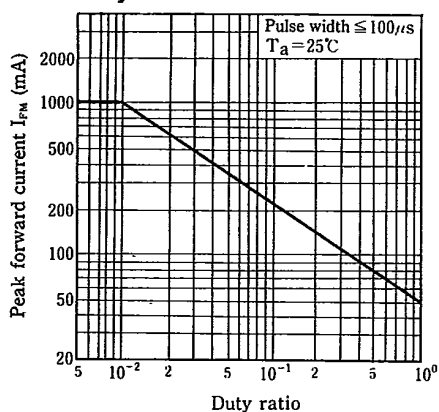
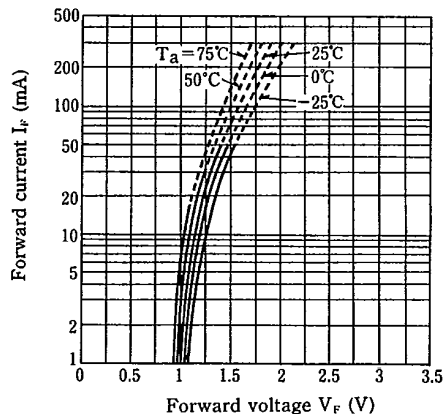


Fig. 4 Forward Current vs. Forward Voltage



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Fig. 5 Collector Current vs. Forward Current

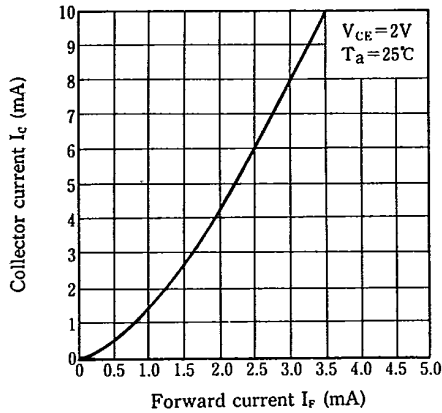


Fig. 6 Collector Current vs. Collector-emitter Voltage

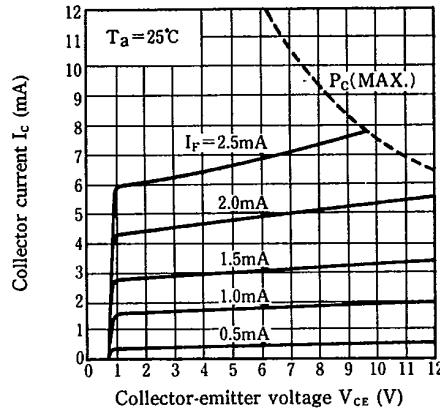


Fig. 7 Collector Current vs. Ambient Temperature

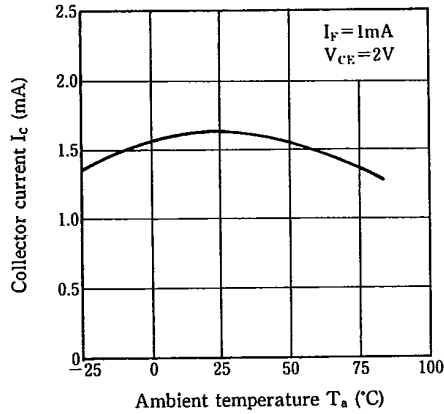


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

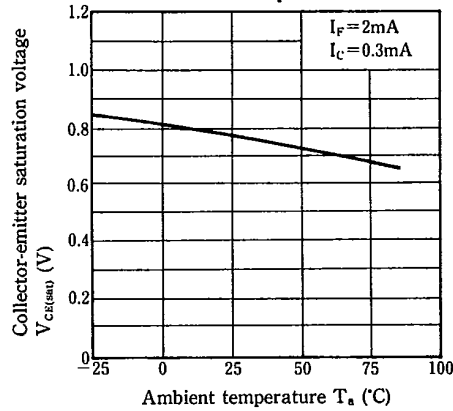
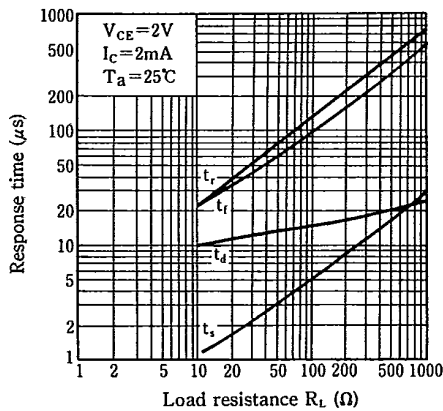
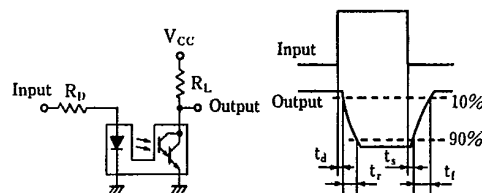


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time



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Fig. 10 Frequency Response

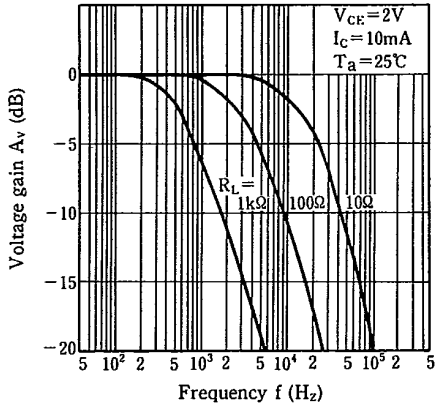


Fig. 11 Collector Dark Current vs. Ambient Temperature

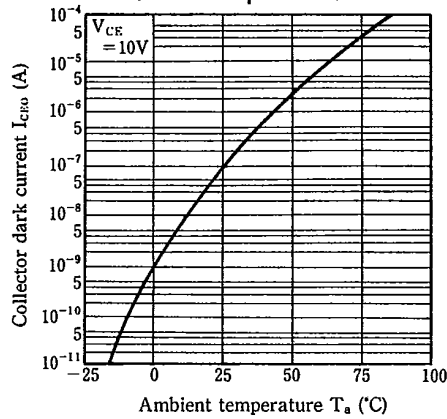


Fig. 12 Relative Collector Current vs. Shield Distance (1)

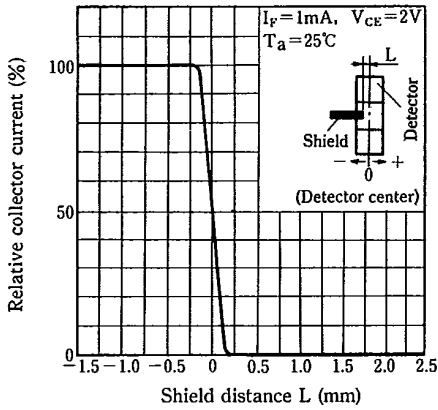


Fig. 13 Relative Collector Current vs. Shield Distance (2)

