

# GP1S94

## Subminiature Wide-gap Type Photointerrupter

### ■ Features

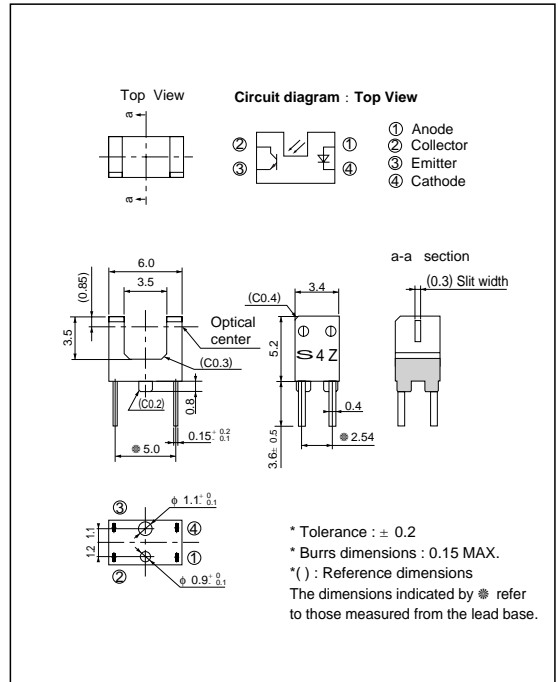
1. Subminiature wide-gap type
2. Emitter-detector gap width : 3.5 mm
3. Slit : (0.3) mm
4. With positioning boss

### ■ Applications

1. FDDs
2. Laser disc players
3. VCRs

### ■ Outline Dimensions

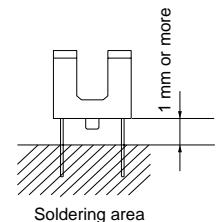
(Unit : mm)



### ■ Absolute Maximum Ratings

(Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I <sub>F</sub>	50	mA
	Reverse voltage	V <sub>R</sub>	6	V
	Power dissipation	P	75	mW
Output	Collector-emitter voltage	V <sub>CEO</sub>	35	V
	Emitter-collector voltage	V <sub>ECO</sub>	6	V
	Collector current	I <sub>C</sub>	20	mA
	Collector power dissipation	P <sub>C</sub>	75	mW
Total power dissipation		P <sub>tot</sub>	100	mW
Operating temperature		T <sub>opr</sub>	- 25 to + 85	°C
Storage temperature		T <sub>stg</sub>	- 40 to +100	°C
*1 Soldering temperature		T <sub>sol</sub>	260	°C



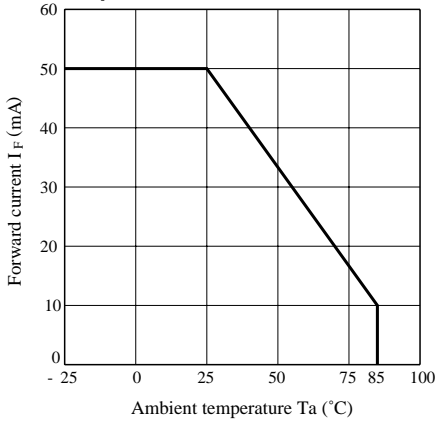
\*1 For MAX. 5 seconds

**Electro-optical Characteristics**

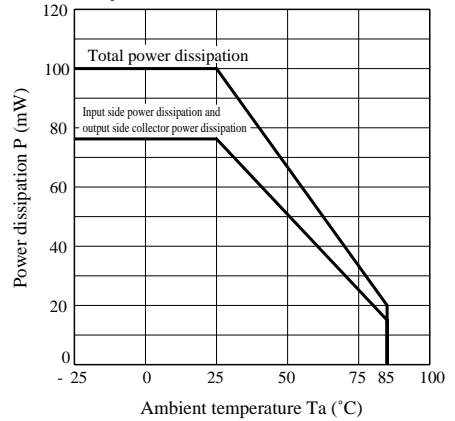
(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$	$I_F = 20\text{mA}$	-	1.2	1.4	V
	Reverse current	$I_R$	$V_R = 3\text{V}$	-	-	10	$\mu\text{A}$
Output	Dark current	$I_{CEO}$	$V_{CE} = 20\text{V}$	-	-	100	nA
Transfer characteristics	Collector current	$I_C$	$V_{CE} = 5\text{V}, I_F = 5\text{mA}$	40	-	400	$\mu\text{A}$
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 10\text{mA}, I_C = 40\mu\text{A}$	-	-	0.4	V
	Response time	Rise time	$t_r$	$V_{CE} = 5\text{V}, I_C = 100\mu\text{A}$	-	50	150
Fall time		$t_f$	$R_L = 1\ 000\ \Omega$	-	50	150	$\mu\text{s}$

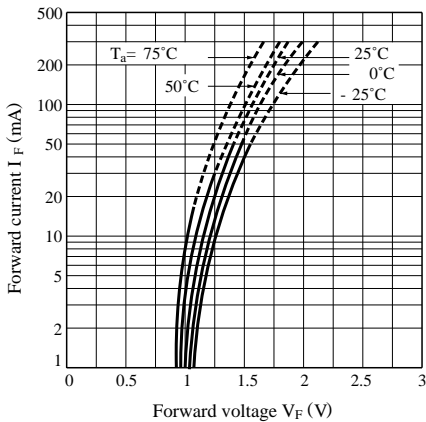
**Fig. 1 Forward Current vs. Ambient Temperature**



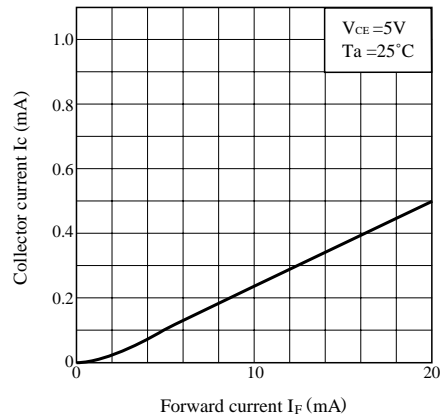
**Fig. 2 Power Dissipation vs. Ambient Temperature**



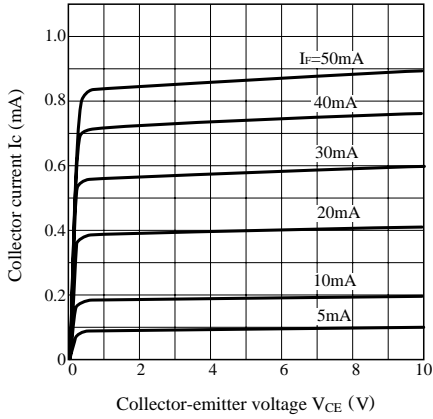
**Fig. 3 Forward Current vs. Forward Voltage**



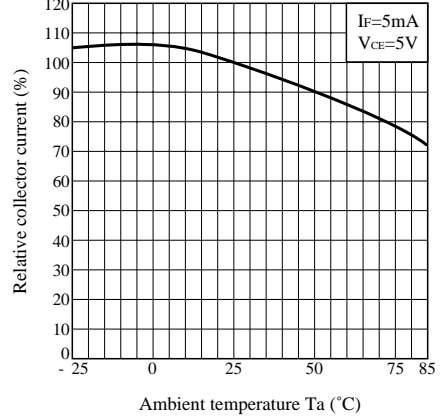
**Fig. 4 Collector Current vs. Forward Current**



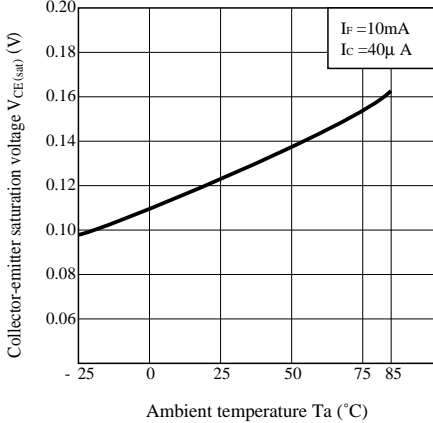
**Fig. 5 Collector Current vs. Collector-emitter Voltage**



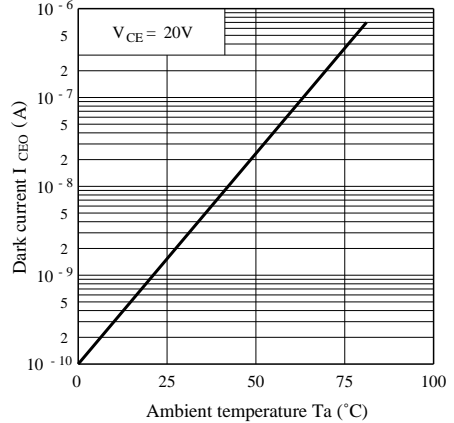
**Fig. 6 Relative Collector Current vs. Ambient Temperature**



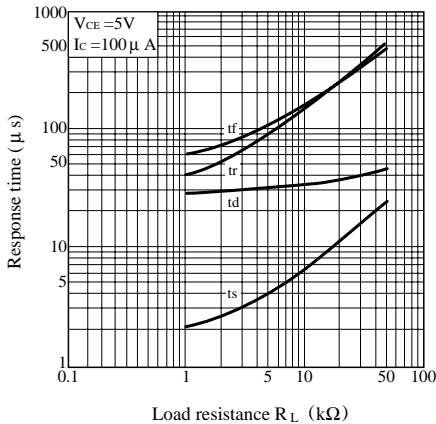
**Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature**



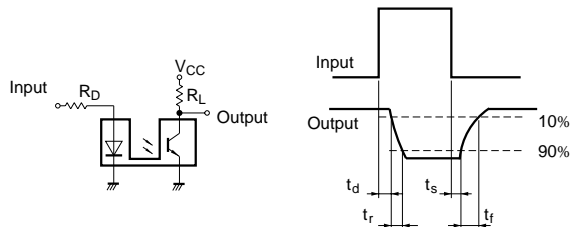
**Fig. 8 Dark Current vs. Ambient Temperature**



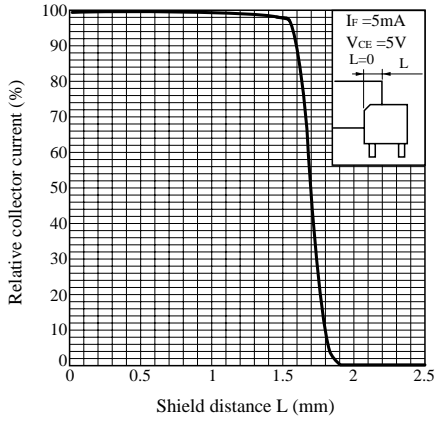
**Fig. 9 Response Time vs. Load Resistance**



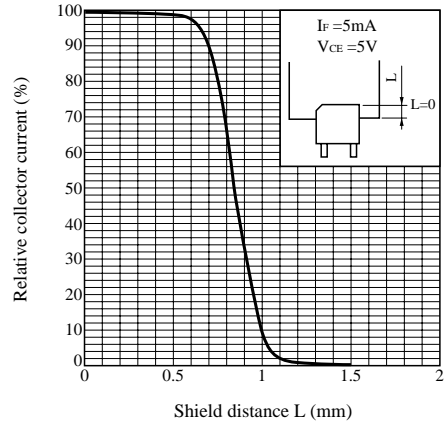
**Test Circuit for Response Time**



**Fig. 10 Detecting Position Characteristics (1)**



**Fig. 11 Detecting Position Characteristics (2)**



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

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