

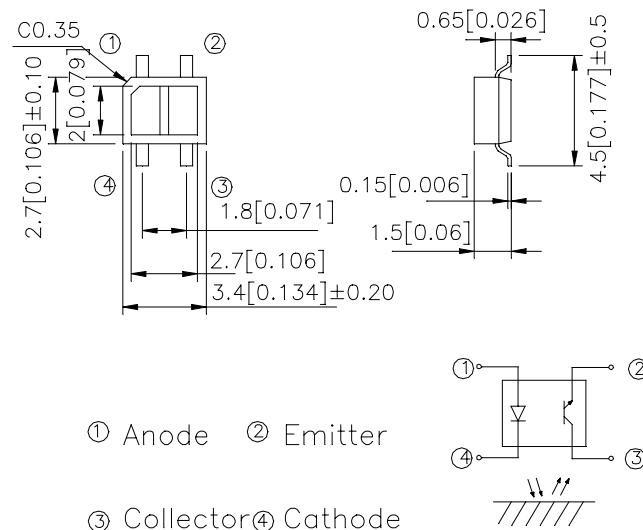
## SUBMINIATURE, HIGH SENSITIVITY PHOTointERRUPTER

### \*Features

- Compact and thin.
- Visible light cut-off type.
- High sensitivity.

### \*Applications

- Cassette tape recorders, VCRs.
- Floppy disk drives.
- Various microcomputerized control equipment.



UNIT : MM[INCH]

TOLERANCE :  $\pm 0.25$  [ $\pm 0.01$ ] UNLESS OTHERWISE NOTED.

### \*Absolute Maximum Ratings

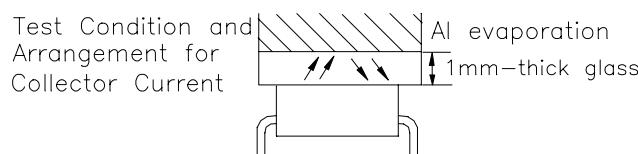
Parameter		Symbol	Rating	Unit
Input	Forward Current	I <sub>F</sub>	50	mA
	Reverse voltage	V <sub>R</sub>	6	V
	Power dissipation	P	75	mW
Output	Collector power dissipation	P <sub>c</sub>	75	mW
	Collector current	I <sub>c</sub>	20	mA
	Collector-emitter voltage	V <sub>CEO</sub>	35	V
	Emitter-collector voltage	V <sub>ECO</sub>	6	V
Operating temperature		T <sub>opr</sub>	-25~+85	°C
Storage temperature		T <sub>stg</sub>	-40~+100	°C
Soldering temperature (1/16 inch from body for 5 seconds)		T <sub>sol</sub>	260	°C

## ■Electro-optical Characteristics

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Input	Forward voltage	$V_F$	$I_F=20\text{mA}$	1.0	1.2	1.4	V
	Reverse current	$I_R$	$V_R=6\text{V}$	—	—	10	$\mu\text{A}$
Output	Collector dark current		$I_{CEO}$	$V_{CE}=20\text{V}$		—	$10^{-9}$ to $10^{-7}$ A
Transfer characteristics	* <sup>1</sup> Collector Current	$I_c$	$V_{CE}=2\text{V}$ , $I_F=4\text{mA}$	10	—	400	$\mu\text{A}$
	* <sup>2</sup> Leak Current	$I_{LEAK}$	$V_{CE}=2\text{V}$ , $I_F=4\text{mA}$	—	—	0.1	$\mu\text{A}$
	Response time	Rise time	$t_r$	$V_{CE}=2\text{V}$ , $I_c=100\mu\text{A}$ $R_L=1\text{K}\Omega$ , $d=1\text{mm}$		20	$\mu\text{Sec}$
		Fall time	$t_f$			100	$\mu\text{Sec}$

\*1 The condition and arrangement of the reflective object are shown below.

\*2 Without reflective object.



## ■Classification table of radiant flux

Rank mark	BIN1	BIN2	BIN3	BIN4	BIN5	BIN6
$I_c(\mu\text{A})$	10~30	31~60	61~90	91~125	126~200	201~400

Fig. 1 Forward Current vs.  
Forward Voltage

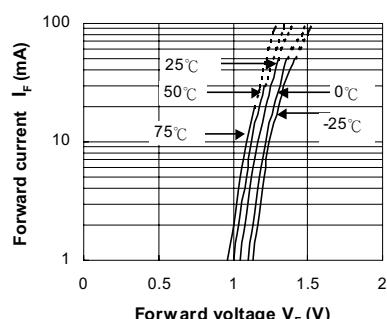


Fig. 3 Collector Current vs.  
Collector-emitter Voltage

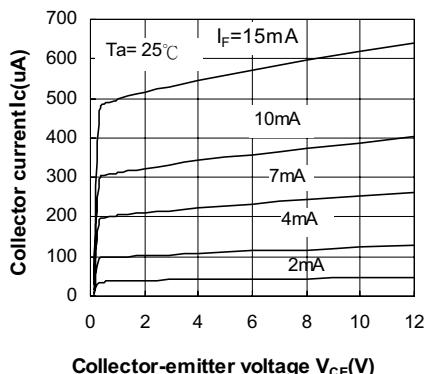


Fig. 2 Collector Current vs.  
Forward Current

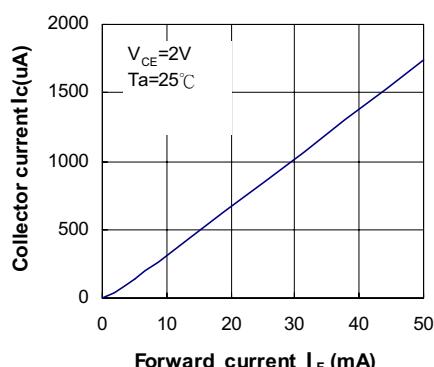


Fig. 4 Relative Collector Current vs.  
Ambient Temperature

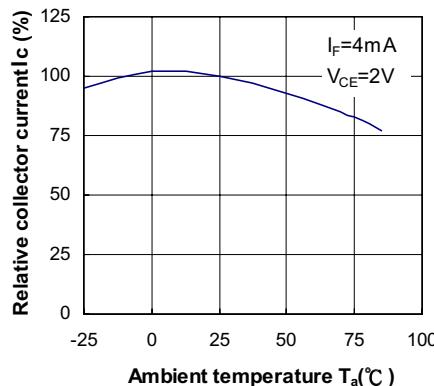
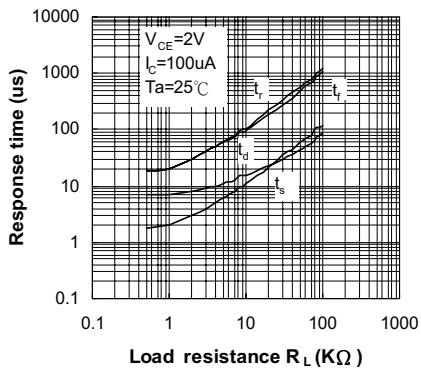


Fig. 5 Response Time vs.  
Load Resistance



Test Circuit for Response Time

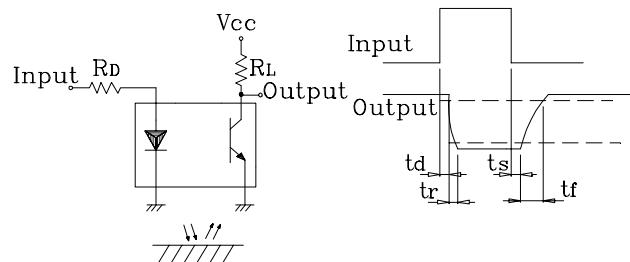


Fig. 6 Collector Dark Current vs.  
Ambient Temperature

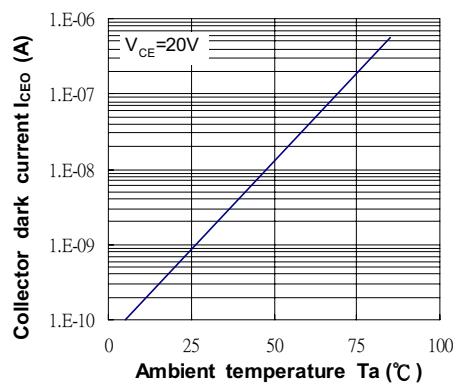


Fig. 7 Relative Collector Current vs.  
Distance between Sensor and  
Al Evaporation Glass

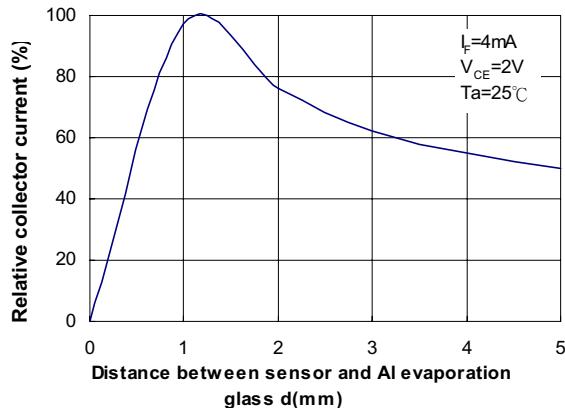


Fig. 8 Relative Collector Current vs.  
Card Moving Distance (1)

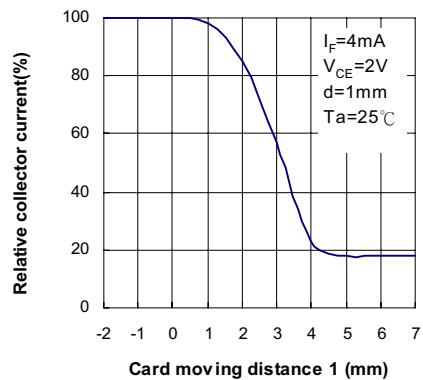
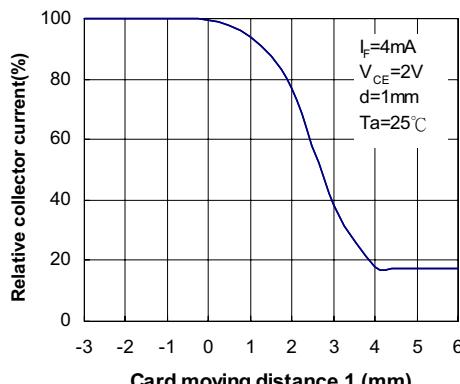
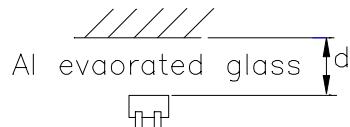


Fig. 9 Relative Collector Current vs.  
Card Moving Distance (2)



## Test Condition for Distance & Detecting Position Characteristics

Correspond to Fig. 7



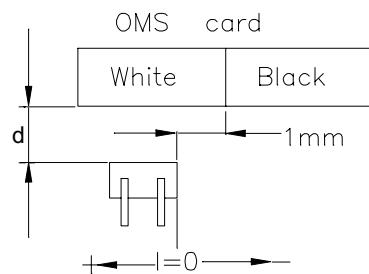
Correspond to Fig. 8

Test condition

$$I_F = 4 \text{ mA}$$

$$V_{CE} = 2 \text{ V}$$

$$d = 1 \text{ mm}$$



Correspond to Fig. 9

Test condition

$$I_F = 4 \text{ mA}$$

$$V_{CE} = 2 \text{ V}$$

$$d = 1 \text{ mm}$$

