

Technical Data Sheet

Opto Interrupter SGM9909

■ Features

- Fast response time
- High analytic
- Peak wavelength $\lambda_p=940\text{nm}$
- High sensitivity
- Pb free



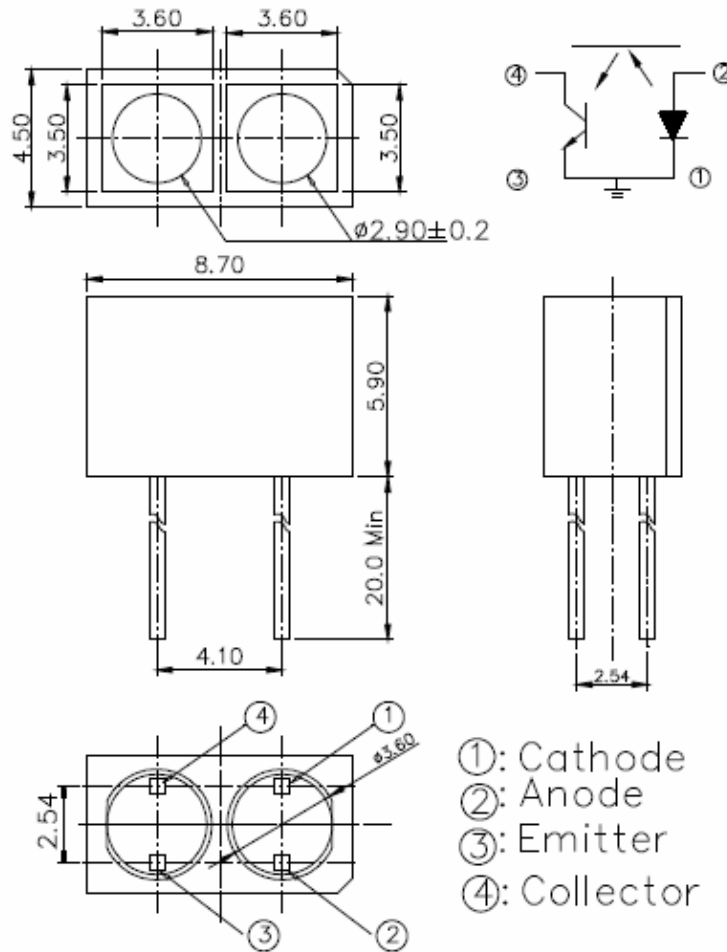
■ Descriptions

The SGM9909 consist of an infrared emitting diode and an NPN silicon phototransistor,encased side-by-side on converging optical axis in a black thermoplastic housing .The phototransistor does not receive radiation from IR LED in normal situation, but when an object comes closer, the radiation is reflected by the object and phototransistor receives the more radiation as closer the object comes.

■ Applications

- Non-contact Switching
- Switch Scanner
- For Direct Board
- Floppy disk driver

■ Package Dimensions



■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	Pd	100	mW
	Reverse Voltage	V _R	5	V
	Forward Current	I _F	50	mA
	Peak Forward Current (*1)	I _{FP}	1	A
	Pulse width ≤ 100 μs, Duty cycle=1%			
Output	Collector Power Dissipation	P _C	100	mW
	Collector Current	I _C	50	mA
	Collector-Emitter Voltage	B V _{CEO}	30	V
	Emitter-Collector Voltage	B V _{ECO}	5	V
Operating Temperature		T _{opr}	-25~+85	°C
Storage Temperature		T _{stg}	-40~+100	°C
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		T _{sol}	260	°C

(* 1) $t_w=100 \mu sec.$, $T=10 msec.$

(* 2) $t=5 Sec$

Electro-Optical Characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V_{F1}	---	1.2	1.5	V	$I_F=20mA$
		V_{F2}	---	1.4	1.85		$I_F=100mA, tp=100\mu s, tp/T=0.01$
		V_{F3}	---	2.6	4.0		$I_F=1A, tp=100\mu s, tp/T=0.01$
	Reverse Current	I_R	---	---	10	μA	$V_R=5V$
	Peak Wavelength	λ_p	---	940	---	nm	$I_F=20mA$
	View Angle	$2\theta_{1/2}$	---	60	---	Deg	$I_F=20mA$
Output	Dark Current	I_{CEO}	---	---	100	nA	$V_{CE}=20V, E_e=0mW/cm^2$
	C-E Saturation Voltage	$V_{CE(sat)}$	---	---	0.4	V	$I_C=2mA, E_e=1mW/cm^2$
Transfer Characteristics	Collect Current	$I_C(ON)$	0.2	---	---	mA	$V_{CE}=5V, I_F=20mA$
	Rise time	t_r	---	15	---	μsec	$V_{CE}=5V$
	Fall time	t_f	---	15	---	μsec	$I_C=1mA, R_L=1K\Omega$

Typical Electrical/Optical/Characteristics Curves for IR

Fig.1 Forward Current vs.

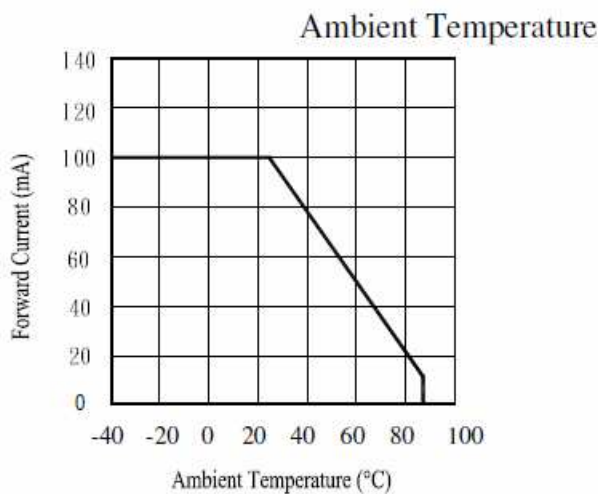


Fig.2 Spectral Distribution

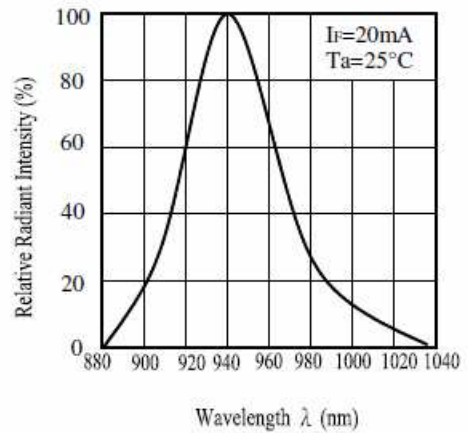


Fig.3 Radiant Intensity vs.

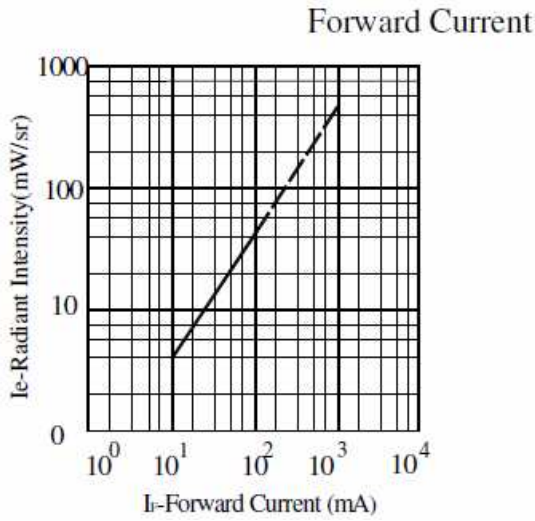


Fig.4 Relative Radiant Intensity vs.

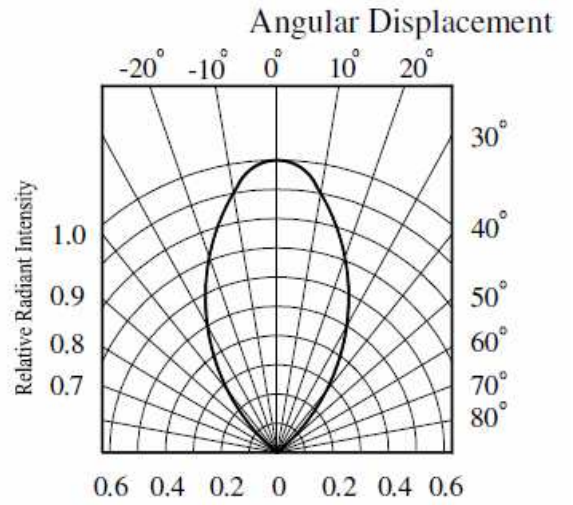


Fig.5 Forward Current vs.

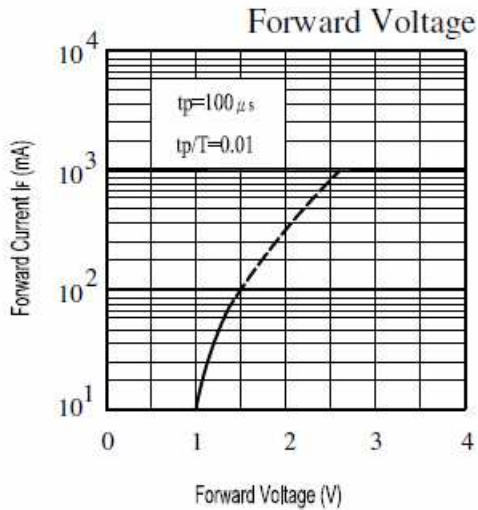
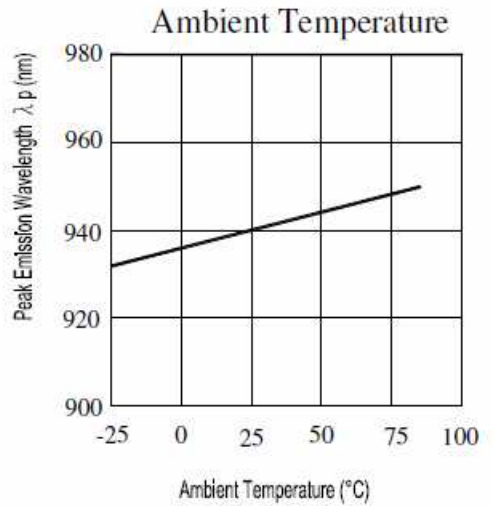


Fig.6 Peak Emission Wavelength



Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Collector Power Dissipation vs.

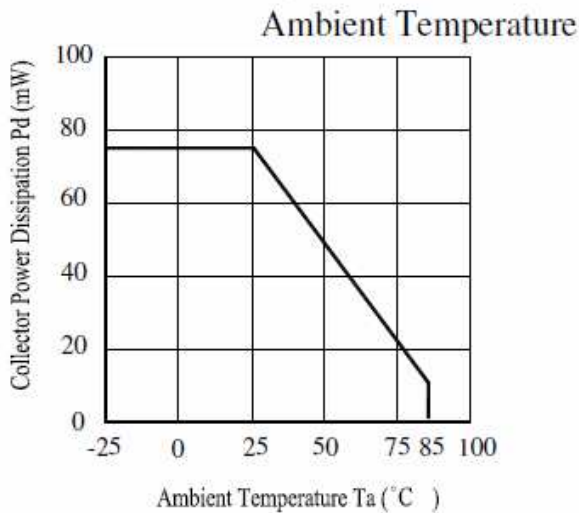


Fig.2 Spectral Sensitivity

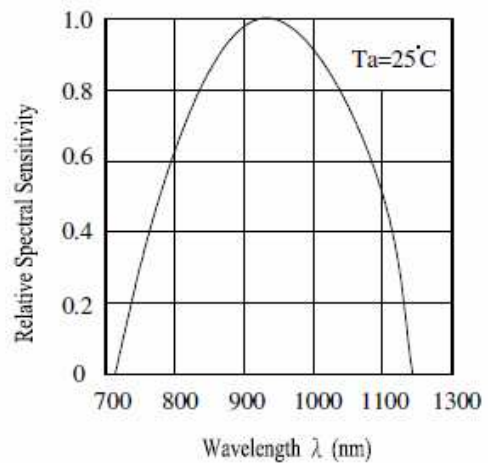


Fig.3 Relative Collector Current vs..

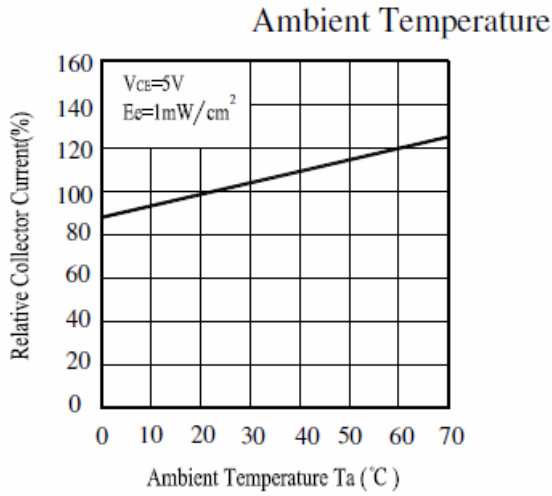


Fig.4 Collector Current vs.

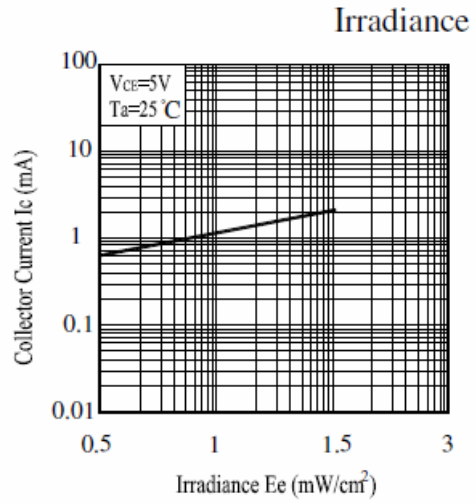


Fig.5 Collector Dark Current vs.

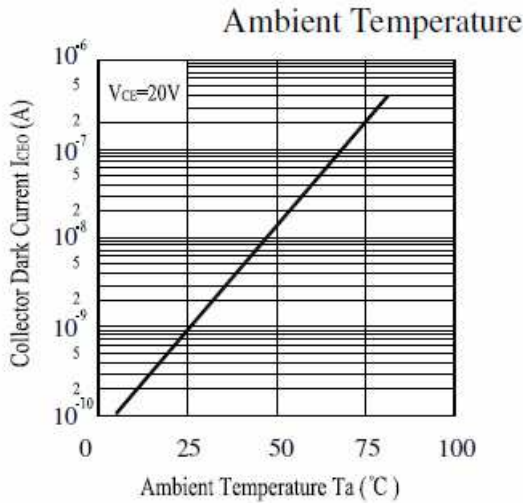
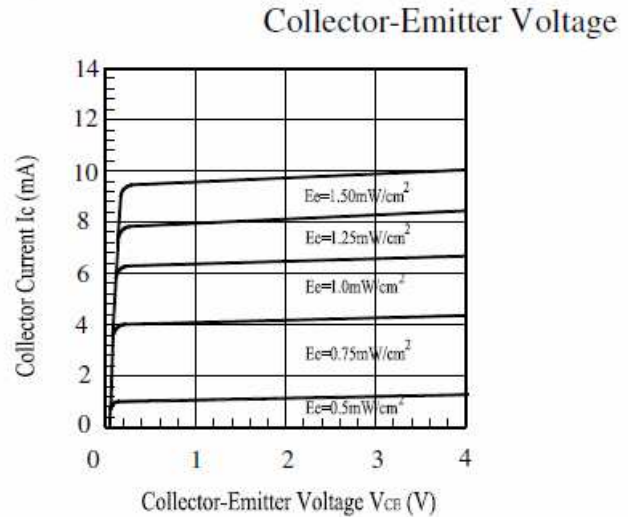


Fig.6 Collector Current vs.



■ Packing Quantity Specification

1. 100PCS/1Bag

■ Notes

1. Above specification may be changed without notice. SHUGUAN will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. SHUGUAN assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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