

# GP1S50/GP1S51V GP1S52V/GP1S54

## General Purpose Photointerrupter

### ■ Features

- High sensing accuracy (Slit width : 0.5mm)
- 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)

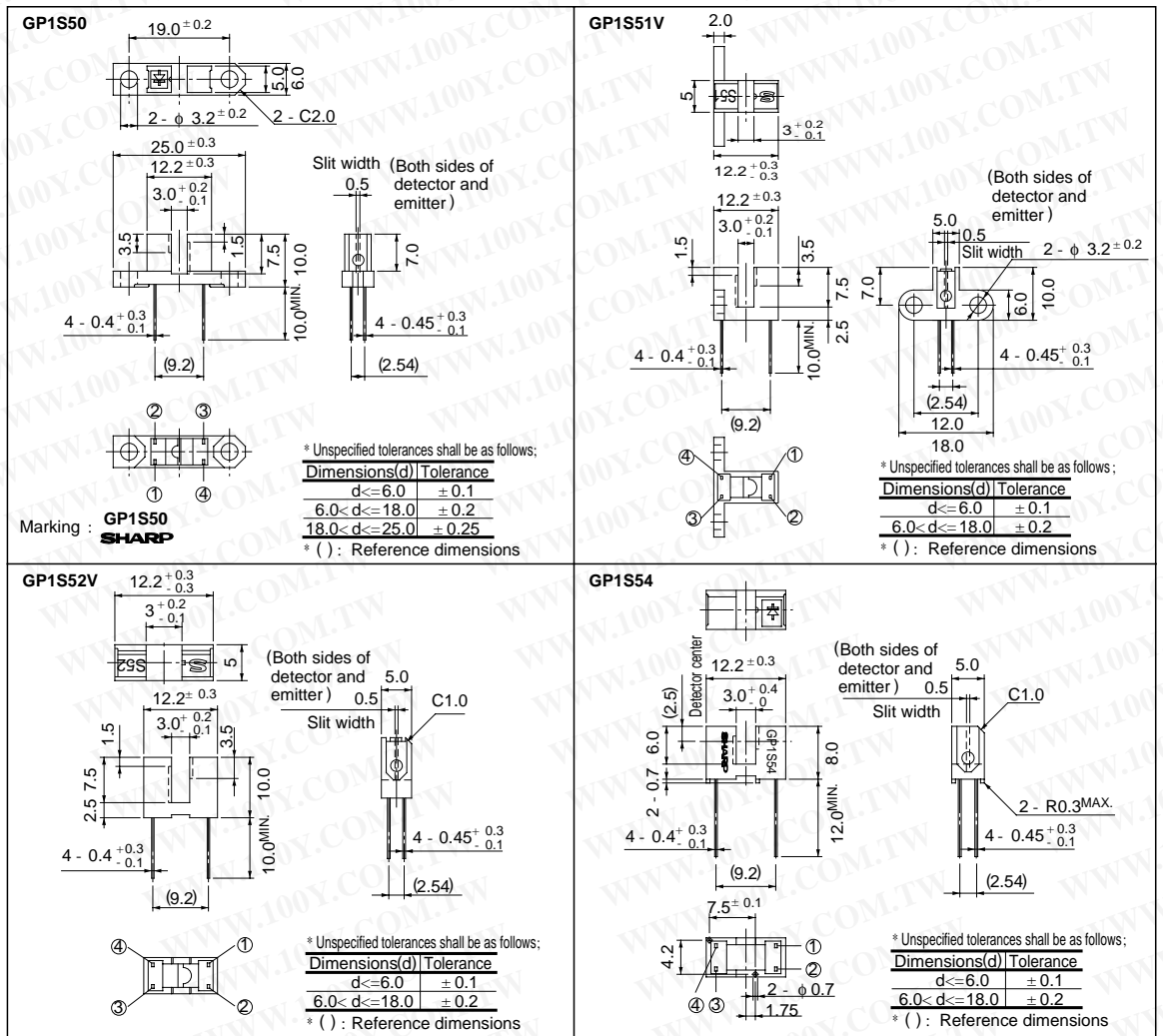
### ■ Applications

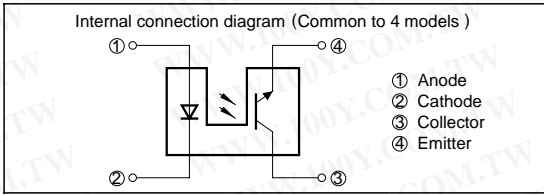
- OA equipment, such as FDDs, printers, facsimiles
- VCRs

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### ■ 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 to + 85	°C
Storage temperature		$T_{stg}$	- 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

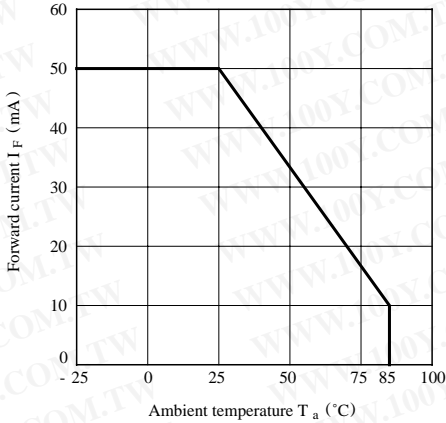
## Electro-optical Characteristics

(Ta = 25°C)

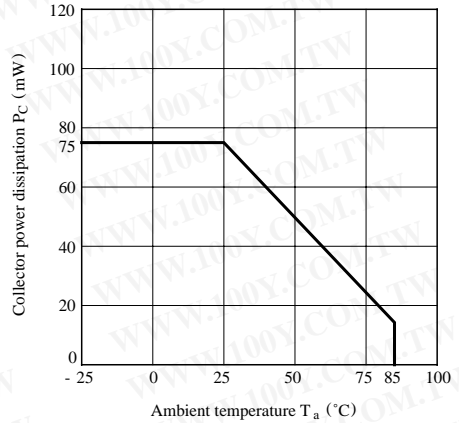
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	GP1S50/ GP1S51V/ GP1S52V	$I_F = 20\text{mA}$	-	1.25	1.4	V	
		<b>GP1S54</b>		-	1.2	1.4		
	Peak forward voltage	$V_{FM}$	$I_{FM} = 0.5\text{A}$	-	3	4	V	
Reverse current		$I_R$	$V_R = 3\text{V}$	-	-	10	$\mu\text{A}$	
Output	Collector dark current	$I_{CEO}$	$V_{CE} = 20\text{V}$	-	1	100	nA	
Transfer characteristics	Collector Current		$I_C$	$I_F = 20\text{mA}, V_{CE} = 5\text{V}$	0.5	-	5	mA
	Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_F = 40\text{mA}, I_C = 0.5\text{mA}$	-	-	0.4	V
	Response time	Rise time	$t_R$	$V_{CE} = 2\text{V}, I_{CE} = 2\text{mA}$	-	3	15	$\mu\text{s}$
		Fall time	$t_F$	$R_L = 100\Omega$	-	4	20	$\mu\text{s}$

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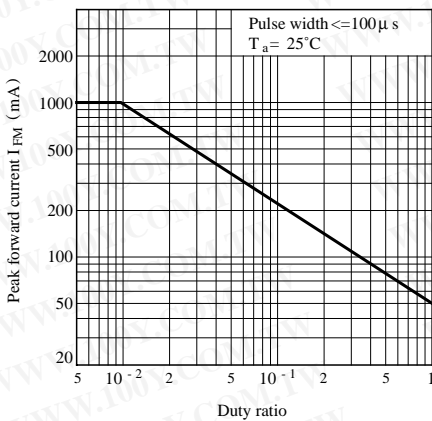
**Fig. 1 Forward Current vs. Ambient Temperature**



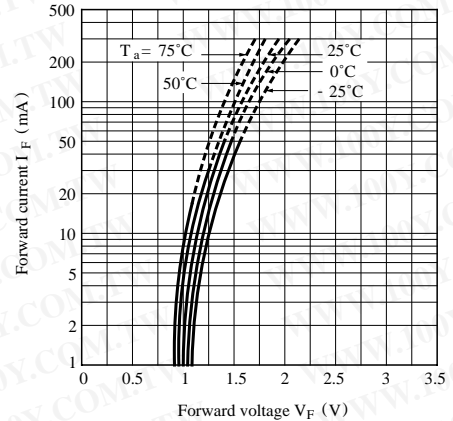
**Fig. 2 Collector Power Dissipation vs. Ambient Temperature**



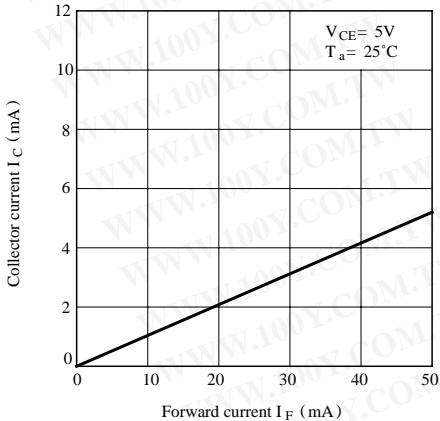
**Fig. 3 Peak Forward Current vs. Duty Ratio**



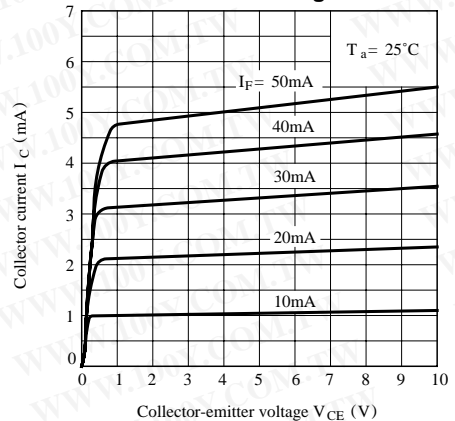
**Fig. 4 Forward Current vs. Forward Voltage**



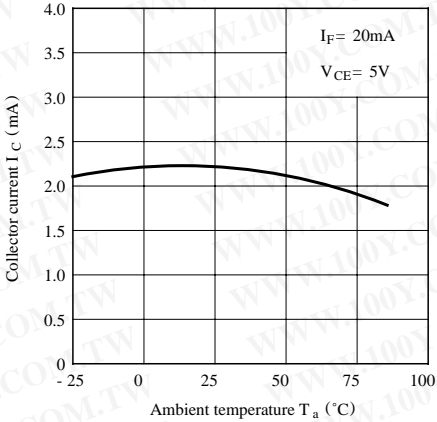
**Fig. 5 Collector Current vs. Forward Current**



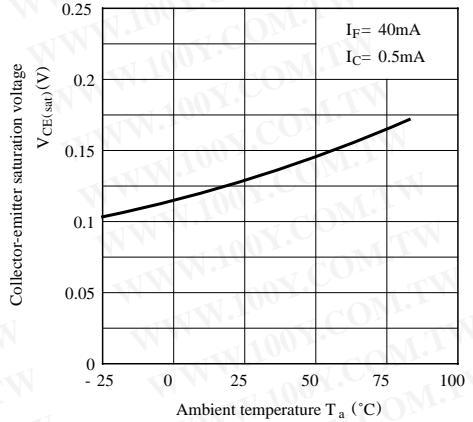
**Fig. 6 Collector Current vs. Collector-emitter Voltage**



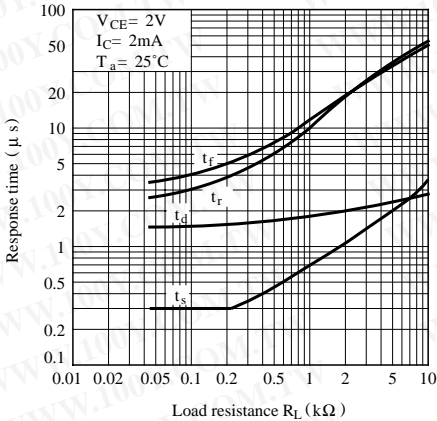
**Fig. 7 Collector Current vs. Ambient Temperature**



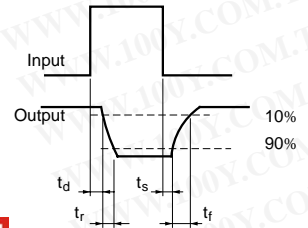
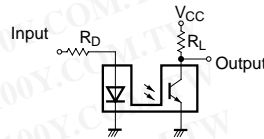
**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



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

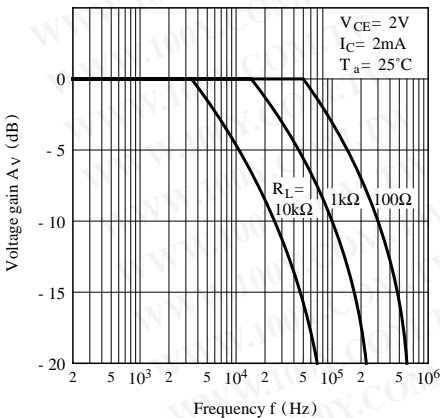


**Test Circuit for Response Time**

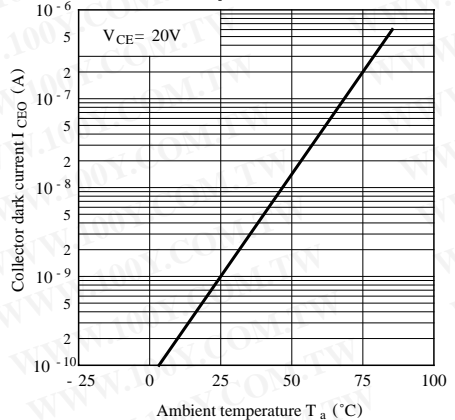


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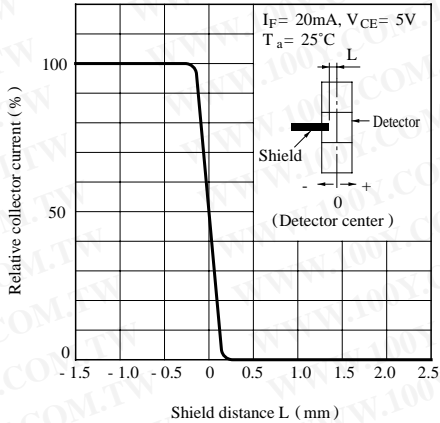
**Fig.10 Frequency Response**



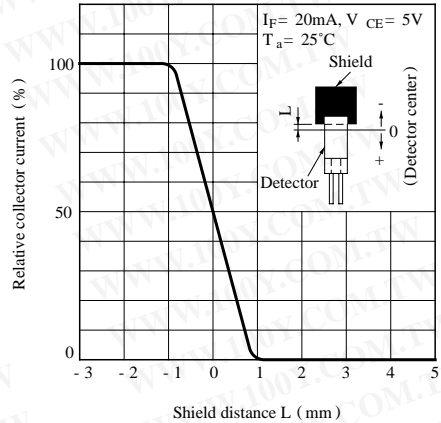
**Fig.11 Collector Dark Current vs. Ambient Temperature**



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



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



### ■ 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".

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