

# 50 Gb/s 3.3V Polarization Modulator

## Electro-Optic Mode Converter

The Versawave 50 Gb/s Electro-Optic Polarization Modulator is capable of changing the state of polarization (SOP) of light at ultra-high speeds. Functioning as a high speed electrically variable wave plate, the modulator is able to change the SOP of linearly polarized laser light to an orthogonal linear polarization, passing through either circular polarization states. The range and degree of the change in the SOP can be varied by adjusting the magnitude of the DC bias and RF drive voltage.



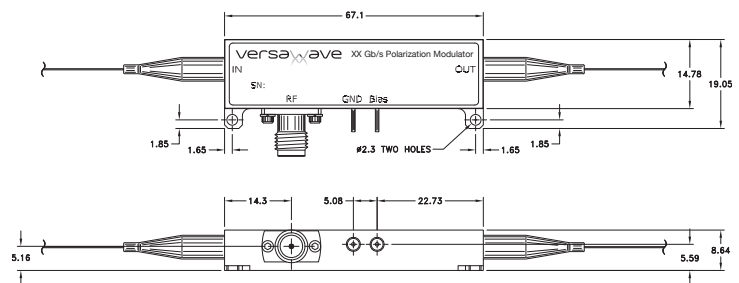
### Applications

- Analogue and digital
- Polarization shift keying
- Polarization multiplexing and de-multiplexing
- High-speed polarization sweeping
- High-speed test equipment
- Optical quantum encryption

### Features

- High modulation bandwidth
- Low drive voltage
- Low residual amplitude modulation
- Low differential group delay
- Covers C and L bands
- GaAs technology
- Low insertion loss
- Low chirp

Unlike designs based on lithium niobate, the Versawave Polarization Modulator has very low birefringence and subsequently, low differential group delay - giving system designers flexibility to use polarization modulation or multiplexing in transmission systems. In addition, the polarization modulator has the same class-leading performance benefits of Versawave's Amplitude Modulator including low drive voltage, ultra-wide bandwidth, and small footprint.



All above dimensions are in mm.

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## Specifications

Optical	MIN	Typical	MAX
S21 Electro-Optic Bandwidth	-	50 GHz	-
Polarization Extinction Ratio	20 dB	-	-
Residual Amplitude Modulation	-	-18 dB	-
Differential Group Delay	-	-	100 fs
Chirp Parameter	-0.1	-	+0.1
Wavelength Range	1530 nm	-	1610 nm
Optical Return Loss	30 dB	-	-
Insertion Loss (no connectorization)	-	3.0 dB	-

Electrical	MIN	Typical	MAX
PRBS Drive Voltage	-	3.3 V	-
Return Loss (40 MHz - 40 GHz)	-	10 dB	-
Impedance	-	50 $\Omega$	-
Bias Voltage (required to operate at quadrature)	-12 V	-	+12 V

Environmental	MIN	MAX
Operating Temperature	0°C (32°F)	70°C (158°F)
Storage Temperature	-40°C (-40°F)	85°C (185°F)

ROHS 6/6 Compliant

Connectors and Fiber Options	
Input Fiber Type	PMF
Output Fiber Type	SMF-28 or PMF
RF Connection	1.85 mm
Bias Connection	Pins
Input / Output Connector	FC/APC or FC/UPC
Input / Output Fiber Length	1 m

### Package

Epoxy sealed, hermetic package available upon request. Low outgassing assembly available upon request.

Ordering Information	AB	C	D	E
	P	M	-	5
	3	-	X	-
	-	X	-	X
	-	X	-	X

C Input Optical Connector	FC/APC = A	FC/UPC = U
D Output Optical Connector	FC/APC = A	FC/UPC = U
E Output Fiber	SMF-28 = S	PMF = P

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