

# GP1S093HCZ

## Subminiature, Low Profile, Transmissive Type Photointerrupter

### ■ Features

1. General purpose
2. Low profile(Height:2.9mm)
3. Wide gap(Gap width:2.0mm)
4. Slit width(Detector side):0.3mm

### ■ Applications

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

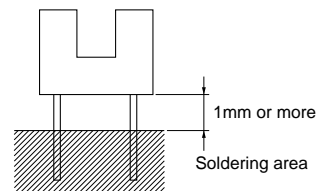
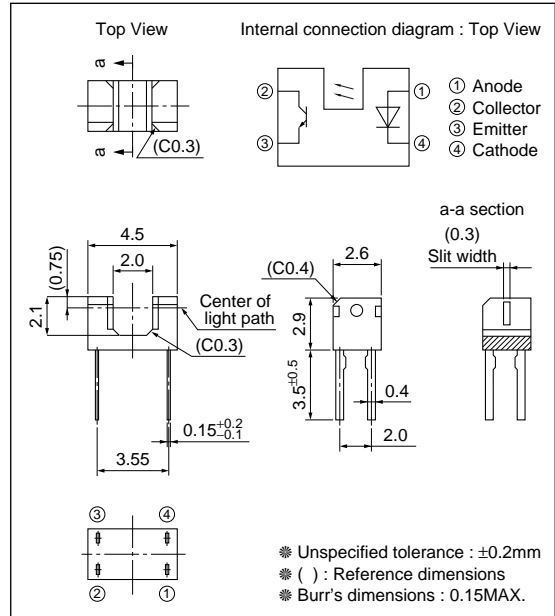
### ■ Absolute Maximum Ratings (Ta=25°C)

	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
	*1 Soldering temperature	$T_{sol}$	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	$I_C$	$V_{CE}=5\text{V}, I_F=5\text{mA}$	100	-	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	$t_r$	$V_{CE}=5\text{V}, I_C=100\mu\text{A}$ $R_L=1\ 000\Omega$	-	50	150
Fall time		$t_f$	-		50	150	$\mu\text{s}$

Fig.1 Forward Current vs. Ambient Temperature

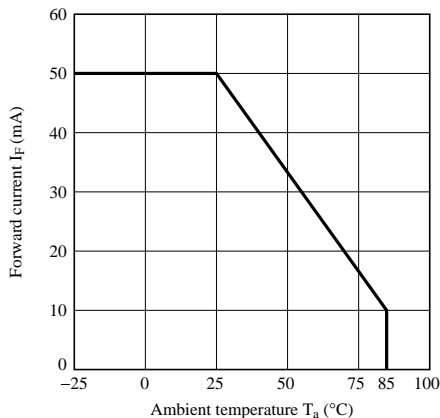


Fig.2 Power Dissipation vs. Ambient Temperature

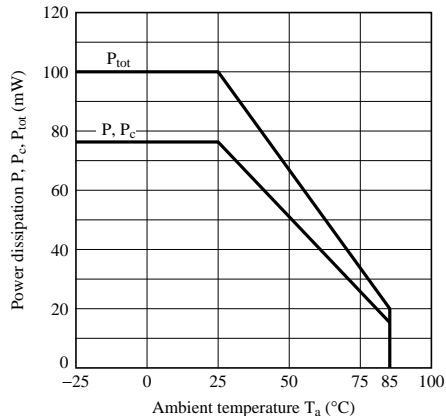


Fig.3 Forward Current vs. Forward Voltage

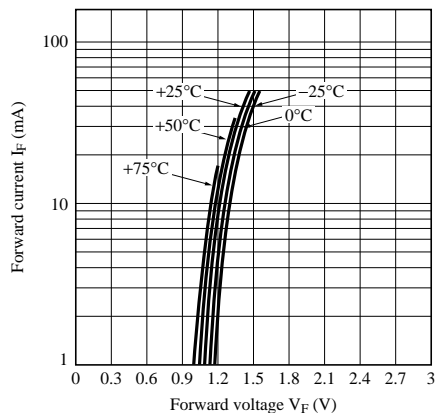
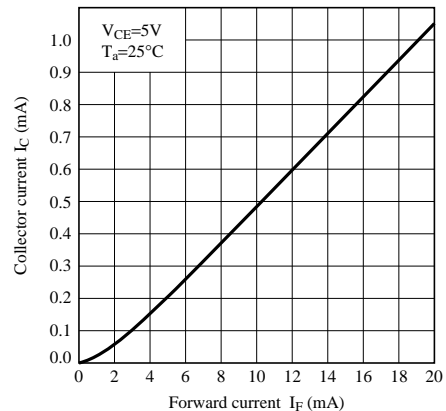
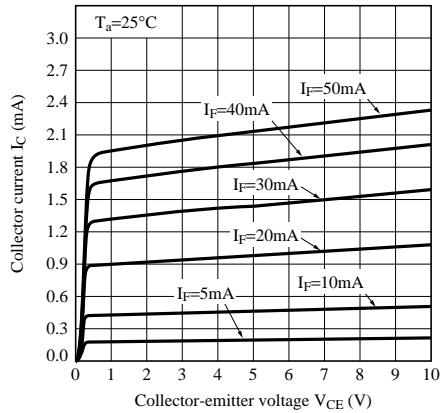


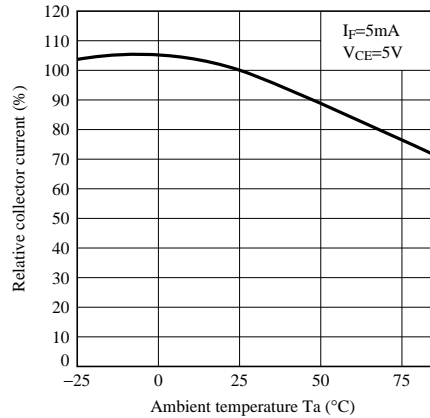
Fig.4 Collector Current vs. Forward Current



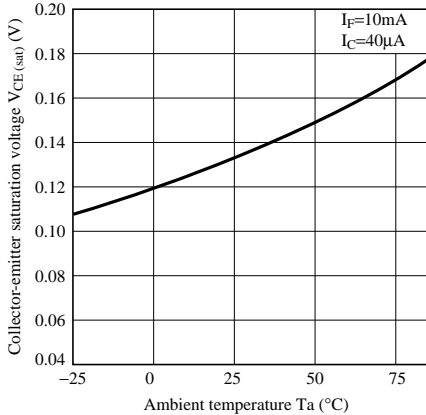
**Fig.5 Collector Current vs. Collector-emitter Voltage**



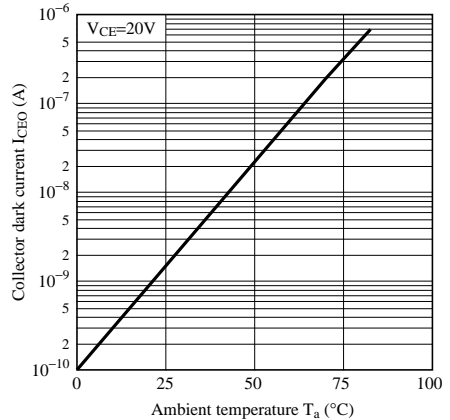
**Fig.6 Relative Collector Current vs. Ambient Temperature**



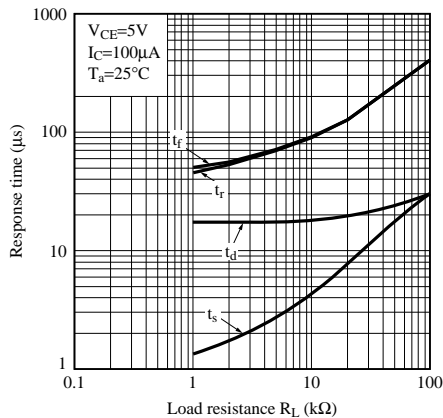
**Fig.7 Collector - emitter Saturation Voltage vs. Ambient Temperature**



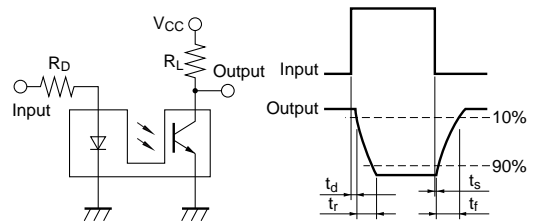
**Fig.8 Collector Dark Current vs. Ambient Temperature**



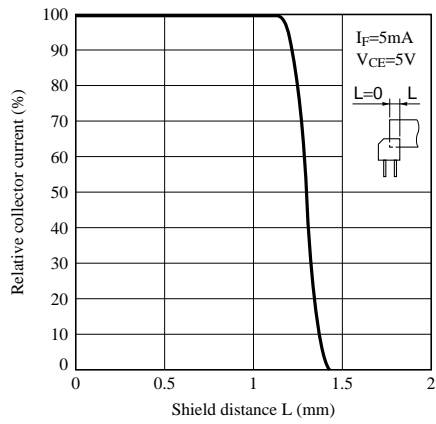
**Fig.9 Response Time vs. Load Resistance**



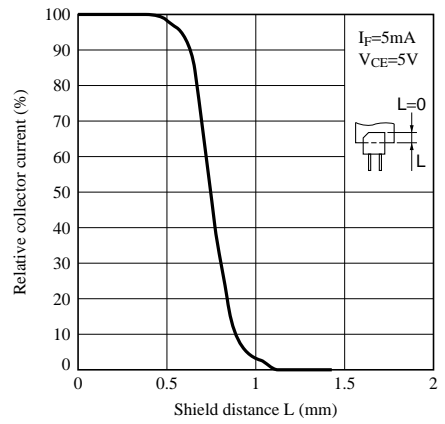
**Fig.10 Test Circuit for Response Time**



**Fig.11 Relative Collector Current vs. Shield Distance (1)**



**Fig.12 Relative Collector Current vs. Shield Distance (2)**



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