

GP1S40 Connector Terminal Type Photointerrupter with Lever Type Actuator

■ Features

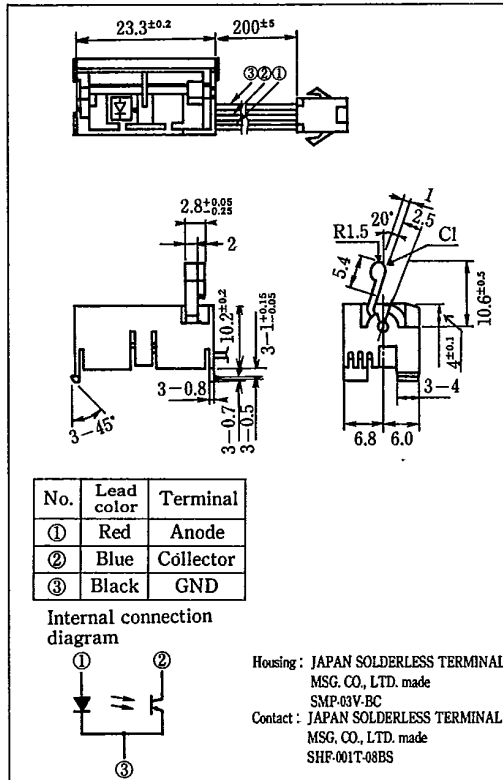
1. With lever type actuator
2. Connector terminal type

■ Applications

1. Copiers
2. 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
	Operating temperature	T_{opr}	-25 ~ +75	°C
	Storage temperature	T_{stg}	-30 ~ +85	°C

*1 Pulse width=100μs, Duty ratio=0.01

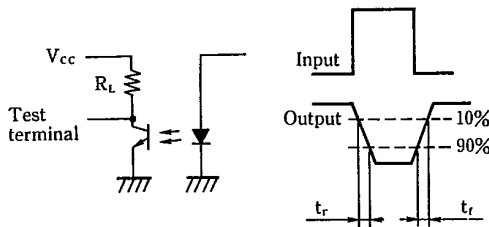
■ Electro-optical Characteristics

(Ta=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V_F $I_F=20mA$	—	1.25	1.4	V	
	Peak forward voltage	V_{FM} $I_{FM}=0.5A$	—	3	4	V	
	Reverse current	I_R $V_R=3V$	—	—	10	μA	
Output	Collector dark current	I_{CEO} $V_{CE}=20V$	—	1	100	nA	
Transfer characteristics	Collector current	I_C $V_{CE}=5V, I_F=20mA$	0.5	—	10.0	mA	
	Response time	(Rise) t_r	$V_{CE}=2V, I_C=2mA$ $R_L=100\Omega$	—	3	15	μs
		(Fall) t_f		—	4	20	μs
	Collector-emitter saturation voltage	$V_{CE(sat)}$ $I_F=40mA, I_C=0.5mA$	—	—	0.4	V	

(Note) Measurement of transfer characteristics shall be carried out in light transmitting condition.

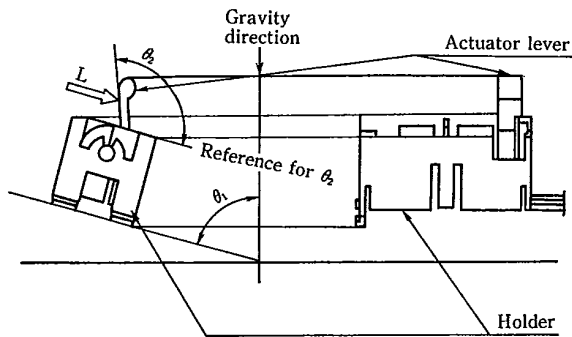
Test Circuit for Response Time



■ Mechanical Characteristics

Parameter	Symbol	Requirements
Mounting angle	θ_1	$75 \pm 3^\circ$
Opaque angle*1	θ_2	$85^\circ \text{MAX}, 50^\circ \text{MIN.}^{*2}$
Actuator lever operating load	L	0.5g or more in the arrow-indicated direction as shown in figure below.

- *1 Shielding light is defined as a condition with the actuator lever operating in the direction indicated by the arrow in the figure below in which the collector current (I_C) is reduced to 10% or less as compared to 100% for the condition in which the load on the actuator lever is 0g with the device mounted at the angle of $75 \pm 3^\circ$.
- *2 If θ_2 comes into 48° or less, actuator lever causes to break or to transform due to holder touching.



Photointerrupter

T-41-73

Fig. 1 Forward Current vs. Ambient Temperature

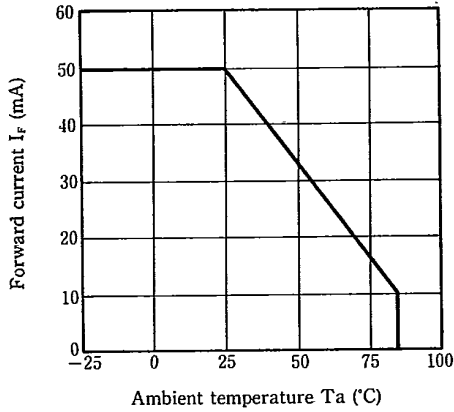


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

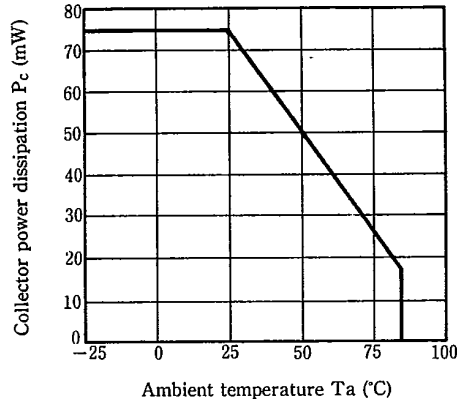


Fig. 3 Peak Forward Current vs. Duty Ratio

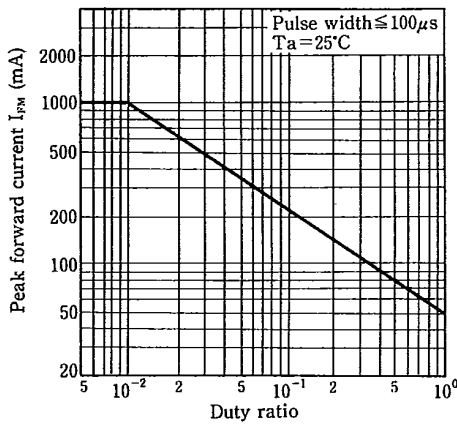


Fig. 4 Forward Current vs. Forward Voltage

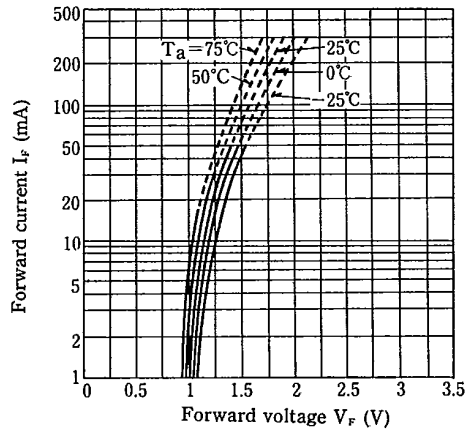


Fig. 5 Collector Current vs. Forward Current

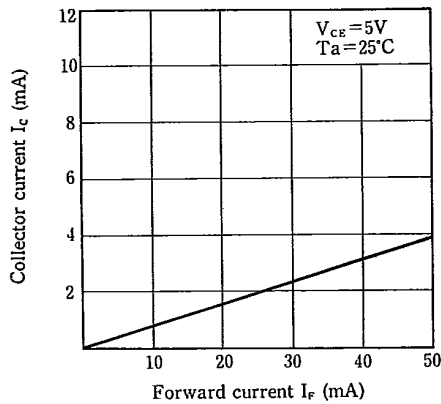


Fig. 6 Collector Current vs. Collector-emitter Voltage

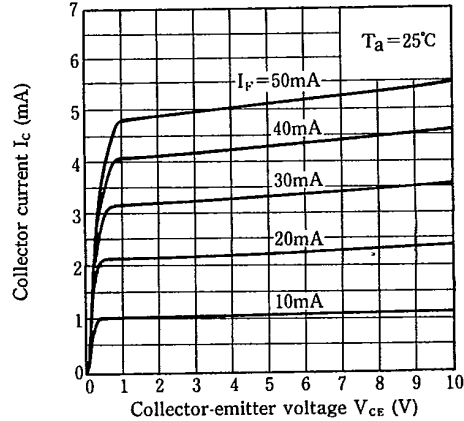


Fig. 7 Collector Current vs. Ambient Temperature

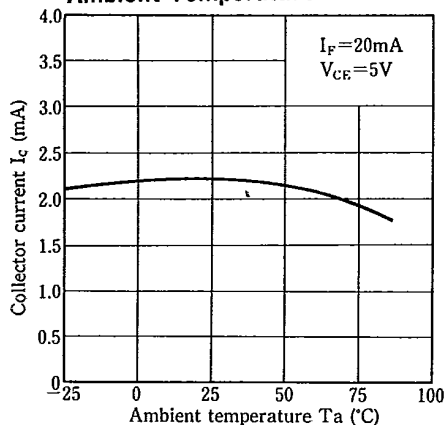


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

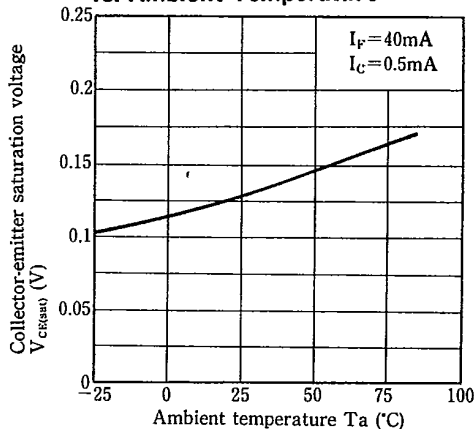
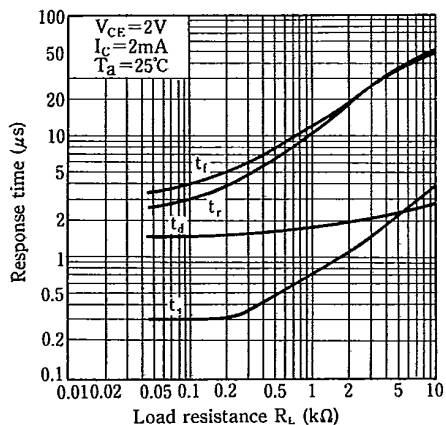


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

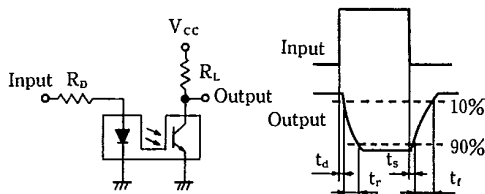


Fig. 10 Frequency Response

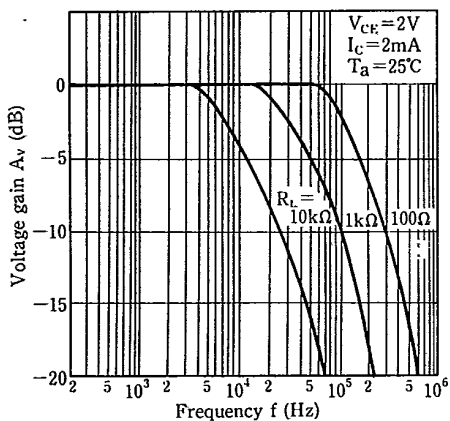


Fig. 11 Collector Dark Current vs. Ambient Temperature

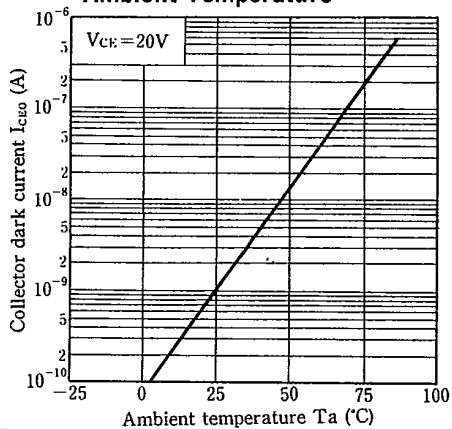


Fig. 12 Relative Collector Current vs. Actuator Lever Angle

T-41-73

