

BroadBand 1260-1650nm NanoSpeed™ Miniature Variable Optical Attenuator/ Modulator (Bidirectional)



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BUY NOW



The NS series variable fiber optic attenuator provides electrical control of optical power. This is achieved using a patented electro-optical configuration. The solid-state optical crystal design eliminates mechanical movement and organic materials. The NS series variable optical attenuators are designed to meet the most demanding operational requirements of ultra-high reliability and fast response time with minimum mechanical footprint. The device is bidirectional.

The NS Series VOA is available in either normally transparent or normally-opaque configurations. Agiltron's PCB driver listed in the web is recommended to operate this device, featuring high efficiency and low cost with 12VDC power and 0-5V control input.

Applications

- Power Control
- Power Regulation
- Power Balance
- Instrumentation

Features

- Solid state
- High Reliability
- High Speed
- Broadband
- Bidirectional
- Low Insertion Loss
- Compact

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	1260		1650	nm
Insertion Loss ^[1]		0.9	1.2	dB
Polarization Dependent Loss		0.1	0.35	dB
Return Loss ^[3]	45	50		dB
Attenuation Range	18	20	25	dB
Response Time (Rise, Fall)			300	ns
Repetition Rate ^[3]	DC	5	100	kHz
Modulation Rate ^[4]			5	MHz
Resolution		Continuous		dB
Operating Optical Power			500	mW
Operating Temperature		-20 ~ 70		°C
Storage Temperature		-40 ~ 85		°C

[1]. Excluding connectors. Connector adds 0.25dB each.

[3]. Driver has choice of 5kHz and 100 kHz repeat rate.

[4]. 5 MHz small modulation depth 5~10% is available with Special circuit

Rev 11/27/22

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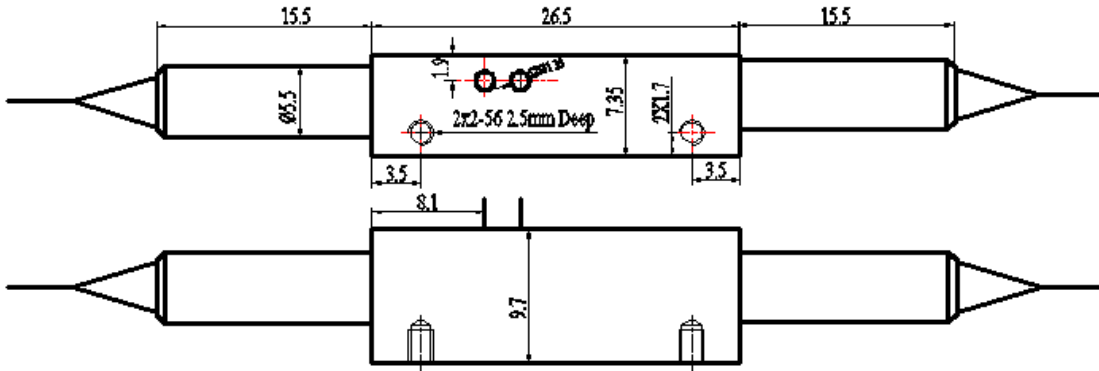
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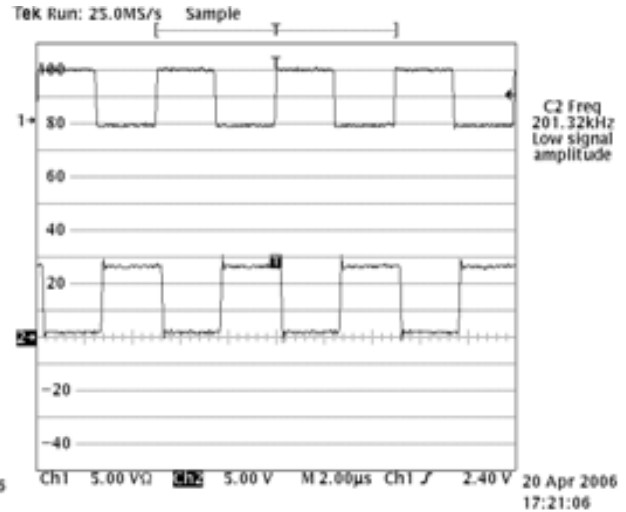
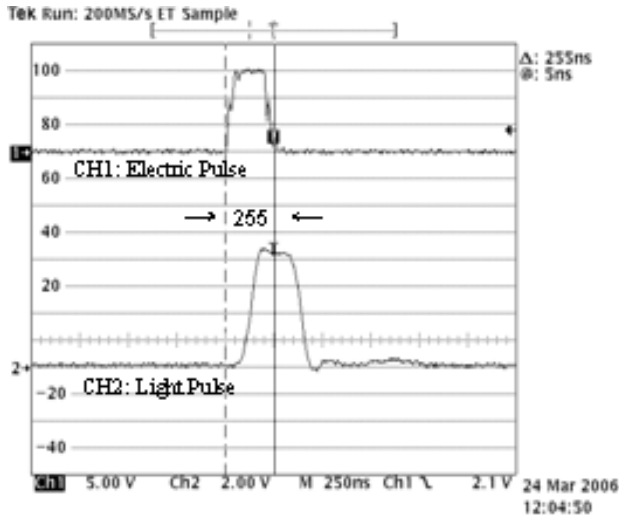
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Mechanical Footprint Dimensions (Unit:mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Speed and Repetition Measurement

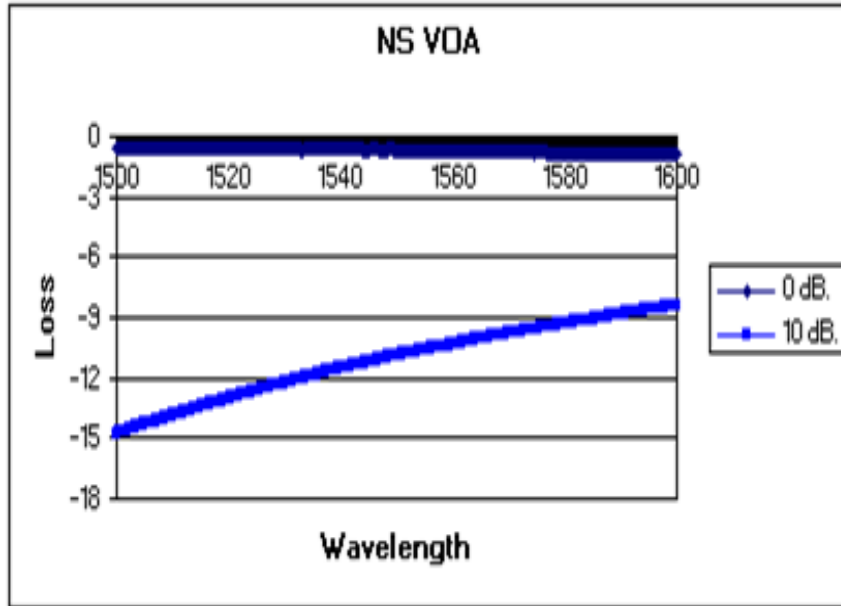


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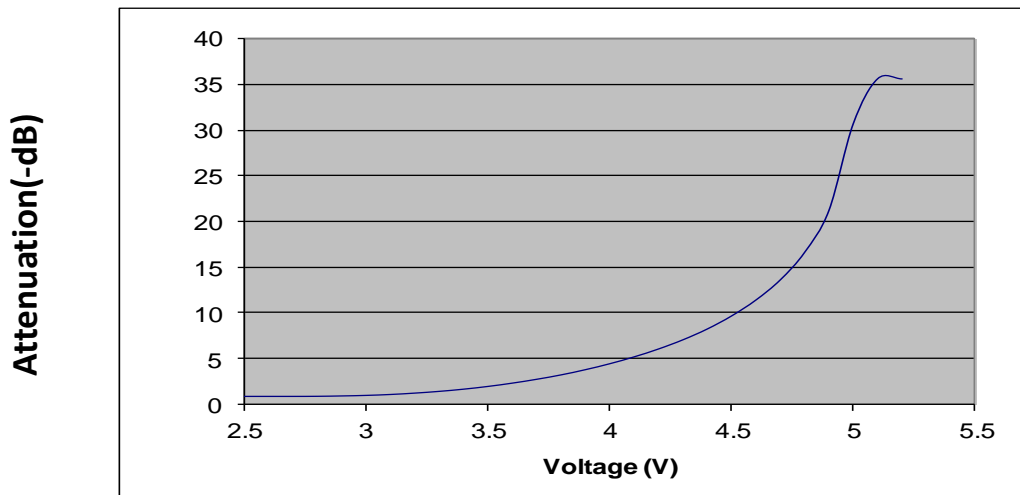


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Specify wavelength dependent loss @10dB attenuation



Typical curve of Attenuation versus Voltage



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Ordering Information

Prefix	Type	Wavelength	State	Optical power	Fiber Type	Fiber Cover	Fiber Length	Connector
MSWH-	Regular=2	1260-1620nm=1 Special=0	Transparent= 1 Opaque = 2	500 mW=8 1W CW=1 2W CW=2 5W CW=5	SMF-28 =1 Special=0	Bare fiber =1 900um loose tube=3 Special=0	0.25m= 1 0.5m = 2 1.0 m= 3 Special =0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/APC=8 Special = 0

Q&A

Q: Does NS device drift over time and temperature?

A: NS devices are based on electro-optical crystal materials that can be influenced to a certain range by the environmental variations. The insertion loss of the device is only affected by the thermal expansion induced miss-alignment. For extended temperature operation, we offer special packaging to -40 -100 °C. The extinction or cross-talk value is affected by many EO material characters, including temperature-dependent birefringence, V_p , temperature gradient, optical power, at resonance points (electronic). However, the devices are designed to meet the minimum extinction/cross-talk stated on the spec sheets. It is important to avoid a temperature gradient along the device length.

Q: What is the actual applying voltage on the device?

A: 100 to 400V depending on the version.

Q: How does the device work?

A: NS devices are not based on Mach-Zander Interference, rather birefringence crystal's nature beam displacement, in which the crystal creates two different paths for beams with different polarization orientations.

Q: What is the limitation for faster operation?

A: NS devices have been tested to have an optical response of about 300 ps. However, practical implementation limits the response speeds. It is possible to achieve a much faster response when operated at partial extinction value. We also offer resonance devices over 20MHz with low electrical power consumption.

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Operation Manual

1. Connect a control signal to the SMA connector on the PCB
2. Attach the accompanied power supply (typically a wall-pluggable unit).
3. The device should then function properly.

Note: Do not alter device factory settings.