

# SG - 223

The SG - 223 is a photointerrupter consisting of GaAs IRED and phototransistor.

### FEATURES

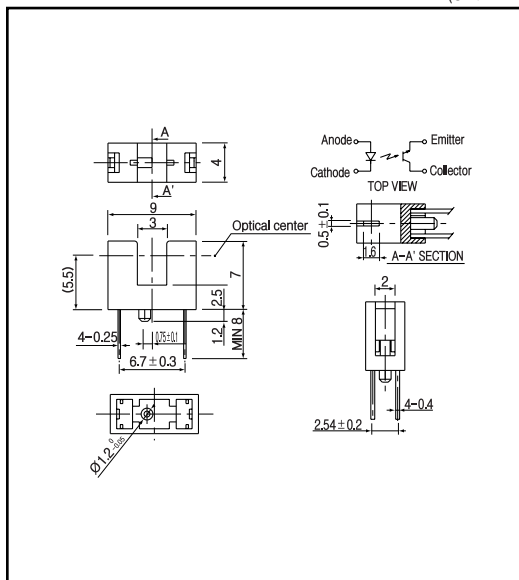
- 0.4mm aperture
- Easy to mount on P.C.B.
- Very compact

### APPLICATIONS

- Floppy disk drives
- Camera

### DIMENSIONS

(Unit : mm)



### MAXIMUM RATINGS

(Ta=25 )

Item		Symbol	Rating	Unit
Input	Power dissipation	P <sub>D</sub>	75	mW
	Reverse voltage	V <sub>R</sub>	5	V
	Forward current	I <sub>F</sub>	50	mA
	Pulse forward current *1	I <sub>FP</sub>	1	A
Output	Collector power dissipation	P <sub>C</sub>	75	mW
	Collector current	I <sub>C</sub>	20	mA
	C - E voltage	V <sub>CEO</sub>	30	V
	E - C voltage	V <sub>EEO</sub>	5	V
	Operating temp.	T <sub>opr.</sub>	- 25 ~ +85	
	Storage temp.	T <sub>stg.</sub>	- 30 ~ +85	
	Soldering temp.*2	T <sub>sol.</sub>	260	

\*1. t w 100 μsec.period :T=10msec.

\*2. For MAX. 5 seconds at the position of 2mm from the package

### ELECTRO-OPTICAL CHARACTERISTICS

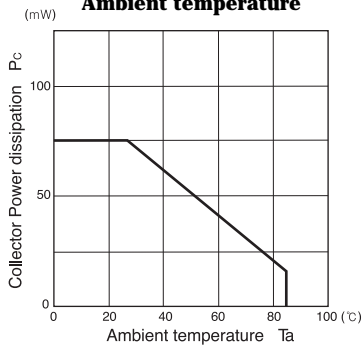
(Ta=25 )

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit.
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> =20mA		1.2	1.4	V
	Reverse current	I <sub>R</sub>	V <sub>R</sub> =5V			10	μA
	Capacitance	C <sub>t</sub>	V=0, f=1KHz		25		pF
	Peak wavelength	λ			940		nm
Output	Collector dark current	I <sub>CEO</sub>	V <sub>CE</sub> =10V			0.1	μA
Light current		I <sub>L</sub>	V <sub>CE</sub> =5V, I <sub>F</sub> =20mA	0.7		14	mA
C - E saturation voltage		V <sub>CE(sat)</sub>	I <sub>F</sub> =20mA, I <sub>C</sub> =0.1mA		0.15	0.4	V
Switching speeds	Rise time	t <sub>r</sub>	V <sub>CC</sub> =5V, I <sub>C</sub> =0.5mA		10		μsec.
	Fall time	t <sub>f</sub>	R <sub>L</sub> =100		10		μsec.

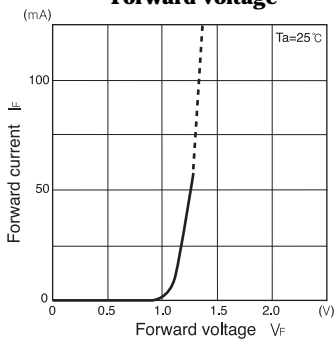
Photo interrupters(Transmissive)

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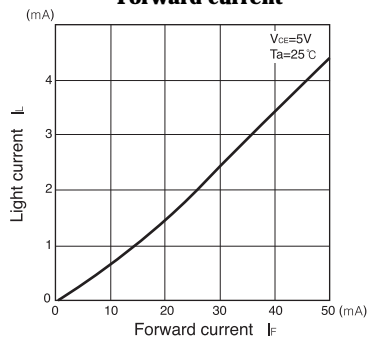
**Collector power dissipation Vs. Ambient temperature**



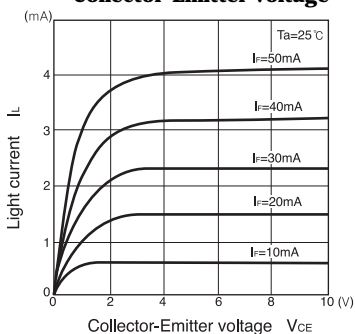
**Forward current Vs. Forward voltage**



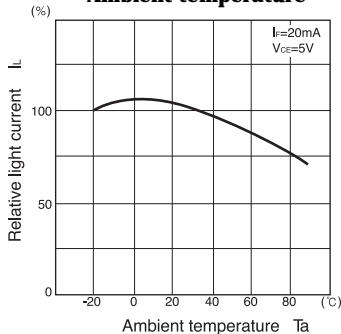
**Light current Vs. Forward current**



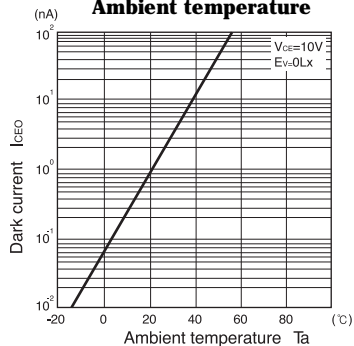
**Light current Vs. Collector-Emitter voltage**



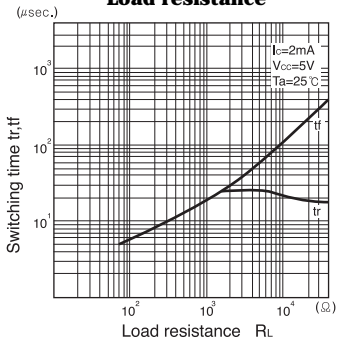
**Relative light current Vs. Ambient temperature**



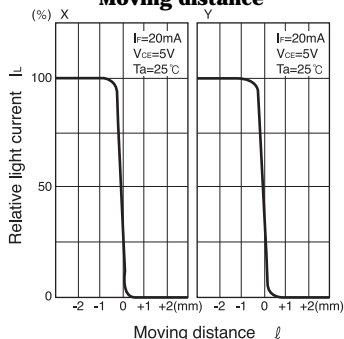
**Dark current Vs. Ambient temperature**



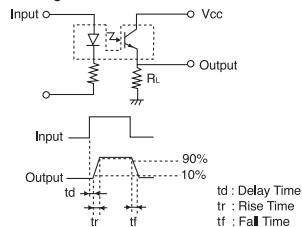
**Switching time Vs. Load resistance**



**Relative light current Vs. Moving distance**



Switching time measurement circuit



Method of measuring position characteristic

