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.

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

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.
**PRODUCT SPECIFICATIONS:**

**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 (3.5 V option) or 1610 nm
- Optical Return Loss: 30 dB
- Insertion Loss: 3.5 dB

**ELECTRICAL**
- PRBS Drive Voltage 40 Gb/s (3.5 V 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

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**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.

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**PARAMETERS**

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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.