

Photo Reflective Sensor

Module No.: RS-05FA

1. General Description

RS-05FA reflective sensor combines a GaAs infrared light emitting diode with a high sensitive phototransistor in a super mini chip-type package, reducing installation space.

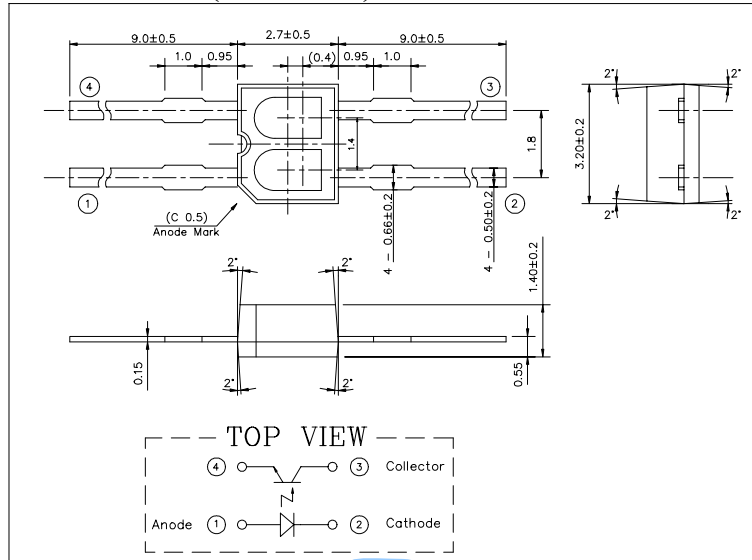
2. Features

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

3. Applications

- ▣ Timing sensors
- ▣ Edge sensors
- ▣ Micro floppy disc drives
- ▣ Level sensors of liquid

Dimensions (Unit: mm)



4. Maximum Ratings

(Ta=25°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 *1	I _{FP}	1	A
Output	Collector Power Dissipation	P _c	50	mW
	Collector Current	I _c	20	mA
	C-E Voltage	V _{CEO}	30	V
	E-C Voltage	V _{ECO}	3	V
Operating Temperature		T _{opr}	-25 ~ +85	°C
Storage Temperature		T _{stg}	-30 ~ +95	°C
Soldering Temperature *2		T _{sol}	240	°C

*1. tw=100μsec. T=10msec.

*2. At the position of 2mm from the bottom of the package within 5 seconds.

5. Electro-optical Characteristics

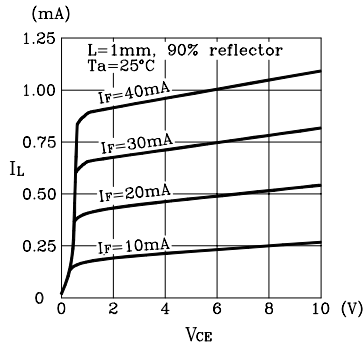
(Ta=25°C)

	Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V _F	I _F =10mA			1.3	V
	Reverse Current	I _R	V _R =5V			10	μA
	Capacitance	C _t	V=0V, f=1kHz		25		pF
	Peak Wavelength	λ _p			940		nm
Output	Collector Dark Current	I _{CEO}	V _{CE} =10V			0.2	μA
	Light Current	I _L	V _{CE} =5V, I _F =10mA	90			μA
	Leakage Current	I _{CEOD}	V _{CE} =5V, I _F =10mA			0.2	μA
Switching Speeds	Rise Time	t _r	V _{cc} =2V, I _c =100μA,		30		μsec
	Fall Time	t _f	R _L =1kΩ		25		μsec

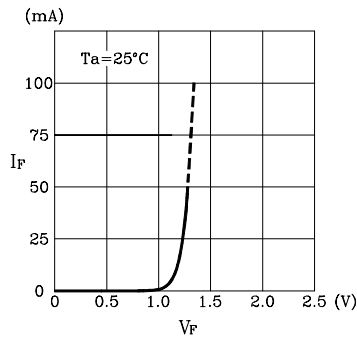
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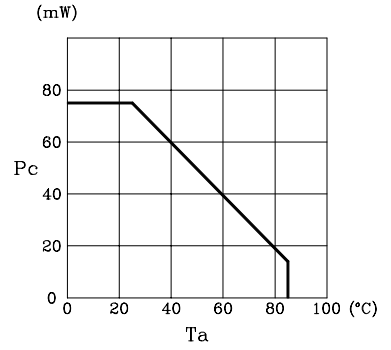
Light Current vs Collector-Emitter Voltage



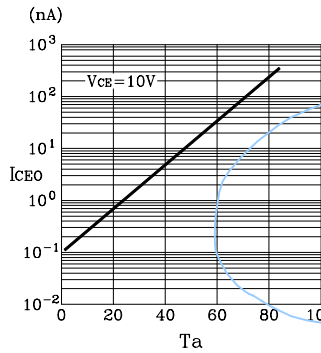
Forward Current vs Forward Voltage



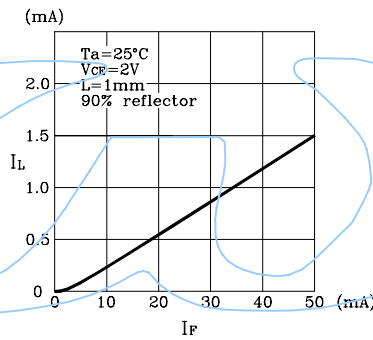
Power Dissipation vs Ambient Temperature



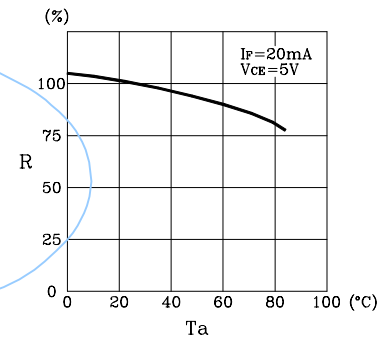
Dark Current vs Ambient Temperature



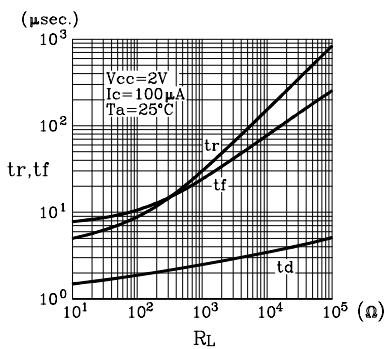
Light Current vs Forward Current



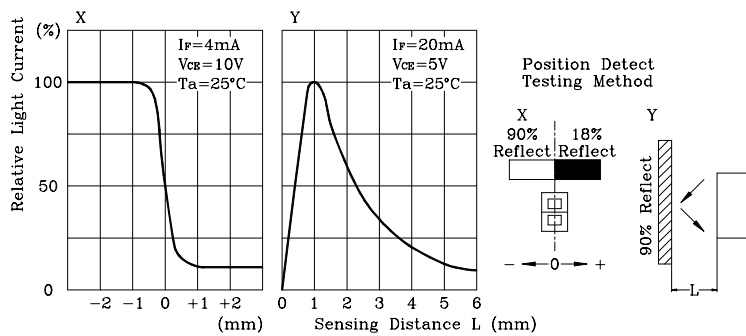
Relative Light Current vs Ambient Temperature



Response Time vs Load Resistance



Position Detect Characteristics



Response Time Test Conditions

