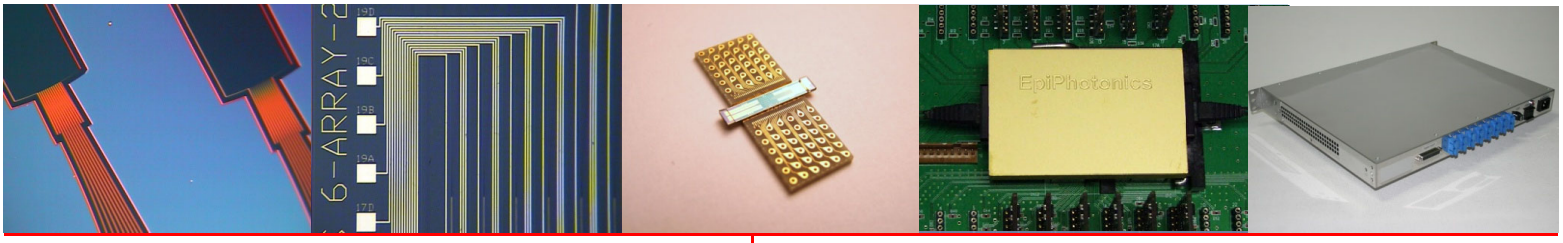
EpiPhotonics

we deliver the fastest and most power-efficient photonics available in today's industry

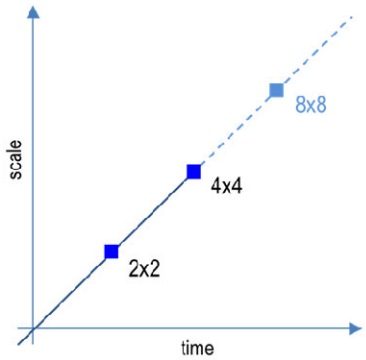
September, 2021

EpiPhotonics pioneers the design and manufacture of WSS* and PLZT photonic components and subsystems for advanced optical applications. EpiPhotonics' unique and proprietary epitaxial PLZT waveguide technology based on 25 years of R&D features radical performance gains compared to traditional technologies in terms of speed, power consumption, integration, dimensions, and robustness. (*supported by Ministry of Internal Affairs and Communications (JPMI00316))



Tomorrow's technology for advanced optical communications

Photonics subsystems designed and manufactured with LCOS-based WSS and PLZT waveguide technology will revolutionize tomorrow's markets, such as the telecommunications and data communications.
EpiPhotonics' products enable systems manufacturers to generate more revenues by delivering better products to their end-users. Moreover, the technological advances of EpiPhotonics enable its customers to anticipate the mass-market photonics of tomorrow.



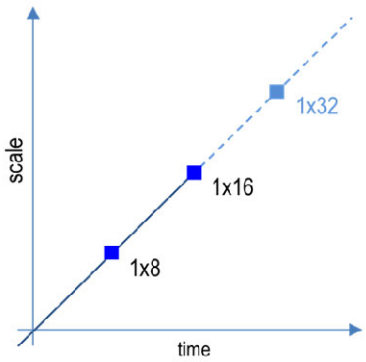
NxN high-speed optical switch product roadmap

Leader in waveguide technology

LCOS-based WSS acchieves 50GHz or 100GHz channel spacing and up to 96 wavelength switching at software definable reconfigurable ports with minimal power consumption.
PLZT is the attractive electro-optic material technology for the integration of high-channel count and/or various photonic functions into a monolithic chip, with ultra high-speed control and low-power dissipation.

Optimized performance

High-speed
Low-Power consumption
High reliability & environmental stability



1xN high-speed optical switch product roadmap

Products

WSS (Wavelength Selective Switch)
- 1x9 ports or 5x5 ports operation (under development)

Nano-second speed optical path switch
- 1x2 ports, 1x4 ports, 1x8 ports, 1x16 ports
- 2x2 ports, 4x4 ports, 8x8 ports (under development)

Customization

EpiPhotonics supplies products tailored to customers' requirements.

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Data Sheet | P/N: EP-WSS-0109S

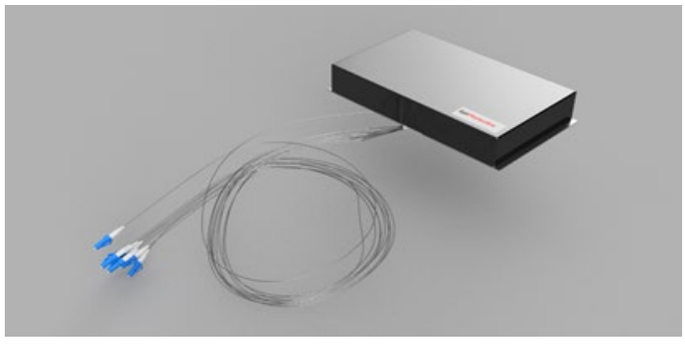
EpiPhotonics

The PLZT Photonics Company

Flexible and Low-Power Consumption WSS

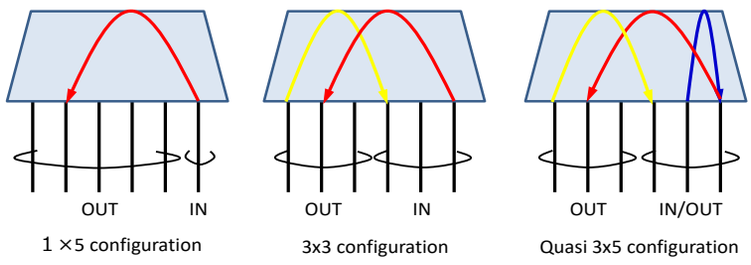
Product Description

EpiPhotonics' LCOS (Liquid Crystal On Silicon) based patented Wavelength Selective Switch (WSS) modules with 50GHz or 100GHz channel spacing offer up to 96 wavelength switching independently at software definable reconfigurable ports. The WSS can direct any wavelength from any one of the N colorless input ports to the common output port in the Nx1 configuration. The WSS can direct any of the wavelengths from the common port to any of the N output ports in the 1XN configuration. Also, the WSS can be reconfigured to construct MxM configuration including quasi-MxN configuration. A single Flexible WSS module can be reconfigured to those by the remote software without physically adding and/or reconnecting regular 1xN WSSs in field. The MxN configuration can reduce number of the regular 1xN WSSs significantly.

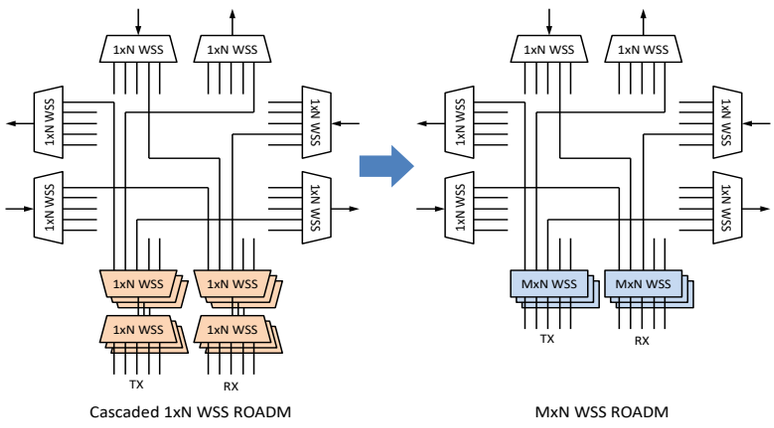


Flexible and Low-Power Consumption WSS

Reconfigurable port configurations



Reduced number of WSSs in ROADM networks



Features

Embedded firmware and software enable the WSS module high performance with integrated functionalities and scalability in a small footprint. The software control eliminated a need for temperature control and realized very low power consumption. The Flexible WSS module features low insertion loss, low polarization dependent loss, wide dynamic range, high channel counts, and extremely low power consumption together with high reliability per no moving parts. The Flexible WSS can be used for reconfigurable add-drop (ROADM), dynamic wavelength routing for optical path protection, and optical cross connect applications.

- 1x9 ports reconfigurable to 5x5
- Up to 96 channels
- 50GHz or 100 GHz channel spacing and grid-less operation
- Integrated channel equalization and blocking
- Hitless switching of any channels to any port
- Remote software reconfigurability
- Low insertion loss and low polarization dependence
- Ultra-low power consumption
- No moving parts and high reliability

Applications

- Reconfigurable optical add/drop multiplexing (ROADM)
- Dynamic Wavelength switching/provisioning
- Network interconnection, protection and restoration

Parameters	Specification	Unit	Note
Number of ports	10	Ports	
Operating range	191.35~196.12	GHz	
Channel spacing	50 / 100	GHz	
Insertion loss	6.5	dB	typ
Polarization dependent loss	0.5	dB	typ
Extinction ratio	30	dB	typ
Isolation	30	dB	typ
Switching time	100	ms	
Attenuation range	15	dB	
Attenuation resolution	0.1	dB	Setting resolution
Interface	USB		
Power consumption	< 20	W	
Operating temperature	-5 ~ 70	deg C	
Storage temperature	-40 ~ 85	deg C	
Dimensions	256 x 156 x 41	mm	

For more information, please contact:
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EpiPhotonics

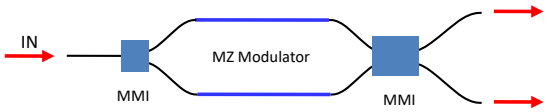
Nano-Second Speed PLZT Photonics

The fastest and the most efficient integrated photonics available in today's industry

PLZT Technology

Electro-Optic PLZT Waveguide

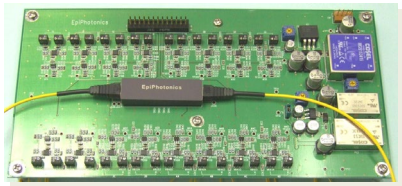
- Integrated compact MZ optical switches on a efficient electro-optic PLZT waveguide chip.



PLZT Modules and Driver Boards

1x1, 1x2, 1x4, 1x8, 1x16 Switches

- Switching time: 10ns, Polarization independent
- Low IL, Crosstalk ~ 30 dB
- TTL control driver
- Tree structure 1xN switches



2x2, 4x4, 8x8 Switches

- Switching time: 10ns~20 ns, Polarization independent
- Low IL, Crosstalk ~ 30 dB
- TTL control driver
- Strictly non-blocking NxN switches
- Monolithically integrated one chip

VOA Array

- Response: 20 ns, Polarization independent
- Dynamic range > 15 dB
- Single and 2CH-arrayed

PLZT Systems

Optical Switching Systems

- Rack mounted optical switching system equipped with FPGA for PC control without a multi-channel pulse generator.