

# GP1S50/GP1S51 /GP1S52

## Compact Photointerrupter

### ■ Features

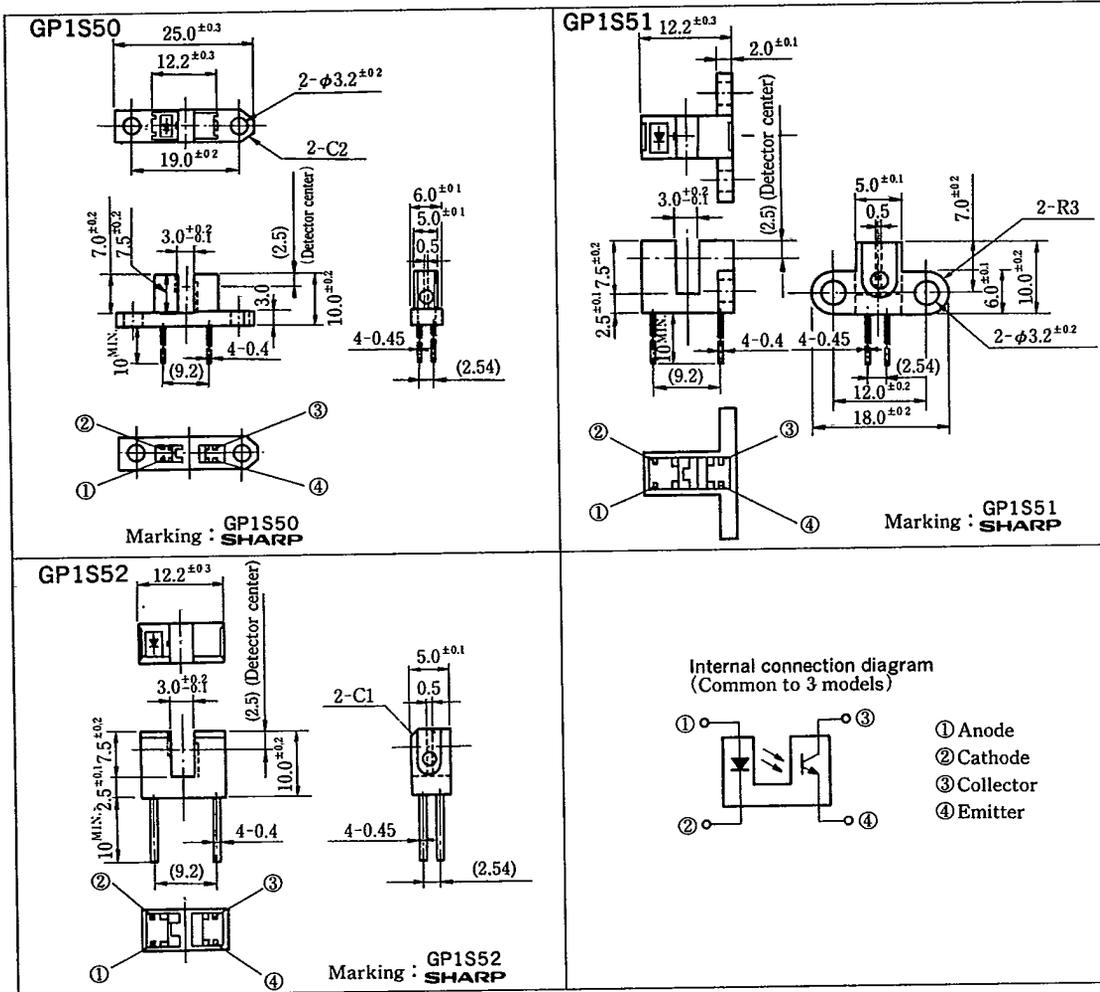
1. Compact type
2. High sensing accuracy (Slit width : 0.5mm)
3. Both-sides mounting type : GP1S50  
Either-side mounting type : GP1S51  
PWB direct mounting type : GP1S52

### ■ Applications

1. OA equipment, such as FDDs, printers, facsimiles
2. VCRs

### ■ 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	$I_C$	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 Pulsj width  $\leq 100\mu s$ , Duty ratio=0.01  
 \*2 For 5 seconds

■ Electro-optical Characteristics (Ta=25°C)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$	$I_F=20mA$	—	1.25	1.4	V
	Peak forward voltage	$V_{FM}$	$I_{FM}=0.5A$	—	3	4	V
	Reverse current	$I_R$	$V_R=3V$	—	—	10	$\mu A$
Output	Collector dark current	$I_{CEO}$	$V_{CE}=20V$	—	$10^{-9}$	$10^{-7}$	A
Transfer characteristics	Current transfer ratio	CTR	$I_F=20mA, V_{CE}=5V$	2.5	—	25	%
	Collector-emitter saturation voltage	$V_{CE(SAT)}$	$I_F=40mA, I_C=0.5mA$	—	—	0.4	V
	Response time (Rise)	$t_R$	$V_{CE}=2V, I_C=2mA$	—	3	15	$\mu s$
	Response time (Fall)	$t_F$	$R_L=100\Omega$	—	4	20	$\mu s$

Fig. 1 Forward Current vs. Ambient Temperature

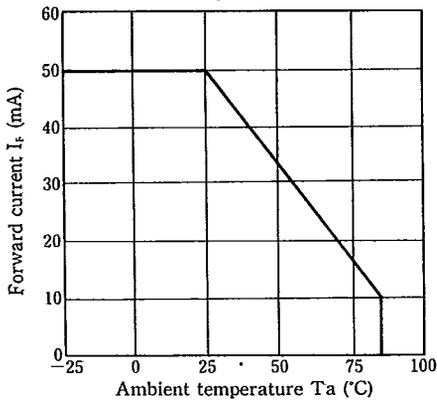
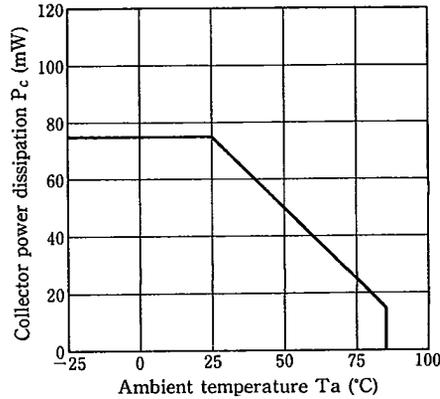
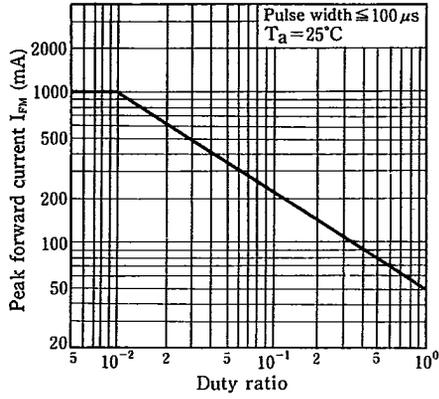


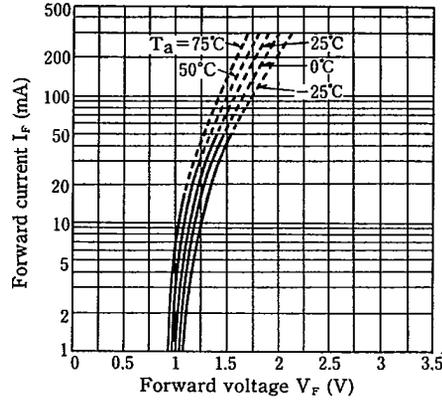
Fig. 2 Collector Power Dissipation vs. Ambient Temperature



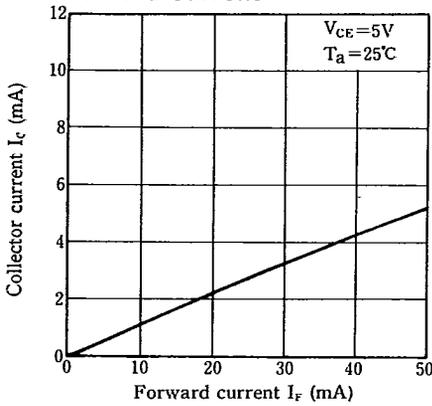
**Fig. 3 Peak Forward Current vs. Duty Ratio**



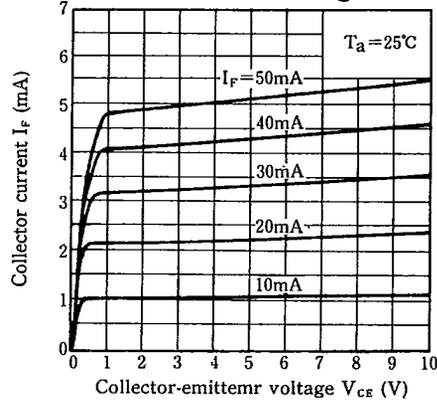
**Fig. 4 Forward Current vs. Forward Voltage**



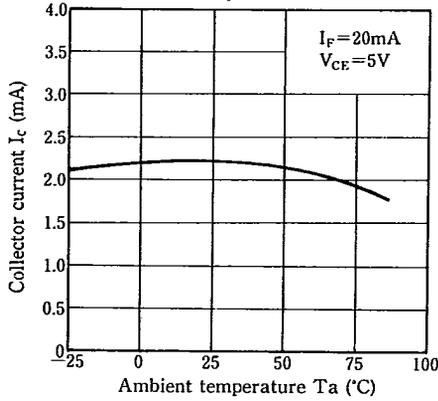
**Fig. 5 Collector Current vs. Forward Current**



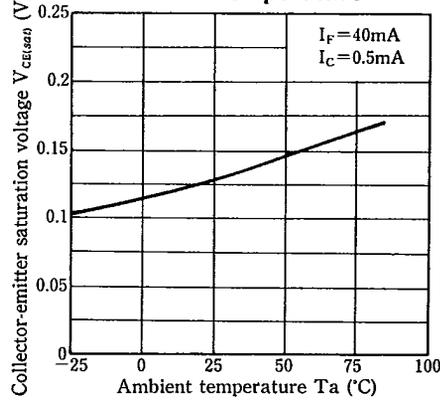
**Fig. 6 Collector Current vs. Collector-emitter Voltage**



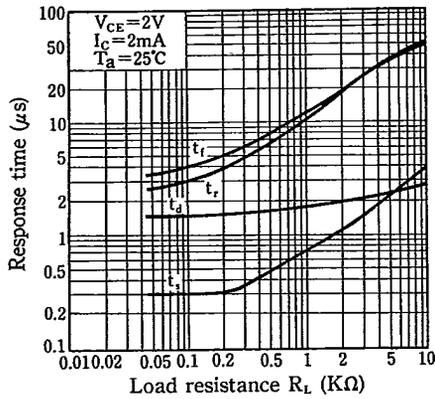
**Fig. 7 Collector Current vs. Ambient Temperature**



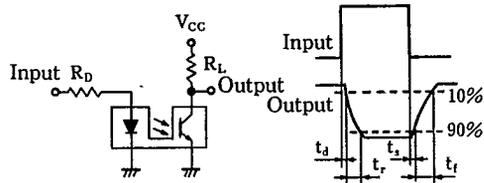
**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



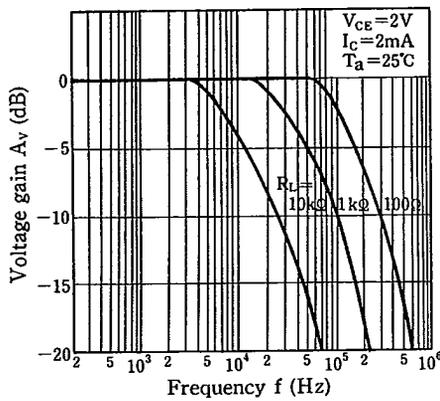
**Fig. 9 Response Time vs. Load Resistance**



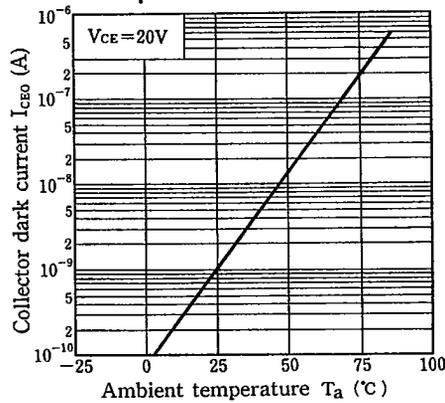
**Test Circuit for Response Time**



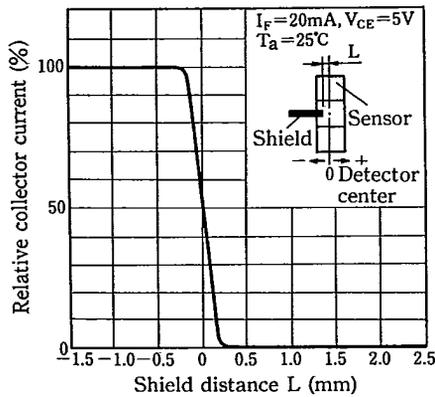
**Fig. 10 Frequency Response**



**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)**

