

Technical Data Sheet

Opto Interrupter SGM20001

■ Features

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



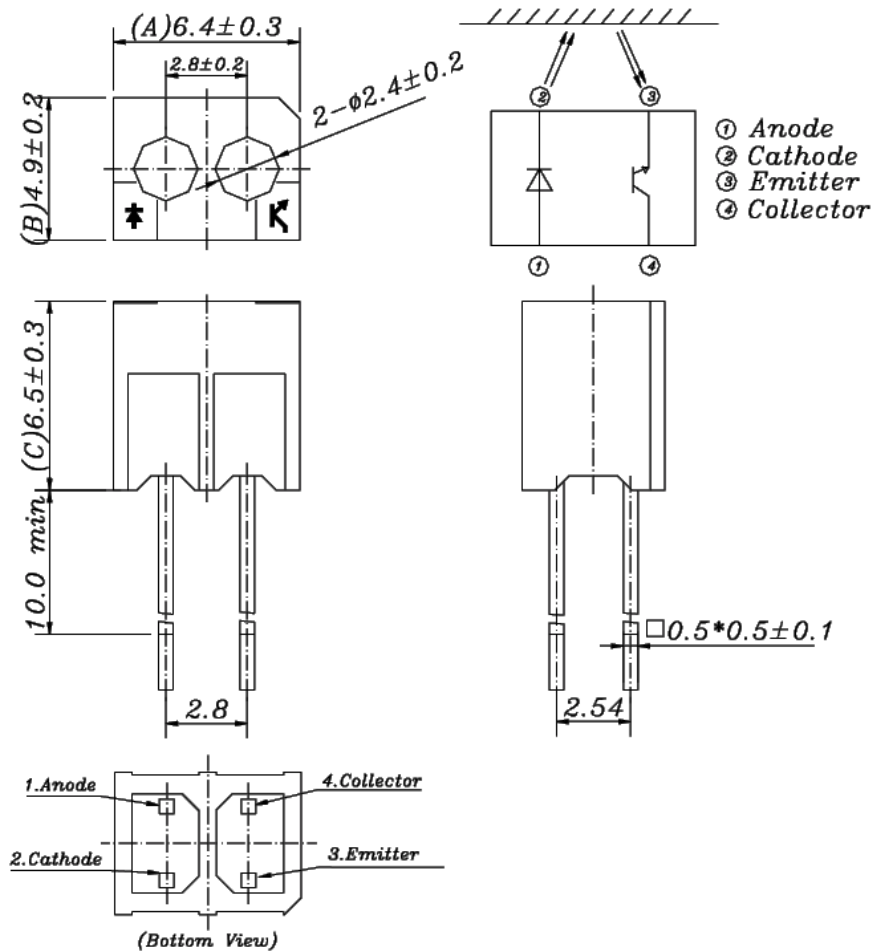
■ Descriptions

The SGM20001 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	75	mW
	Reverse Voltage	V _R	5	V
	Forward Current	I _F	50	mA
	Peak Forward Current (*1) Pulse width ≤ 100 μs, Duty cycle=1%	I _{FP}	1	A
Output	Collector Power Dissipation	P _C	75	mW
	Collector Current	I _C	20	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~+85	°C
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		T _{sol}	260	°C

(*1) tw=100 μsec., T=10 msec. (*2) t=5 Sec

Electro-Optical Characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	V_{F1}	-	1.2	1.5	V	$I_F=20\text{mA}$
		V_{F2}	-	1.4	1.8		$I_F=100\text{mA}, t_p=100\mu\text{s}, t_p/T=0.01$
		V_{F3}	-	2.6	4.0		$I_F=1\text{A}, t_p=100\mu\text{s}, t_p/T=0.01$
	Reverse Current	I_R	-	-	10	μA	$V_R=5\text{V}$
	Peak Wavelength	λ_P	-	940	-	nm	$I_F=20\text{mA}$
	View Angle	$2\theta_{1/2}$	-	35	-	Deg	$I_F=20\text{mA}$
Output	Dark Current	I_{CEO}	-	-	100	nA	$V_{CE}=5\text{V}, E_e=0\text{mW}/\text{cm}^2$
	C-E Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_C=0.04\text{mA}, I_F=40\text{mA}$
Collector Current(*3)		$I_{C(ON)}$	200	-	-	μA	$V_{CE}=5\text{V}, I_F=20\text{mA}$
		$I_{C(OFF)}$	-	-	2	μA	
Response Time	Rise Time	t_R	-	25	-	μs	$V_{CE}=5\text{V}, I_C=100\mu\text{A}$ $, R_L=100\Omega$
	Fall Time	t_F	-	25	-	μs	

(*3) $I_{C(on)}$ at the testing condition—with reflector in 5mm away,

$I_{C(off)}$ at the testing condition—without reflector and external light less than 10 Lux at the module surface.

Typical Electrical/Optical/Characteristics Curves for IR

Fig. 1 Forward Current vs. Ambient Temperature

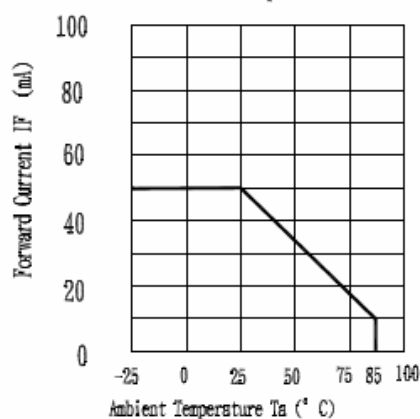


Fig. 2 Spectral Distribution

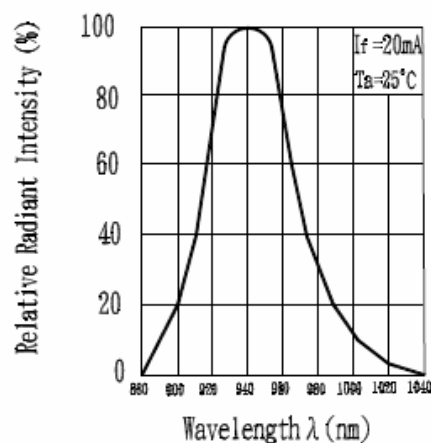


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

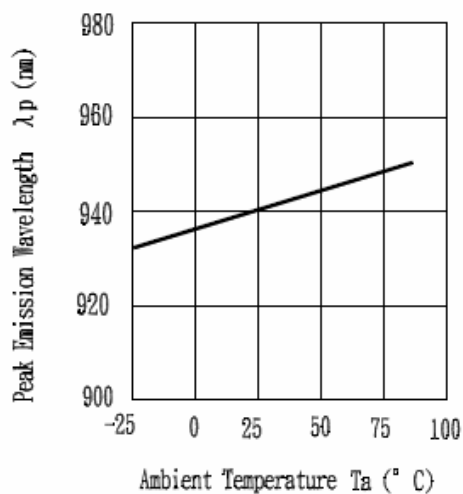


Fig. 4 Forward Current vs. Forward Voltage

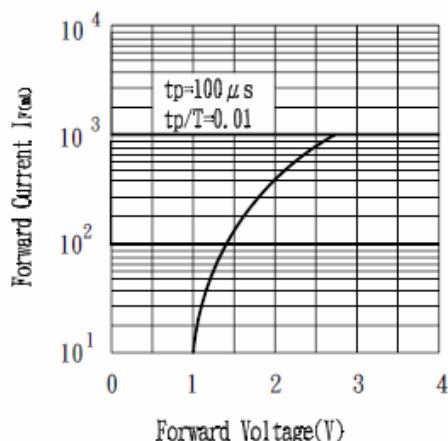


Fig. 5 Relative Intensity vs. Forward Current

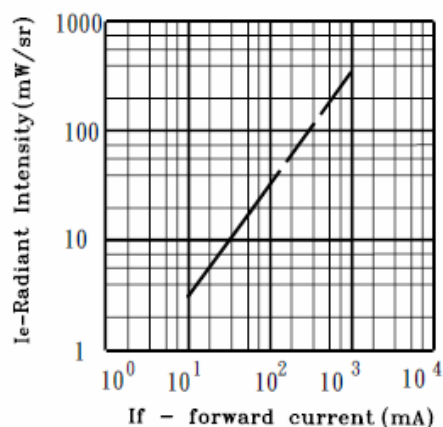
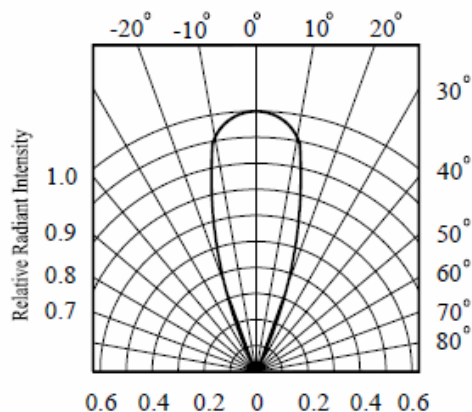


Fig. 6 Relative Radiant Intensity vs. Angular Displacement



Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

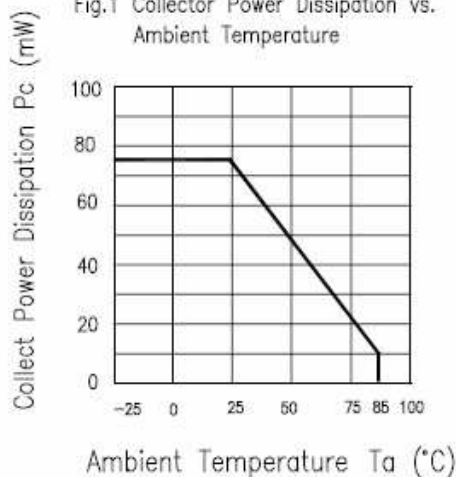


Fig.2 Collector Dark Current vs. Ambient Temperature

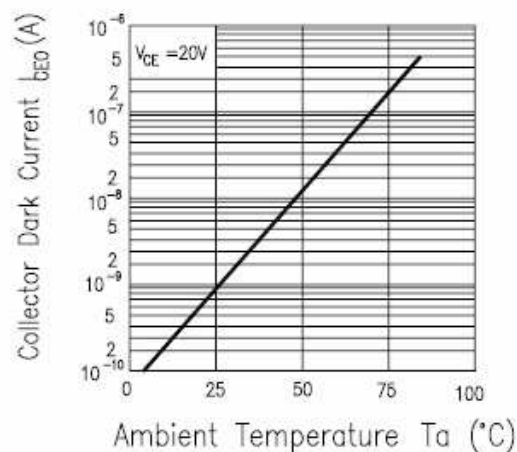


Fig. 3 Relative Collector Current vs. Ambient Temperature

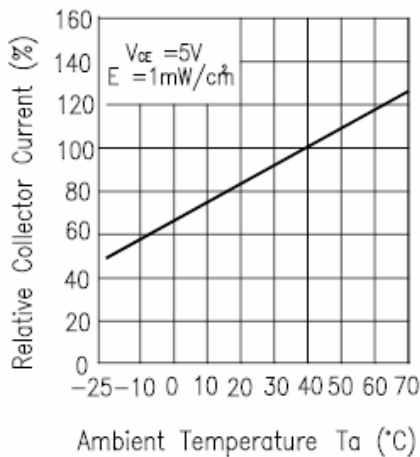


Fig.4 Collector Current vs. Irradiance

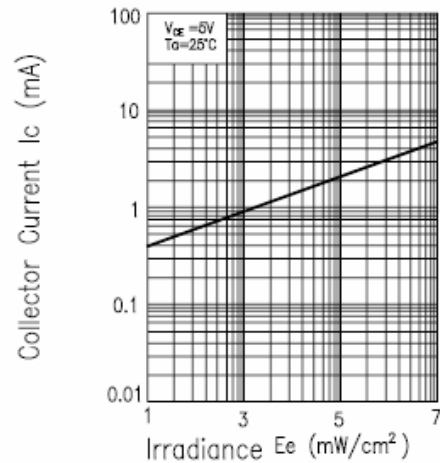


Fig.5 Spectral Sensitivity

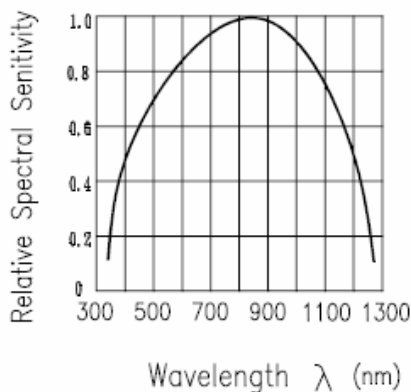
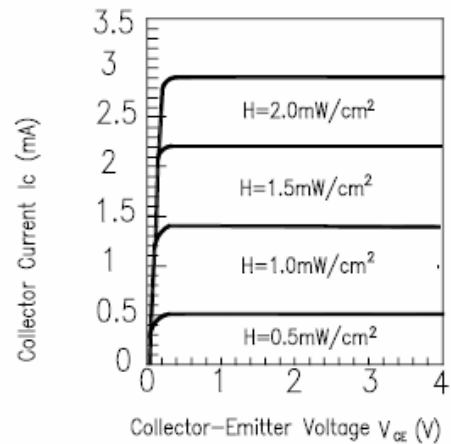


Fig.6 Collector Current vs. Collector-Emitter Voltage



■ 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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