

# GP1S50/GP1S51V GP1S52V/GP1S54

## General Purpose Photointerrupter

### Features

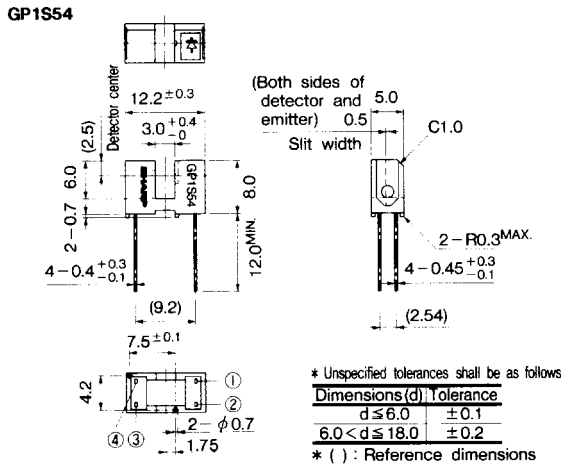
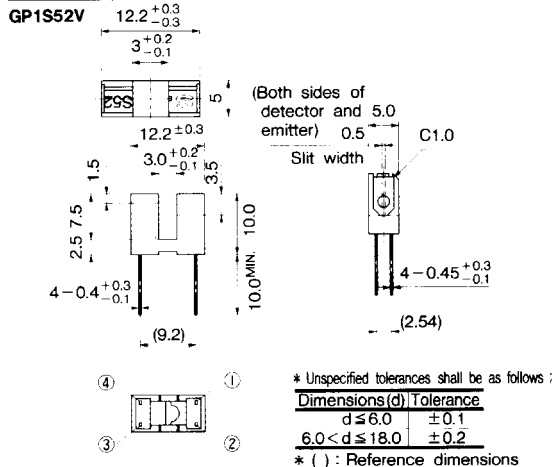
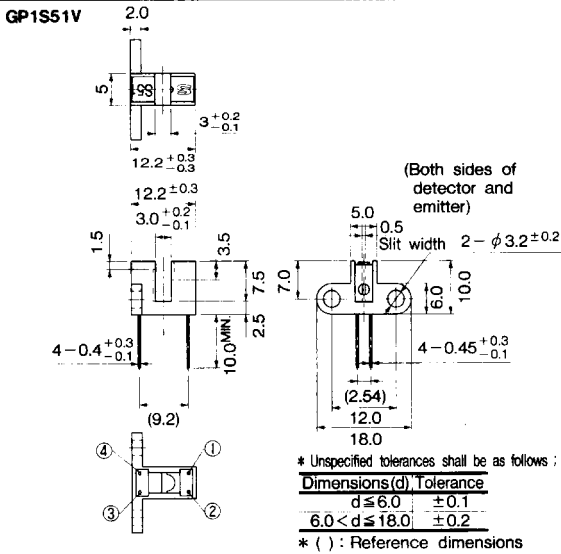
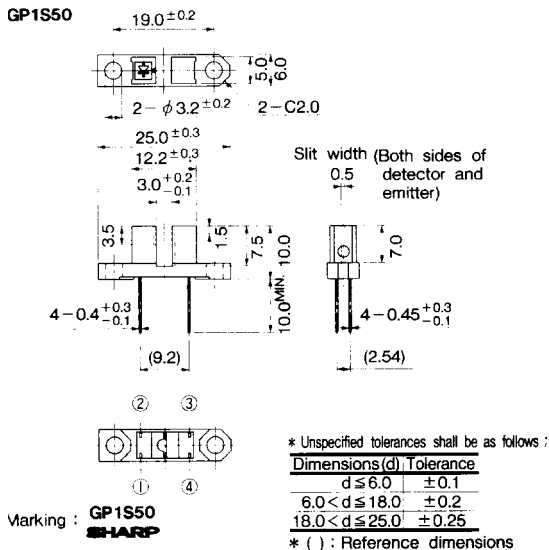
1. High sensing accuracy (Slit width : 0.5mm)
2. Both-sides mounting type: **GP1S50** (Case height: 10mm)  
 Either-side mounting type: **GP1S51V** (Case height: 10mm)  
 PWB direct mounting type: **GP1S52V** (Case height: 10mm)  
 PWB direct mounting type : **GP1S54** (Case height: 8mm)

### Applications

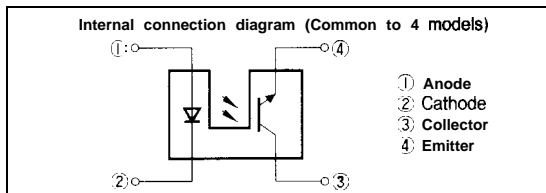
1. OA equipment, such as FDDs, printers, facsimiles
2. VCRs

### Outline Dimensions

(Unit : mm)



8



## 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 to +85	°C
Storage temperature		$T_{str}$	-40 to +100	°C
*2 Soldering temperature		$T_{sol}$	260	°C

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

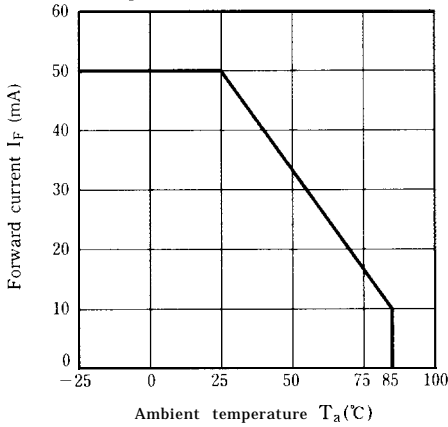
\*2 For 5 seconds

## Electro-optical Characteristics

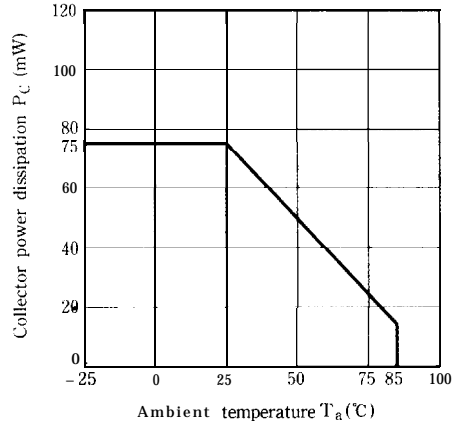
(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	$V_F$	$I_F = 20mA$		1.25	1.4	V	
					—	1.2		1.4
	Peak forward voltage	$V_{FM}$	$I_{FM} = 0.5A$		3	4	v	
	Reverse current	$I_R$	$V_R = 3V$			$10^{-5}$	$\mu A$	
output	Collector dark current	$I_{CEO}$	$V_{CE} = 20V$	—	1	100	nA	
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 time	$t_R$	$V_{CE} = 2V, I_{CE} = 2mA$	—	3	15	$\mu s$
		Fall time	$t_F$	$R_L = 100\Omega$	—	4	20	$\mu s$

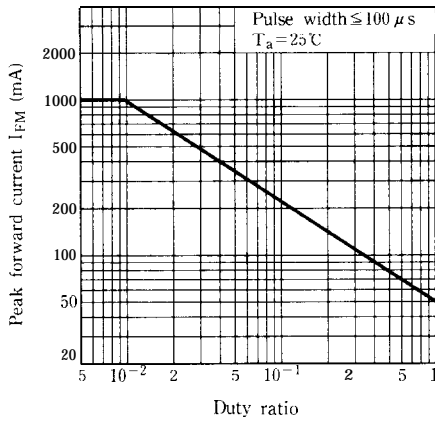
**Fig. 1 Forward Current vs. Ambient Temperature**



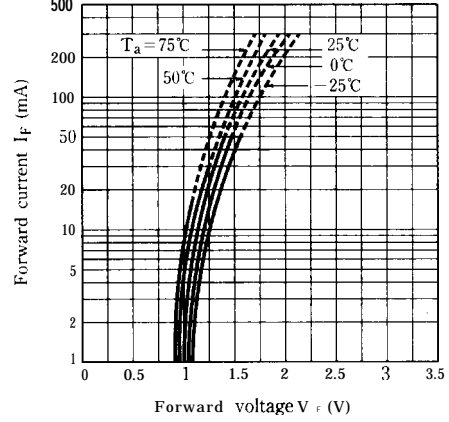
**Fig. 2 Collector Power Dissipation vs. Ambient Temperature**



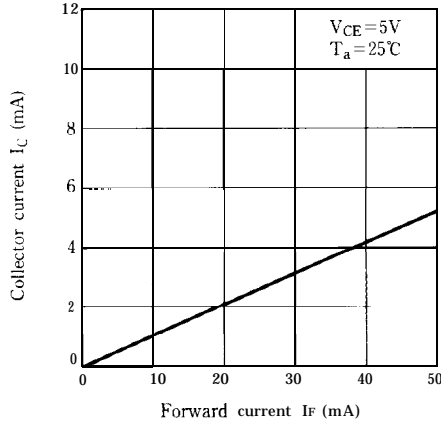
**Fig. 3 Peak Forward Current vs. Duty Ratio**



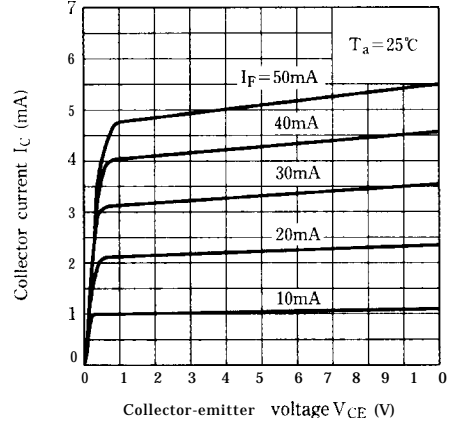
**Fig. 4 Forward Current vs. Forward Voltage**



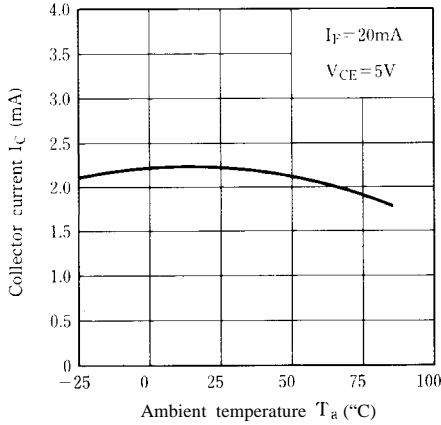
**Fig. 5 Collector Current vs. Forward Current**



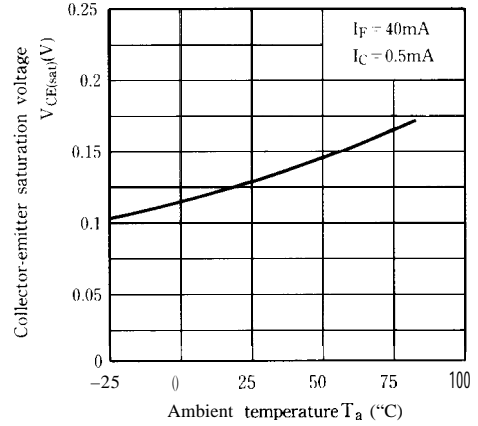
**Fig. 6 Collector Current vs. Collector-emitter Voltage**



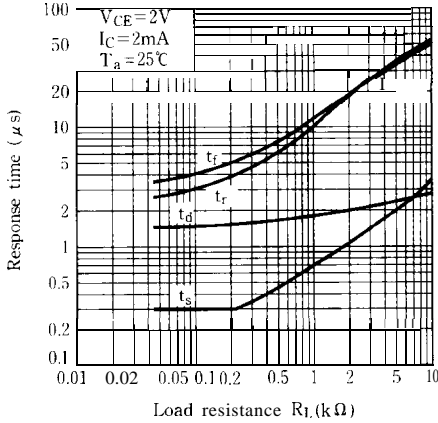
**Fig. 7 Collector Current vs. Ambient Temperature**



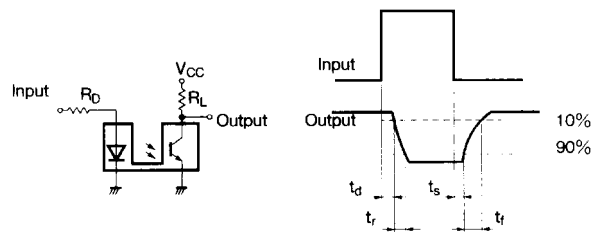
**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



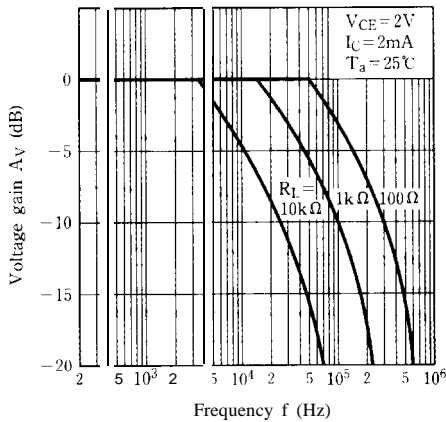
**Fig. 9 Response Time vs. Load Resistance**



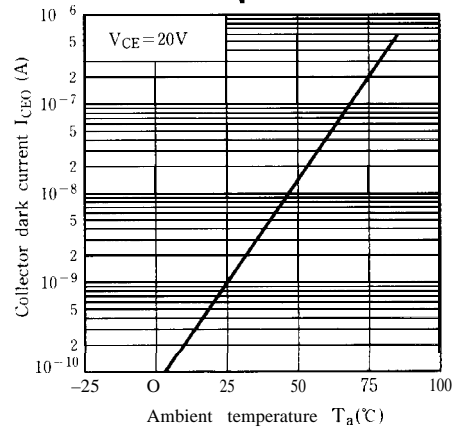
**Test Circuit for Response Time**



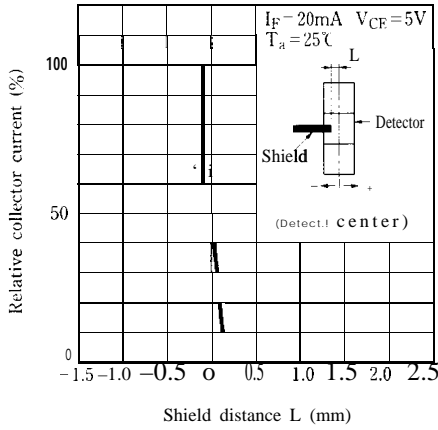
**Fig. 10 Frequency Response**



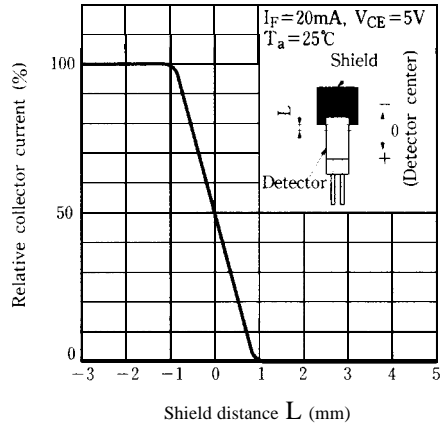
**Fig. 11 Collector Dark Current vs. Ambient Temperature**



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



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



■ Precautions for Use

- (1) In case of cleaning, use only the following type of cleaning solvent.  
 Ethyl alcohol, methyl alcohol, Isopropyl alcohol
- (2) Please refer to the chapter "Precautions for Use." (Page 78 to 93).