

# Photointerrupters(Reflective)

## SG - 2BC

The SG - 2BC reflective sensor combines a GaAs IRED with a high - sensitivity phototransistor in a super - mini (4 ) ceramic package, reducing installation space.

### FEATURES

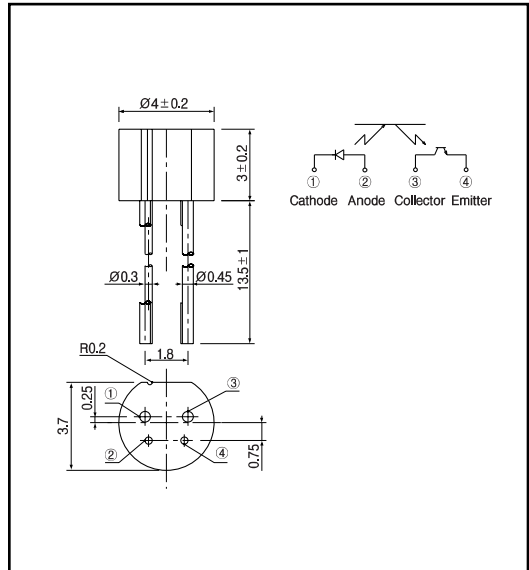
- Compact (  $\varnothing 4\text{mm}$  )
- High performance
- High - speed response
- Easy to mount on P.C.B.
- Widely applicable

### APPLICATIONS

- Timing sensors
- Edge sensors
- Micro floppy disk drives
- Level sensors of liquid

### DIMENSIONS

(Unit : mm)



### MAXIMUM RATINGS

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

	Item	Symbol	Rating	Unit
Input	Power dissipation	$P_D$	75	mW
	Reverse voltage	$V_R$	5	V
	Forward current	$I_F$	50	mA
	Pulse forward current <sup>*1</sup>	$I_{FP}$	1	A
Output	Collector power dissipation	$P_C$	75	mW
	Collector current	$I_C$	20	mA
	C - E voltage	$V_{CE0}$	30	V
	E - C voltage	$V_{ECO}$	3	V
	Operating temp.	$T_{opr.}$	- 20 + 90	
	Storage temp.	$T_{stg.}$	- 30 + 100	
	Soldering temp.	$T_{sol.}$	260	

\*1.  $t_w = 100 \mu\text{sec. period} : T = 10\text{msec.}$

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

### ELECTRO-OPTICAL CHARACTERISTICS

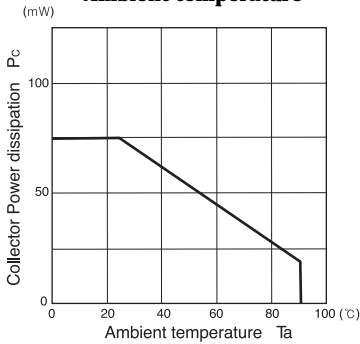
( $T_a = 25^\circ\text{C}$ )

	Item	Symbol	Conditions	Min.	Typ.	Max.	Unit.
Input	Forward voltage	$V_F$	$I_F = 4\text{mA}$			1.2	V
	Reverse current	$I_R$	$V_R = 5\text{V}$			10	$\mu\text{A}$
	Capacitance	$C_t$	$V = 0\text{V}, f = 1\text{KHz}$		25		pF
	Peak wavelength	$\lambda_p$			940		nm
Output	Collector dark current	$I_{CE0}$	$V_{CE} = 10\text{V}$			0.1	$\mu\text{A}$
	Ligh current	$I_L$	$V_{CE} = 2\text{V}, I_F = 4\text{mA}$		100		$\mu\text{A}$
	Leakage current	$I_{CE0D}$	$V_{CE} = 2\text{V}, I_F = 4\text{mA}$			0.1	$\mu\text{A}$
Switching speeds	Rise time	$t_r$	$V_{CC} = 2\text{V}, I_F = 100\mu\text{A}, R_L = 1\text{k}$		30		$\mu\text{sec.}$
	Fall time	$t_f$			30		$\mu\text{sec.}$

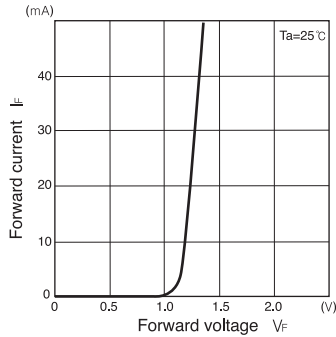
Photo interrupters(Reflective)

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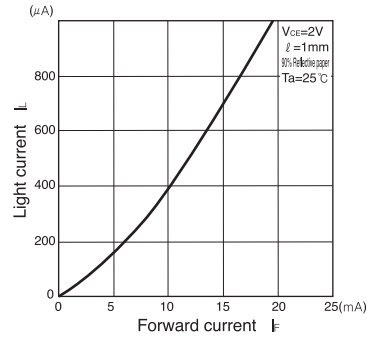
**Collector power dissipation Vs. Ambient temperature**



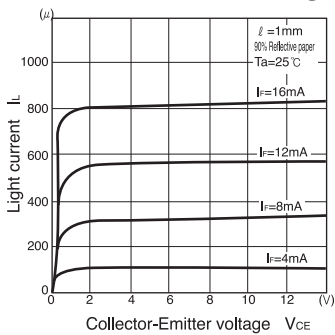
**Forward current Vs. Forward voltage**



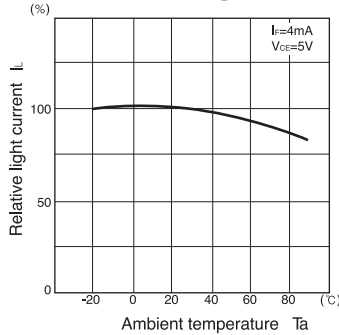
**Light current Vs. Forward current**



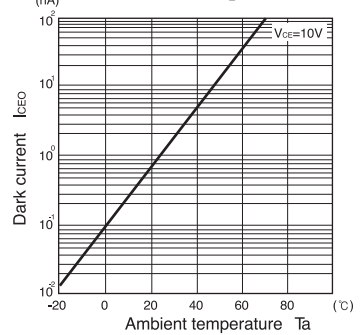
**Light current Vs. Collector-Emitter voltage**



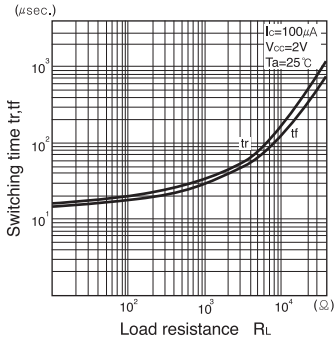
**Relative light current Vs. Ambient temperature**



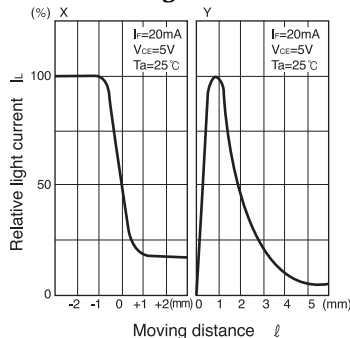
**Dark current Vs. Ambient temperature**



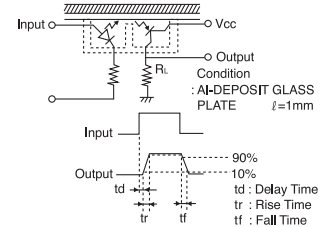
**Switching time Vs. Load resistance**



**Relative light current Vs. Moving distance**



Switching time measurement circuit



Method of measuring position characteristic

