

# GP1S094HCZ

## Subminiature, Wide gap, Transmissive Type Photointerrupter

### ■ Features

1. General purpose
2. Wide gap (Gap width:3.0mm)
3. Slit width (Detector side):0.3mm

### ■ Applications

1. Cameras
2. CD-ROM drives
2. DVD-ROM drives
3. VCR

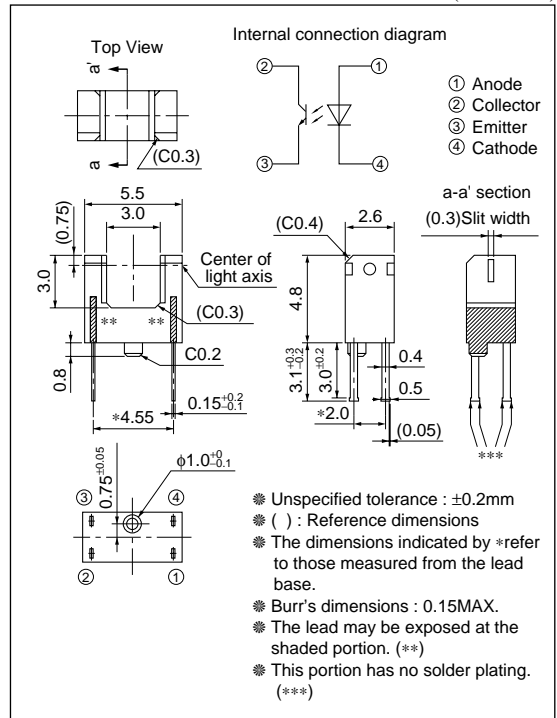
### ■ Absolute Maximum Ratings (T<sub>a</sub>=25°C)

	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
<sup>*1</sup> Soldering temperature		T <sub>sol</sub>	260	°C

\*1 For MAX. 5s

### ■ Outline Dimensions

(Unit : mm)



■ 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
	Reverse current	$I_R$	$V_R=3\text{V}$	—	—	10	$\mu\text{A}$
Output	Collector dark current	$I_{CEO}$	$V_{CE}=20\text{V}$	—	—	100	nA
Transfer characteristics	Collector current	$I_C$	$I_F=5\text{mA}, V_{CE}=5\text{V}$	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	$t_r$	$I_C=100\mu\text{A}, V_{CE}=5\text{V}, R_L=1\text{k}\Omega$	—	50	150
Fall time		$t_f$	—		50	150	$\mu\text{s}$

Fig.1 Forward Current vs. Ambient Temperature

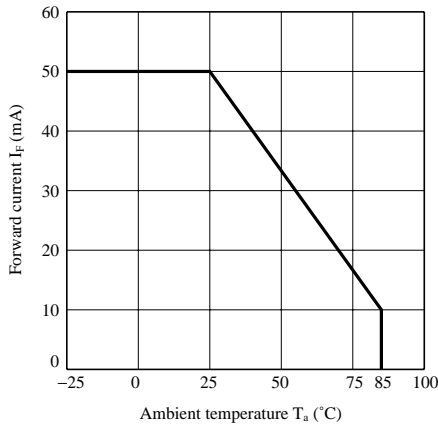


Fig.2 Power Dissipation vs. Ambient Temperature

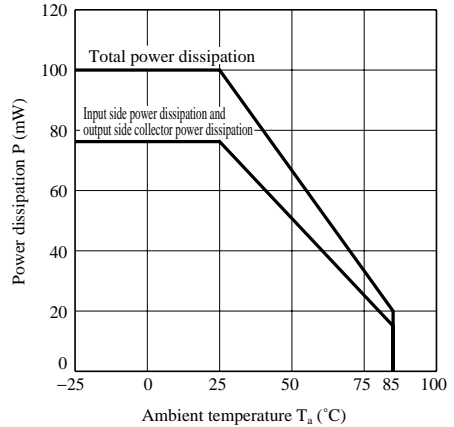


Fig.3 Forward Current vs. Forward Voltage

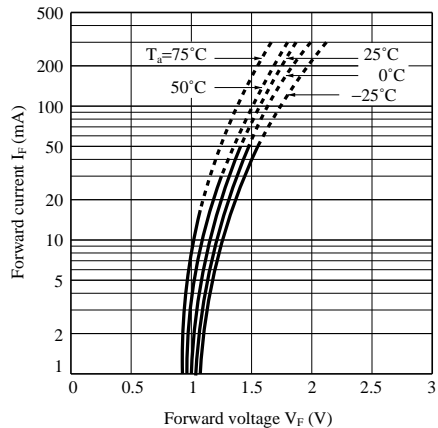
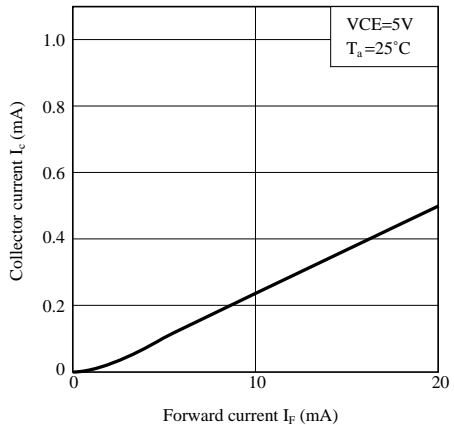
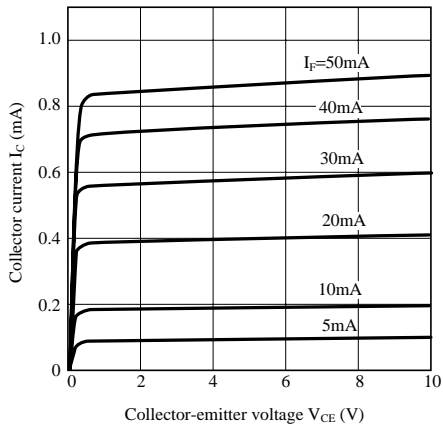


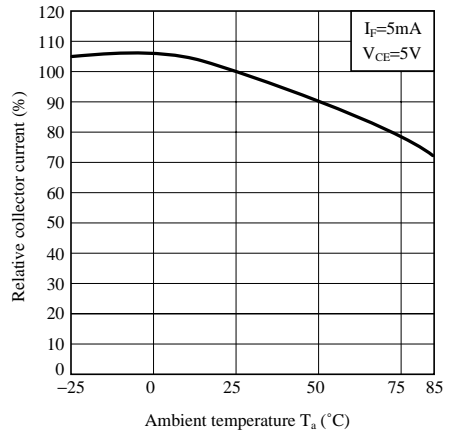
Fig.4 Collector Current vs. Forward Current



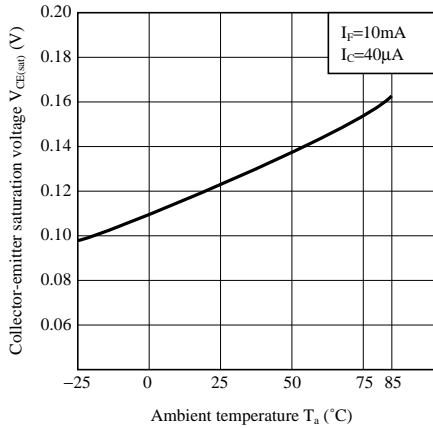
**Fig.5 Collector Current vs. Collector-emitter Voltage**



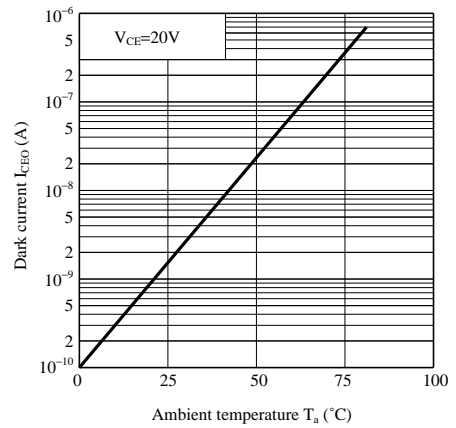
**Fig.6 Relative Collector Current vs. Ambient Temperature**



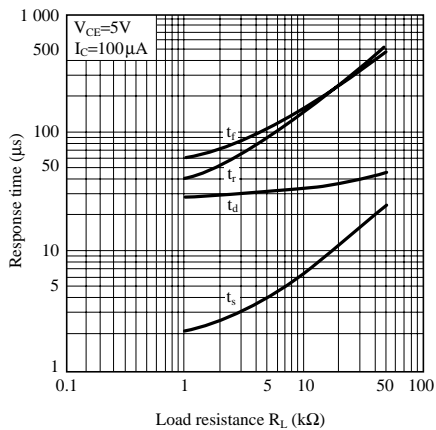
**Fig.7 Collector-emitter Saturation Voltage vs. Ambient Temperature**



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



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



**Fig.10 Test Circuit for Response Time**

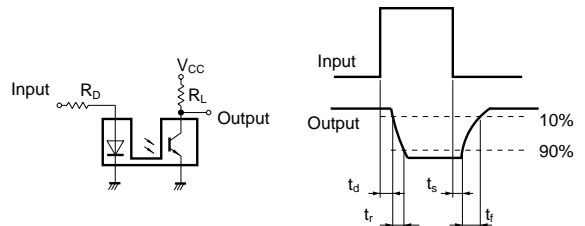


Fig.11 Detecting Position Characteristics (1)

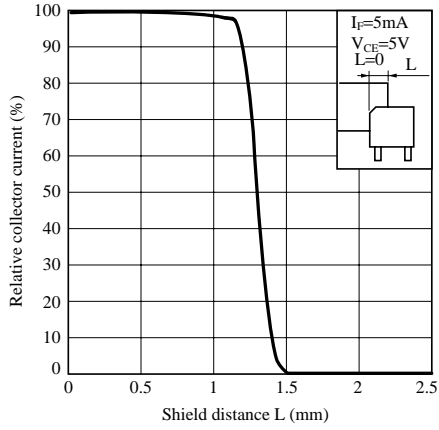
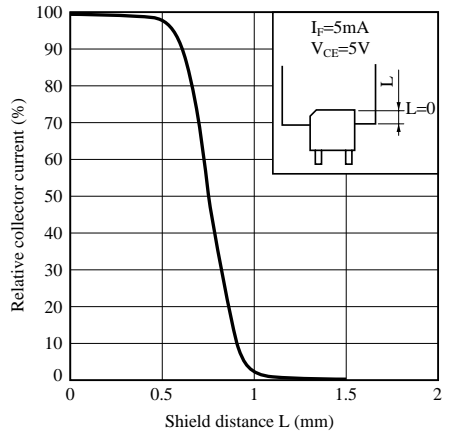


Fig.12 Detecting Position Characteristics (2)



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