SUBMINIATURE PHOTOINTERRUPTER

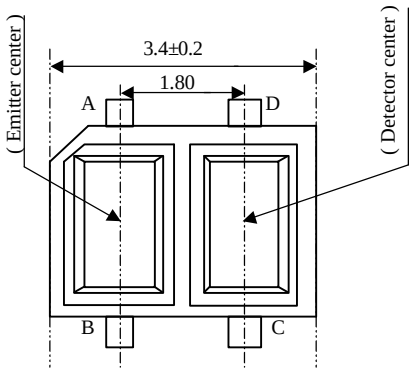
MIR-3301

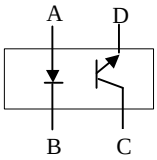
Description

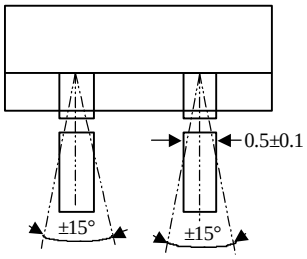
The MIR-3301 consists of a Gallium Arsenide infrared emitting diode and a NPN silicon phototransistor built in a black plastic housing. It is a reflective subminiature photointerrupter.

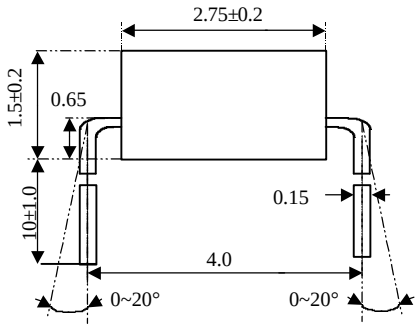
Package Dimensions

Unit: mm









Features

- Compact and thin
- MIR-3301 : Compact DIP, long lead type
- Optimum detecting diatance : 0.8 - 1.0 mm
- Wavelength : 940nm
- Visible light cut-off type

Absolute Maximum Ratings

@ T_A=25°C

Parameter		Symbol	Minimum Rating	Maximum Rating	Unit
INPUT	Continuous Forward Current	I_F		50	mA
	Reverse Voltage	V_R		5	V
	Power Dissipation	P_{ad}		75	mW
OUTPUT	Collector-emitter breakdown voltage	$V_{(BR)CEO}$	30		V
	Emitter-Collector breakdown voltage	$V_{(BR)ECO}$	5		V
	Collector power dissipation	P_C		75	mW
Total power dissipation		P_{TOT}		100	mW
Operating Temperature Range		T_{opr}	-25°C to + 85°C		
Storage Temperature Range		T_{stg}	-40°C to + 100°C		
Lead Soldering Temperature (within 5 sec, minimum 1.6mm from body) at 260°C					

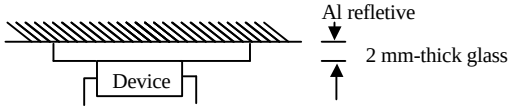
Optical-Electrical Characteristics

Parameter		Symbol		Min .	Typ .	Max .	Unit .	Test Conditions
Input	Forward Voltage	V_F		-	1.2	1.4	V	I_F=20mA
	Reverse Current	I_R		-	-	10	μA	V_R=5V
Output	Collector Dark Current	Iceo		-	-	100	nA	Vce=10V
Transfer Characteristics	*1Collector Current	Ic	B	38	-	75	μA	I_F=4mA,Vce=5V
			C	56	-	108		
			D	80	-	151		
			E	112	-	216		
	Response Time (RISE)	t_r		-	20	100	μS	I_c=100μA,Vce=2V
	Response Time (FALL)	t_f		-	20	100	μS	R_L=1K,d=1mm
	*2Leak Current	I_{LEAK}		-	-	0.1	μA	I_F=4mA,Vce=5V

*1 THE CONDITION AND ARRANGEMENT OF THE REFLECTIVE OBJECT ARE SHOWN AS FOLLOWING .

*2 WITHOUT REFLECTIVE OBJECT.

TEST CONDITION AND ARRANGEMENT FOR COLLECTOR CURRENT



Typical Optical-Electrical Characteristic Curves

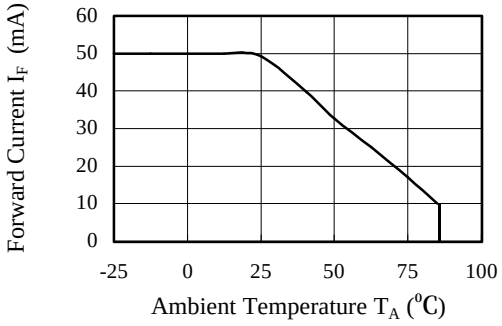


Fig.1 forward Current vs. Ambient Temperature

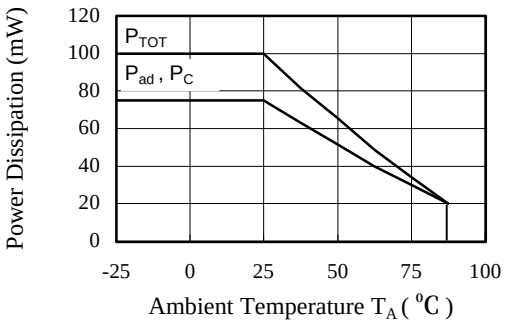


Fig.2 Power Dissipation vs. Ambient Temperature

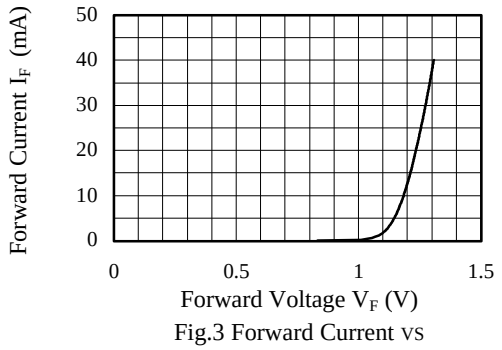


Fig.3 Forward Current vs Forward Voltage

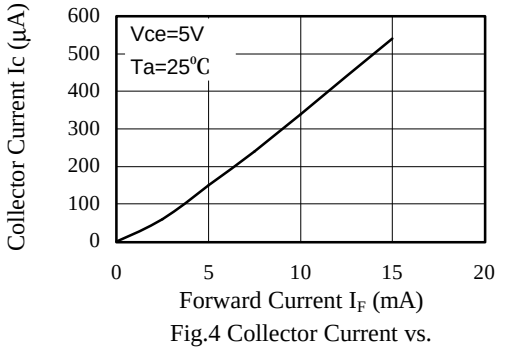
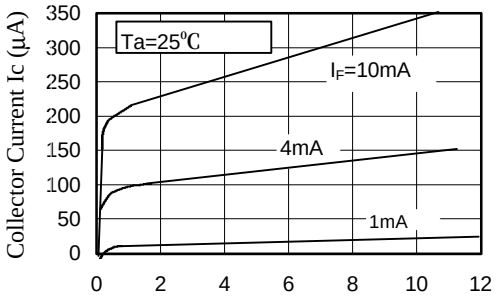


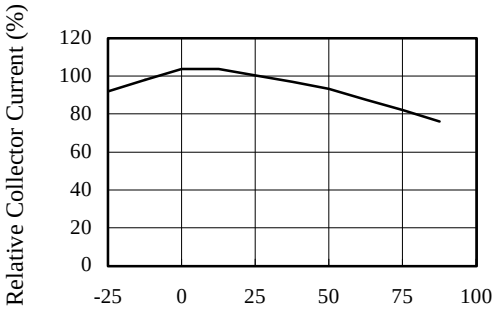
Fig.4 Collector Current vs. Forward Current

Typical Optical-Electrical Characteristic Curves



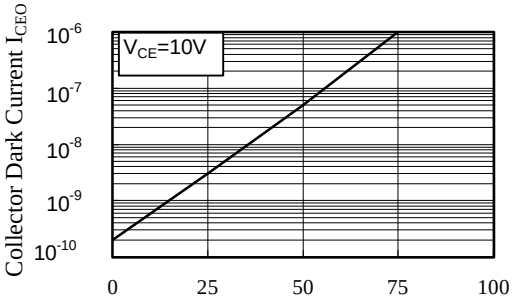
Collector-Emitter Voltage Vce (V)

Fig.5 Collector Current vs. Vce



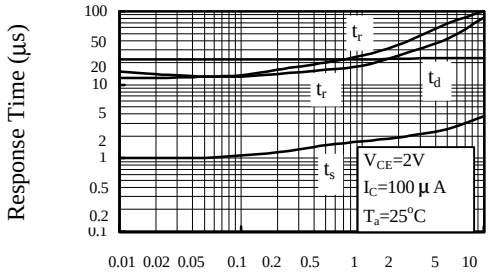
Ambient Temperature T_A (°C)

Fig.6 Relative Collector Current VS.



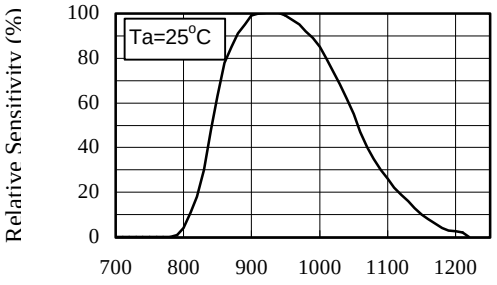
Ambient Temperature T_A (°C)

Fig.7 Collector Dark Current vs. Ambient Temperature



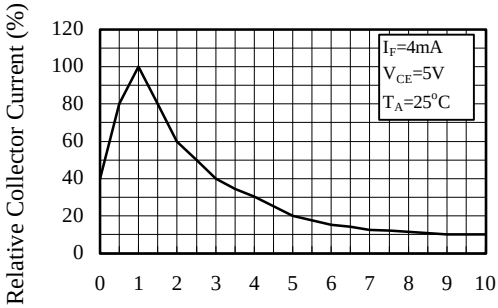
Load Resistance R_t (KΩ)

Fig.8 Response Time vs. Load Resistance



Wavelength (nm)

Fig.9 Spectral Sensitivity (Detecting side)



Distance (mm)

Fig.10 Relative Collector Current vs. Distance between MIR-3301 and Card

Test Circuit for Response Time