

# GP1S73P/GP1S74P

## Compact Photointerrupter with Connector

### ■ Features

1. Compact type
2. Snap-in mounting type
3. 3 kinds of mounting plate thickness  
(Applicable plate thickness : 1.0, 1.2 and 1.6 mm)

### ■ Applications

1. Copiers
2. Laser beam printers
3. Facsimiles

### ■ Absolute Maximum Ratings

(Ta=25°C)

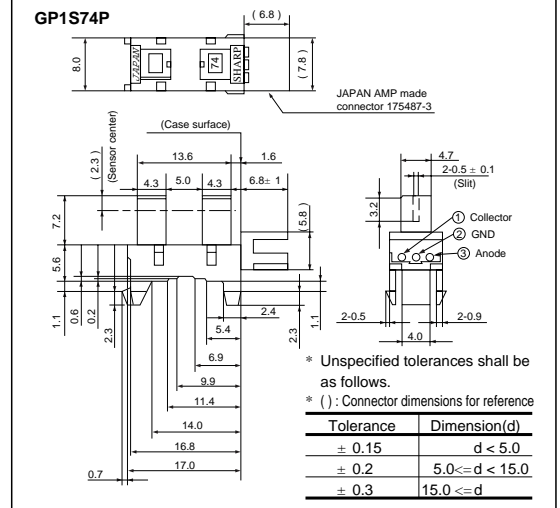
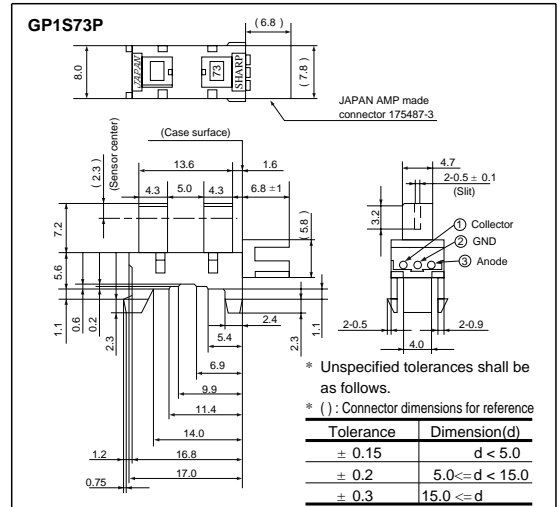
Parameter		Symbol	Rating	Unit
Input	Forward current	$I_F$	50	mA
	*1 Peak forward current	$I_{FM}$	1	A
	Reverse voltage	$V_R$	6	V
	Power dissipation	$P$	75	mW
Output	Collector-emitter voltage	$V_{CEO}$	35	V
	Emitter-collector voltage	$V_{ECO}$	6	V
	Collector current	$I_C$	20	mA
	Collector power dissipation	$P_C$	75	mW
	Operating temperature	$T_{opr}$	- 25 to + 85	°C
	Storage temperature	$T_{stg}$	- 40 to + 85	°C

\*1 Pulse width 100 $\mu$ s, Duty ratio=0.01

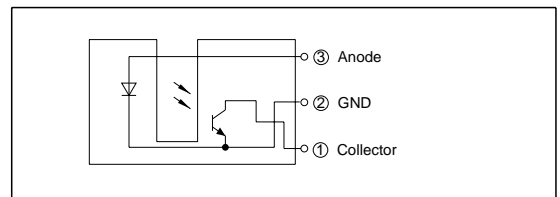
\*2 The connector should be plugged in/out at normal temperature.

### ■ Outline Dimensions

(Unit : mm)



### ■ Internal Connection Diagram (Both GP1S73P/GP1S74P)

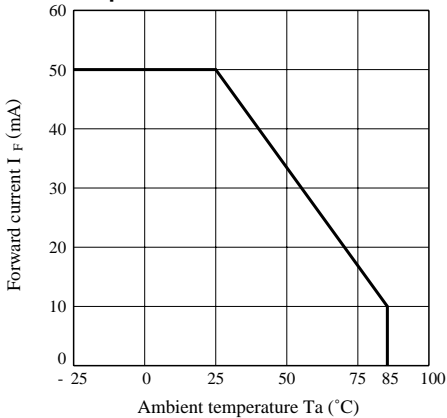


■ **Electro-optical Characteristics**

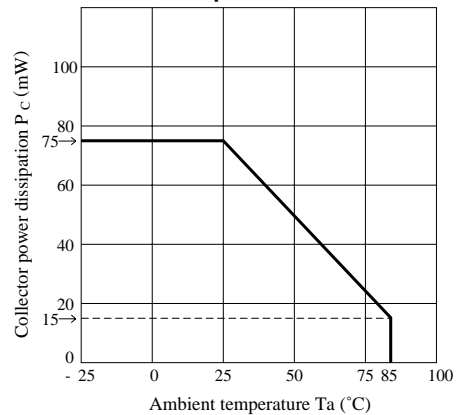
( $T_a=25^\circ\text{C}$ )

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	$V_F$	$I_F = 20\text{mA}$	-	1.2	1.4	V	
	Peak forward voltage	$V_{FM}$	$I_{FM}=0.5\text{A}$	-	3.0	4.0	V	
	Reverse current	$I_R$	$V_R = 3\text{V}$	-	-	10	$\mu\text{A}$	
Output	Dark current	$I_{CEO}$	$V_{CE} = 20\text{V}$	-	1	100	nA	
Transfer characteristics	Collector current	$I_C$	$V_{CE} = 5\text{V}, I_F = 20\text{mA}$	0.5	-	15	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	$t_r$	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$	-	3	15	$\mu\text{s}$
		Fall time	$t_f$		-	4	20	$\mu\text{s}$
			$R_L = 100\Omega$					

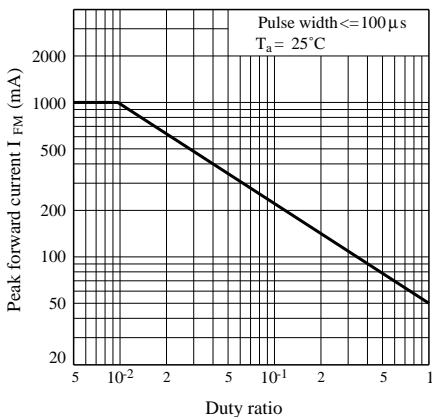
**Fig. 1 Forward Current vs. Ambient Temperature**



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



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



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

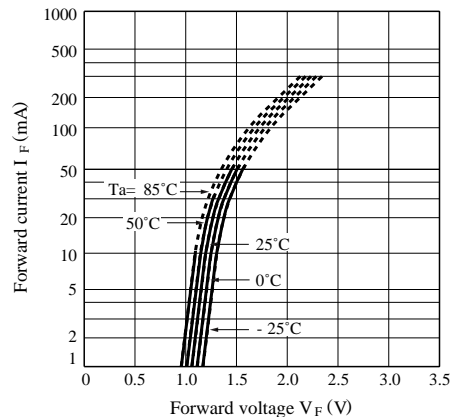


Fig. 5 Collector Current vs. Forward Current

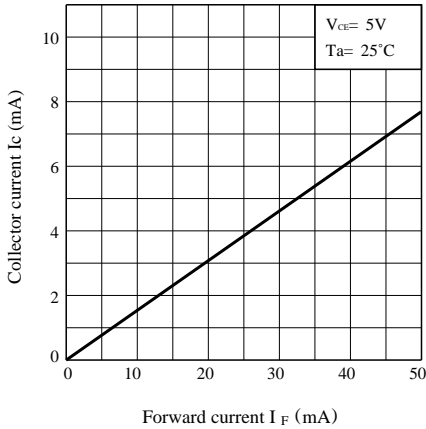


Fig. 6 Collector Current vs. Collector-emitter Voltage

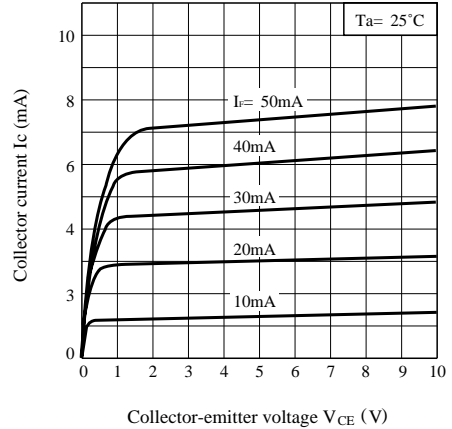


Fig. 7 Collector Current vs. Ambient temperature

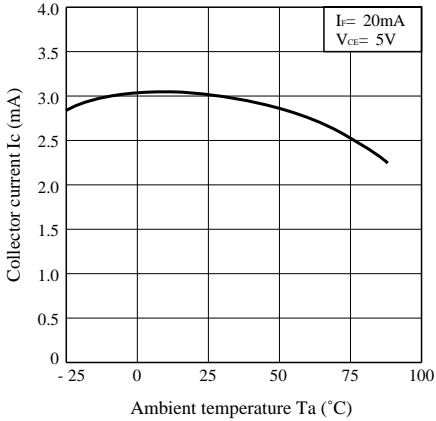


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

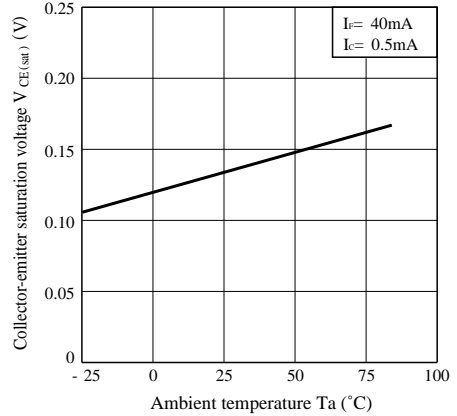
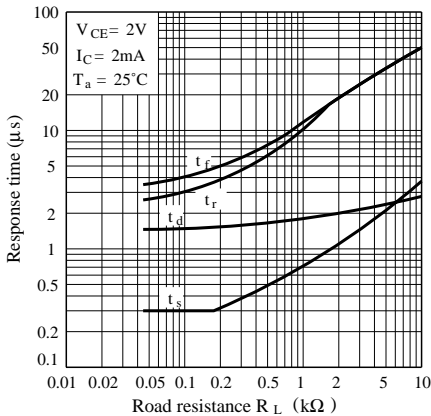


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

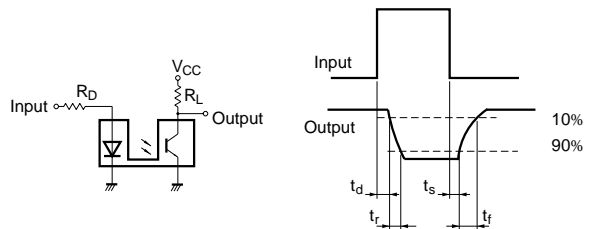


Fig. 10 Frequency Characteristics

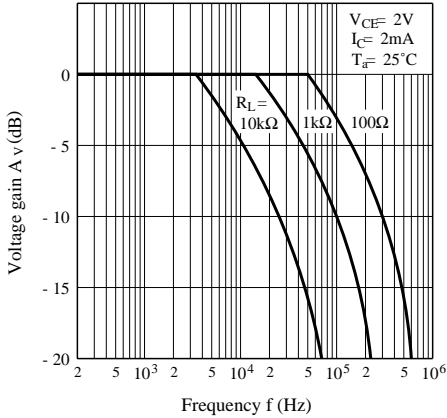


Fig. 11 Dark Current vs. Ambient Temperature

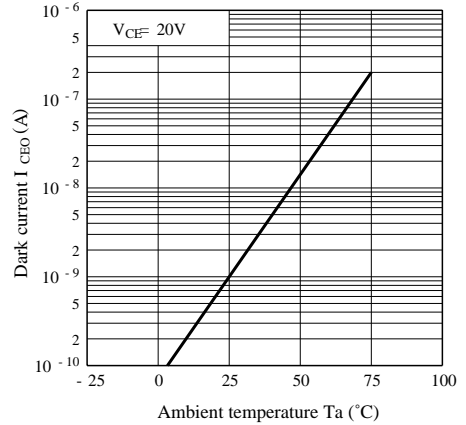


Fig. 12 Detecting Position Characteristics (1)

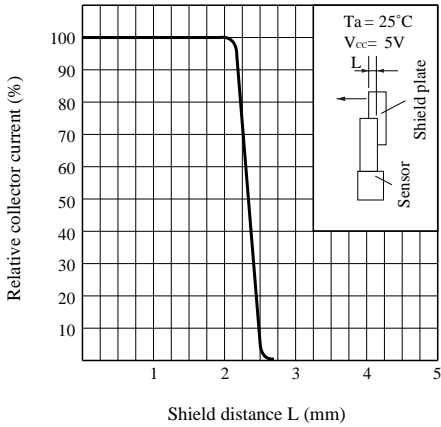
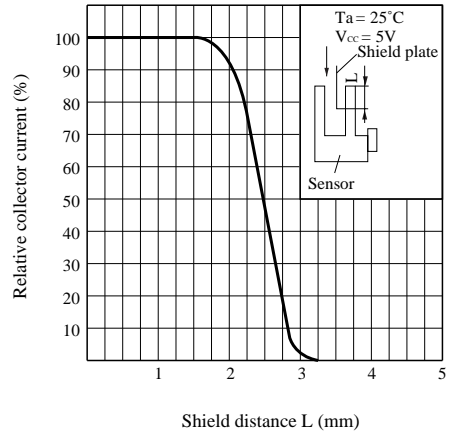


Fig. 13 Detecting Position Characteristics (2)

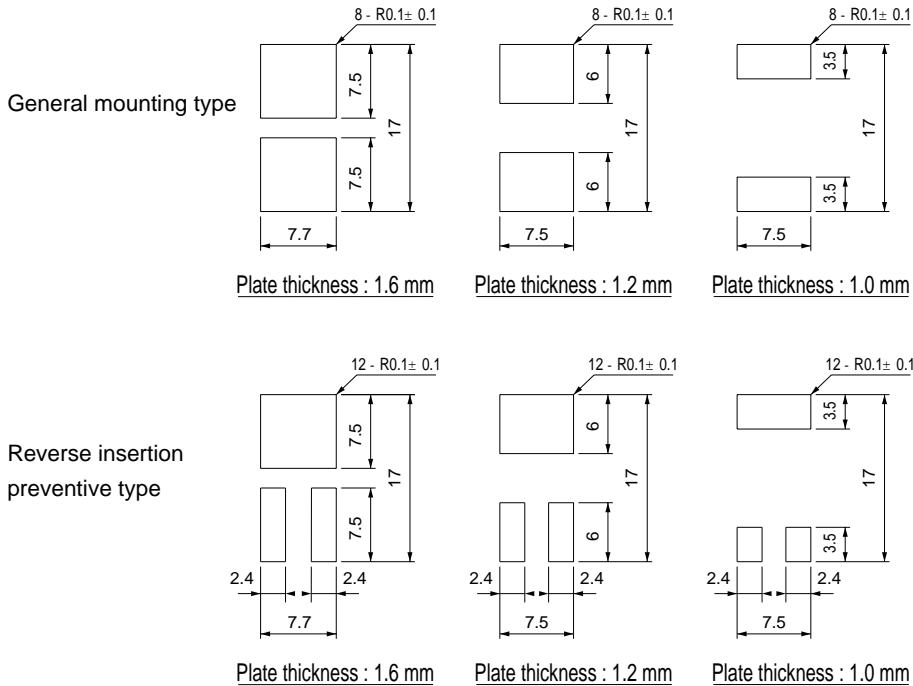


### ■ Recommended Mounting Hole Drawing (Dimensions shown are recommended values.)

Use the photointerrupters after checking the mounting strength and others on an actual machine.)

1. It is recommended to mount the photointerrupters on the shear droop surface (punch side) of the mounting plate (metal plate).
2. Mounting workability, shaking after mounting and mounting strength depend on the corner radius of the mounting plate and state of punching.  
Determine the mounting hole dimensions after check on an actual machine.
3. General dimensional tolerances shall be  $\pm 0.1$  mm.

(Unit : mm)



### (Precautions for Operation)

- 1) In this product, the PWB is fixed with a hook, and cleaning solvent may remain inside the case; therefore, dip cleaning or ultrasonic cleaning are prohibited.
- 2) Remove dust or stains, using an air blower or a soft cloth moistened in cleaning solvent.  
However, do not perform the above cleaning using a soft cloth with solvent in the marking portion.  
In this case, use only the following type of cleaning solvent for wiping off;

Ethyl alcohol, Methyl alcohol, Isopropyl alcohol

When the cleaning solvents except for specified materials are used, please contact us.

- As for other general precautions, please refer to the chapter "Precautions for Use".