

# GP1S72P/GP1SQ72P

## Compact Photointerrupter with Connector

### ■ Features

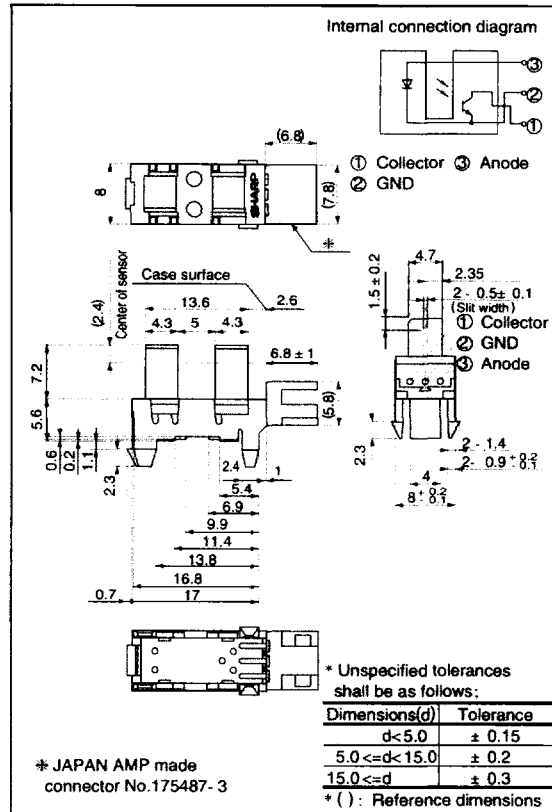
1. Compact package
2. Snap-in mounting type
3. Can be mounted on 3 different thickness boards (1.0mm, 1.2mm, 1.6mm )

### ■ Applications

1. Copiers
2. Laser beam printers
3. Facsimiles

### ■ Outline Dimensions

(Unit : mm )



### ■ Absolute Maximum Ratings

(Ta= 25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I <sub>F</sub>	50	mA
	*1 Peak forward current	V <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	I <sub>C</sub>	20	mA
	Collector power dissipation	P <sub>C</sub>	75	mW
Operating temperature	GP1S72P	T <sub>opr</sub>	- 25 to + 75	°C
	GP1SQ72P		- 25 to + 85	
Storage temperature		T <sub>stg</sub>	- 40 to + 85	°C

\*1 Pulse width<= 100μ s, Duty ratio: 0.01

\* In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device.

■ Electro-optical Characteristics

( $T_a = 25^\circ\text{C}$ )

Parameter		Symbol	Condition	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$	$I_F = 20\text{mA}$	-	1.2	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	$\mu\text{A}$
Output	Collector dark current	$I_{CEO}$	$V_{CE} = 20\text{V}$	-	1	100	nA
	Collector current	$I_C$	$V_{CE} = 5\text{V}, I_F = 20\text{mA}$	0.5	-	15	mA
Transfer characteristics	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 40\text{mA}, I_C = 0.5\text{mA}$	-	-	0.5	V
	Response time	Rise time	$t_r$	-	3	15	$\mu\text{s}$
		Fall time	$t_f$	$R_L = 100\Omega$	-	4	20

Fig. 1 Forward Current vs. Ambient Temperature

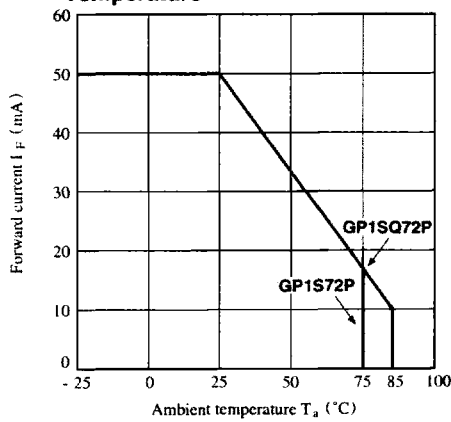


Fig. 2-a Collector Power Dissipation vs. Ambient Temperature (GP1S72P)

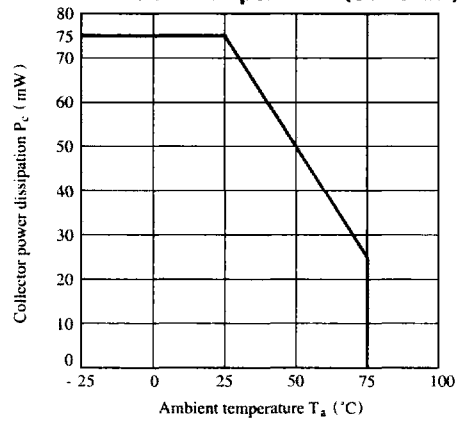


Fig. 2-b Collector Power Dissipation vs. Ambient Temperature (GP1SQ72P)

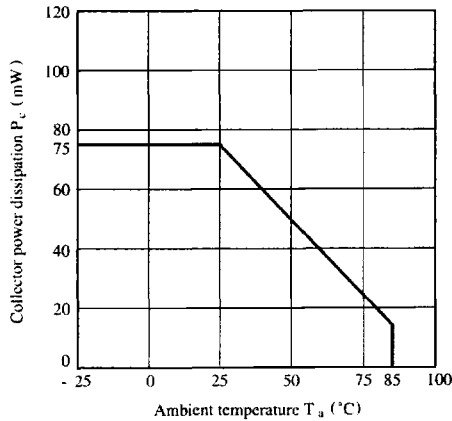


Fig. 3 Peak Forward Current vs. Duty Ratio

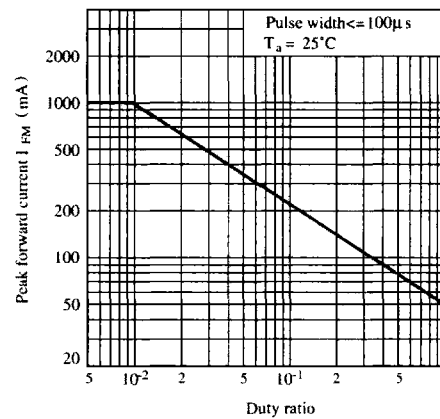


Fig. 4 Forward Current vs. Forward Voltage

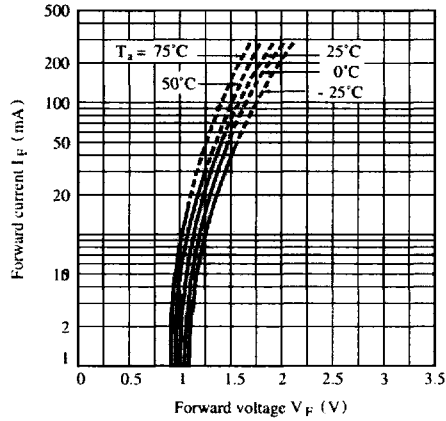


Fig. 5 Collector Current vs. Forward Current

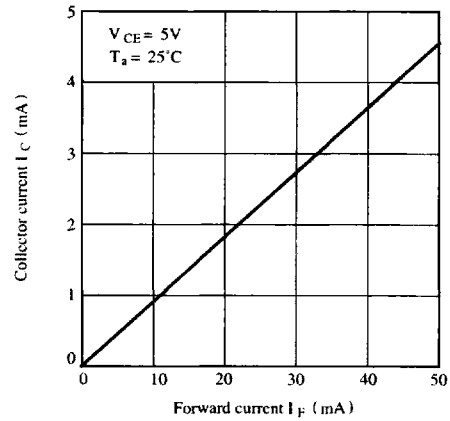


Fig. 6 Collector Current vs. Collector-emitter Voltage

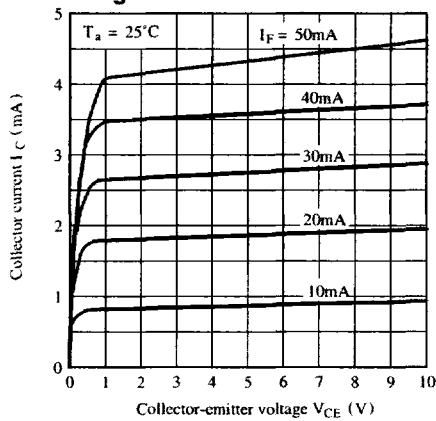


Fig. 7-a Collector Current vs. Ambient Temperature (GP1S72P)

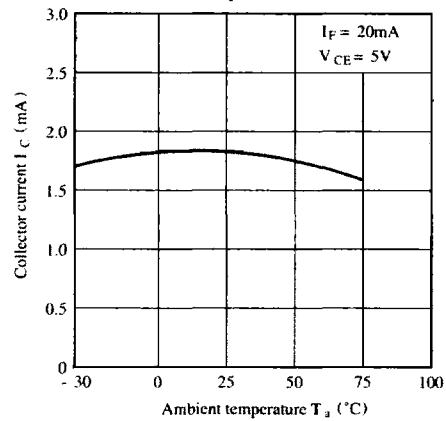


Fig. 7-b Collector Current vs. Ambient Temperature (GP1SQ72P)

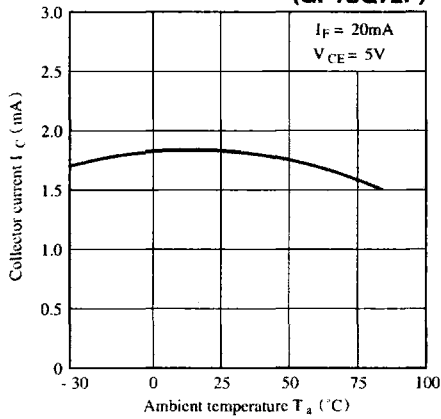
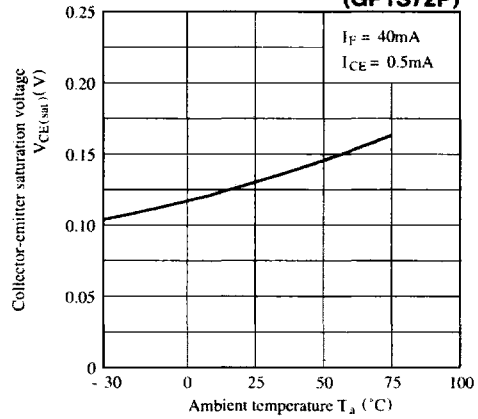
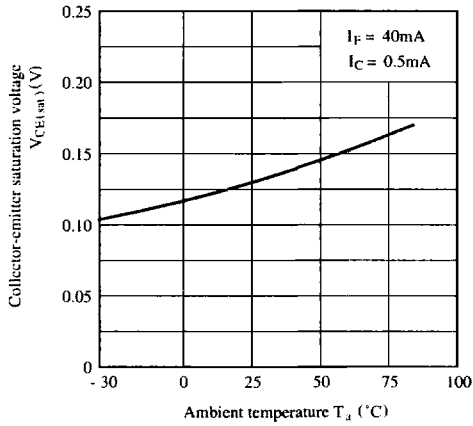


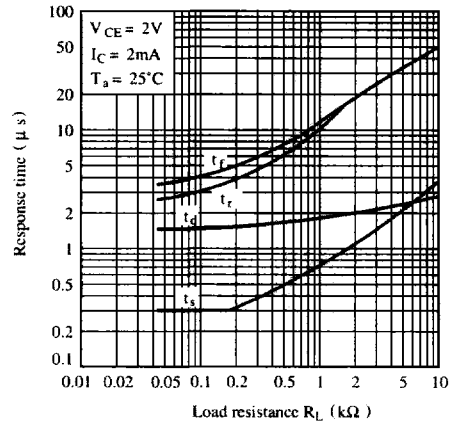
Fig. 8-a Collector-emitter Saturation Voltage vs. Ambient Temperature (GP1S72P)



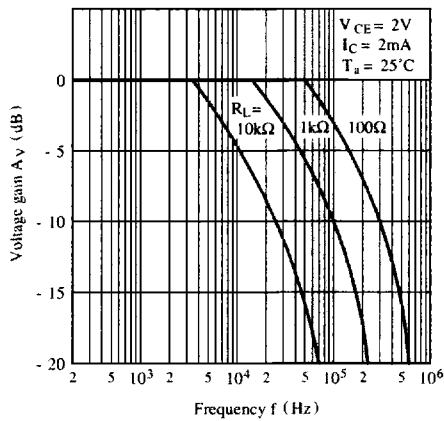
**Fig. 8-b Collector-emitter Saturation Voltage vs. Ambient Temperature (GP1SQ72P)**



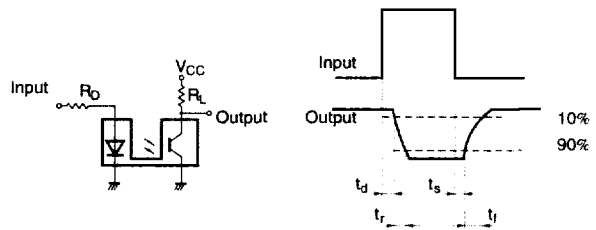
**Fig. 9 Response Time vs. Load Resistance**



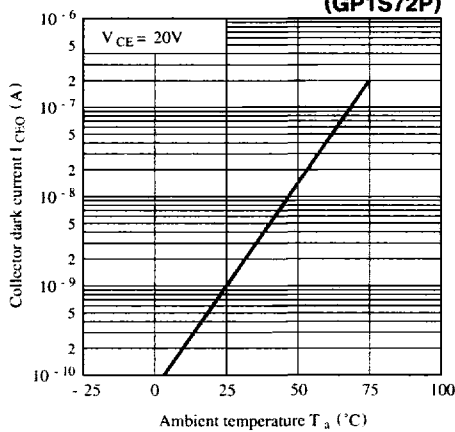
**Fig.10 Frequency Response**



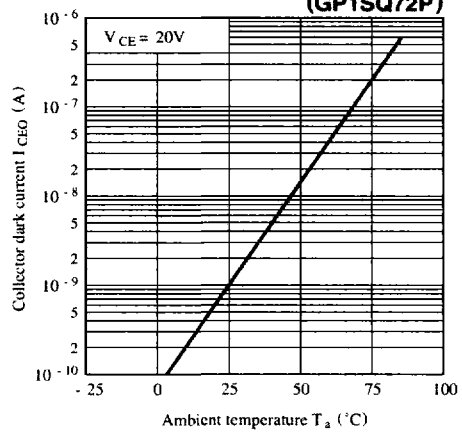
**Test Circuit for Response Time**



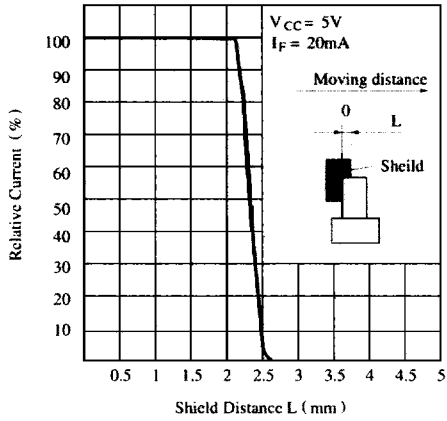
**Fig.11-a Collector Dark Current vs. Ambient Temperature (GP1S72P)**



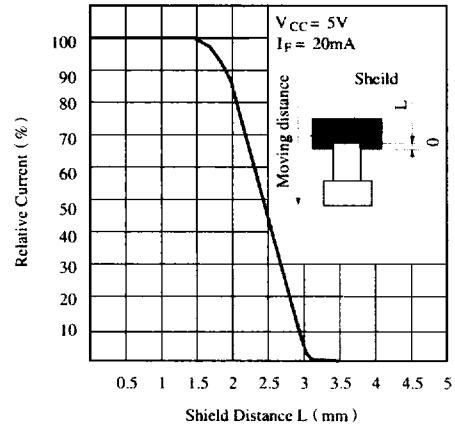
**Fig.11-b Collector Dark Current vs. Ambient Temperature (GP1SQ72P)**



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



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



- Please refer to the chapter “Precautions for Use”.