

GP1S59

Horizontal Slit Type Photointerrupter

■ Features

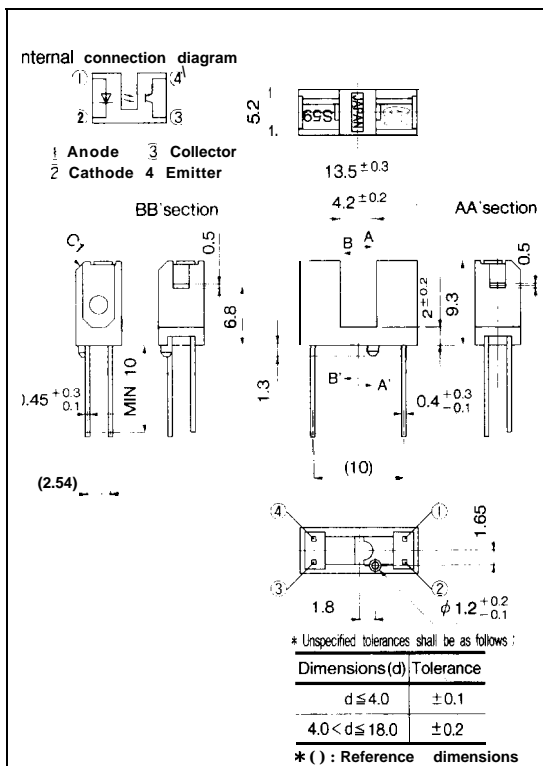
1. Horizontal slit type
2. PWB mounting type
3. Gap between light emitter and detector : 4.2mm
4. Slit width : 0.5mm
5. With a positioning boss

■ Applications

1. OA equipment, such as printers etc.

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	mA
	Peak forward current	I_{FM}	A
	Reverse voltage	V_R	V
	Power dissipation	P	mW
output	Collector-emitter voltage	V_{CEO}	V
	Emitter-collector voltage	V_{ECO}	V
	Collector current	I_C	mA
	Collector power dissipation	Pc	mW
operating temperature	T_{opr}	-25 to +85	°C
Storage temperature	T_{stg}	-40 to +100	°C
*2 Soldering temperature	T_{sol}	260	°C

*1 Pulse width ≤ 100 μ s, Duty ratio : 0.01

*2 For 5 seconds

Electro-optical Characteristics

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

Parameter		Symbol	Condition	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V_F	$I_F = 20\text{mA}$		1.25	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	100	nA	
Transfer characteristics	Collector current	I_C	$V_{CE} = 5\text{V}, I_F = 20\text{mA}$	0.5		10.0	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	μs
		Fall time	t_f	$R_L = 100\Omega$	—	4	20	μs

Fig. 1 Forward Current vs. Ambient Temperature

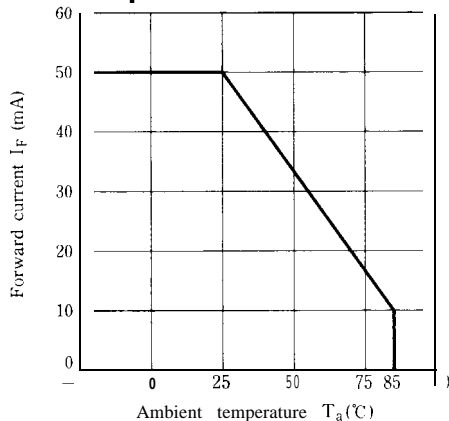


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

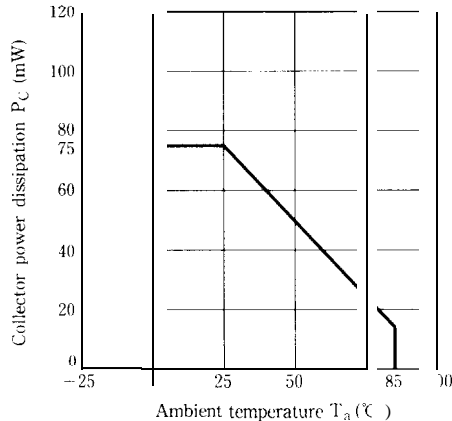


Fig. 3 Peak Forward Current vs. Duty Ratio

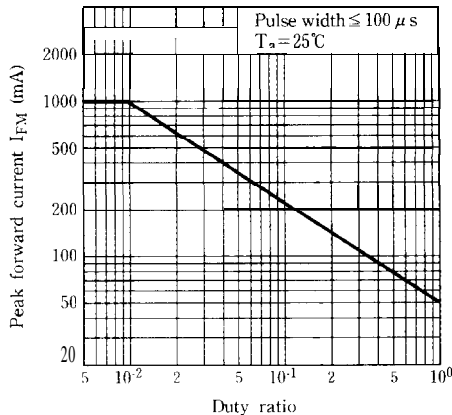


Fig. 4 Forward Current vs. Forward Voltage

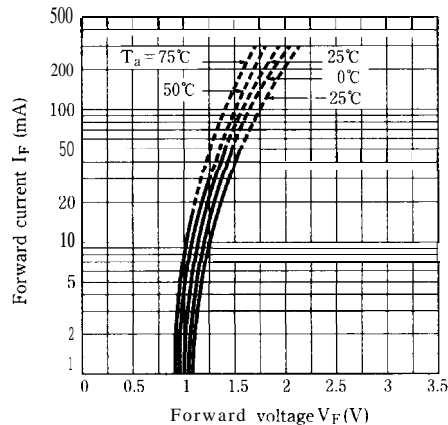


Fig. 5 Collector current vs. Forward Current

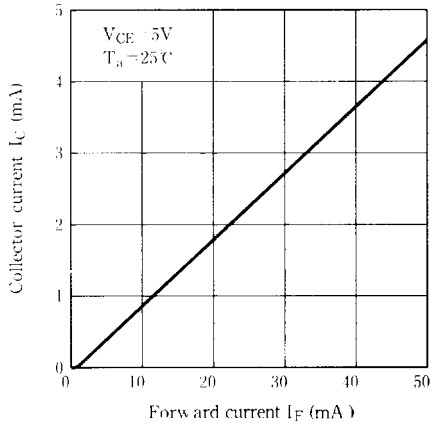


Fig. 6 Collector Current vs. Collector-emitter Voltage

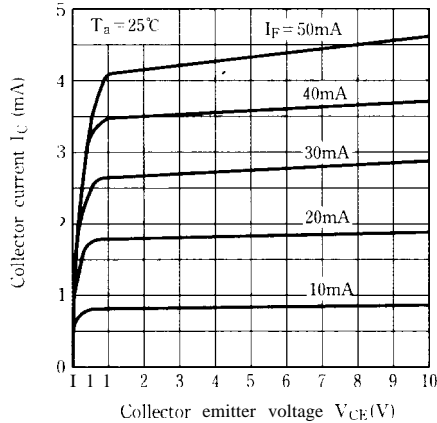


Fig. 7 Collector Current vs. Ambient Temperature

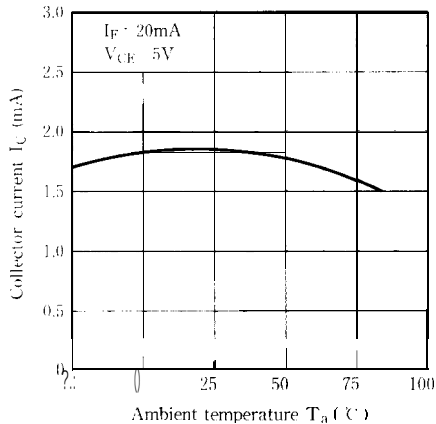


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

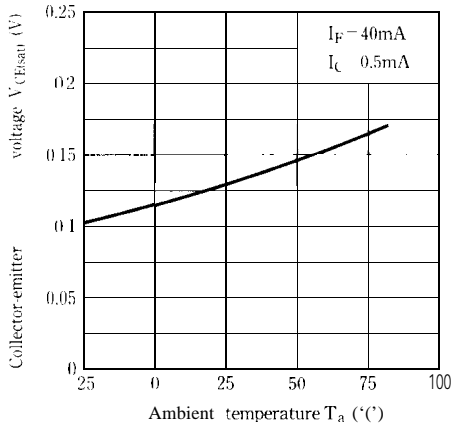
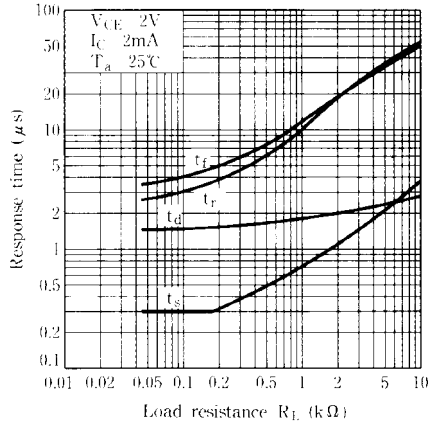
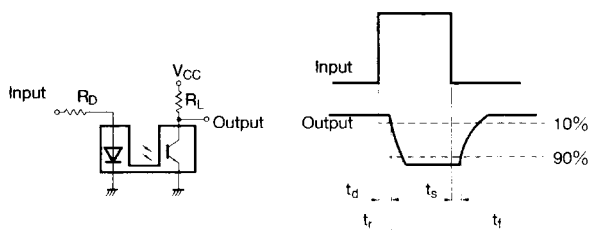


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time



Photointerrupters



Fig.10 Frequency Response

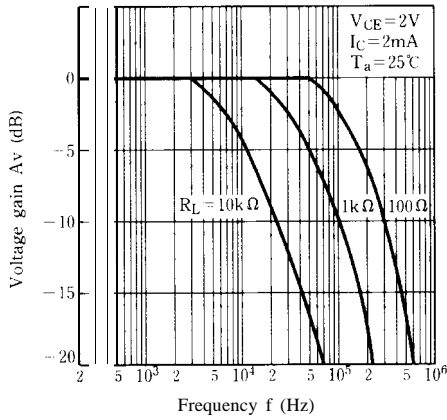


Fig.11 Collector Dark Current vs. Ambient Temperature

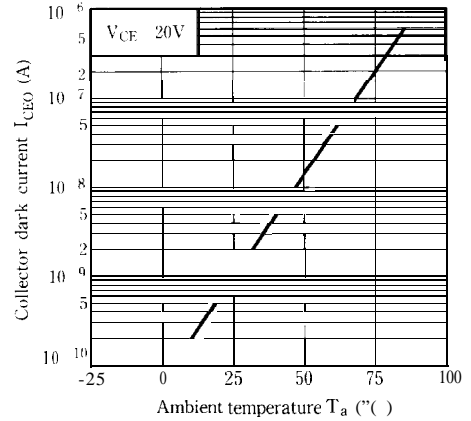


Fig.12 Relative Collector Current vs. Shield Distance (1)

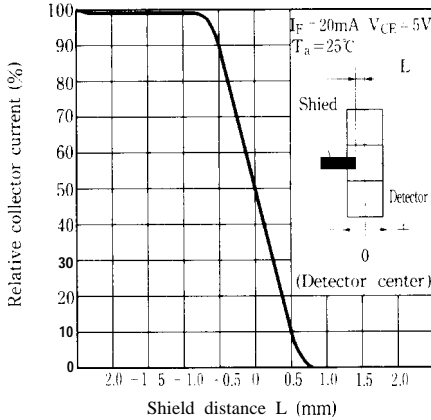
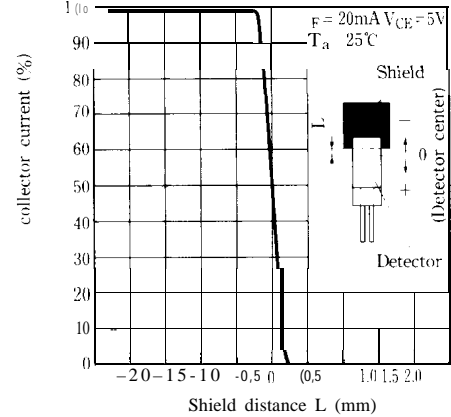


Fig.13 Relative Collector Current vs. Shield Distance (2)



■ 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" (Page 78 to 93).