

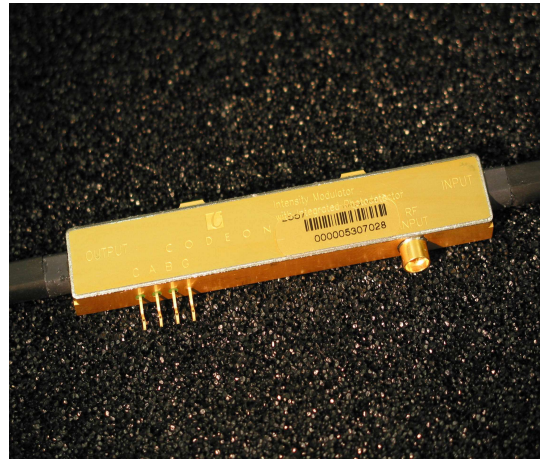
## Mach-10™ 083: - 0.7 Fixed-Chirp Intensity Modulator integrated with Variable Optical Attenuator

7.1.2.SP.0083 Rev B

### Description

The Intensity Modulator with Integrated Variable Optical Attenuator was designed for customers seeking higher levels of integration for today's high-speed fiber optic telecommunication systems. Designed for multi-channel WDM transmission, the integrated Variable Optical Attenuator allows dynamic channel equalization by enabling active attenuation of optical output power. This flexibility allows the efficient management of network imbalances in DWDM optical links. The Intensity Modulator with Variable Optical Attenuator supports data rates up to 12.5 Gb/s and has an active attenuation range greater than 15 dB.

The Intensity Modulator with Variable Optical Attenuator is a "fixed chirp", single-ended drive configuration, modulator based on the Mach-Zehnder interferometric architecture, using titanium-indiffused lithium niobate substrates.



### Applications

- High-Speed Data Communications
  - SONET OC-192 Interfaces
  - SDH STM-64 Interfaces
  - WDM transmission at +10 Gb/s
- Undersea communications
- Internet router interfaces
- High-speed test equipment

### Features

- Superior Frequency Performance
- Integrated Variable Optical Attenuator
- Zero-Chirp
- Low Drive Voltage
- Long-Term Bias Stability
- Hermetic Packaging - High Reliability - Telcordia GR-468 Compliant
- C & L Band Operation

### Ordering Information

Mach-10 083-XX-X-X-X-XX

Part #	Bandwidth	Output Fiber Type	Input Connector	Output Connector	Bias Operating Point	Pin Leads
083	10 = 10 GHz*	S = SMF*	S = SC/PC*	S = SC/PC*		BNL = Bent*
	12 = 12 GHz	P = PMF	B = Bare Fiber	B = Bare Fiber	NS = Negative Slope*	STL = Straight
			F = FC/uPC	F = FC/uPC		
			L = LC/PC	L = LC/PC		
			A = FC/aPC	A = FC/aPC		
			M = Mu	M = Mu		

\* Default options unless otherwise specified

### Covega Corporation

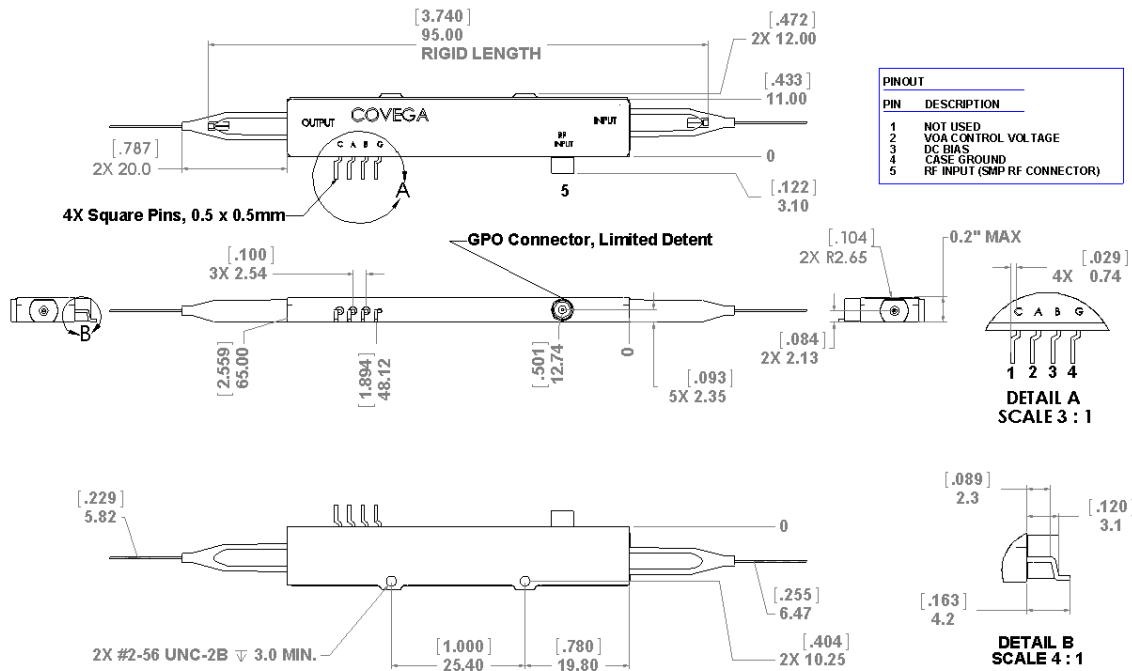
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Specifications

Parameter		Min	Typ	Max	
Operating Case Temperature	T <sub>CASE</sub>	0		70	C
Operating Wavelength	λ	1525		1605	nm
Optical Insertion Loss (Connectorized)	I.L.		4.0	5.5	dB
Insertion Loss Variation (EOL)	ΔI.L.	-0.5		0.5	dB
Modulator Chirp Parameter	α	-0.6		-0.8	
Optical Return Loss		40			dB
Optical On/Off Extinction Ratio (@ DC)	E.R.	20			dB
Optical Extinction Ratio (PRBS)	E.R.	13			dB
Bit Rate Frequency	f <sub>BR</sub>	9.953		12.5	Gb/s
E/O Bandwidth (-3 dB with Linear Fit)	f <sub>C-3dB</sub>	10.0/12.0			GHz
S11 (dc to 10 GHz)			-12	-10	dB
RF Drive Voltage (PRBS)	V <sub>PRBS</sub>		6.5	7.0	V
Vpi RF Port (@ 1GHz)	V <sub>RF</sub>		6.5	7.5	V
Vpi Bias Port (@ DC)			6.0	7	V
DC Bias Voltage Range (EOL)	V <sub>BIAS</sub>	-10		10	V
Attenuation Range		15			dB
Vπ Attenuator Port (@ DC)				18	V
VOA Control Voltage Range (EOL)	V <sub>BIAS</sub>	-16		16	V

Packaging



Dimensions in mm unless otherwise specified; Tolerances are ± 0.1mm ± 1 (angles)