

# GP1S23

## Subminiature Photointerrupter

### Features

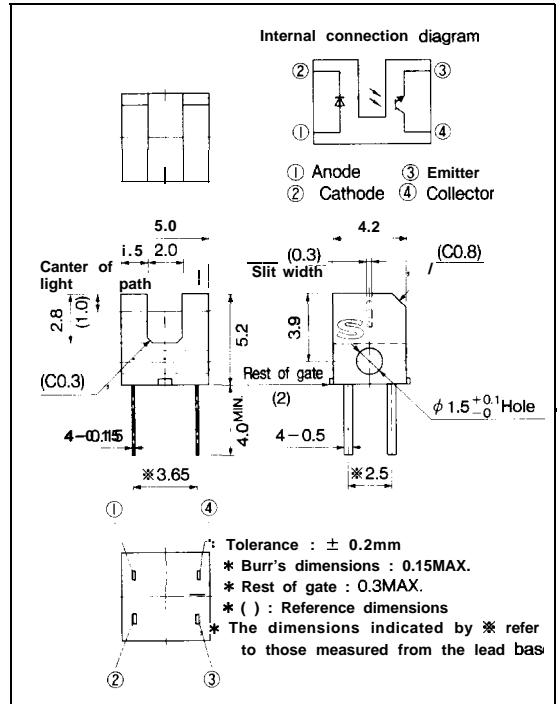
1. Ultra-compact (Capacity : 0.06cc)
2. PWB mounting type package
3. High sensing accuracy (Slit width: 0.3mm)
4. Gap between light emitter and detector : 2mm

### Applications

1. Cameras
2. Floppy disk drives

### Outline Dimensions

(Unit : mm)

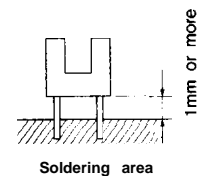


8

### 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 5 seconds

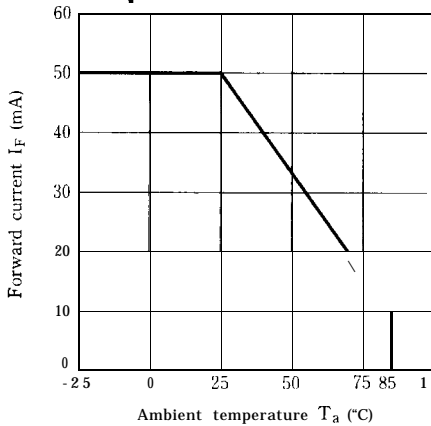
"In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device."

**Electro-optical Characteristics**

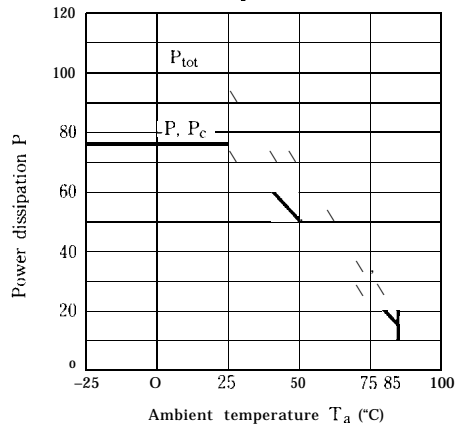
( $T_a = 25^\circ\text{C}$ )

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	$I_{CEO}$	$V_{CE} = 20\text{V}$	-	-	$1 \times 10^{-7}$	A	
Transfer characteristics	Current transfer ratio	CTR	$I_F = 5\text{mA}, V_{CE} = 5\text{V}$	0.8	-	8	%	
	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	$t_r$	$I_C = 0.1\text{mA}, V_{CE} = 5\text{V}, R_L = 1\text{k}\Omega$	-	50	150	$\mu\text{s}$
		Fall time	$t_f$		-	50	150	$\mu\text{s}$

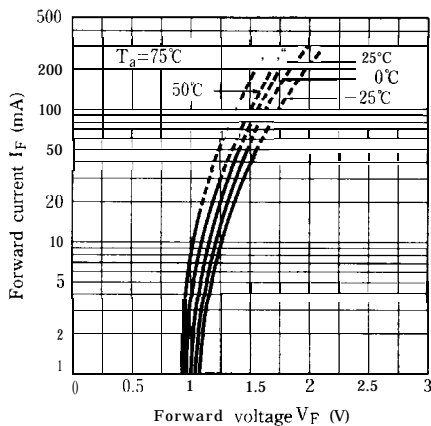
**Fig. 1 Forward Current vs. Ambient Temperature**



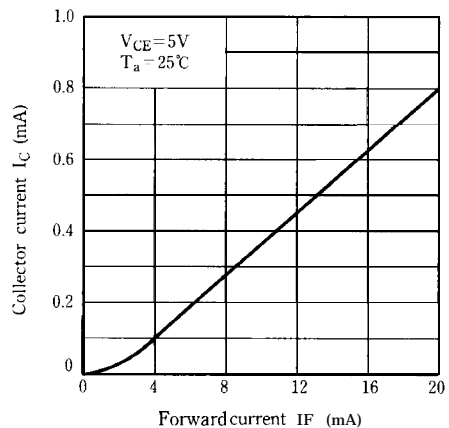
**Fig. 2 Power Dissipation vs. Ambient Temperature**



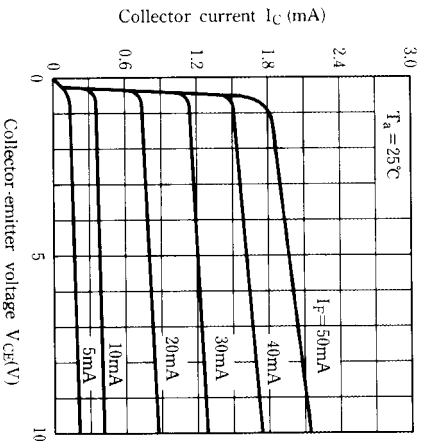
**Fig. 3 Forward Current vs. Forward Voltage**



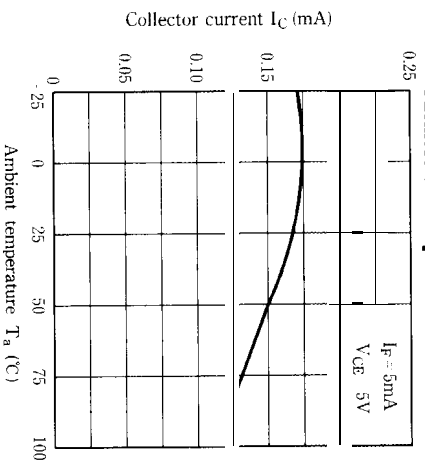
**Fig. 4 Collector Current vs. Forward Current**



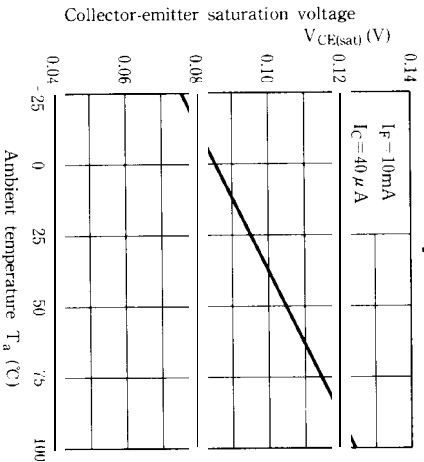
**Fig. 5 Collector Current vs. Collector-emitter voltage**



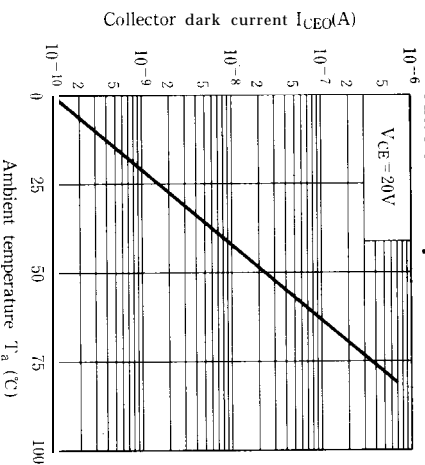
**Fig. 6 Collector Current vs. Ambient Temperature**



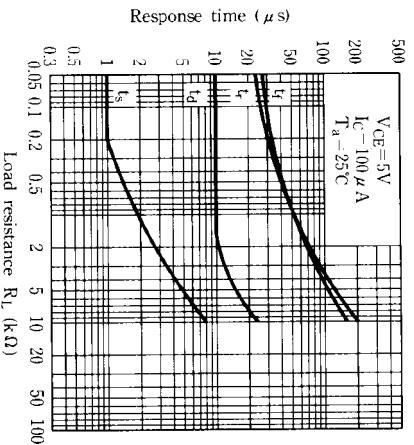
**Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature**



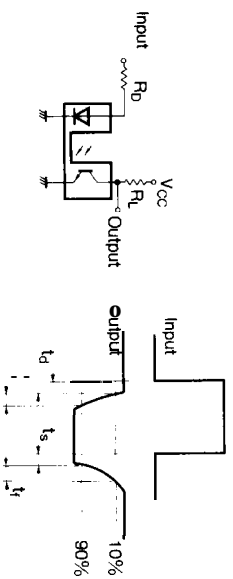
**Fig. 8 Collector Dark Current vs. Ambient Temperature**



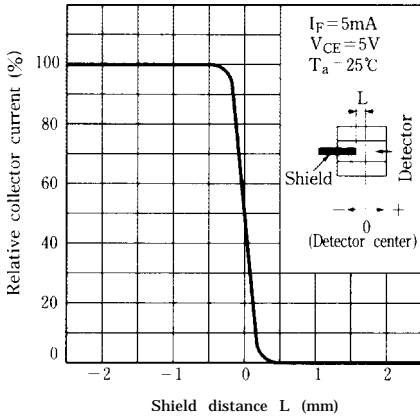
**Fig. 9 Response Time vs. Load Resistance**



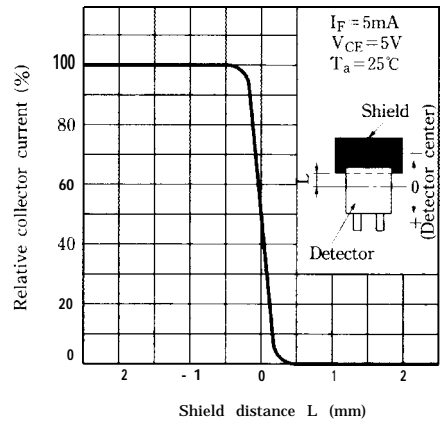
**Test Circuit for Response Time**



**Fig.10 Relative Collector Current vs. Shield Distance (1)**



**Fig.11 Relative Collector Current vs. Shield Distance (2)**



● Please refer to the chapter “Precautions for Use” (Page 78 to 93),