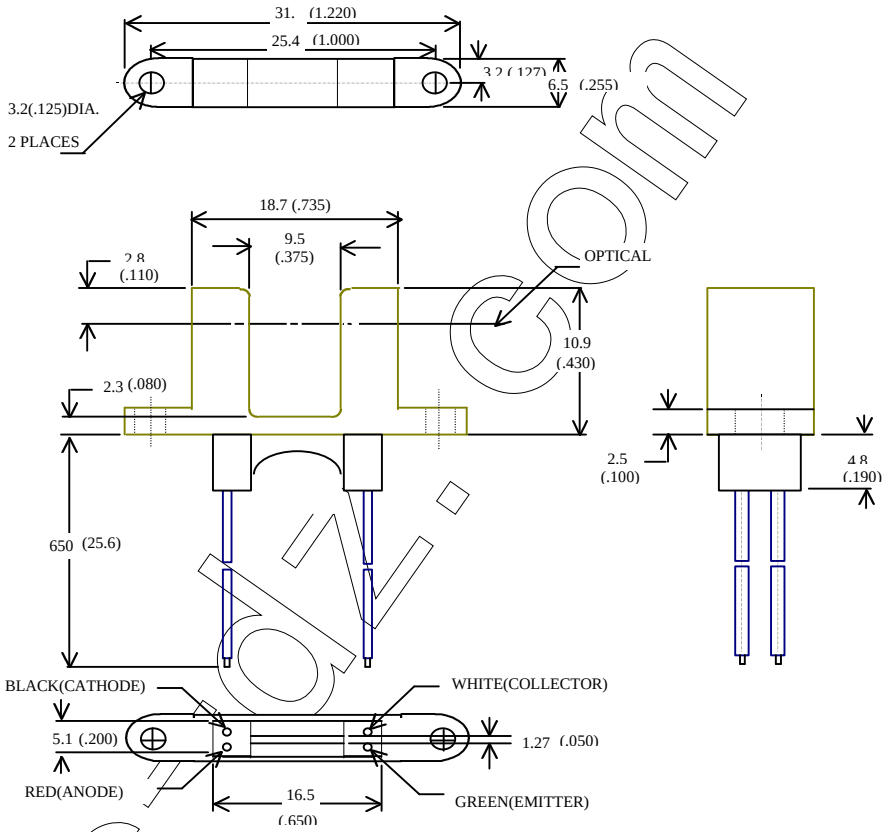
Description

The MIT-5A11D consists of a Gallium Arsenide infrared emitting diode and an NPN silicon phototransistor built in a black plastic housing.

Package Dimensions

Unit: mm (inches)



NOTE

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

Absolute Maximum Ratings

@T_A =25

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	

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 =5V
Output	Collector Dark Current	Iceo			100	nA	Vce =10V
	Collector Emitter	$V_{CE(SAT)}$			0.4	V	Ic=0.1mA,Ee=0.1mW/cm^2
Transfer Rate	Collector Current	Ic (on)	1			mA	I_F =20mA, Vce =5V
	Response Time (RISE)	t_r		20	100	μS	Ic=100μA, Vce =5V
	Response Time (FALL)	t_f		20	100	μS	R_L =1k, d =1mm

Typical Optical-Electrical Characteristic Curves

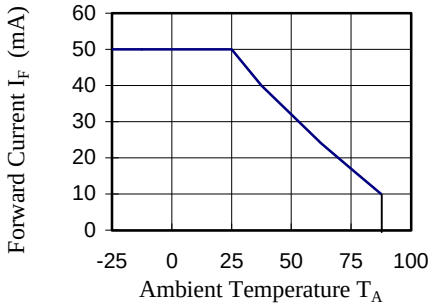


Fig.1 forward Current vs. Ambient Temperature

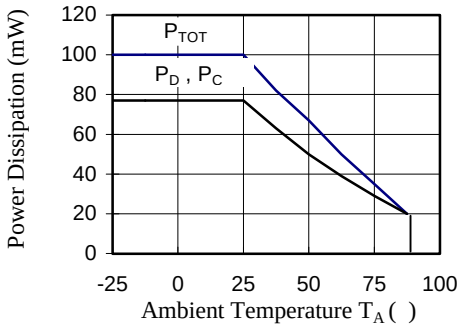


Fig.2 Power Dissipation vs Ambient Temperature

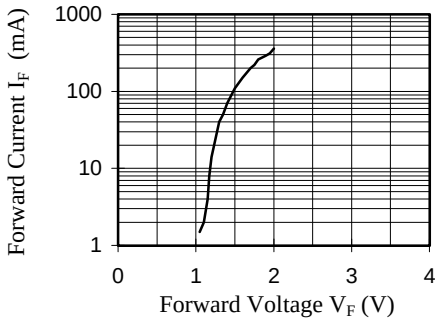


Fig.3 Forward Current vs Forward Voltage

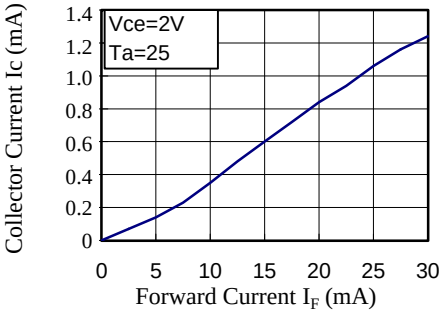


Fig.4 Collector Current vs Forward Current

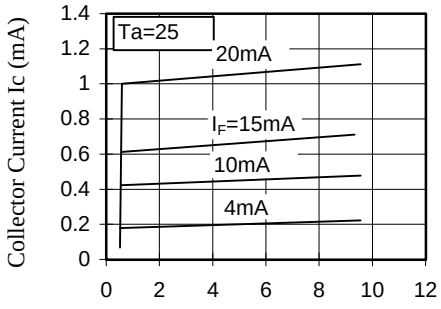


Fig.5 Collector Current vs. Vce

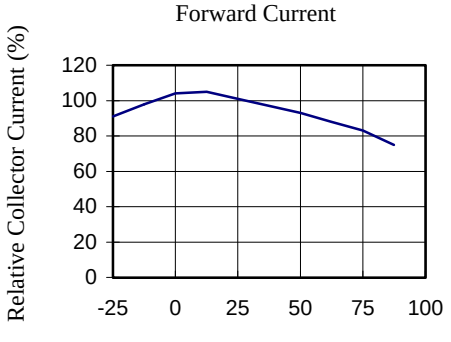


Fig.6 Relative Collector Current vs. T_A

Typical Optical-Electrical Characteristic Curves

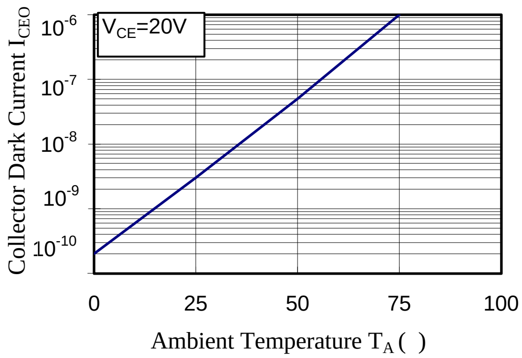


Fig.7 Collector Dark Current vs. Ambient Temperature

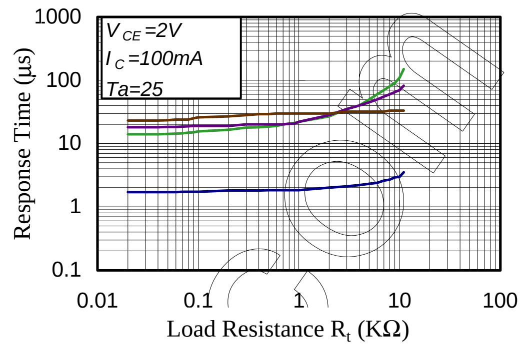


Fig.8 Response Time vs. Load Resistance

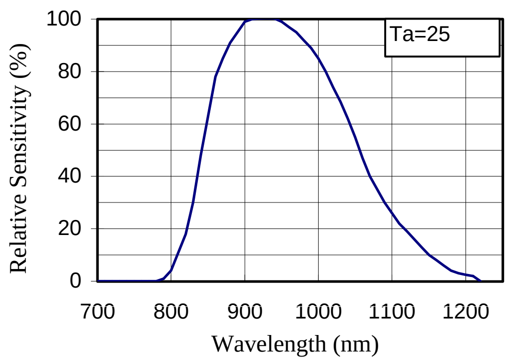
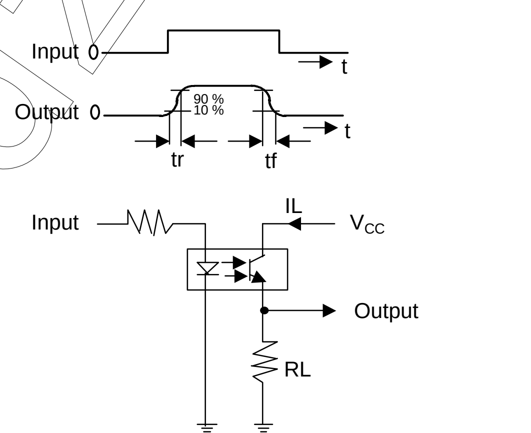
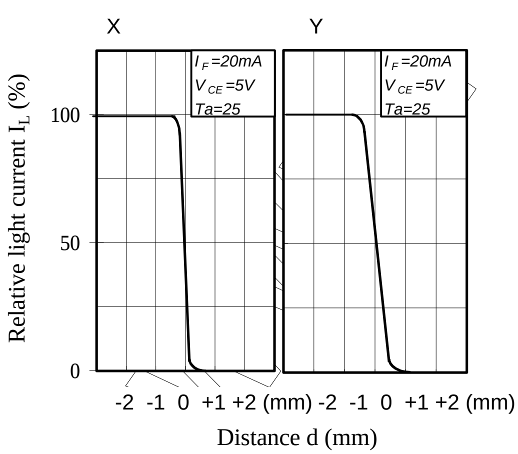


Fig.9 Spectral Sensitivity (Detecting side)

Response Time Measurement Circuit



Sensing Position Characteristics (Typical)



(Center of optical axis)