

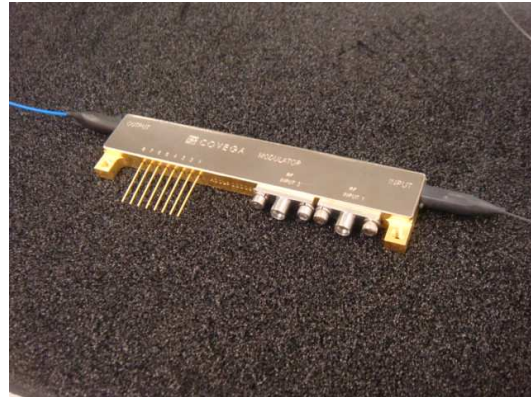
Mach-10™ 086: Dual Parallel Modulator with RF detectors

7.1.2.SP.0086 Rev A

Preliminary

Description

COVEGA's Dual-Parallel Modulator is part of the Mach-10™ product line, a family of high performance, Telcordia compliant external optical modulators with industry leading long-term stability. The modulator consists of two Mach Zehnder Interferometers (MZI's) in parallel and is designed for quadrature modulation (QPSK or 4QAM) and single side-band suppressed carrier (SSB-SC) transmission. The Dual-Parallel Modulator is fabricated using titanium-indiffused lithium niobate substrates. Each MZI has an independently controlled bias section to achieve maximum performance.



Features

Applications

- ✓ (D) QPSK Transmission for Telecom
- ✓ SSB-SC Transmission for Telecom

- Dual, parallel MZIs on a single x-cut lithium niobate chip
- Separate DC bias for both MZIs
- High Reliability - Long-Term Bias Stability
- Hermetic Packaging

Ordering Information

Mach-40 086-XX-X-X-X

Part #	Bandwidth	Output Fiber Type	Input Connector	Output Connector
086	16=16GHz	S = SMF*	S = SC/PC*	S = SC/PC*
		P = PMF	B = Bare Fiber	B = Bare Fiber
			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

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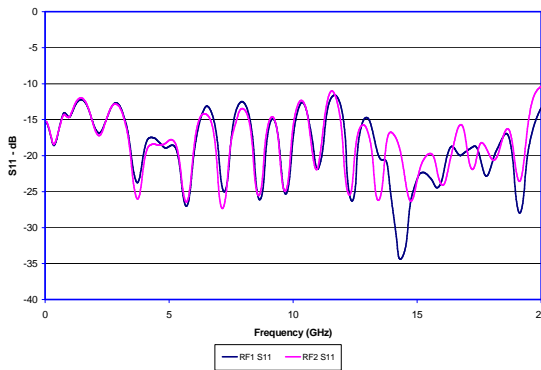
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Phone: +1 877.226.8342 Fax: +1 240.456.7200 Email: sales@covega.com

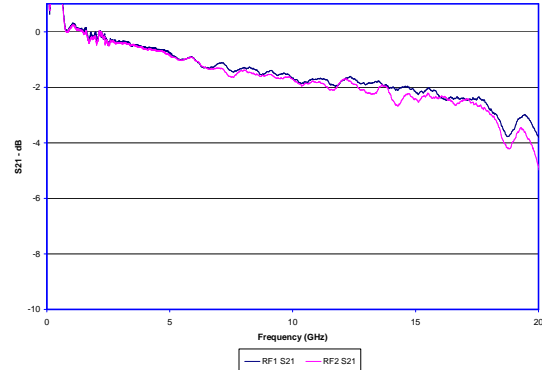
Web: <http://www.covega.com>

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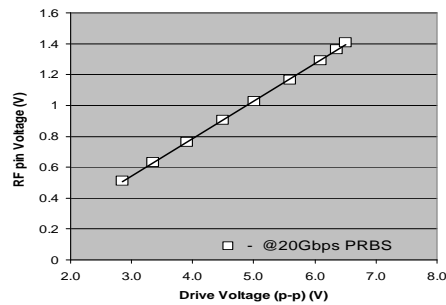
S11 Plot



S21 Plot



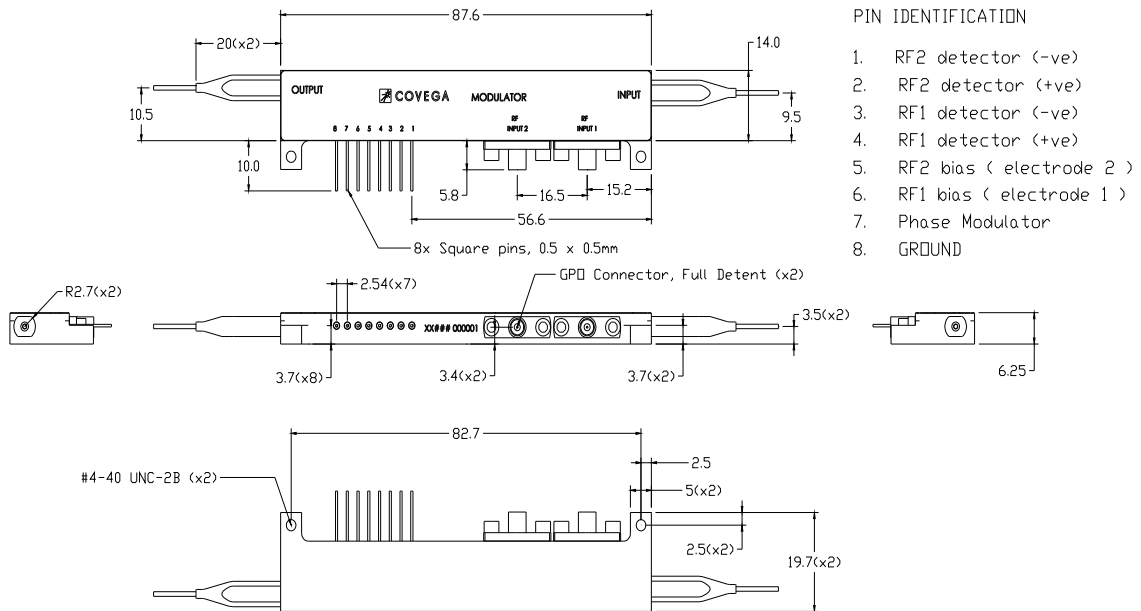
RF Detector Linearity Plot



Specifications

Parameter		Min	Typ	Max	
Operating Case Temperature	T_{CASE}	0		70	C
Operating Wavelength	λ	1525		1575	nm
Optical Insertion Loss (Connectorized)	I.L.		5.0	6.0	dB
Insertion Loss Variation (EOL)	$\Delta I.L.$	-0.5		0.5	dB
Optical Return Loss		40			dB
Optical Extinction Ratio (@ DC) per MZI	E.R.	20			dB
V π RF Ports (@ DC)			2.5	4.5	V
V π RF Ports (@ 1GHz)			4.5	6	V
V π Bias Ports (@ DC)			4.5	5.5	V
RF Port S11			-12	-10	dB
Internal MZI Modulators					
E/O Bandwidth (-3 dB with Linear Fit)		16			GHz
S21 Amplitude ripple (50MHz to 20GHz)		-1.5		1.5	dB
S21 Phase difference		10		10	deg
Phase ripple		10		10	deg
Differential RF delay		-5ps		5ps	
Phase Modulator					
DC input V π				6	V
E/O Bandwidth		1			MHz
RF Detectors					
Threshold				0.5	V
Slope		0.1		0.4	V/V π pk-pk
Linearity		-5		5	%

Packaging



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