NuPhotonics

Part Number: VOA-1216-XX
Product State: Production Build

Rev. 1 – Jan. 2024

MEMS Optical Attenuator

Description

The VOA series optical attenuator is an electronically variable optical attenuator based on an electrostatic rotating mirror. The device offers high repeatability, low power consumption, fast response time, Telcordia standards GR1221 compliant. The MEMS optical attenuator is hermetically sealed. The VOA series come with complete customization ability.

Features

- 45 dB attenuation
- Low voltage (0-8)
- High repeatability
- Fast response
- Low initial insertion loss
- Attenuation is stable across temperature changes
- Continuous Attenuation

Applications

- Test and Measurement
- Field measurements
- Data Centers

Electro-Optical Characteristics (T_{op} 23 ± 3°c, unless otherwise specified)

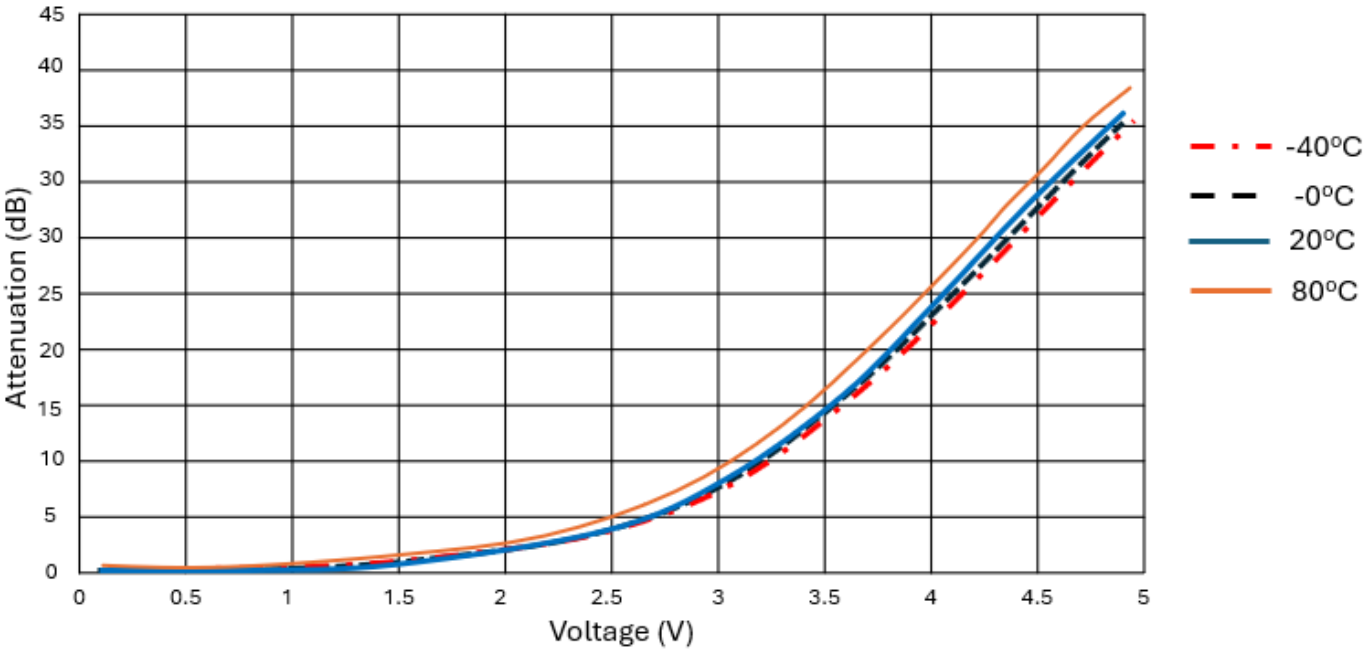
Parameter	Symbol	Min.	Typ.	Max	Unit	Notes
Wavelength	λ	1250		1650	nm	Others available
Insertion Loss	OIL		0.3	1	dB	
Optical Return Loss	ORL		50		dB	Taken at 1310 & 1550
Repeatability	R		0.05		dB	Attenuation < 20 dB
Vias Voltage	V	0		7	V	
Cycles			10		10^9	
Polarization Depend Loss	P_{DL}		0.2		dB	Attenuation < 10 dB
			0.5			Attenuation < 20 dB
Switching Time	Ts		0.5	3	ms	Off to On
Optical Power handling	Po			500	mW	
Wavelength Dependent Loss			0.5		dB	
Temperature Attenuation Change				1	dB	25 – 80°c at 20 dB Attenuation
Ripple			0.05		dB	20 dB Attenuation
PMD			0.1		ps	

Absolute Maximum Ratings

Parameter	Symbol	Condition	Min.	Max.	Unit
Bias Voltage	V			8	V
Power Consumption	P			0.25	mW
Reverse Voltage	Vr			8	V
Optical Input power	P_{in}			600	mW
Storage Temperature	T_{stg}		-40	90	°C
Storage Humidity	H_{stg}			85	% r.H.
Operating Temperature	T_{op}		-15	80	°C
Soldering Temperature	T_{st}	60 sec		200	°C
ESD Susceptibility		HBM		700	V

Operating at maximum ratings for a prolonged period will cause damage to the device.

Typical Performance Graph



Pin Configuration: Device is not sensitive to polarity.

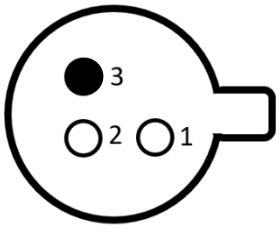


Fig 1A: Bottom View

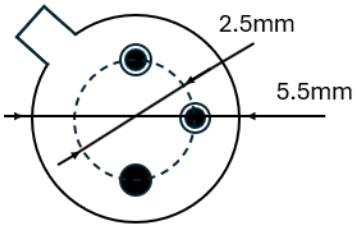


Fig 1B: Pin Dimensions

Pin Number	Function
1	V+
2	V-
3	Case Ground

Table 1: Device Pin out

Device Dimensions

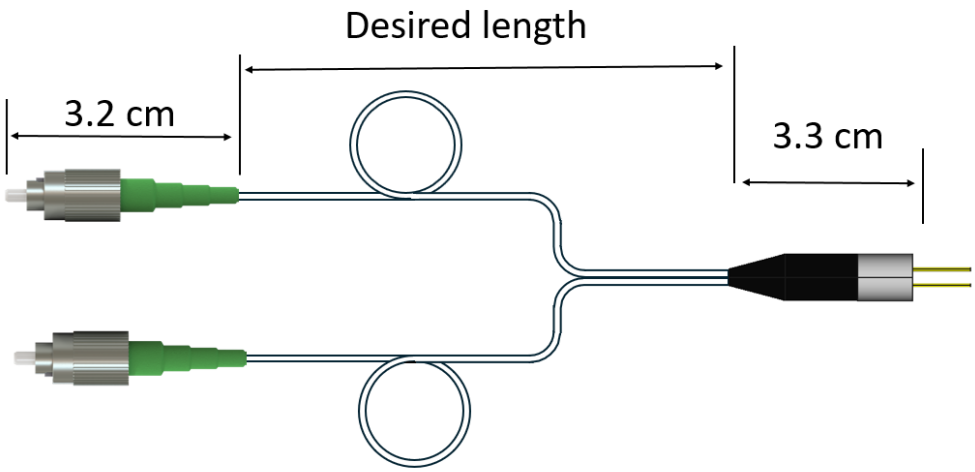


Fig 2: Device mechanical drawing. (All units in mm). Fiber and connector size differs based on build configuration.

Device Nomenclature

VOA-1216-XX

Product Line – Variable Optical Attenuator

Operating wavelength

Optical Connector
(FA) FC/APC
(FP) FC/PC
(CA) LC/APC
(CP) LC/PC

Inquiry Information

Sales: All inquiries regarding sales please contact Sales@NuPhotonics.com

General: If you are interested in a custom solution, general information, or engineering related information please contact Inquiry@NuPhotonics.com

IMPORTANT NOTICES AND DISCLAIMERS

Warranty: NUPHOTONICS PROVIDES ALL OF THE INFORMATION ON TECHNICAL AND RELIABILITY DATA. THIS INCLUDES INFORMATION PRESENTED IN DATA SHEETS, DESIGN FILES, APPLICATIONS, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD-PARTY INTELLECTUAL PROPERTY RIGHTS.

The information and resources are presented and intended for developers that are skilled and adequately qualified to work with this technology. You, the customer, are solely responsible for and accept full responsibility for selecting the appropriate NuPhotonics devices for your application. You accept the sole responsibility of designing, validating, and testing your application. You bear all responsibility for your application meeting standards, safety, security, and other regulatory requirements.

NuPhotonics retains the right to change these resources without notice. All rights are reserved for NuPhotonics. NuPhotonics grants you permission to use the information in these resources to design with NuPhotonics devices. Reproduction and display of these resources is prohibited. No Third-party licenses are offered. You will fully indemnify NuPhotonics against any claims, damages, costs, losses, and liabilities that arise from you using these resources.

NuPhotonics does not accept and objects to any terms you have proposed.

For terms and conditions for all NuPhotonics products please refer to www.nuphotonics.com Legal section.

Definitions: Product State

Alpha Build: Devices in Alpha build are in internal engineering build and testing stages. Major changes may happen for production build.

Beta Build: Devices in Beta build are for external customer and engineering sample testing stages. Minor changes may happen for production build.

Production Build: Customer ready devices. Small appearance changes may occur between devices.

Obsolete: Currently not supported.