# 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

## ■ Applications

- 1. OA equipment, such as FDDs, printers, facsimiles
- 2. VCRs
- 3. Optoelectronic switches

(Unit: mm)

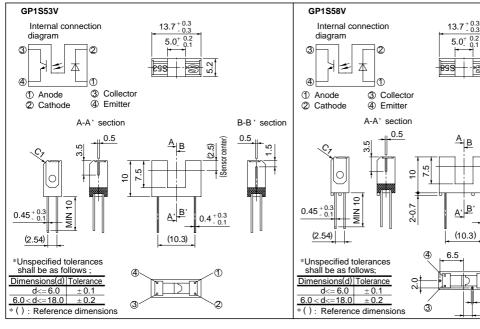
B-B' section

Sensor center)

 $0.4^{+0.3}_{-0.1}$ 

2 -  $\phi$  0.7

2.5



## ■ Absolute Maximum Ratings (Ta= 25°C)

	Parameter	Symbol	Rating	Unit	
Input	Forward current	$I_F$	50	mA	
	*1Peak forward current	I <sub>FM</sub>	1	A	
	Reverse voltage	V <sub>R</sub>	6	V	
	Power dissipation	P	75	mW	
Output	Collector-emitter voltage	V <sub>CEO</sub>	35	V	
	Emitter-collector voltage	V <sub>ECO</sub>	6	V	
	Collector current	Ic	20	mA	
	Collector power dissipation	Pc	75	mW	
Operating temperature		Topr	- 25 to + 85	°C	
Storage temperature		T <sub>stg</sub>	- 40 to + 100	°C	
*2 Soldering temperature		T <sub>sol</sub>	260	°C	

<sup>\*1</sup> Pulse width <= 100 \mu s, Duty ratio= 0.01

<sup>\*2</sup> For 5 seconds

## **■** Electro-optical Characteristics

 $(Ta = 25^{\circ}C)$ 

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage		VF	$I_F = 20 \text{mA}$	-	1.25	1.4	V
	Peak forward voltage		V <sub>FM</sub>	$I_{FM} = 0.5A$	-	3	4	V
	Reverse current		$I_R$	$V_R = 3V$	-	-	10	μΑ
Output	Collector dark current		I <sub>CEO</sub>	$V_{\text{CE}} = 20V$	-	1	100	nA
Transfer characteristics	Collector Current		Ic	$I_F = 20mA, V_{CE} = 5V$	0.5	-	1.5	mA
	Collector-emitter saturation voltage		V <sub>CE(sat)</sub>	$I_F = 40mA, I_C = 0.2mA$	-	-	0.4	V
	Response time	Rise time	$t_{\rm r}$	$V_{CE} = 2V$ , $I_{C} = 2mA$	-	3	15	μs
		Fall time	$t_{\rm f}$	$R_L = 100 \Omega$	_	4	20	μs

Fig. 1 Forward Current vs. Ambient Temperature

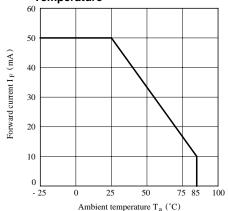


Fig. 3 Peak Forward Current vs. Duty Ratio

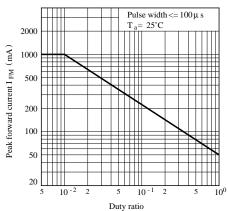


Fig. 2 Collector Power Dissipation vs.
Ambient Temperature

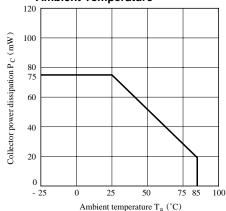


Fig. 4 Forward Current vs. Forward Voltage

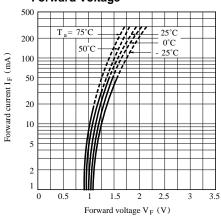


Fig. 5 Collector Current vs. Forward Current

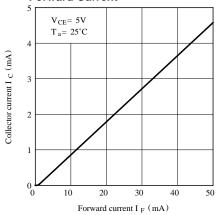


Fig. 7 Collector Current vs.
Ambient Temperature

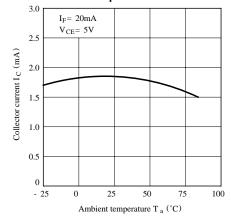


Fig. 9 Response Time vs. Load Resistance

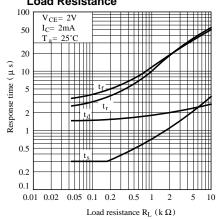


Fig.6 Collector Current vs.
Collector-emitter Voltage

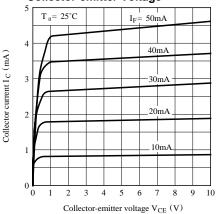
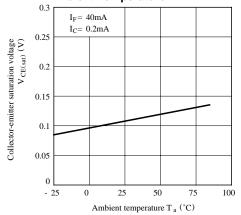


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature



**Test Circuit for Response Time** 

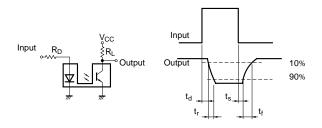


Fig.10 Frequency Response

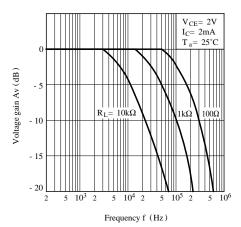


Fig.12 Relative Collector Current vs. Shield Distance (1)

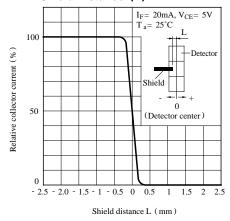


Fig.11 Collector Dark Current vs.
Ambient Temperature

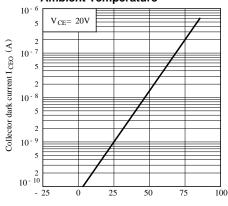
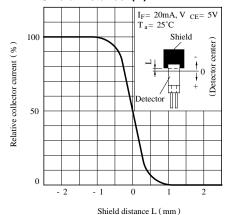


Fig.13 Relative Collector Current vs. Shield Distance (2)

Ambient temperature T a (°C)



#### ■ 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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