

# SG - 105F

The SG - 105F reflective sensor combines a GaAs IRED with a high - sensitivity phototransistor in a super - mini package, reducing installation space.

### FEATURES

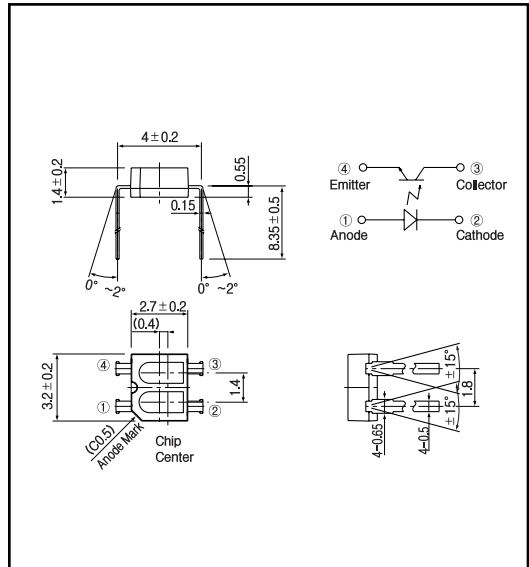
- Compact
- High performance
- High - speed response
- Easy to mount on P.C.B.
- Widely applicable

### APPLICATIONS

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

### DIMENSIONS

(Unit : mm)



### MAXIMUM RATINGS

(Ta=25 )

	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	$P_C$	50	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 ~ +85	
	Storage temp.	$T_{stg.}$	- 30 ~ +100	
	Soldering temp. <sup>*2</sup>	$T_{sol.}$	240	

\*1. t w 100  $\mu$ sec.period : T=10msec.

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

### ELECTRO-OPTICAL CHARACTERISTICS

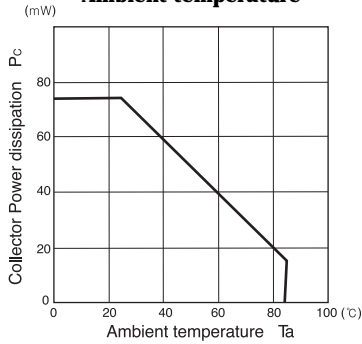
(Ta=25 )

	Item	Symbol	Conditions	Min.	Typ.	Max.	Unit.
Input	Forward voltage	$V_F$	$I_F = 10\text{mA}$			1.3	V
	Reverse current	$I_R$	$V_R = 5\text{V}$			10	$\mu\text{A}$
	Peak wavelength	$\lambda$			940		nm
Output	Collector dark current	$I_{CEO}$	$V_{CE} = 10\text{V}$			0.2	$\mu\text{A}$
	Light current	$I_L$	$V_{CE} = 5\text{V}, I_F = 10\text{mA}$	90			$\mu\text{A}$
	Leakage current	$I_{CEO0}$	$V_{CE} = 5\text{V}, I_F = 10\text{mA}$			0.2	$\mu\text{A}$
Switching speeds	Rise time	$t_r$	$V_{CC} = 2\text{V}, I_F = 100\mu\text{A}$		30		$\mu\text{sec.}$
	Fall time	$t_f$	$R_L = 1\text{K}$		25		$\mu\text{sec.}$

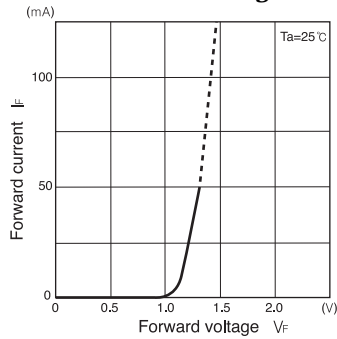
Photointerrupters(Reflective)

SG - 105F

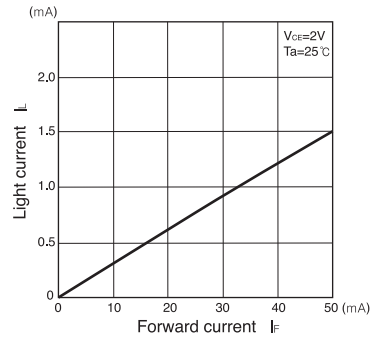
**Collector power dissipation Vs. Ambient temperature**



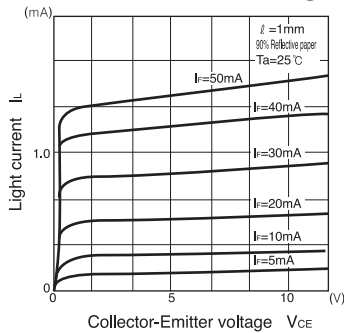
**Forward current Vs. Forward voltage**



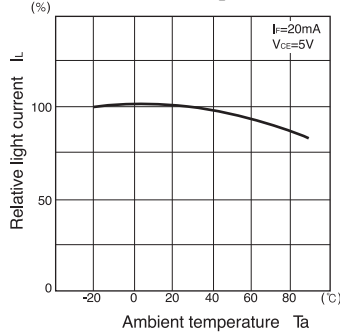
**Light current Vs. Forward current**



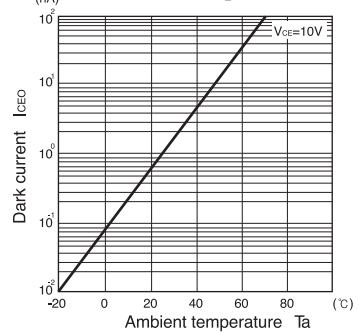
**Light current Vs. Collector-Emitter voltage**



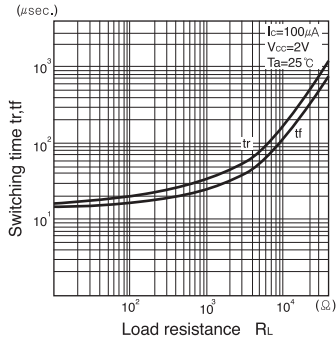
**Relative light current Vs. Ambient temperature**



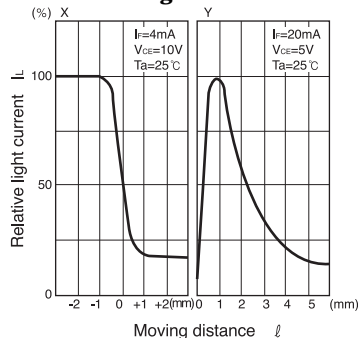
**Dark current Vs. Ambient temperature**



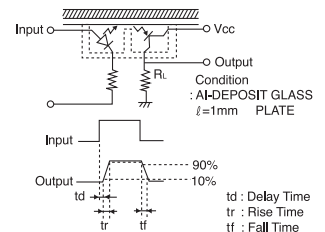
**Switching time Vs. Load resistance**



**Relative light current Vs. Moving distance**



Switching time measurement circuit



Method of measuring position characteristic

