

NanoSpeed™ Narrow-Band Modulator/VOA

(Protected by U.S. patent 7,403,677B1 and pending patents)

Product Description

The NS narrow band modulator/VOA provides small signal modulation in addition to electrically controlled attenuation function. The NS series variable optical attenuators are designed to meet the most demanding operation requirements of ultra-high reliability and fast response time with minimum mechanical footprint. This device comes with a miniature integrated driver with a 5 V power and modulation signal.

The NS Series VOA is available in either normally-transparent or normally-opaque configurations.



Performance Specifications

NS Variable Optical Attenuator	Min	Typical	Max	Unit
Wavelength	400		1800	nm
Insertion Loss ¹		0.4	1.0	dB
Polarization Dependent Loss		0.1	0.3	dB
Return Loss	45	50		dB
Attenuation Range	22	28	36	dB
Response Time (Rise, Fall)			300	ns
Modulation Rate (10% depth)		0.8	1.6**	MHz
Resolution		Continuous		dB
Operating Optical Power			500	mW
Operating Temperature	-5	~ 70		°C
Storage Temperature	-40	~ 85		°C
Package Dimension		49.9X7.6X7.6		mm

* Driver kit is recommended

**Special circuit, Maximum modulation depth is 10% at 1dB attenuation

1. Excluding connectors.

Features

- No Moving Parts
- High Reliability
- Solid-State High Speed
- Low Insertion Loss
- Epoxy-Free Optical Path
- Low Power Consumption
- Simple Driver

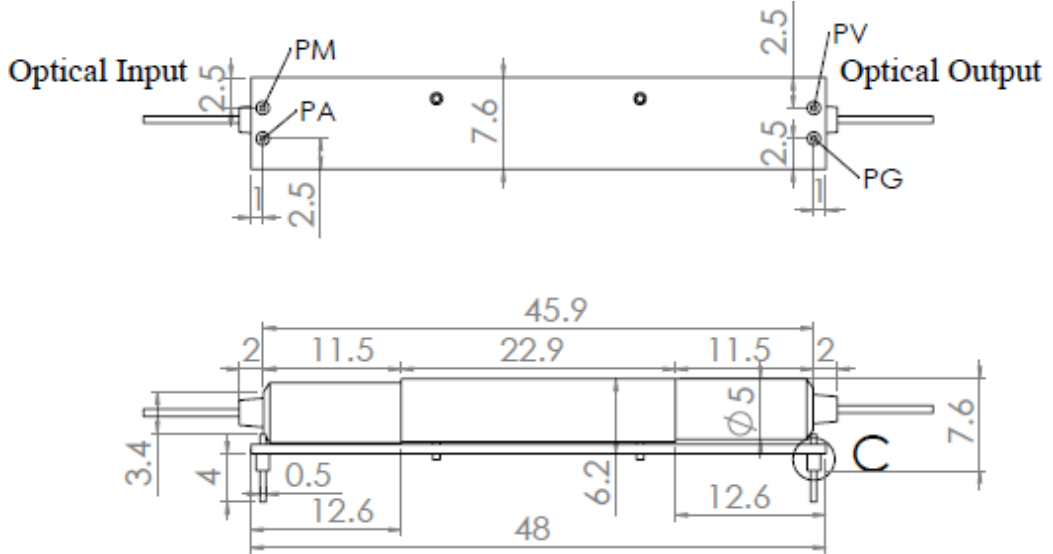
Applications

- Power Control
- Power Regulation
- Power Balance
- Instrumentation



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Mechanical Footprint Dimensions (Unit:mm)



VOA Pin Definition

- PM: Modulation Driving Signal
- PA: Attenuation Driving Signal
- PV: Vcc +5 Volts
- PG: Gnd

Electrical Performance Specifications

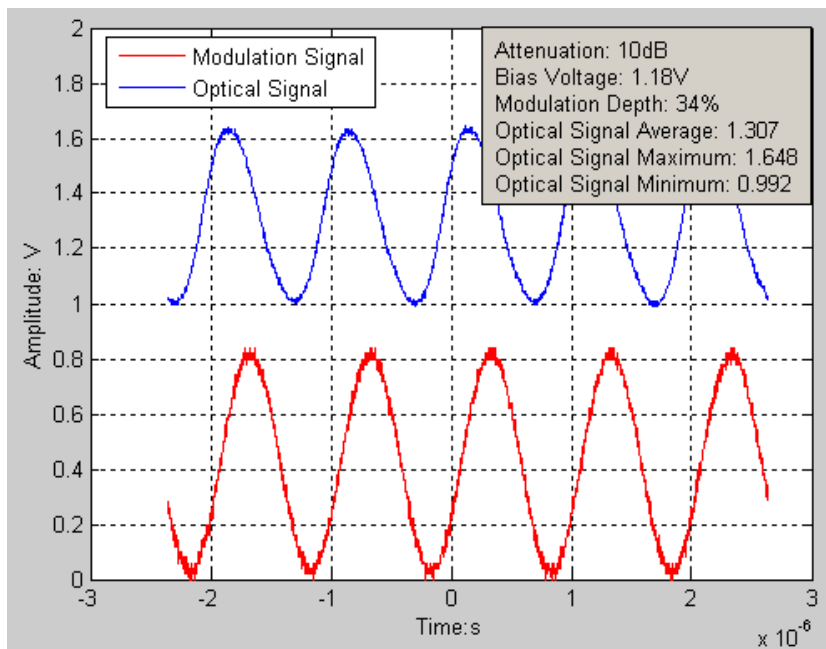
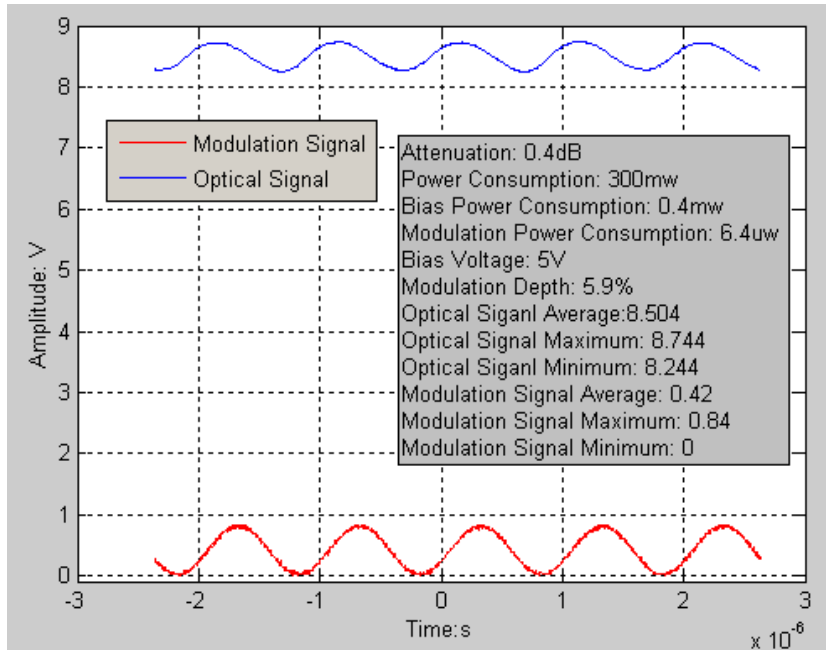
Parameter	Minimum	Typical	Maximum	Unit	Notes
Power Supply Current			70	mA	
Power Supply Voltage	4.75	5	5.25	V	
Start Up Surge Current			100	mA	
Modulation Signal Pk~Pk			1.6*	V	
Modulation Signal Impedance		200		Ω	800KHz**
Modulation bandwidth		200		KHz	
Attenuation Signal			4.8	V	
Attenuation Signal Impedance			4	K Ω	
Power Consumption		325	400	mW	

* Exceeding limits may damage the board

**200 Ω modulation signal Impedance is measured with frequency at the peak modulation frequency

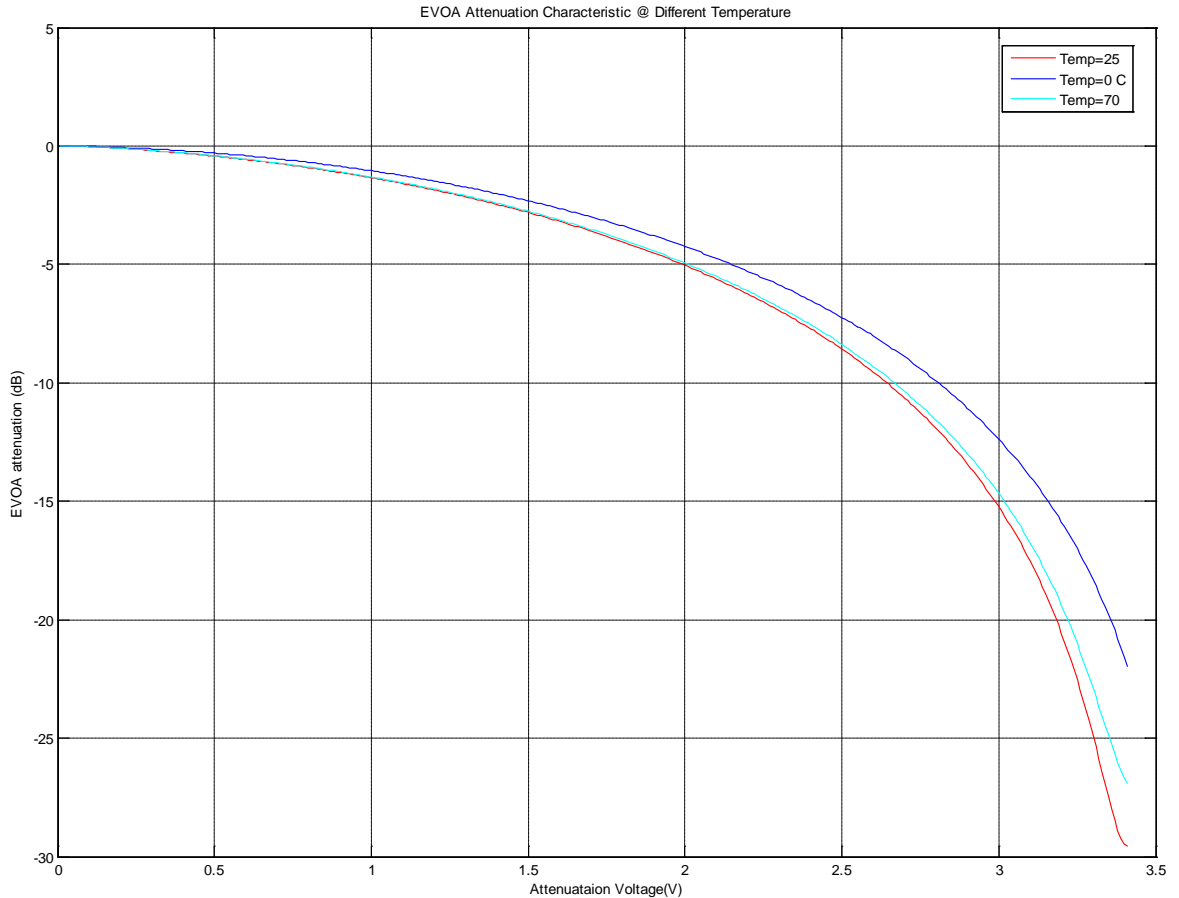
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Typical Modulation Curve



NanoSpeed™ Narrow-Band Modulator/VOA

Typical Curve of Attenuation versus Voltage



Ordering Information

NVOA	5 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Type	Wavelength	State	Package	Fiber Type		Fiber Length	Connector	
Regular slope=2	1060=1 L Band=2 1310=3 1410=4 1550=5 650=6 780=7 850=8 Special=0	Transparent = 1 Opaque = 2		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 = 7 Special = 0	



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