About Versawave

Versawave provides modulation components for high-speed data and high bandwidth optical communication applications. Versawave's proprietary GaAs-based designs provide system manufacturers with cost effective solutions that offer design flexibility, small footprints and power efficiency. Used for either polarization or amplitude modulation applications, these designs are fully compatible with commercial foundries for chip manufacture and packaging. In addition, Versawave utilizes its advanced prototyping facility to design custom components and provide fabrication services to the optical networking industry. Versawave is a privately held company based in Vancouver, British Columbia.

VERSAWAVE TECHNOLOGIES INC.

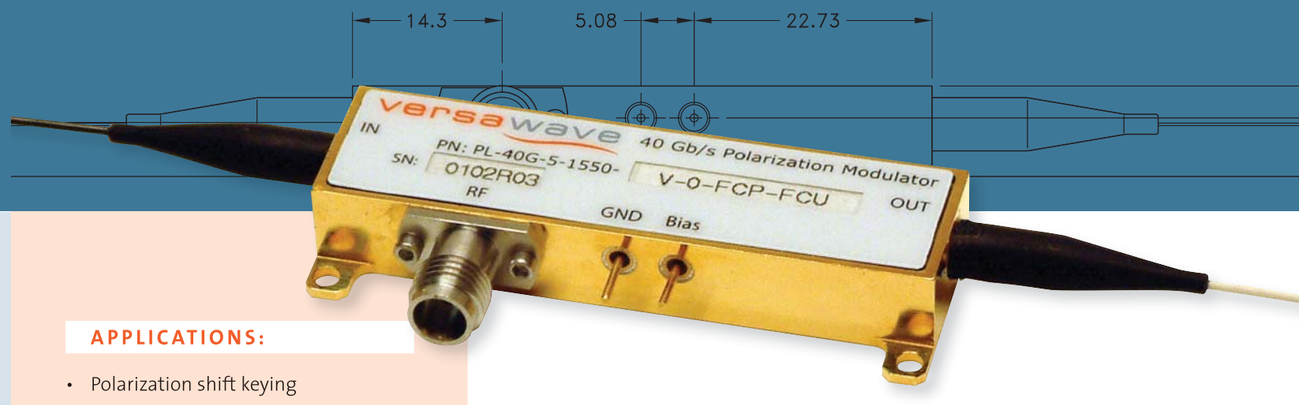
Suite 182
4664 Lougheed Highway
Burnaby, BC, V5C 5T5
Canada

+1–604–221–5452 tel
+1–604–221–5453 fax

info@versawave.com
versawave.com

versawave
JGKB PHOTONICS

40 Gb/s Polarization Modulator
Electro-Optic Mode Converter



APPLICATIONS:

- Polarization shift keying
- Polarization multiplexing and de-multiplexing
- High-speed polarization sweeping
- High-speed test equipment

FEATURES:

- High modulation bandwidth
- Low drive voltage
- Low residual amplitude modulation
- Low differential group delay
- Small footprint
- Covers C and L bands
- GaAs technology

Improved Specifications

DESCRIPTION:

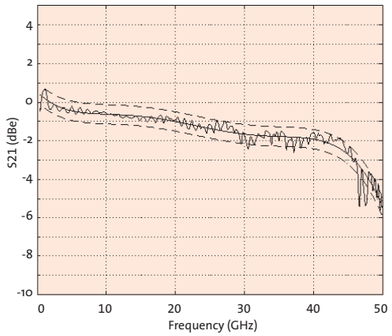
The Versawave 40 Gb/s Electro-Optic Polarization Modulator is capable of changing the state of polarization (SOP) of light at ultra-high speeds. Functioning as a high speed, electrically variable wave plate, the modulator is able to change the SOP of linearly polarized laser light to an orthogonal linear polarization, passing through elliptical and circular polarization states in between. 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.

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.

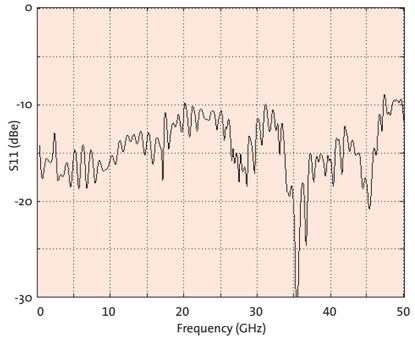
versawave
JGKB PHOTONICS

SMALL SIGNAL RESPONSE:

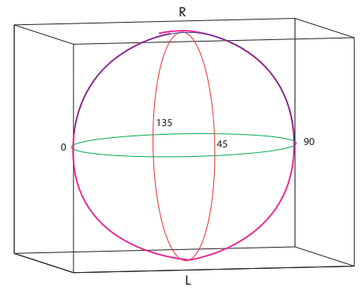
Electro-Optic Bandwidth



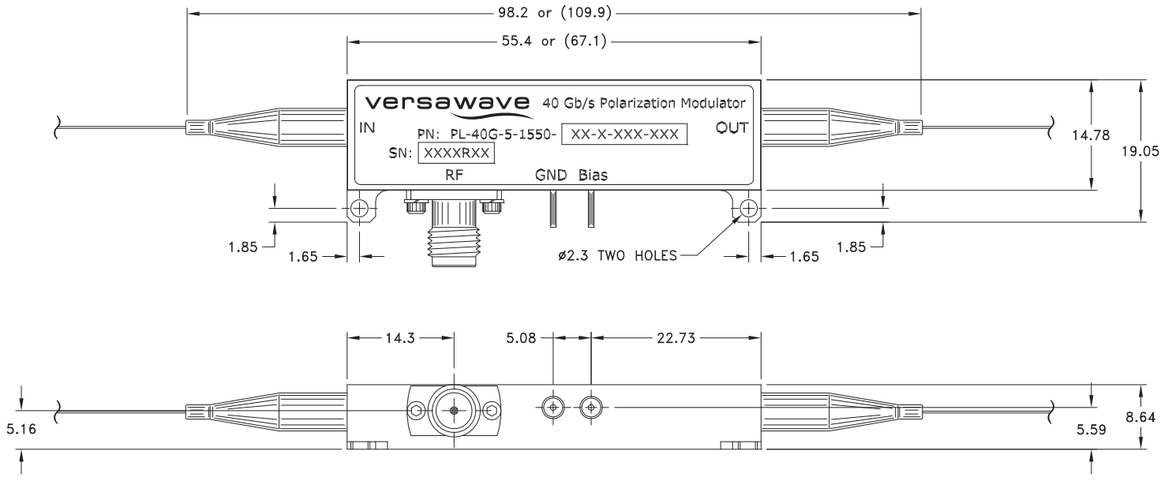
Electrical Return Loss



Poincaré Sphere Representation of Polarization Modulation:



PACKAGE DIMENSIONS:



All above dimensions are in mm. Figures in parentheses indicate dimensions for the 3V model.

ORDERING INFORMATION:

PL-40G- **A** X- 1550- **B** XX- **C** XXX- **D** XXX

A Drive Voltage	B RF Connector		C Input Optical Connector		D Output Optical Connector	
3	**V**	V	**FCP**	FC/UPC with PMF	**FCU**	FC/UPC with SMF-28
5	**VP**	VP	**FAP**	FC/APC with PMF	**FCA**	FC/APC with SMF-28
	GP	GPPO			**FCP**	FC/UPC with PMF
					FAP	FC/APC with PMF

NOTES:
No license is granted by implication or otherwise under any patent right or any other proprietary right of Versawave and Technologies Inc.
The information contained in this document, including specifications, is subject to change at any time without notice and without liability.

PRODUCT SPECIFICATIONS:

PARAMETERS	MIN	TYPICAL	MAX
OPTICAL			
S21 Electro-Optic Bandwidth		40 GHz	
Polarization Extinction Ratio	20 dB		
Residual Amplitude Modulation		–18 dB	
Differential Group Delay			100 fs
Wavelength Range	1530 nm		1610 nm
Optical Return Loss	30 dB		
Insertion Loss		3.5 dB	
ELECTRICAL			
PRBS Drive Voltage 40 Gb/s (3V option)*		5.3 (3.5) V	
Return Loss (0–40 GHz)		10 dB	
Impedance		50 Ω	

CONNECTORS AND FIBER OPTIONS

Input Fiber	PMF
Output Fiber	SMF-28 or PMF
RF Connection	V, VP or GPPO
Bias Connection	Pins

PACKAGE

Epoxy sealed, hermetic package available upon request

Unless marked, specifications are for both 3V and 5V options.
Specifications marked " * " differ for 5V and 3V devices, specifications for 3V devices are in parentheses.