

SUBMINIATURE PHOTOINTERRUPTER

MIT-4A11B

Description

The MIT-4A11B consists of a Gallium Arsenide infrared emitting diode and a NPN silicon phototransistor, double-layer mold plastic package. It is a transmissive subminiature photointerrupter.

Features

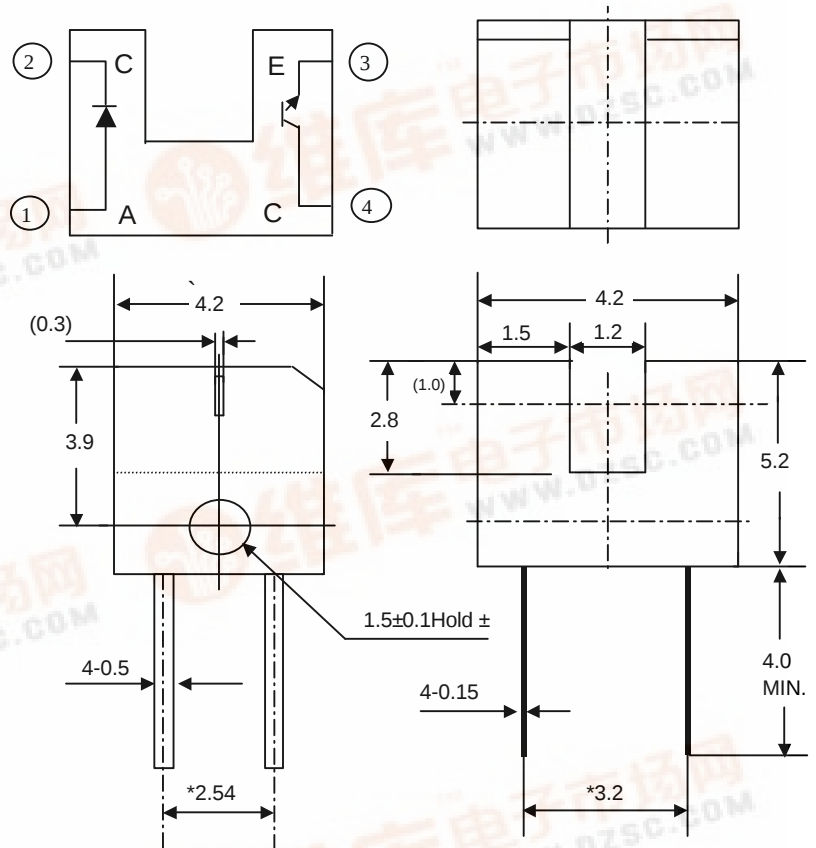
- Ultra-compact
- PWB mounting type package
- High sensing accuracy (Slit width: 0.3mm)
- Gap between light emitter and detector: 1.2mm

Applications

- Cameras
- Floppy disk drives
- Printer

Package Dimensions

Unit : mm



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

@T_A =25

Absolute Maximum Ratings

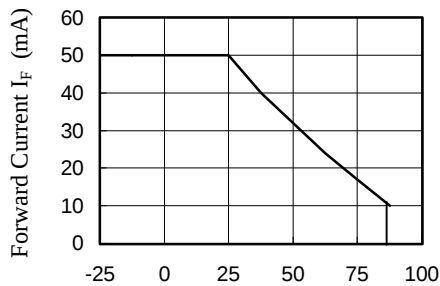
Parameter		Symbol	Maximum Rating	Unit
INPUT	Continuous Forward Current	I _F	50	mA
	Reverse Voltage	V _R	5	V
	Power Dissipation	P _{ad}	75	mW
OUTPUT	Collector-emitter breakdown voltage	V _{(BR)CEO}	30	V
	Emitter-Collector breakdown voltage	V _{(BR)ECO}	5	V
	Collector power dissipation	P _C	75	mW
Total power dissipation		P _{TOT}	100	mW
Operating Temperature Range		T _{opr}	-25 to + 85	
Storage Temperature Range		T _{stg}	-40 to + 100	
Soldering temperature		T _{sol}	260°C for 3 seconds	

Optical-Electrical Characteristics

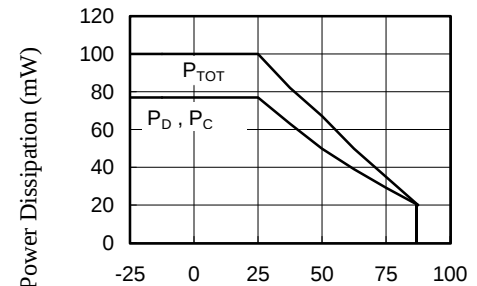
@T_A = 25

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, E _e = 0.1mW/cm ²
Transfer Characteristics	Collector Current	I _c (on)	0.6		5.0	mA	I _F = 20mA, V _{ce} = 5V
	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

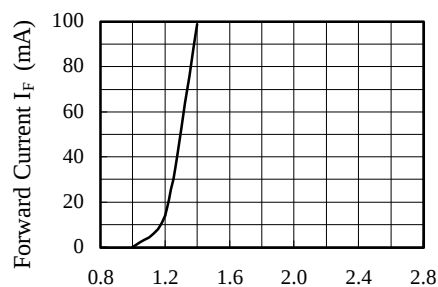
Typical Optical-Electrical Characteristic Curves



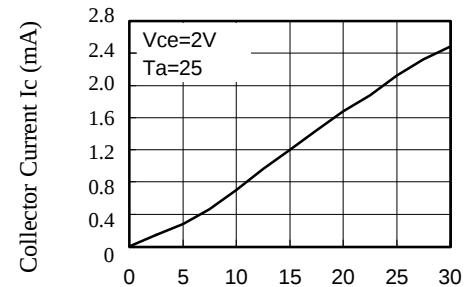
Ambient Temperature T_A
Fig.1 forward Current vs.
Ambient Temperature



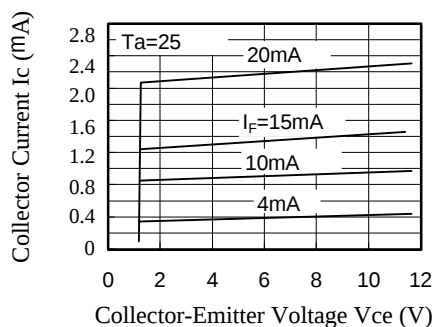
Ambient Temperature T_A (°C)
Fig.2 Power Dissipation vs
Ambient Temperature



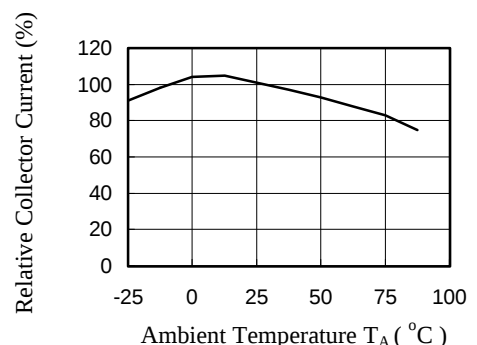
Forward Voltage V_F (V)
Fig.3 Forward Current vs
Forward Voltage



Forward Current I_F (mA)
Fig.4 Collector Current vs
Forward Current



Collector-Emitter Voltage V_{ce} (V)
Fig.5 Collector Current vs. V_{ce}



Ambient Temperature T_A (°C)
Fig.6 Relative Collector Current vs. T_A

Typical Optical-Electrical Characteristic Curves

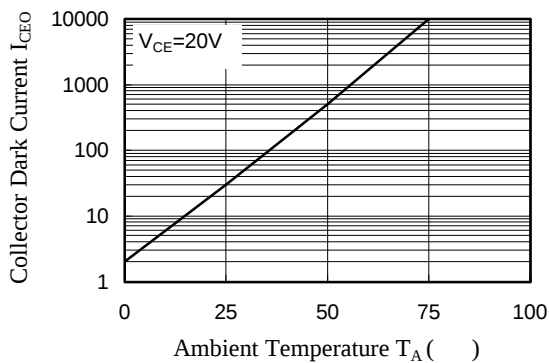


Fig.7 Collector Dark Current vs. Ambient Temperature

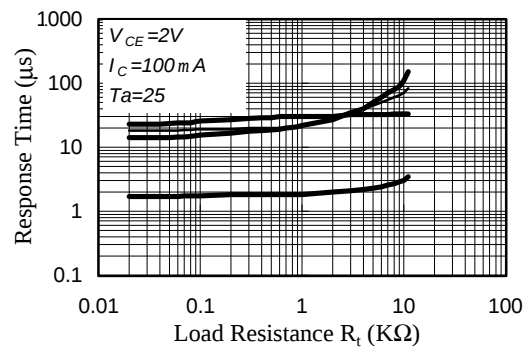


Fig.8 Response Time vs. Load Resistance

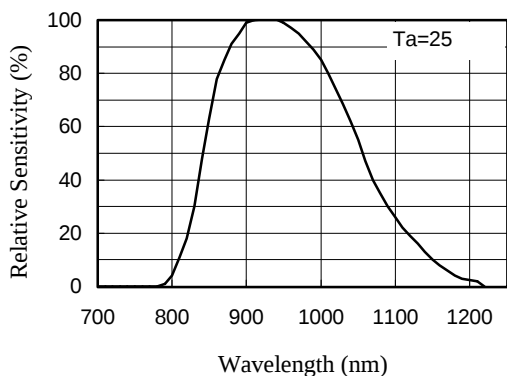
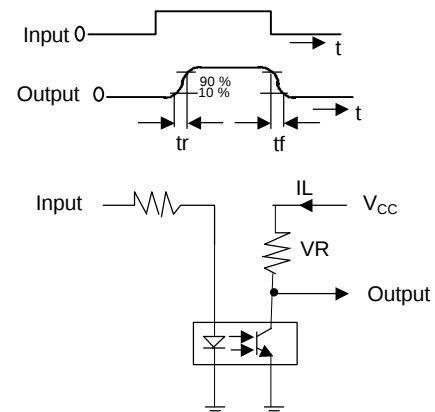
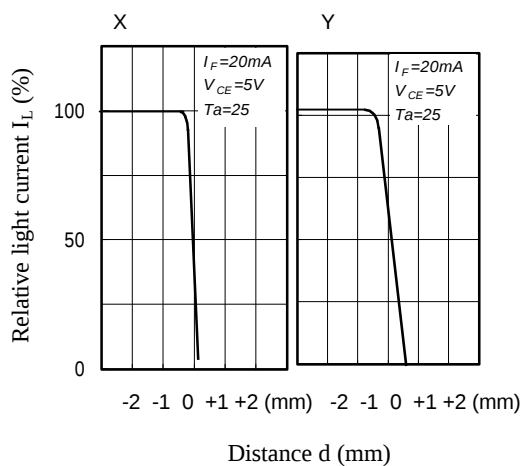


Fig.9 Spectral Sensitivity (Detecting side)

Response Time Measurement Circuit



Sensing Position Characteristics (Typical)



(Center of optical axis)

