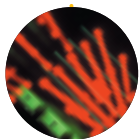
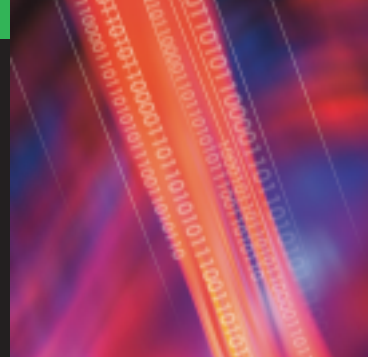




MICRO PHOTONIX INTEGRATION OC-192 Modulator

T E C H N I C A L S P E C I F I C A T I O N S



Applications:

- SONET/SDH
- DWDM/WDM
- Metro

Features:

- Ti in-diffusion technology
- Low drive voltage is compatible with commercially available drivers
- Low insertion loss
- Excellent on/off extinction ratio
- Operational wavelength range of 1510 to 1590 nm
- External termination improves long-term bias stability

The Micro Photonix Integration OC-192 modulator is a 10 Gb/s IOC modulator that offers high performance, low drive voltage and low insertion loss to fully enable external amplitude modulation applications including SONET (OC-192), SDH, DWDM, and Metro.

At the heart of the modulator is MPI's IOC technology, utilizing X-cut titanium in-diffused lithium niobate in a Mach-Zehnder configuration, delivering excellent bias stability and high frequency response. When used with a bias control circuit to maintain the quadrature point, these modulators provide reliable and stable operation in widely varying conditions.

Standard features include Panda-type polarization-maintaining fiber (PMF) for the optical input, single-mode SMF-28 fiber for the optical output and FC style optical connectors. Custom configurations are available upon request.

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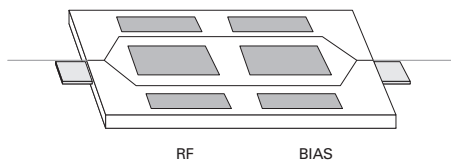
MICRO PHOTONIX INTEGRATION

OC-192 Modulator

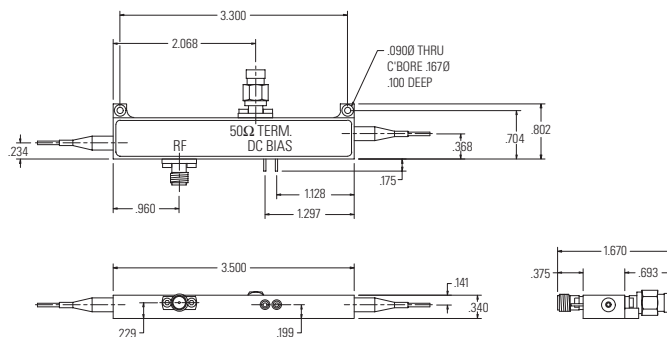
TECHNICAL SPECIFICATIONS

		Minimum	Typical	Maximum	Units
Optical	Operating Wavelength	1510	1550	1590	nm
	Insertion Loss	4.0	4.5	5.0	dB
	Optical Extinction Ratio	15	20		dB
	Optical Return Loss	50		60	dB
	Optical Fiber Length	1.0			m
Electrical	Bandwidth (-3dB)	8	10		GHz
	RF V_{π} (<100 kHz)	5.0	5.25	5.5	V
	Electrode Impedance		50		Ohms
	S_{11} Return Loss	-15	-10		dB
	Bias Voltage (Quadrature)	-6		6	V
	Rise Time	29	34	43	ps
	Fall Time	29	34	43	ps
Absolute Maximum Ratings	Optical Power (Continuous)			50	mW
	DC Bias Voltage (Continuous)			+/- 10	V
	RF Power (Continuous)			200	mW
	Operating Temperature	-5		70	°C
	Storage Temperature	-40		80	°C
	Temperature Ramp			3	°C/min

Functional Schematic



Package Dimensions (in inches)



Package

Input Fiber	Fujikura PANDA PMF
Output Fiber	Corning SMF-28
RF Connector	SMA
Optical Fiber Connectors	None or FC
DC Bias Connector	Feedthrough Pins

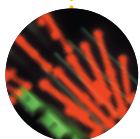




MICRO PHOTONIX INTEGRATION

Phase Modulator

TECHNICAL SPECIFICATIONS



Applications:

- Polarization Scrambling
- Polarization Control
- DFB Laser Linewidth Broadening
- Optical Phase Modulation and Delay
- Sensors

Features:

- Ti in-diffusion technology
- Low insertion loss
- Operational wavelength range of 1510 to 1590 nm
- Low residual intensity modulation
- TE and TM modulation
- Frequency response up to 10 GHz
- External termination for handling high heat loads

Low loss, simple and efficient operation make Micro Photonix Integration's Phase Modulators the chosen device for line-width broadening, optical chirping, optical delays and sensors.

Polarization-maintaining optical fiber is used at both the input and output ports, making the devices ideal in applications dependent upon coherent interactions, or when integrated optical components are used in cascade. Devices are also available at 1330 nm.

MPI's Ti in-diffused Phase Modulators exhibit very low polarization-dependent loss allowing both TE and TM polarization modes to propagate. External modulation applied to the device creates a differential phase modulation between these polarization states. This characteristic makes our Phase Modulators ideal for use as polarization scramblers and polarization controllers.

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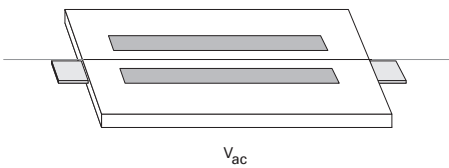


MICRO PHOTONIX INTEGRATION Phase Modulator

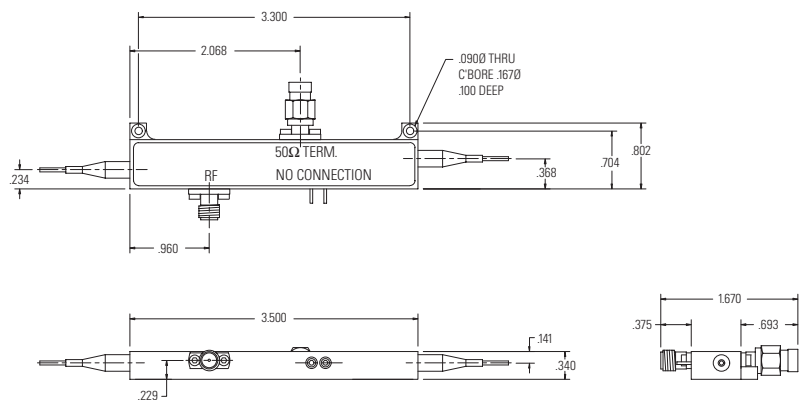
TECHNICAL SPECIFICATIONS

		Minimum	Typical	Maximum	Units
Optical	Operating Wavelength	1510	1550	1590	nm
	Optical Insertion Loss	3.5	4.0	4.5	dB
	Polarization Extinction Ratio	-20	-22.5	-25	dB
	Optical Return Loss	50	55	60	dB
	Optical Fiber Length	1.0			m
Electrical	Bandwidth (-3 dB)	7	7.5	8	GHz
	RF Gain Ripple	0.25	0.35	0.50	dB
	RF V_{π} (50 KHz)	11	11.5	12	V
	S_{11} Return Loss	-20	-17.5	-15	dB
	Electrode Impedance		50		Ohms
	Residual Intensity Modulation		0.2		%
Absolute Maximum Ratings	Operating Temperature	-5		70	°C
	Storage Temperature	-40		80	°C
	Optical Power (Continuous)			100	mW
	RF Power (Continuous)			2	W
	Temperature Ramp			3	°C/min

Functional Schematic



Package Dimensions (in inches)



Package

Input Fiber	Fujikura PANDA PMF
Output Fiber	Fujikura PANDA PMF
RF Connector	SMA
Optical Fiber Connectors	None or FC





MICRO PHOTONIX INTEGRATION

Active Wavelength Sensing Module

TECHNICAL SPECIFICATIONS



Applications:

- DWDM/WDM
- SONET/SDH
- Wavelength Control System
- Optical Spectrum Monitoring Instrumentation

Features:

- Precise wavelength measurement capability
- Low input power requirement
- Excellent system stability
- Broadband measurement range of 1510 to 1590 nm
- Fast wavelength measurement response
- Low-cost solution

Micro Photonix Integration's Active Wavelength Sensing Module uniquely harnesses mature technology to provide precise, low-cost wavelength measurement and control.

The heart of the AWSM is a custom designed MPI lithium niobate IOC. The Active Wavelength Sensing Module's advanced optical signal processing method provides exceptional measurement resolution with unsurpassed stability in varying conditions for reliable performance in DWDM and other demanding applications.

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Active Wavelength Sensing Module

TECHNICAL SPECIFICATIONS

		Minimum	Typical	Maximum	Units
Optical	Measurement Wavelength Range	1510		1590	nm
	Optical Input Power (per channel)	-15			dBm
	Wavelength Resolution	0.01			nm
System	System Stability		0.002		nm
	Start Up Time (1 nm resolution)		1		sec
	Update Time (10 pm resolution)		1		sec
Absolute Maximum Ratings	Optical Power (Continuous)			50	mW
	Operating Temperature	-5		70	°C
	Storage Temperature	-40		80	°C

Package

Optical Input Fiber	Fujikura PANDA PMF
Optical Input Connection	FC
Monitor Output Connection	BNC
Electronic Interface	RS-232 9 Pin D-Sub Connector