

## Features

- Hermetic to MIL-Std 883
- Rugged laser welded construction
- Fast rise / fall time
- High throughput
- High contrast ratio
- High PER
- Wide operating temperature range

## Applications

- Fast optical shutter
- Optical switch
- Pulse picker
- Frequency shifter

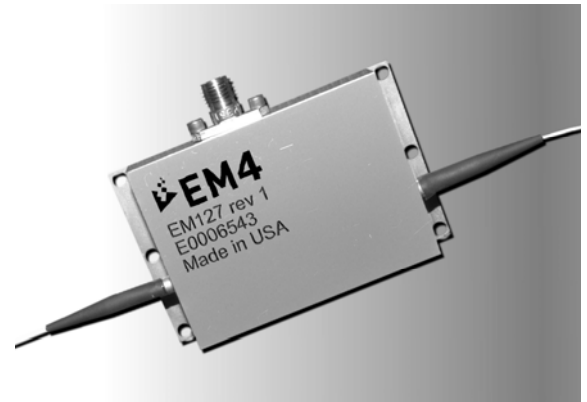
## General Description

The EM4 Fiber Coupled Acousto-Optic Modulator is a rugged, hermetic module that has been designed and built using technologies and processes developed for high reliability defense and telecommunications applications. It is pigtailed with polarization maintaining fiber on the input and output as required and contains internal circuitry for 50Ω RF matching. With rise/fall times <1us it can be used in fast pulse picking and switching applications.

## Absolute Maximum Ratings

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only and operation of the device at these or conditions beyond these are not implied. Exposure to absolute maximum ratings for extended periods of time may affect device reliability.

Parameter	Sym	Condition	Min	Max	Unit
Storage Temperature	T <sub>STG</sub>		-40	85	°C
Operating Case Temperature	T <sub>OP</sub>		-40	85	°C
Humidity	I <sub>F</sub>	Non Condensing		90	%
Optical Input Power (Peak)	P <sub>PEAK</sub>	Less than 1 us		1000	W
Optical Input Power (Average)	P <sub>IN</sub>			5	W
RF Input Power	P <sub>RF</sub>	Less than 500ms		10	W
Fiber Bend Radius			30		mm
Fiber Pull Force				5	N
ESD		HBM		500	V



## Ordering Information

Part	$\lambda_c$ [nm]	Fiber
EM381	1060	All modules can be configured with any combination of polarization maintaining fiber and single mode fiber

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# Acousto Optic Modulator

## Optical, Electrical & Environmental Characteristics

T<sub>OP</sub>=25°C, beginning of life unless otherwise specified.

Parameter	Sym.	Condition	Min	Typ.	Max	Unit
Operating Wavelength	$\lambda_C$		1040	1060	1080	nm
Input Optical Power (Average)	P <sub>IN</sub>				1	W
Input Optical Power (Peak)	P <sub>PEAK</sub>				500	W
On State Transmission	T <sub>TRANS</sub>		45	60		%
Throughput change over temperature	$\Delta T$	Temp. range from 10 C to 60C, % change relative to 25C Transmission	-10		+10	%
Optical Return Loss	RL <sub>OPT</sub>	Both input and output signals	40			dB
Polarization Extinction Ratio	PER	PM input and output fiber	15	20		dB
Rise Time	t <sub>r</sub>	10% to 90% signal @1050nm			1	us
Fall Time	t <sub>f</sub>	90% to 10% signal @1050nm			1	us
Contrast Ratio	C <sub>r</sub>		40			dB
RF Matching	Z <sub>IN</sub>			50		$\Omega$
Electrical Return Loss	RL <sub>RF</sub>				-10	dB
RF Power	P <sub>RF</sub>			1	4	W
RF Center Frequency	RF <sub>CF</sub>			125		MHz
Operating Temperature			10		60	°C
Storage Temperature			-40		85	°C
Humidity		Non condensing			90	%
Air Pressure			700		1060	kPa
Hermeticity		MIL-Std 883			1E-6	ATM cc/s Air

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