

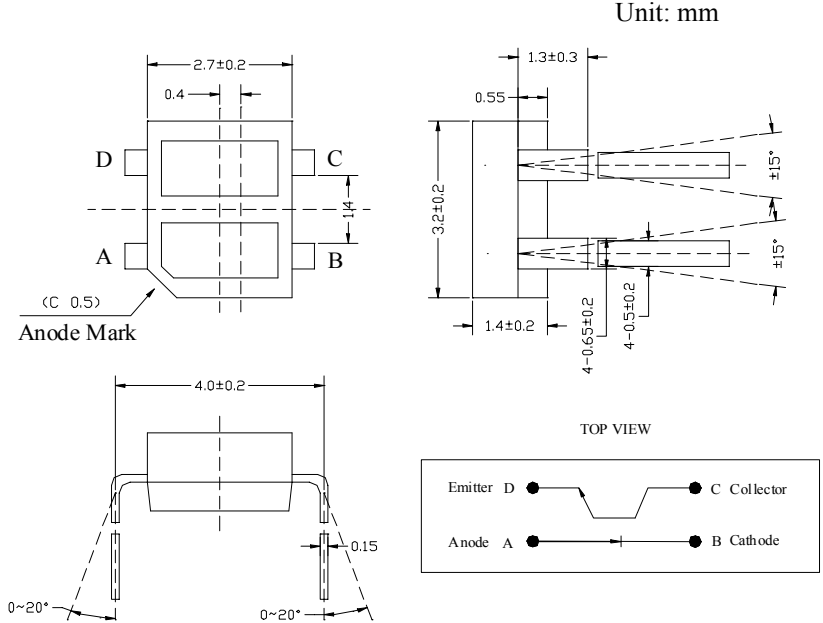
# SUBMINIATURE PHOTOINTERRUPTER

## MIR-3305

### Description

The MIR-3305 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



NOTE:  
 (1). Tolerance:  $\pm 0.2$ mm  
 (2). ( ) Reference dimensions

### Features

- Compact and thin
- MIR-3305 : Compact DIP, long lead type
- Optimum detecting distance : 0.8 - 1.0 mm
- Wavelength : 940nm
- Visible light cut-off type

### Absolute Maximum Ratings

@  $T_A = 25^\circ\text{C}$

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

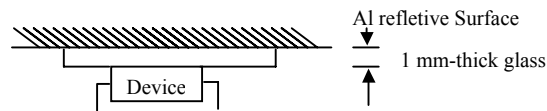
@ T<sub>A</sub>=25°C

Parameter		symbol	Min.	Typ.	Max.	Unit.	Test Conditions	
Input	Forward Voltage	V <sub>F</sub>	-	-	1.3	V	I <sub>F</sub> =20mA	
	Reverse Current	I <sub>R</sub>	-	-	10	μA	V <sub>R</sub> =5V	
Output	Collector Dark Current	I <sub>ceo</sub>	-	-	0.2	μA	V <sub>ce</sub> =10V	
Transfer Characteristics	*1 Collector Current	I <sub>c</sub>	B	38	-	75	μA	I <sub>F</sub> =4mA, V <sub>ce</sub> =5V
			C	56	-	108		
			D	80	-	151		
			E	112	-	216		
	Response Time (RISE)	t <sub>r</sub>	-	20	100	μS	I <sub>c</sub> =100μA, V <sub>ce</sub> =2V	
	Response Time (FALL)	t <sub>f</sub>	-	20	100	μS	R <sub>L</sub> =1kΩ	
*2 Leak Current	I <sub>LEAK</sub>	-	-	0.1	μA	V <sub>ce</sub> =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

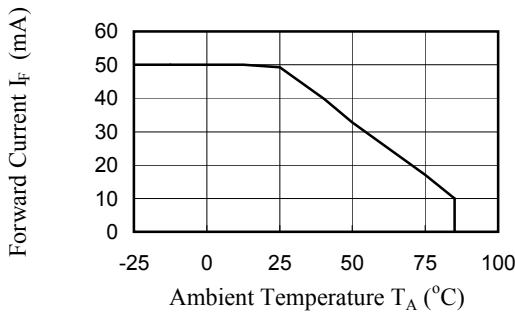


Fig.1 forward Current vs. Ambient Temperature

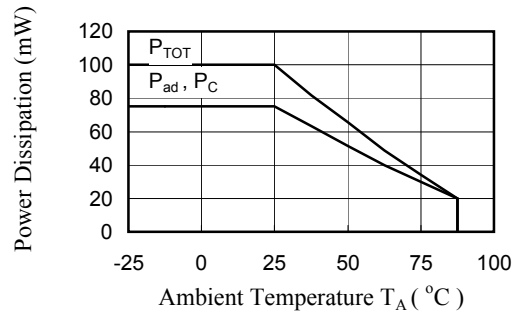


Fig.2 Power Dissipation vs. Ambient Temperature

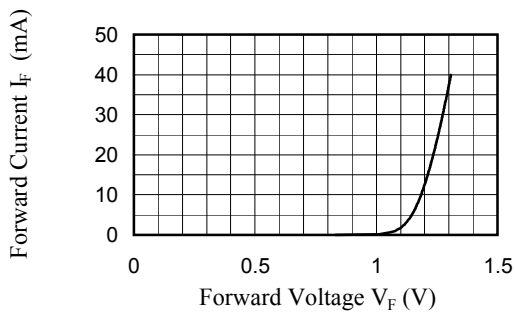


Fig.3 Forward Current vs Forward Voltage

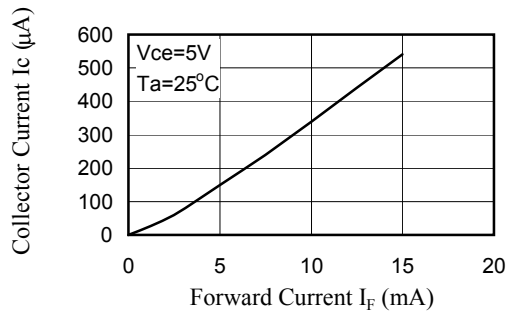


Fig.4 Collector Current vs. Forward Current

Typical Optical-Electrical Characteristic Curves

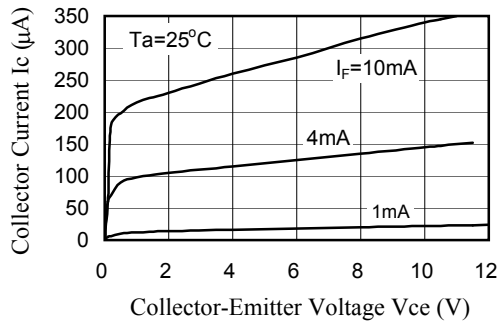


Fig.5 Collector Current vs.  $V_{ce}$

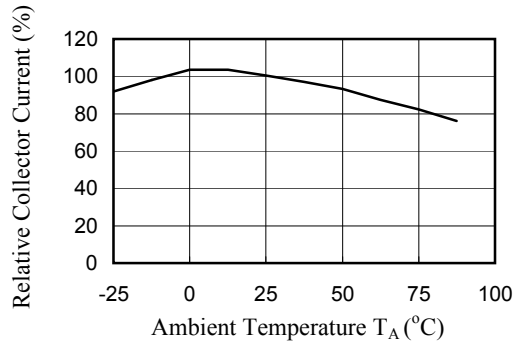


Fig.6 Relative Collector Current vs.

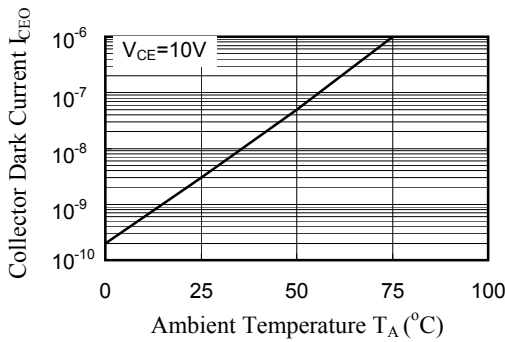


Fig.7 Collector Dark Current vs. Ambient Temperature

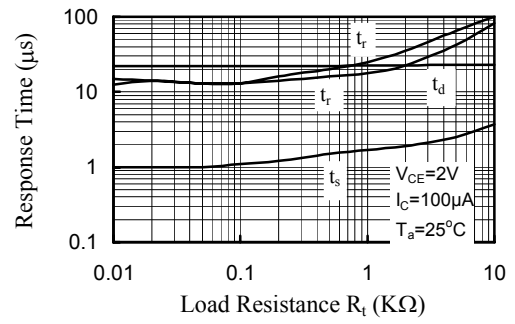


Fig.8 Response Time vs. Load Resistance

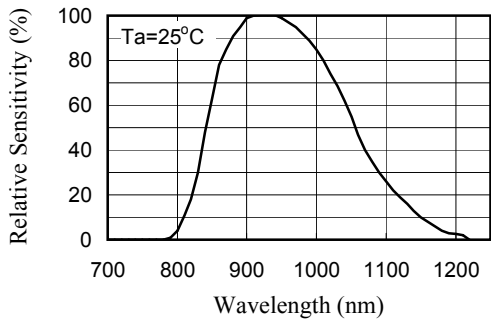


Fig.9 Spectral Sensitivity (Detecting side)

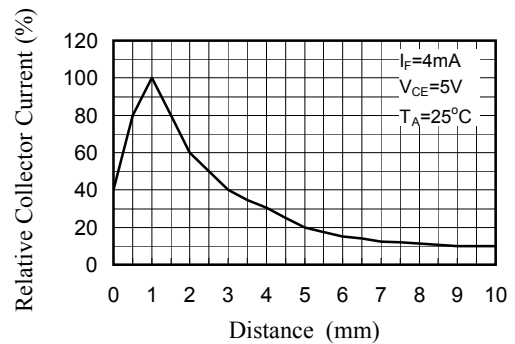


Fig.10 Relative Collector Current vs. Distance between MIR-3301 and Card

Test Circuit for Response Time

