

SUBMINIATURE PHOTOINTERRUPTER

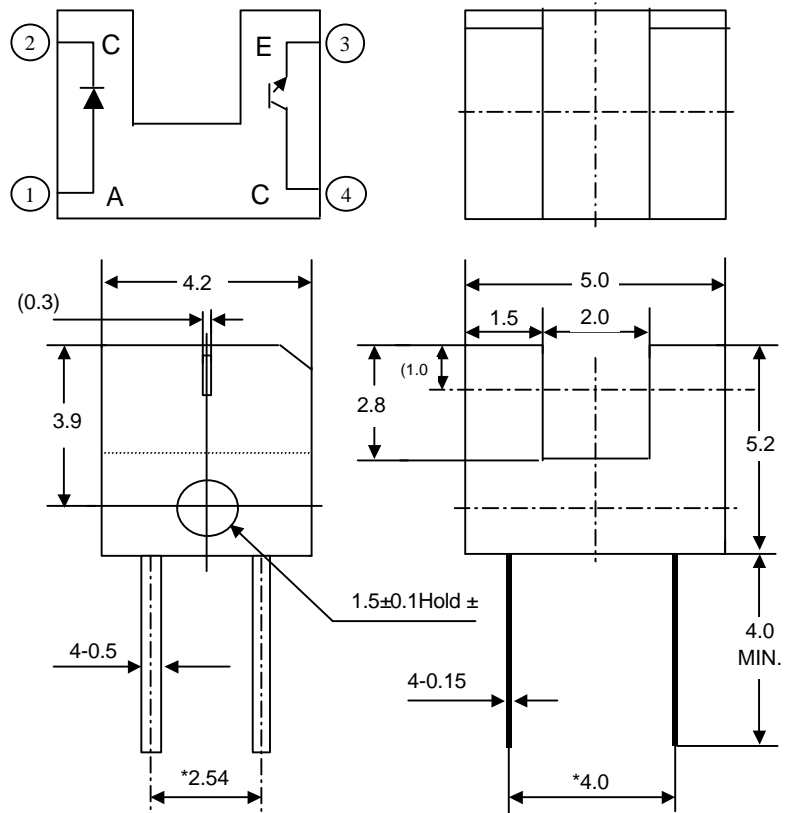
MIT-4A11A

Description

The MIT-4A11A consists of a Gallium Arsenide infrared emitting diode and a NPN silicon phototransistor, double-layer mold plastic package. It is a transmissive subminiature photointerrupter.

Package Dimensions

Unit : mm



Features

- Ultra-compact
- PWB mounting type package
- High sensing accuracy (Slit width: 0.3mm)
- Gap between light emitter and detector: 2mm

Applications

- Cameras
- Floppy disk drives
- Printer

NOTE

1. Tolerance is ± 0.25 mm (.010") unless otherwise noted.
2. Burr's dimension : 0.15MAX
- 3.() : Reference dimensions
4. The dimensions indicated by * refer to those measured from the lead base

Absolute Maximum Ratings

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

Parameter		Symbol	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 $+85^\circ\text{C}$	
Storage Temperature Range		T_{stg}	-40°C to $+100^\circ\text{C}$	
Soldering temperature		T_{sol}	260°C for 3 seconds	

UNI

Unity Opto Technology Co., Ltd.

04/01/2002

Optical-Electrical Characteristics

@T_A = 25°C

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 =3V	
Output	Collector Dark Current	I _{ceo}	-	-	100	nA	V _{ce} =10V	
	Collector Emitter Saturation Voltage	V _{CE(SAT)}	-	-	0.4	V	I _c =0.1mA, Ee=0.1mW/cm ²	
Transfer Characteristics	Collector Current	I _c	A	0.5	-	4.0	mA	I _F =20mA, V _{ce} =5V
			B	3.0	-	6.0		
			C	5.0	-	8.0		
			D	7.0	-	10.0		
	Response Time (RISE)	t _r	-	50	150	μs	I _c =100μA, V _{ce} =5V	
Response Time (FALL)	t _f	-	50	150	μs	R _L =1KΩ		

Typical Optical-Electrical Characteristic Curves

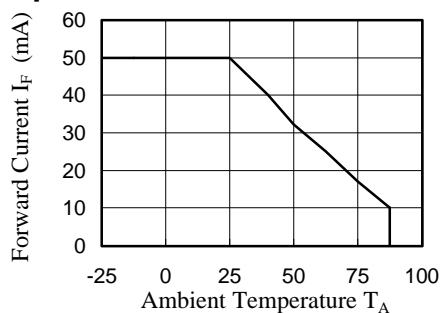


Fig.1 forward Current vs. Ambient Temperature

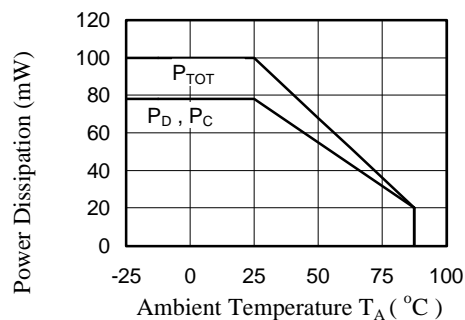


Fig.2 Power Dissipation vs. Ambient Temperature

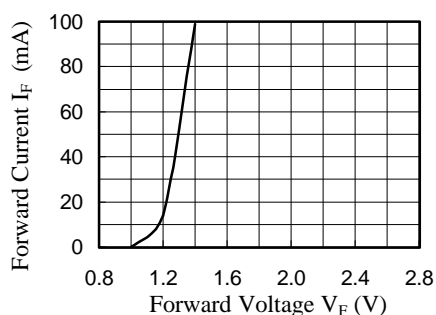


Fig.3 Forward Current vs. Forward Voltage

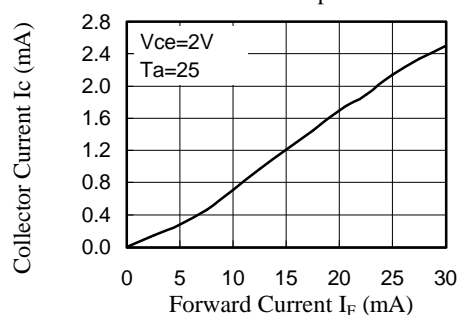


Fig.4 Collector Current vs. Forward Current

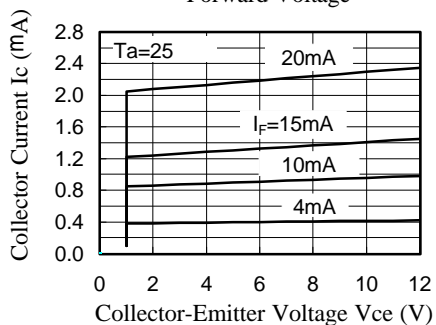


Fig.5 Collector Current vs. V_{ce}

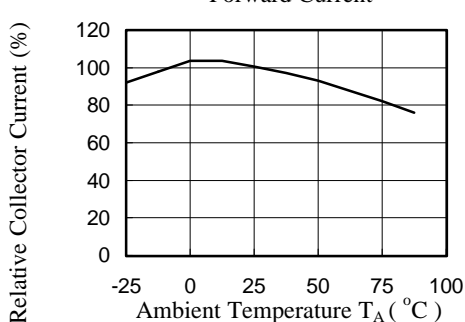


Fig.6 Relative Collector Current vs. T_A

Typical Optical-Electrical Characteristic Curves

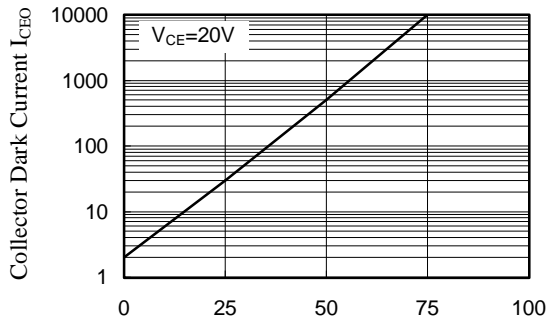


Fig.7 Collector Dark Current vs. Ambient Temperature

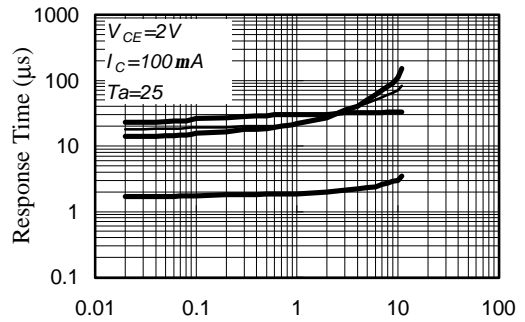


Fig.8 Response Time vs. Load Resistance

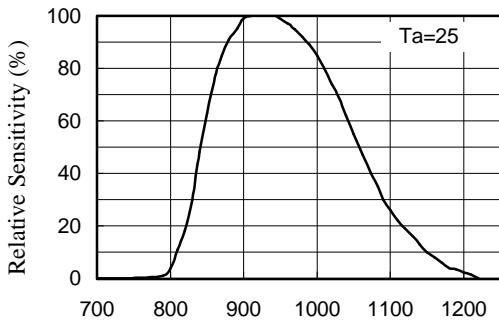
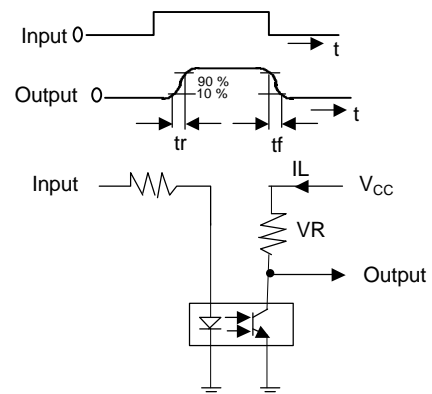


Fig.9 Spectral Sensitivity (Detecting side)

Response Time Measurement Circuit



Sensing Position Characteristics (Typical)

