GP1S93

Subminiature Photointerrupter

■ Features

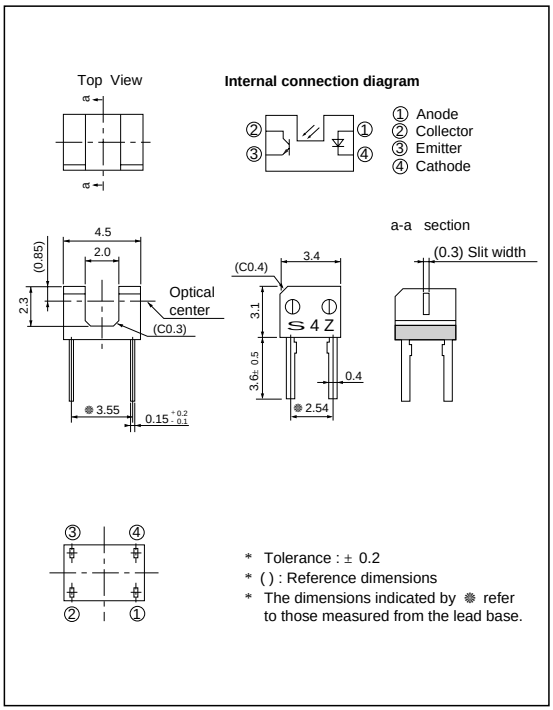
1. Low height type (Height : 3.1 mm)
2. Wide gap type (Gap : 2.0 mm)
3. Detector side slit width : (0.3) mm

■ Applications

1. FDDs
2. Cameras
3. Camera-integral VCRs

■ Outline Dimensions

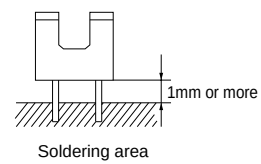
(Unit : mm)



■ Absolute Maximum Ratings

(Ta=25˚C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	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
Total power dissipation		P_{tot}	100	mW
Operating temperature		T_{opr}	- 25 to + 85	˚C
Storage temperature		T_{stg}	- 40 to + 100	˚C
*1Soldering temperature		T_{sol}	260	˚C



*1 For 5 seconds

■ Electro-optical Characteristics

(Ta=25˚C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F = 20mA	-	1.2	1.4	V
	Reverse current		I_R	V_R = 3V	-	-	10	μA
Output	Dark current		I_{CEO}	V_{CE} = 20V	-	-	1 x 10^{-7}	A
Transfer characteristics	Collector current		I_C	I_F = 5mA, V_{CE} = 5V	100	-	400	μA
	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F = 10mA, I_C = 40 μA	-	-	0.4	V
	Response time	Rise time	t_r	I_C = 0.1mA, V_{CE} = 5V, R_L = 1kΩ	-	50	150	μs
		Fall time	t_f		-	50	150	μs

Fig. 1 Forward Current vs. Ambient Temperature

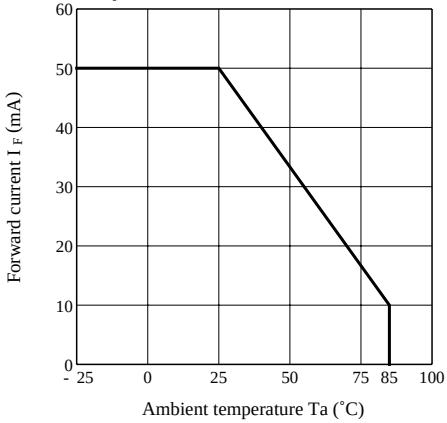


Fig. 2 Power Dissipation vs. Ambient Temperature

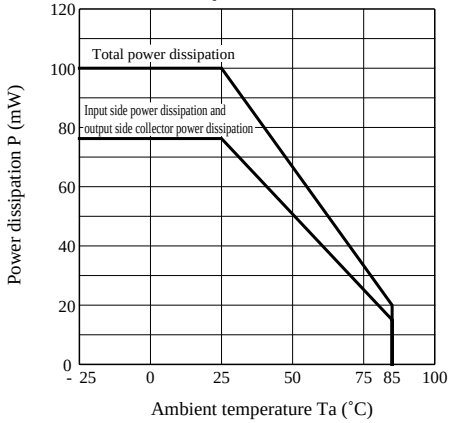


Fig. 3 Forward Current vs. Forward Voltage

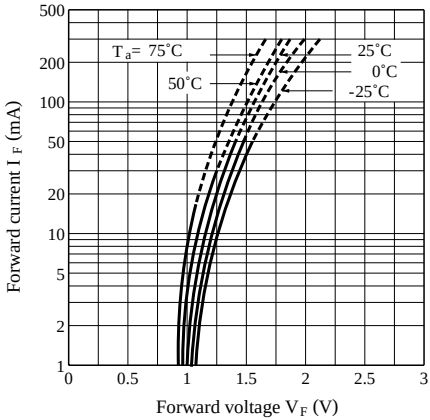


Fig. 4 Collector Current vs. Forward Current

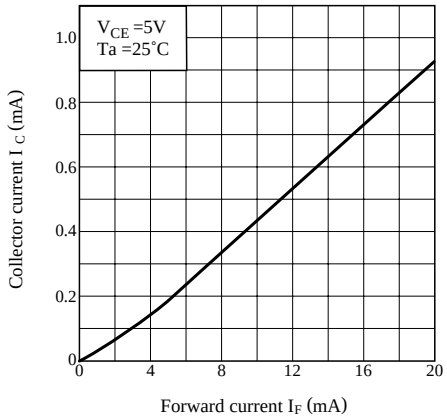


Fig. 5 Collector Current vs. Collector-emitter Voltage

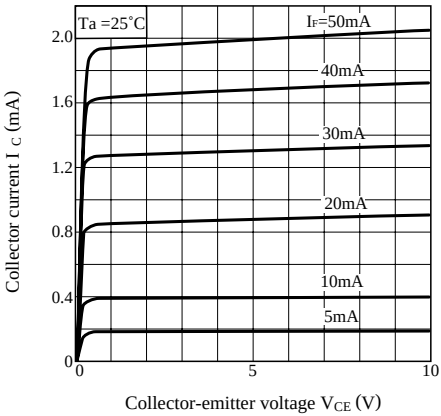


Fig. 6 Relative Collector Current vs. Ambient Temperature

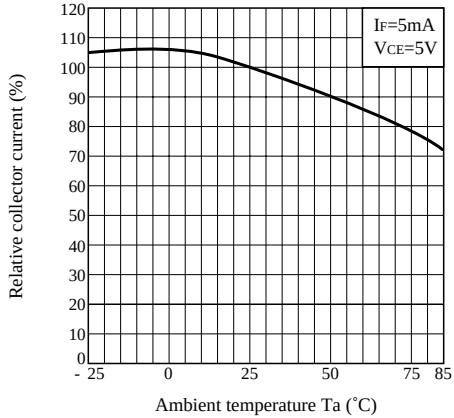


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

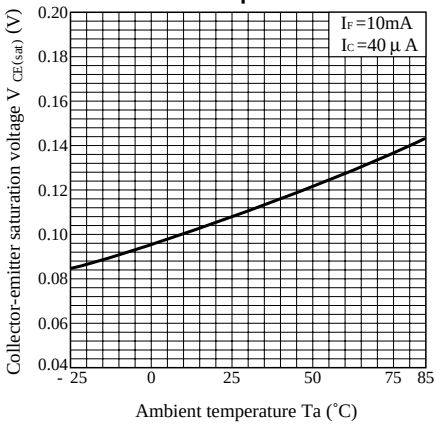


Fig. 8 Dark Current vs. Ambient Temperature

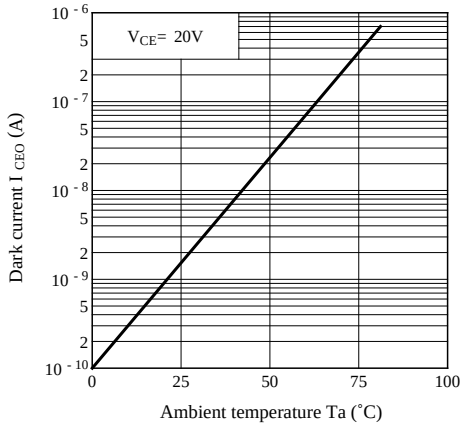
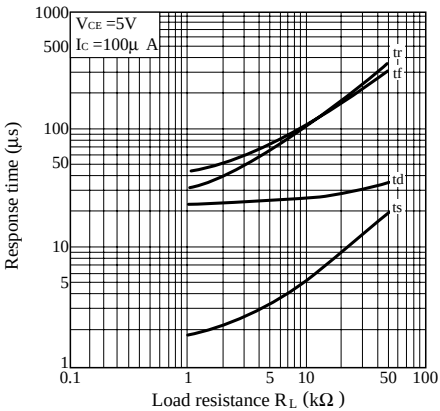


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

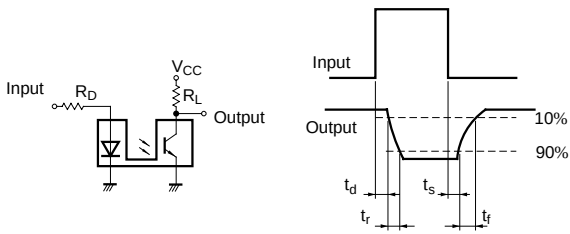


Fig. 10 Detecting Position Characteristics (1)

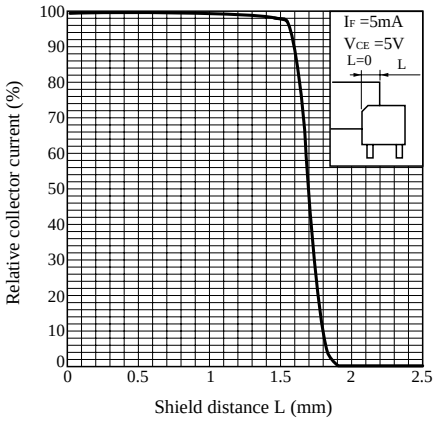
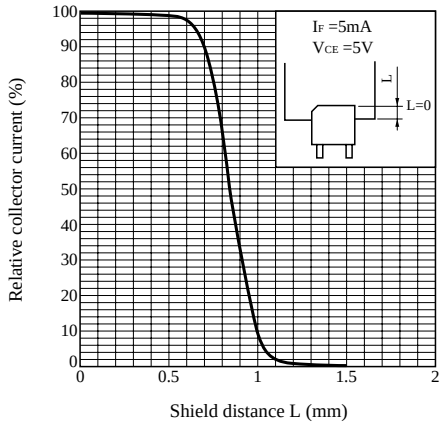


Fig. 11 Detecting Position Characteristics (2)



- Please refer to the chapter "Precautions for Use".