

# GP1L50/GP1L51 GP1L52V/GP1L54

## High Sensitivity Photointerrupter

### ■ Features

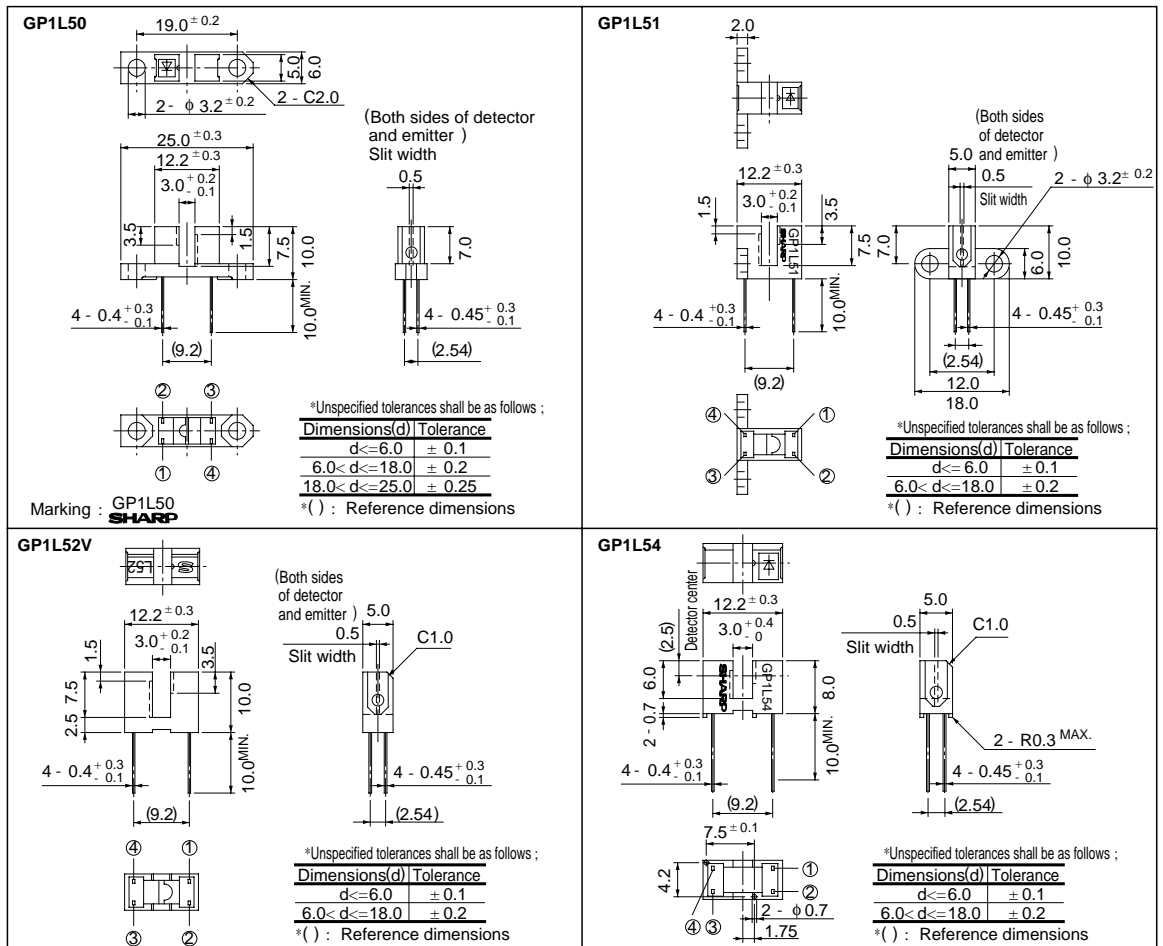
1. High sensing accuracy (Slit width: 0.5mm)
2. High current transfer ratio  
(CTR: MIN. 50% at  $I_F = 1\text{mA}$ )
3. Both-sides mounting type: **GP1L50** (Case height: 10mm)  
Either-side mounting type: **GP1L51** (Case height: 10mm)  
PWB direct mounting type: **GP1L52V** (Case height: 10mm)  
PWB direct mounting type: **GP1L54** (Case height: 8mm)

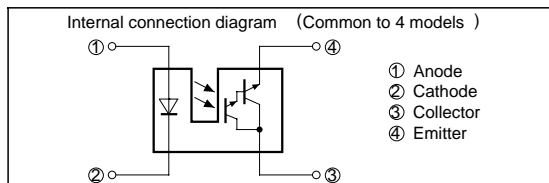
### ■ Applications

1. OA equipment, such as floppy disk drives, printers, facsimiles, etc.
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	$I_C$	40	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	$V_F$	$I_F = 20mA$	-	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	$I_{CEO}$	$V_{CE} = 10V$	-	-	$10^{-6}$	A			
Transfer characteristics	Collector Current	$I_C$	$I_F = 1mA, V_{CE} = 2V$	0.5	-	20	mA			
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 2mA, I_C = 0.5mA$	-	-	1.0	V			
			Response time	Rise time	$t_r$	$V_{CE} = 2V, I_C = 2mA$	-	80	400	$\mu s$
				Fall time	$t_f$	$R_L = 100\Omega$	-	70	300	$\mu s$

Fig. 1 Forward Current vs. Ambient Temperature

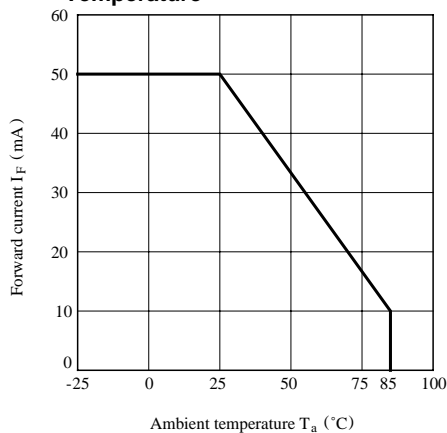
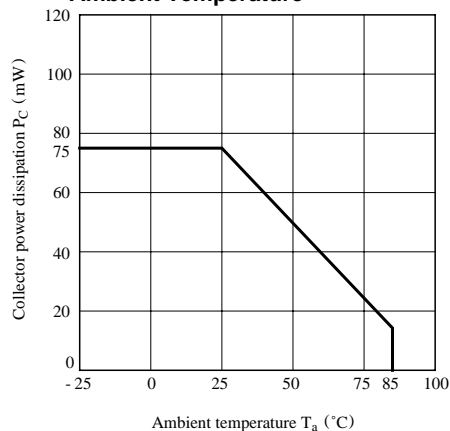
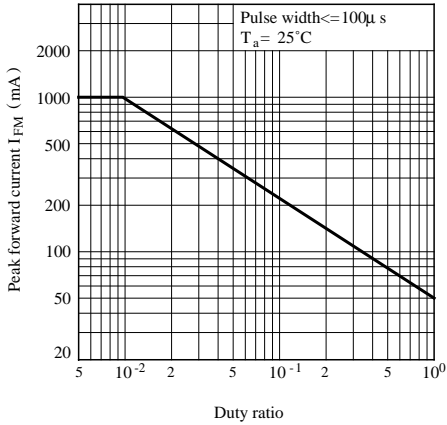


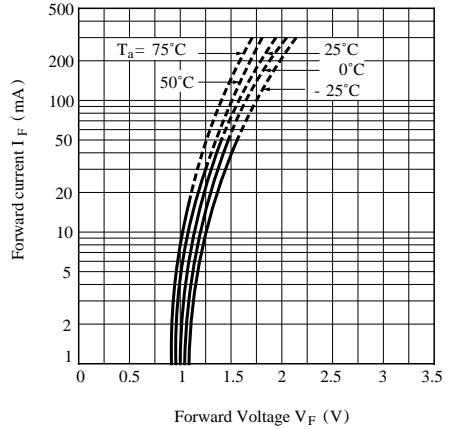
Fig. 2 Collector Power Dissipation vs. Ambient Temperature



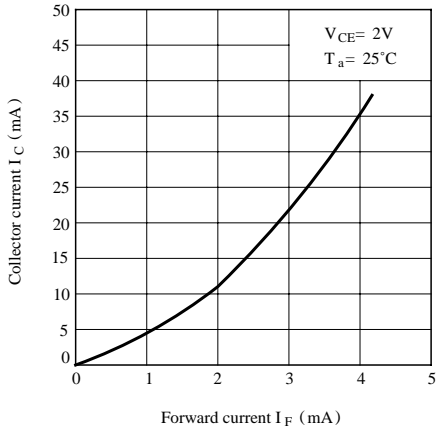
**Fig. 3 Peak Forward Current vs. Duty Ratio**



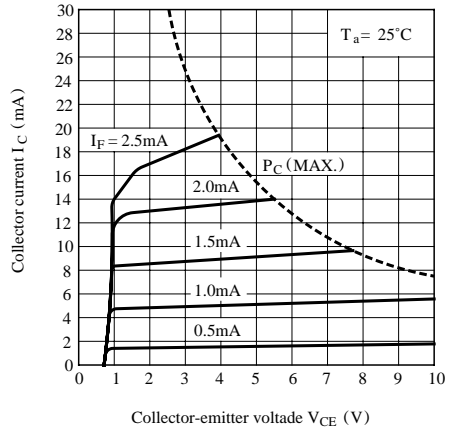
**Fig. 4 Forward Current vs. Forward Voltage**



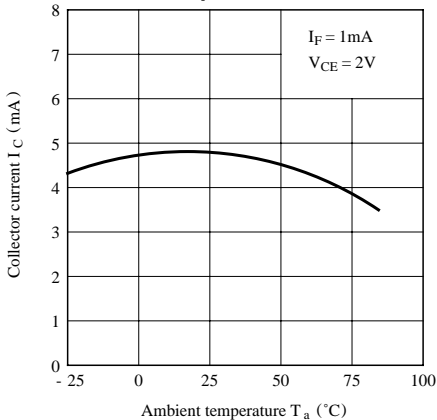
**Fig. 5 Collector Current vs. Forward Current**



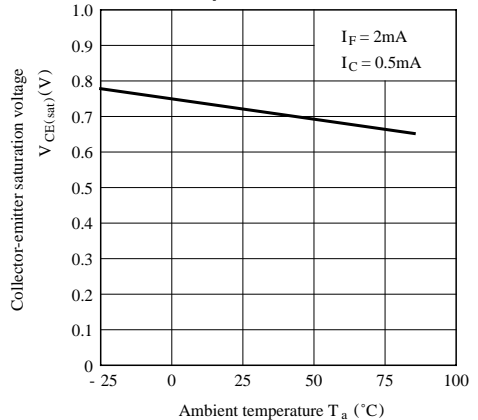
**Fig. 6 Collector Current vs. Collector-emitter Voltage**



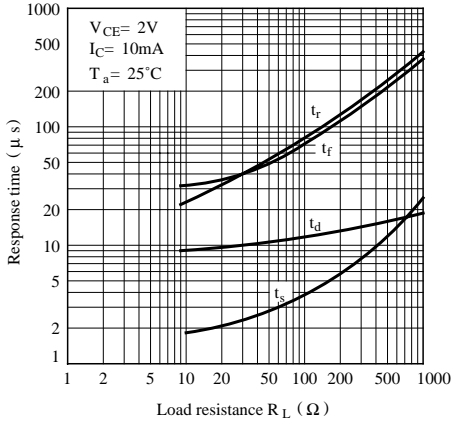
**Fig. 7 Collector Current vs. Ambient Temperature**



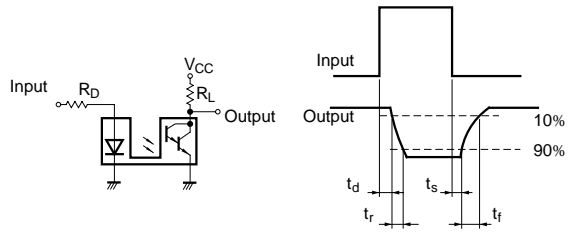
**Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



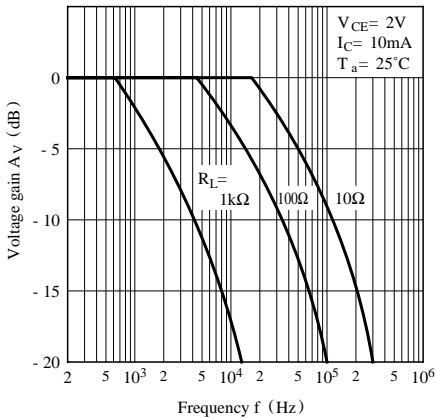
**Fig. 9 Response Time vs. Load Resistance**



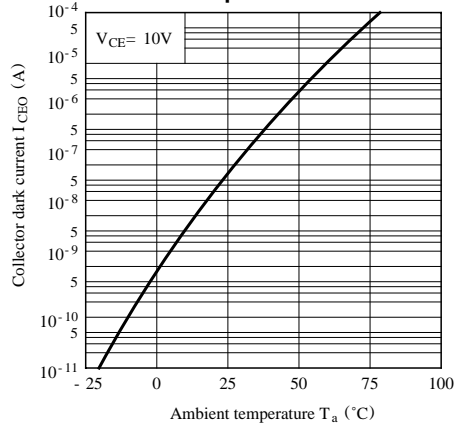
**Test Circuit for Response Time**



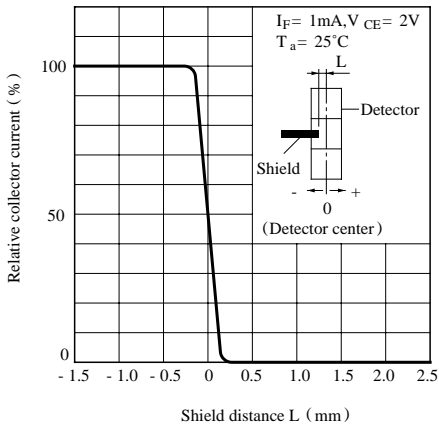
**Fig.10 Frequency Response**



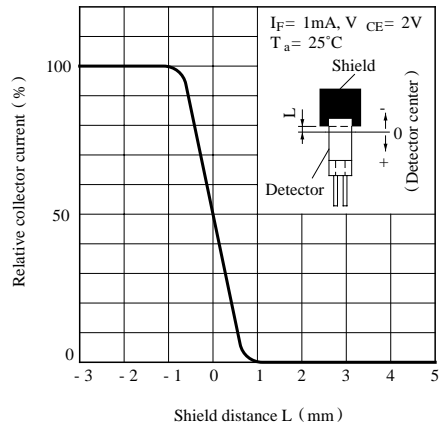
**Fig.11 Collector Dark Current vs. Ambient Temperature**



**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) As for other general cautions, refer to the chapter“Precautions for Use”.