

SLOTTED PHOTOINTERRUPTER

MIT-5A116-U

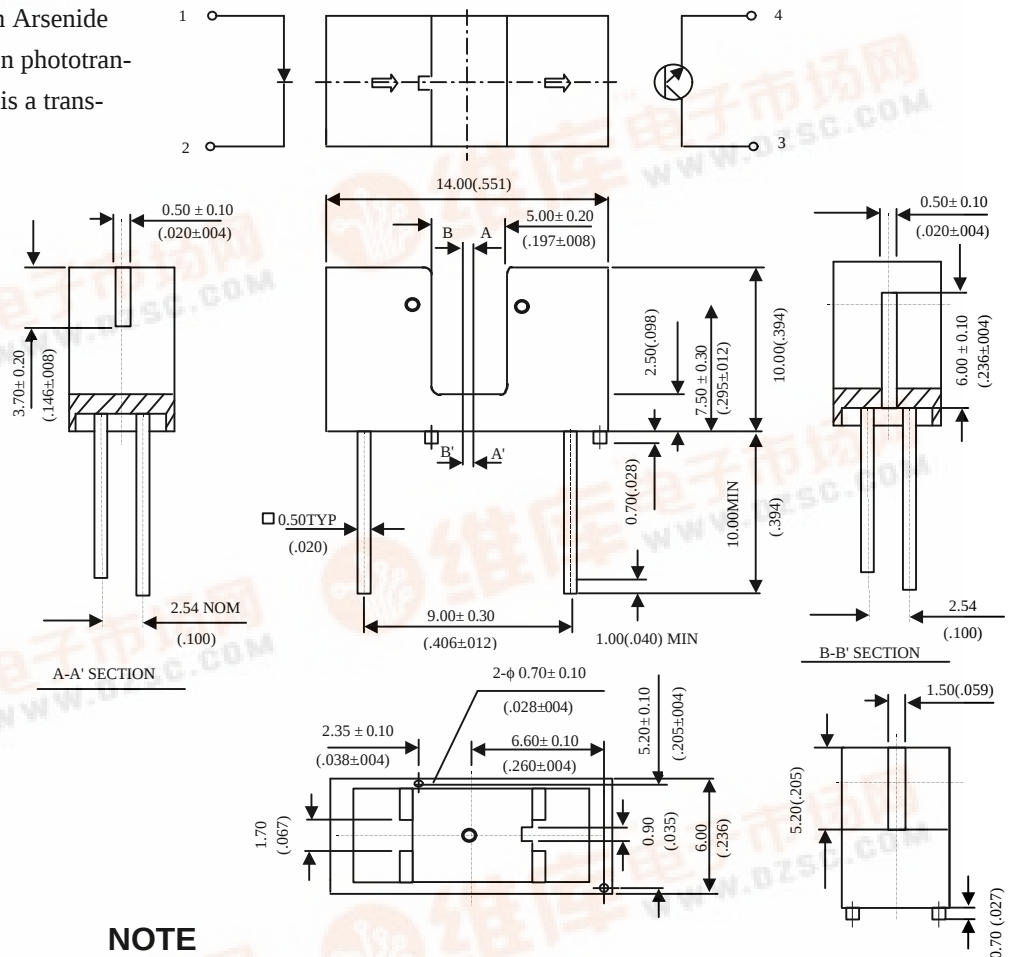
Description

The MIT-5A116-U consists of a Gallium Arsenide infrared emitting diode and a NPN silicon phototransistor built in a black plastic housing. It is a transmissive subminiature photointerrupter.

Features

- Non -contact switching
- For- direct pc board
- Dual - in - line socket mounting
- Fast switching speed
- Choice of mounting configuration.

Package Dimensions



NOTE

1. Tolerance is ± 0.25 mm (.006") unless otherwise noted.

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 $+100^\circ\text{C}$	

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 = 5V
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, E _e = 0.1mW/cm ²
Transfer Characteristics	Collector Current	I _c (on)	0.4	-	4	mA	I _F = 20mA, V _{ce} = 5V
	Response Time (RISE)	t _r	-	20	100	μS	I _c = 100μA, V _{ce} = 5V
	Response Time (FALL)	t _f	-	20	100	μS	R _L = 1k, d = 1mm

Typical Optical-Electrical Characteristic Curves

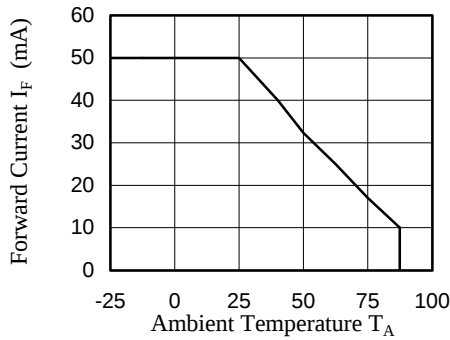


Fig.1 forward Current vs. Ambient Temperature

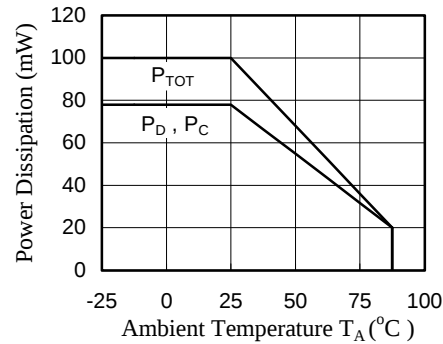


Fig.2 Power Dissipation vs Ambient Temperature

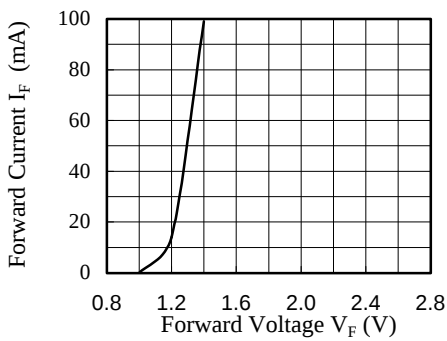


Fig.3 Forward Current vs Forward Voltage

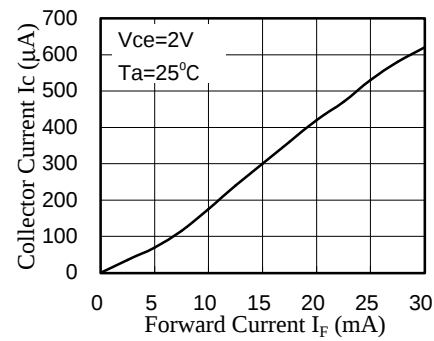
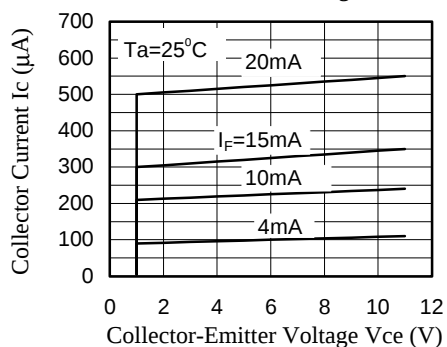
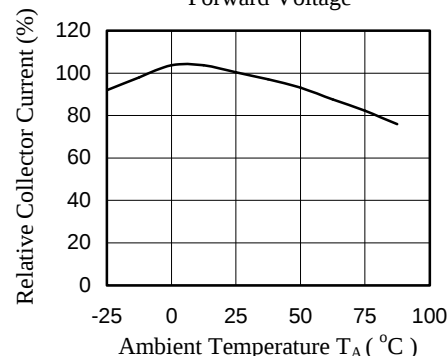


Fig.4 Collector Current vs Forward Voltage

Fig.5 Collector Current vs. V_{ce}Fig.6 Relative Collector Current vs. T_A

Typical Optical-Electrical Characteristic Curves

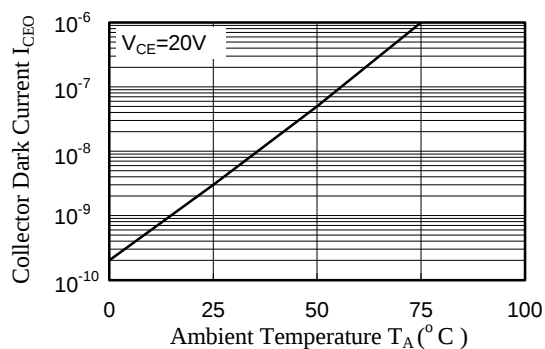


Fig.7 Collector Dark Current vs. Ambient Temperature

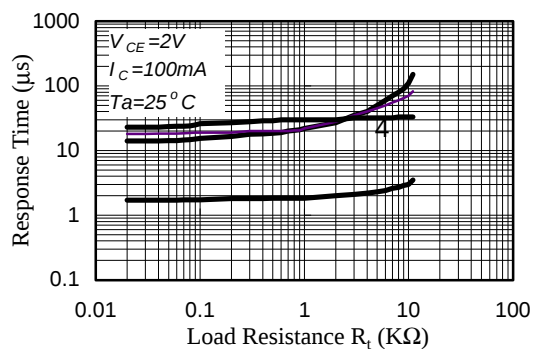


Fig.8 Response Time vs. Load Resistance

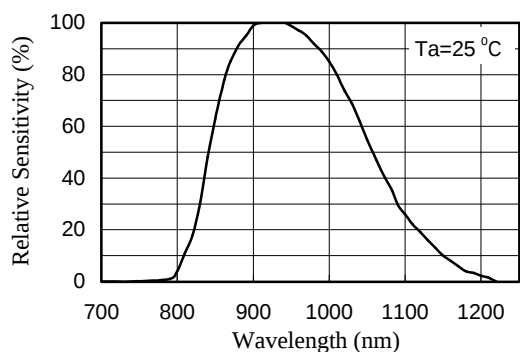
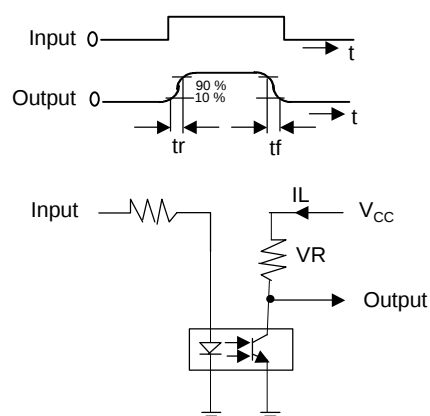
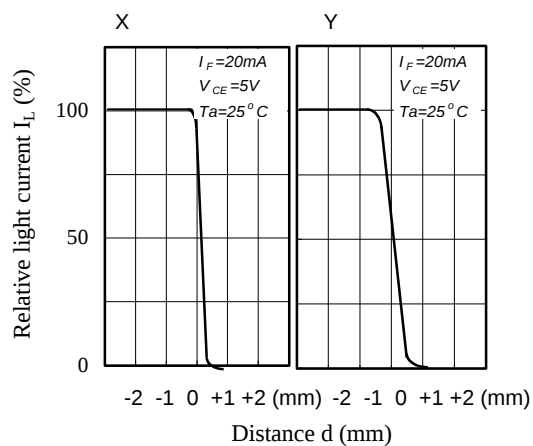


Fig.9 Spectral Sensitivity (Detecting side)

Response Time Measurement Circuit



Sensing Position Characteristics (Typical)



(Center of optical axis)

