

GP1S53V/GP1S58V

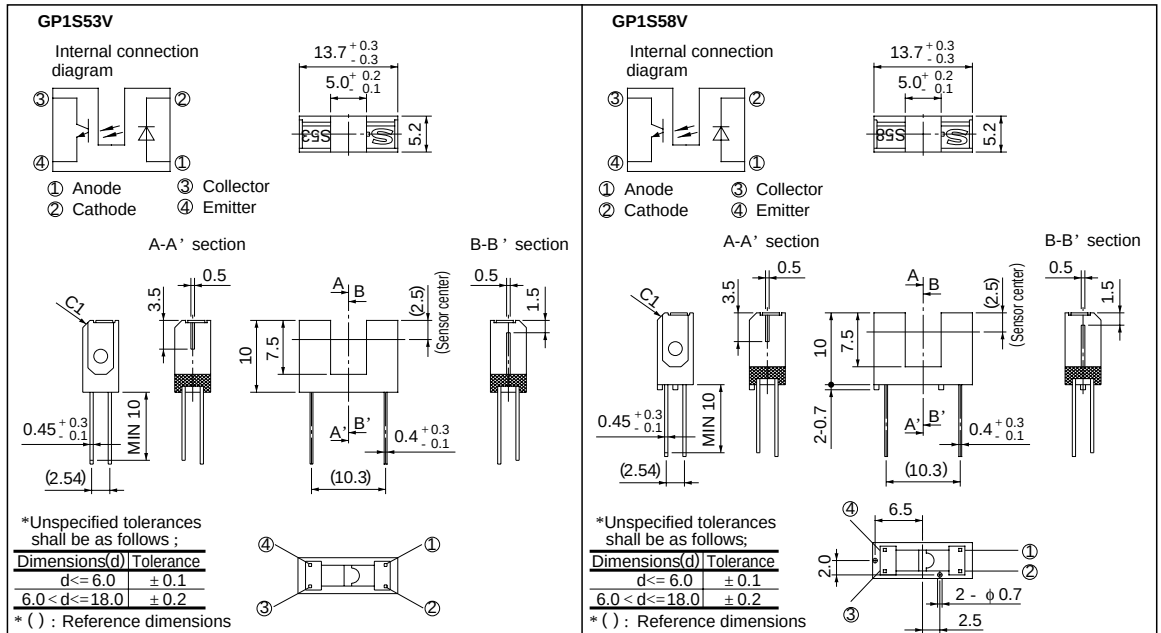
Compact Photointerrupter

■ Features

1. Compact type
2. High sensing accuracy (Slit width : 0.5mm)
3. PWB direct mounting type
4. With positioning pin (**GP1S58V**)

■ 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 ≤ 100 μs, 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	$I_F = 20\text{mA}$	-	1.25	1.4	V
	Peak forward voltage		V_{FM}	$I_{FM} = 0.5\text{A}$	-	3	4	V
	Reverse current		I_R	$V_R = 3\text{V}$	-	-	10	μA
Output	Collector dark current		I_{CEO}	$V_{CE} = 20\text{V}$	-	1	100	nA
Transfer charac- teristics	Collector Current		I_c	$I_F = 20\text{mA}, V_{CE} = 5\text{V}$	0.5	-	1.5	mA
	Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_F = 40\text{mA}, I_C = 0.2\text{mA}$	-	-	0.4	V
	Response time	Rise time	t_r	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$	-	3	15	μs
		Fall time	t_f		-	4	20	μs

Fig. 1 Forward Current vs. Ambient Temperature

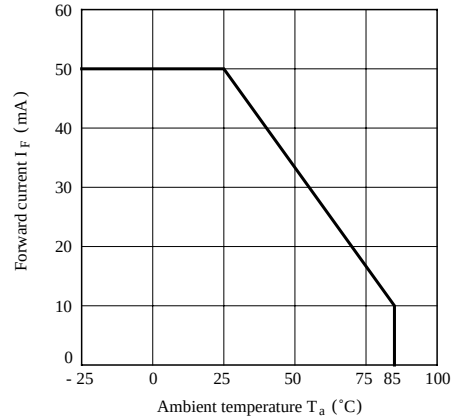


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

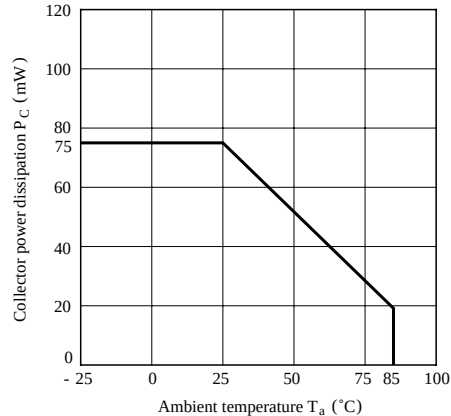


Fig. 3 Peak Forward Current vs. Duty Ratio

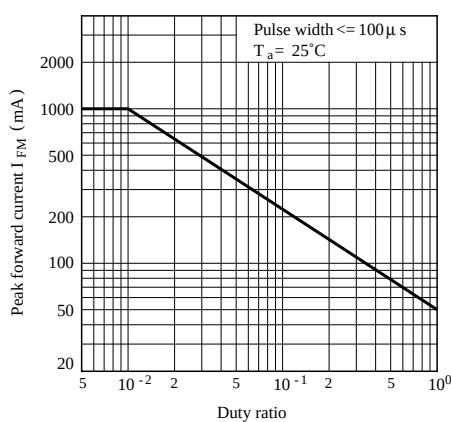


Fig. 4 Forward Current vs. Forward Voltage

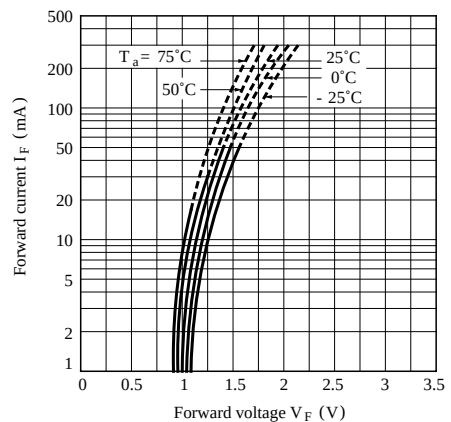


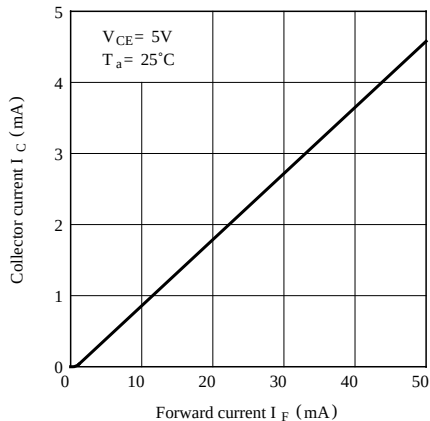
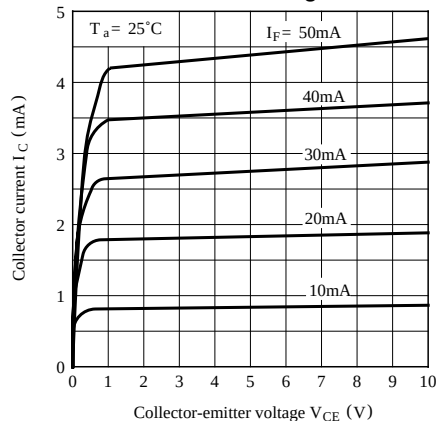
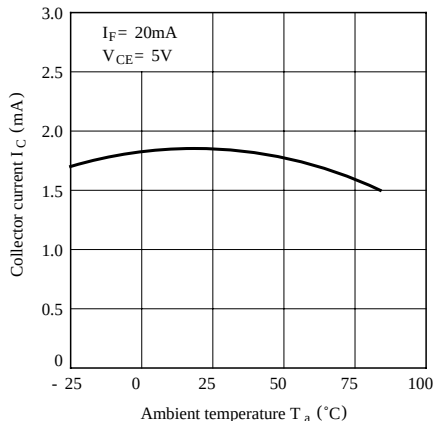
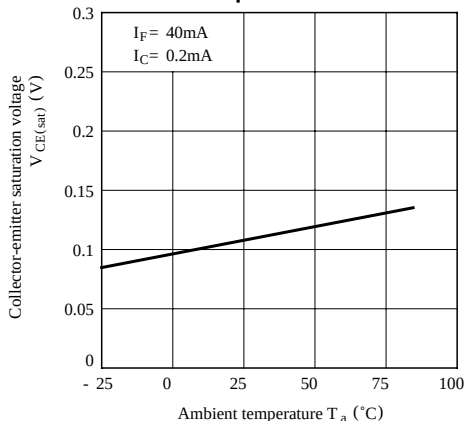
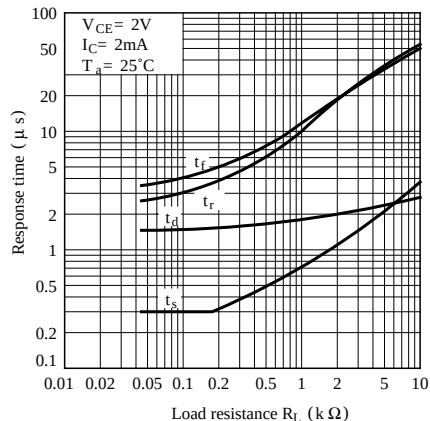
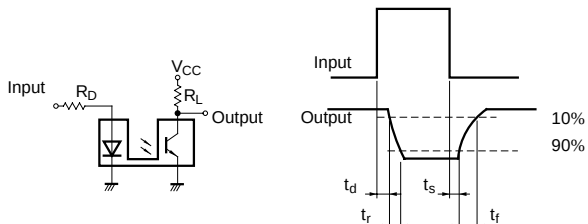
Fig. 5 Collector Current vs. Forward Current**Fig. 6 Collector Current vs. Collector-emitter Voltage****Fig. 7 Collector Current vs. Ambient Temperature****Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature****Fig. 9 Response Time vs. Load Resistance****Test Circuit for Response Time**

Fig.10 Frequency Response

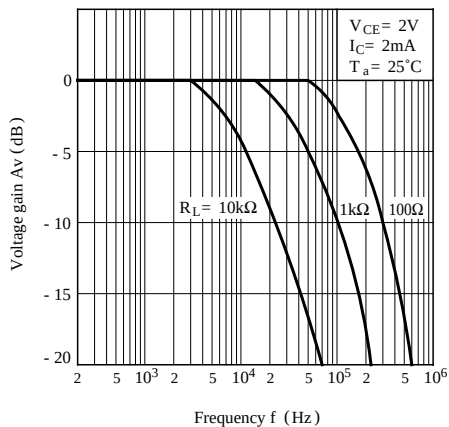


Fig.11 Collector Dark Current vs. Ambient Temperature

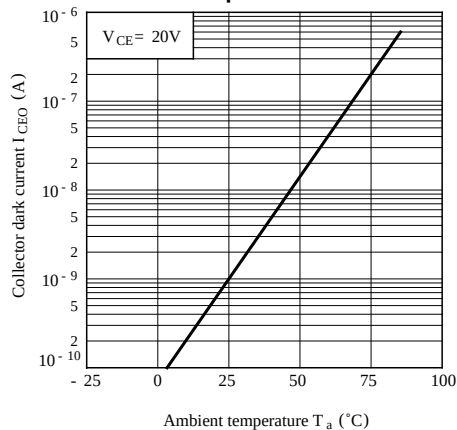


Fig.12 Relative Collector Current vs. Shield Distance (1)

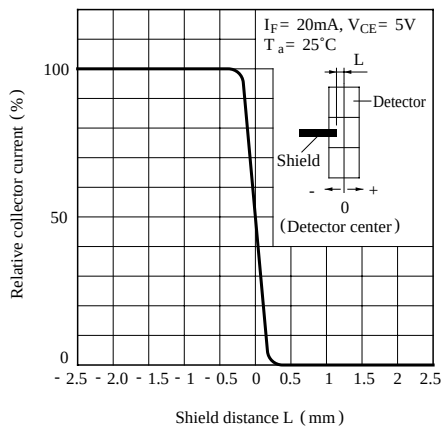
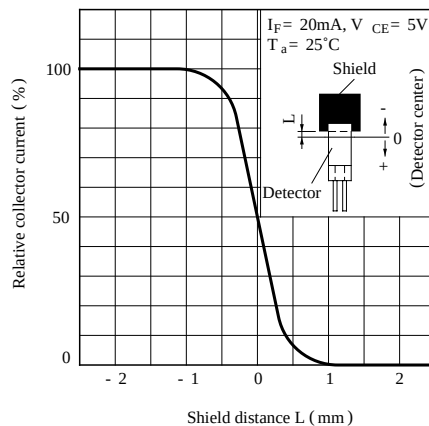


Fig.13 Relative Collector Current vs. Shield Distance (2)



■ 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".

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