

GP1S09

Photointerrupter with Connector

■ Features

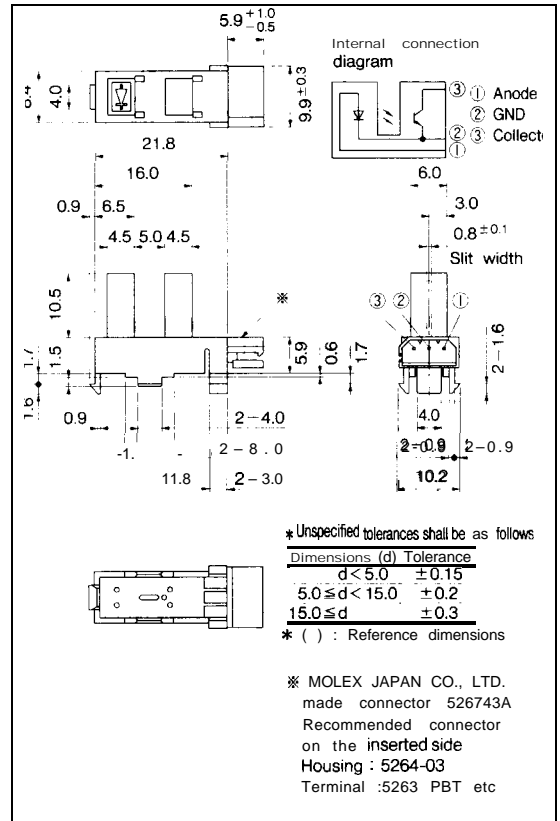
1. Snap-in mounting type
2. Can be mounted on 2 different thickness boards (1.0mm, 1.6mm)
3. 3-pin connector terminal
4. Wide gap between light emitter and detector (5mm)

■ Applications

1. Copiers
2. Printers
3. Facsimiles

■ 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
	*1 Operating temperature	T _{opr}	-25 to +75	°C
	*2 Storage temperature	T _{stg}	-40 to +85	°C

*1 Pulse width ≤ 100 μs. Duty ratio = 0.01

*2 The connector should be plugged in/out and the unit's hook should be used at normal temperature

Electro-optical Characteristics

(Ta = 25°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	4	v
	Reverse current	I_R	$V_R = 3\text{V}$			10	μA
output	Collector dark current	I_{CEO}	$V_{CE} = 20\text{V}$		1×10^{-9}	1×10^{-7}	A
Transfer characteristics	Current transfer ratio	CTR	$I_F = 20\text{mA}, V_{CE} = 5\text{V}$	2.5		75	%
	Collector -emitter saturation voltage	$V_{CE(sat)}$	$I_F = 40\text{mA}, I_C = 1\text{mA}$	—	—	0.4	v
	Response time	Rise time	t_r	$V_{CE} = 2\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$		3	15
Fall time		t_f			4	20	μs

Fig. 1 Forward Current vs. Ambient Temperature

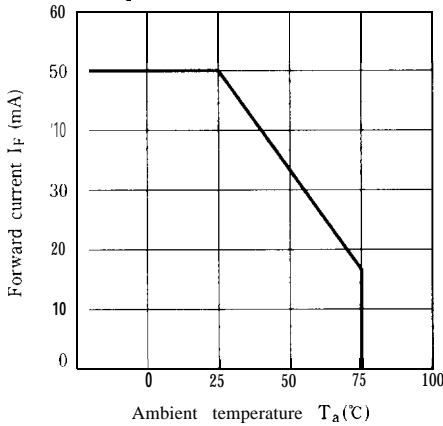


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

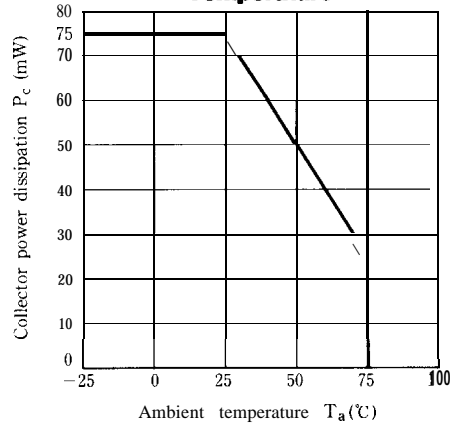


Fig. 3 Peak Forward Current vs. Duty Ratio

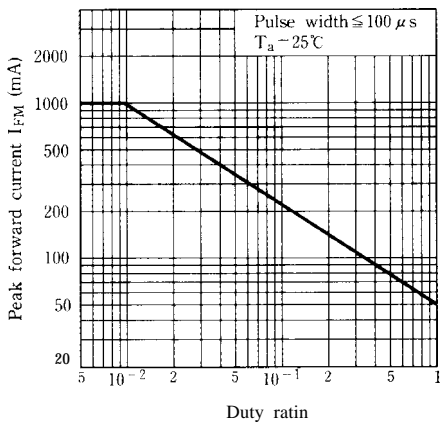
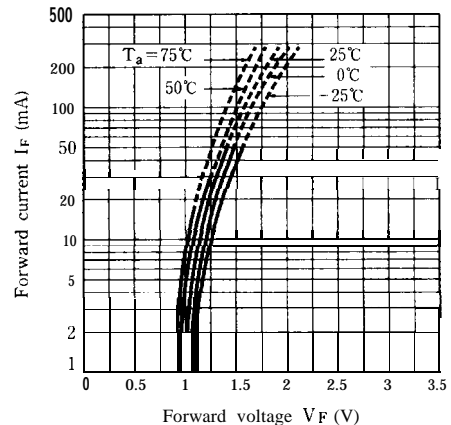


Fig. 4 Forward Current vs. Forward Voltage



Photointerrupters



Fig. 5 Collector Current vs. Forward Current

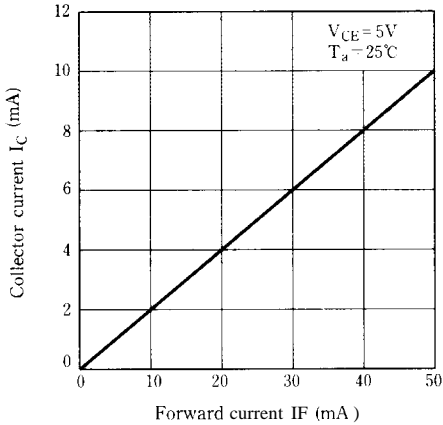


Fig. 6 Collector Current vs. Collector-emitter Voltage

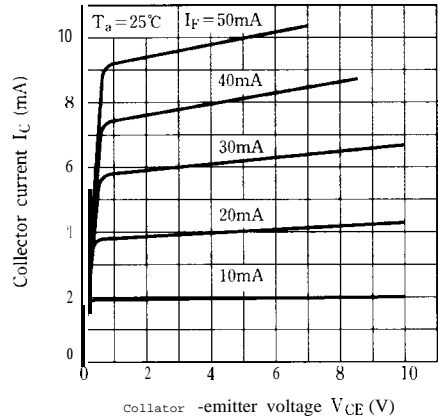


Fig. 7 Collector Current vs. Ambient Temperature

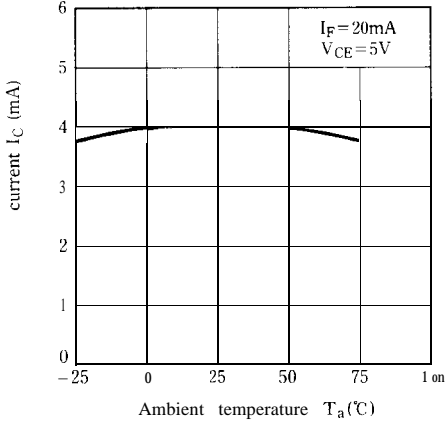


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

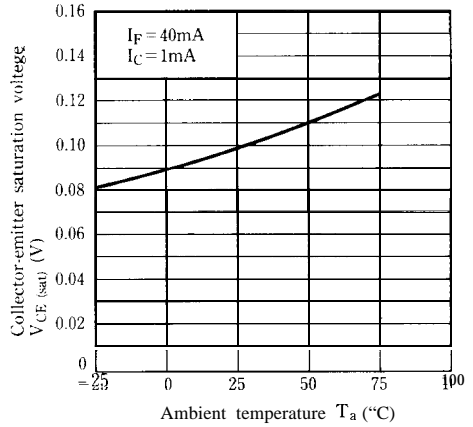
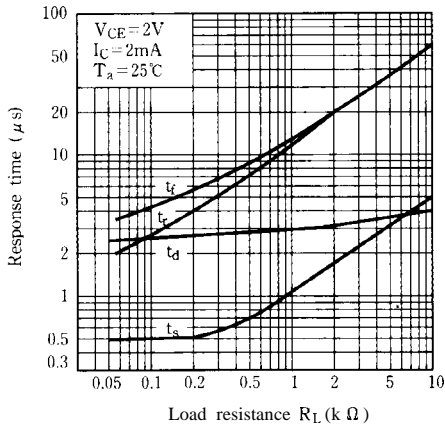


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

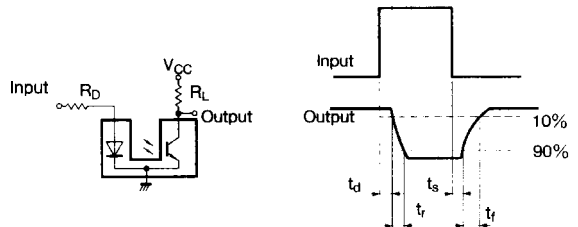


Fig.10 Frequency Response

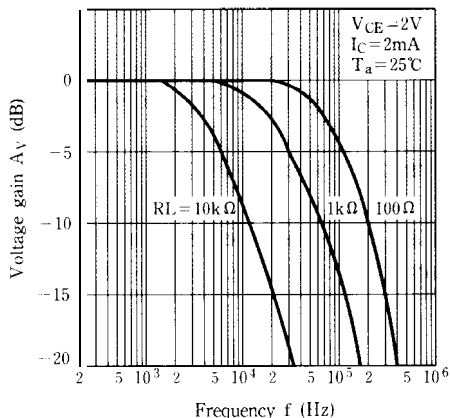


Fig.11 Collector Dark Current vs. Ambient Temperature

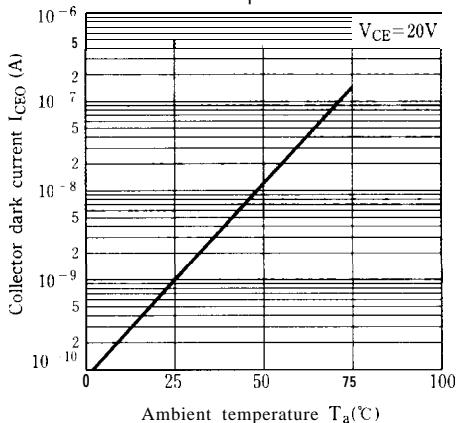


Fig.12 Relative Collector Current vs. shield Distance (1)

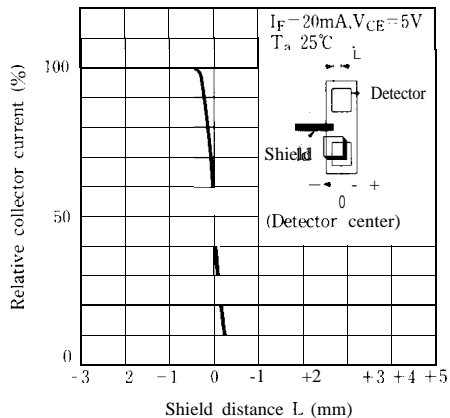
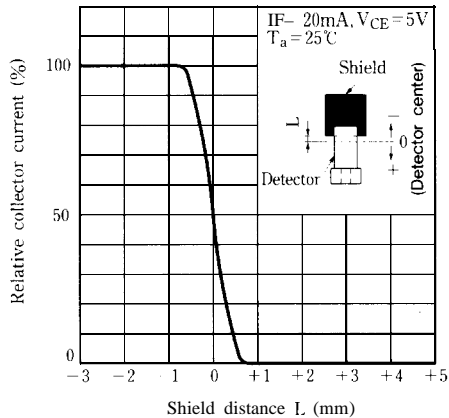
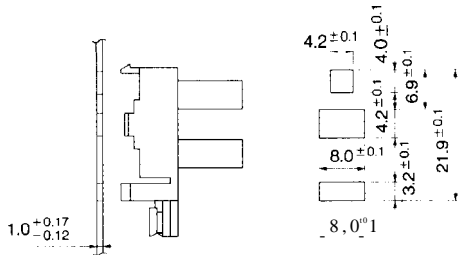


Fig.13 Relative Collector Current vs. shield Distance (2)

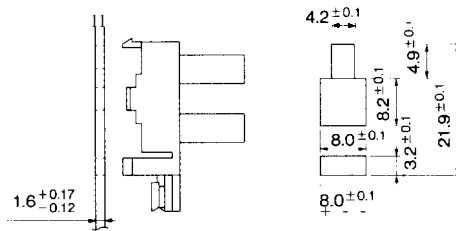


Recommended Mounting Holes

(Following dimensions are recommended values, so confirm the intensity by using actual equipment before mounting.)



Mounting method Recommended mounting holes
Board thickness $t = 1.0mm$



Mounting method Recommended mounting holes
Board thickness $t = 1.6mm$

■ Precautions for Use

- (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 cleaning 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 consult us.

- (3) As for other general cautions, refer to the chapter "Precautions for Use." (Page 78 to 93).