

## SG - 257

The SG - 257 photointerrupter high - performance standard type, combines high - output GaAs IRED with high sensitive phototransistor.

### FEATURES

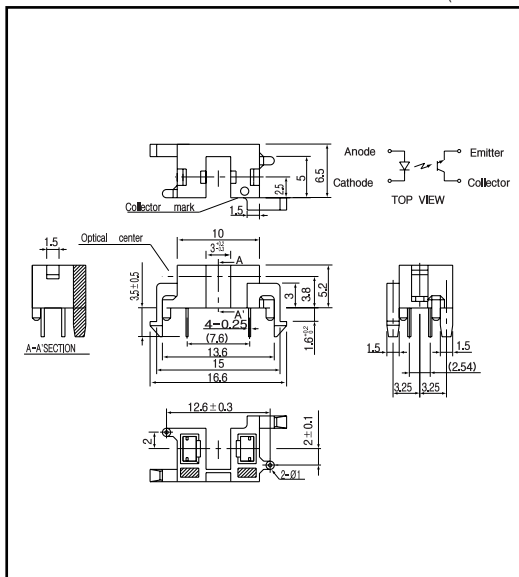
- PWB direct mount type
- GAP : 3.0mm
- Snap-in mount
- Horizontal slit
- Convenient for vertical lever operation

### APPLICATIONS

- Mouses
- Rotary encoders
- Facsimiles
- Scanners

### DIMENSIONS

(Unit : mm)



### MAXIMUM RATINGS

(Ta = 25 °C)

Item		Symbol	Rating	Unit
Input	Power dissipation	P <sub>d</sub>	75	mW
	Forward current	I <sub>F</sub>	50	mA
	Reverse voltage	V <sub>R</sub>	5	V
	Pulse forward current <sup>*1</sup>	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>ECD</sub>	5	V
Operating temp. <sup>*2</sup>		T <sub>opr.</sub>	- 20 ~ + 85	
Storage temp. <sup>*2</sup>		T <sub>stg.</sub>	- 30 ~ + 85	
Soldering temp. <sup>*3</sup>		T <sub>sol.</sub>	260	

\*1. pulse width : t<sub>w</sub> 100 μsec. period : T = 10msec.

\*2. No icebound or dew

\*3. For MAX.5 seconds at the position of 1mm from the package

### ELECTRO-OPTICAL CHARACTERISTICS

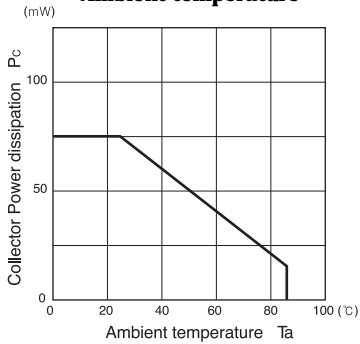
(Ta = 25 °C)

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
	Peak wavelength	λ <sub>p</sub>	I <sub>F</sub> = 20mA		940		nm
Output	Collector dark current	I <sub>CEO</sub>	V <sub>CE</sub> = 10V		1	100	nA
	Light current	I <sub>c</sub>	I <sub>F</sub> = 20mA, V <sub>E</sub> = 5V, Non-shading	0.7		14	mA
Transmissio	leakage current	I <sub>CEOD</sub>	I <sub>F</sub> = 20mA, V <sub>E</sub> = 5V (shading)		0.5	10	μA
	C - E saturation voltage	V <sub>CE(sat)</sub>	I <sub>F</sub> = 20mA, I <sub>c</sub> = 0.3mA		0.15	0.4	V
	Rise time	t <sub>r</sub>	V <sub>CC</sub> = 5V, I <sub>F</sub> = 2mA, R = 100		4		μsec.
	Fall time	t <sub>f</sub>			5		μsec.

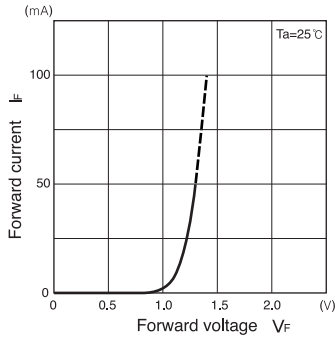
# Photointerrupters(Transmissive)

## SG - 257

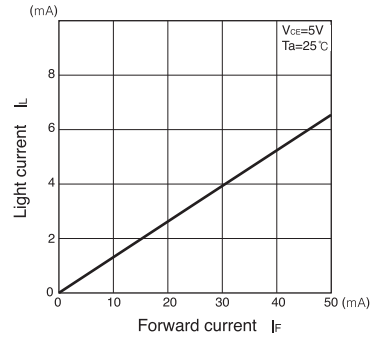
**Collector power dissipation Vs. Ambient temperature**



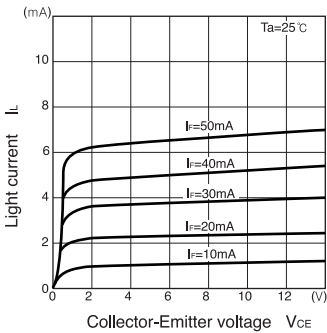
**Forward current Vs. Forward voltage**



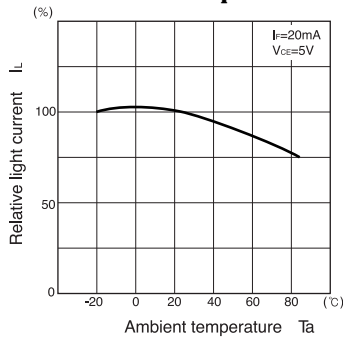
**Light current Vs. Forward current**



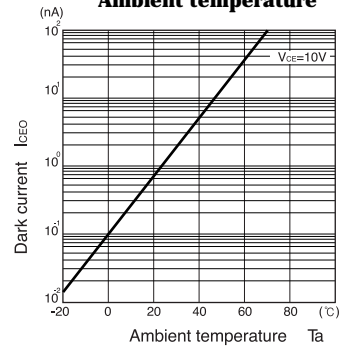
**Light current Vs. Collector-Emitter voltage**



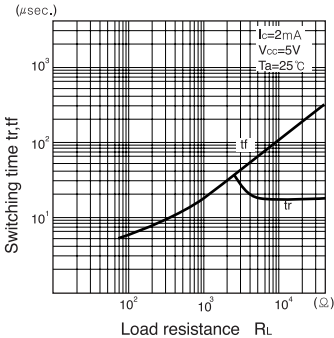
**Relative light current Vs. Ambient temperature**



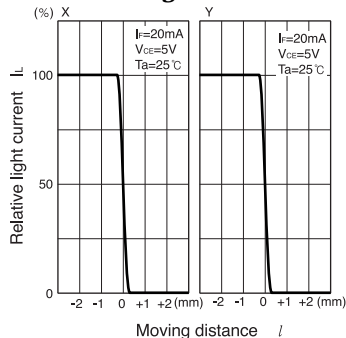
**Dark current Vs. Ambient temperature**



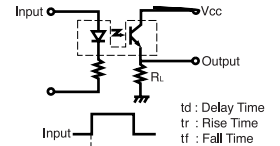
**Switching time Vs. Load resistance**



**Relative light current Vs. Moving distance**



**Switching time measurement circuit**



**Method of measuring position detection characteristic**

