

GP1S09

Photointerrupter with Connector

■ Features

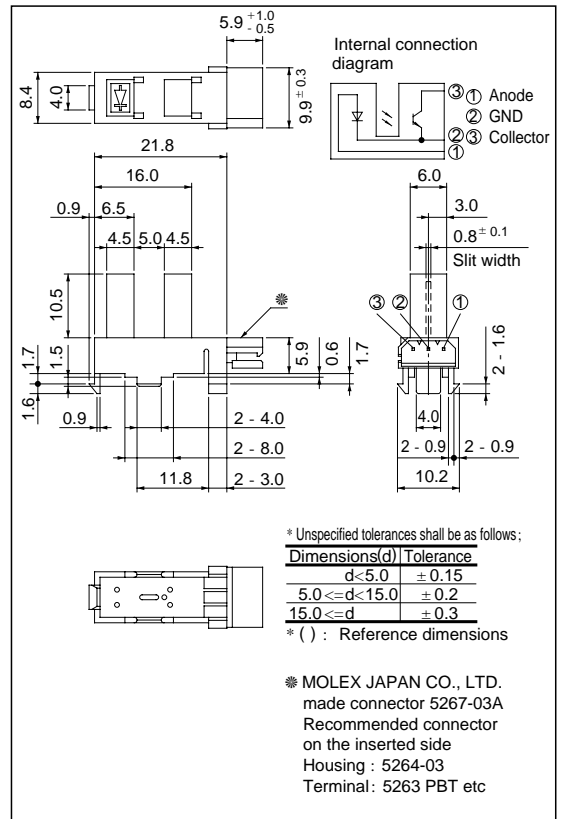
1. Snap-in mounting type
2. Can be mounted on 2 different thickness boards (1.0mm, 1.6mm)
3. 3-pin connector terminal
4. Wide gap between light emitter and detector (5mm)

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

*1 Pulse width $\leq 100 \mu s$, 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

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

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	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	Collector Current	I_C	$I_F = 20\text{mA}, V_{CE} = 5\text{V}$	0.5	-	1.5	mA	
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 40\text{mA}, I_C = 1\text{mA}$	-	-	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	μs
		Fall time	t_f		-	4	20	μs

Fig. 1 Forward Current vs. Ambient Temperature

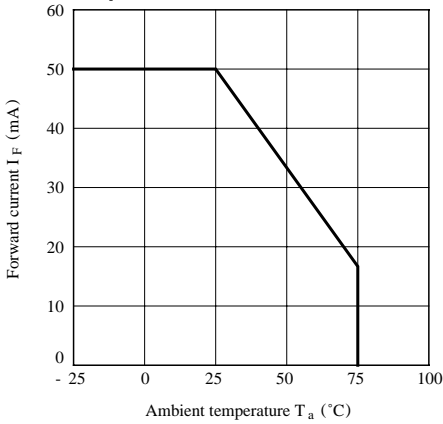


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

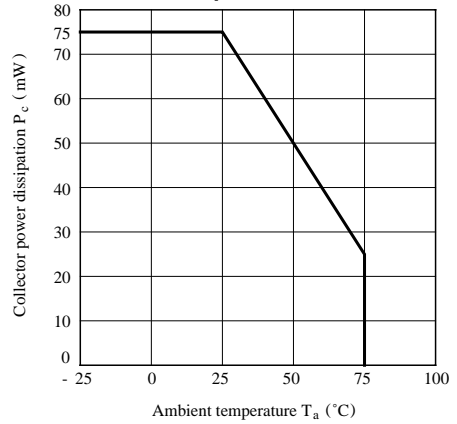


Fig. 3 Peak Forward Current vs. Duty Ratio

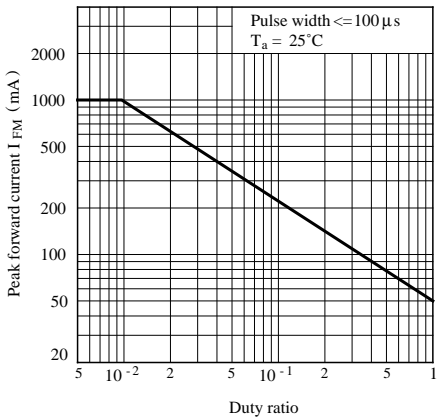


Fig. 4 Forward Current vs. Forward Voltage

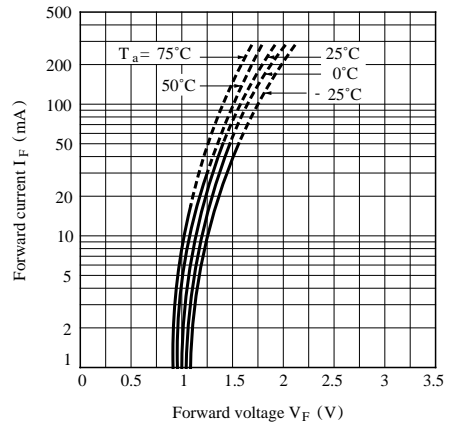


Fig. 5 Collector Current vs. Forward Current

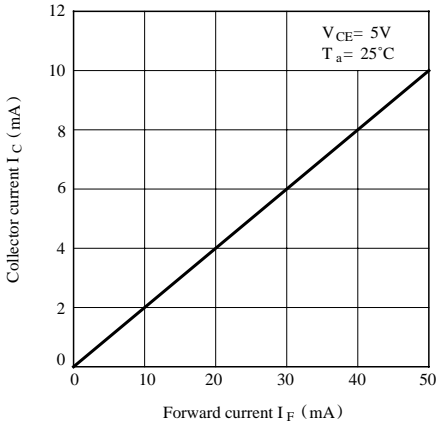


Fig. 6 Collector Current vs. Collector-emitter Voltage

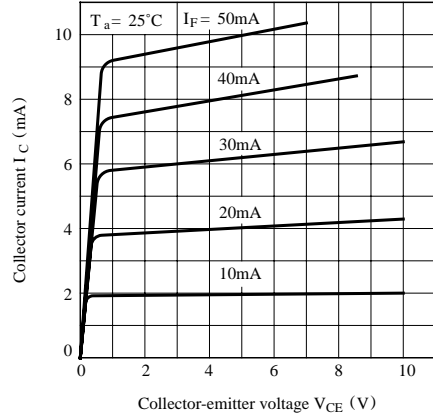


Fig. 7 Collector Current vs. Ambient Temperature

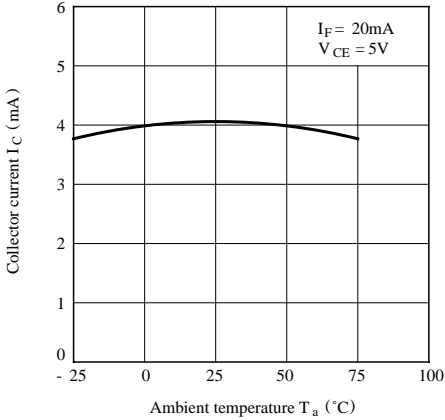


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

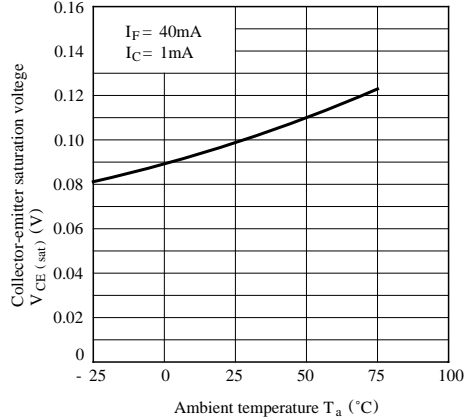
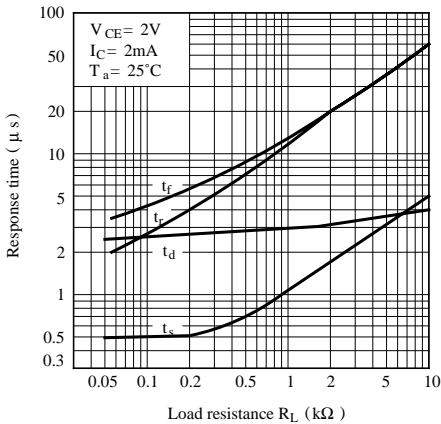


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

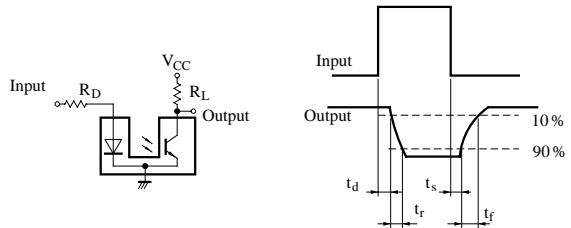


Fig.10 Frequency Response

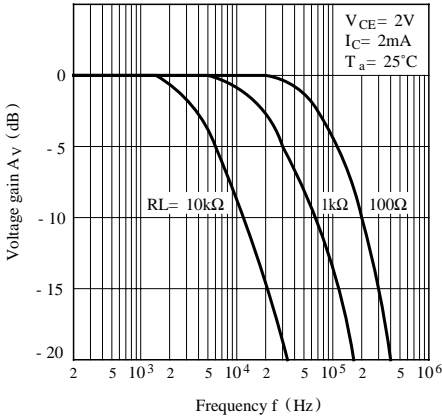


Fig.11 Collector Dark Current vs. Ambient Temperature

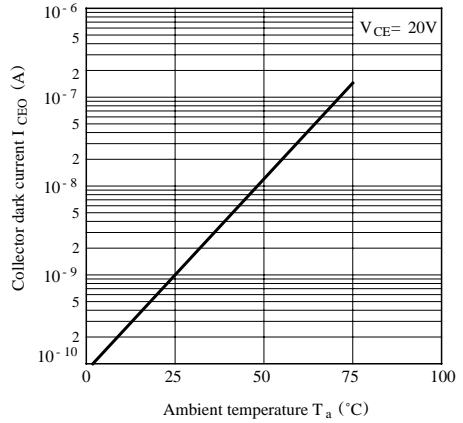


Fig.12 Relative Collector Current vs. Shield Distance (1)

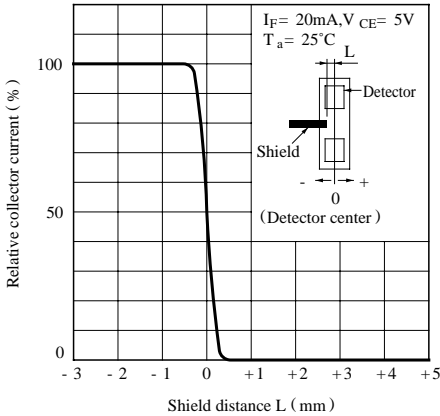
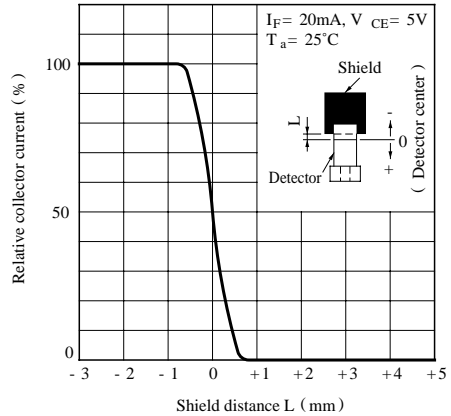
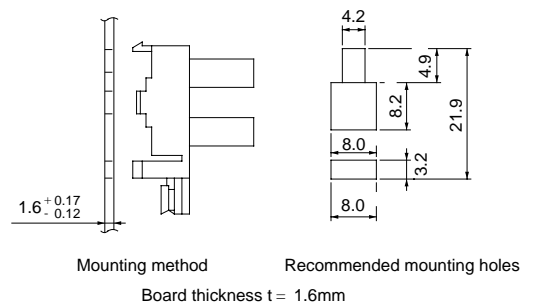
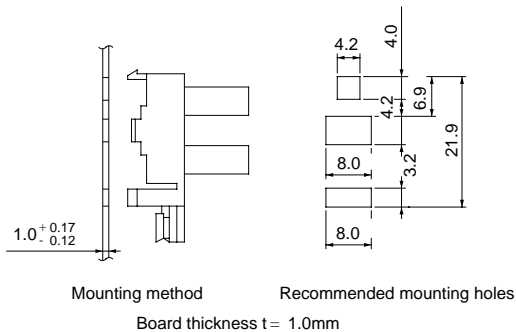


Fig.13 Relative Collector Current vs. Shield Distance (2)



■ Recommended Mounting Holes

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



■ 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 ”.