MEMS Straight
Fiber Optical Variable Attenuator

Protected by US Patent 20170184840A1 and World Wide Patent PCT/US2015/022117

Product Description

The MEMS Straight Series Fiber Optical Variable Attenuator uses a patented thermal activated micro-mirror, moving-in and -out optical paths, uniquely featuring large extinction ratio, high stability over wide temperature range, and very long life cycle. The thermal MEMS is insensitive to moisture and ESD without drift issues, providing a high reliability platform for over 25 years continuous operation. The MEMS Straight Series VOAs are configured in single and dual channels (activated at the same time). The VOAs are bidirectional and are Telcordia standards GR1221 qualified.

Agiltron provides customized design and modular assemblies to meet control and integration applications.

Features

- High Reliability
- Direct DC drive
- Ultra Small
- ESD Insensitive

Performance Specifications

MEMS Straight Series VOA		Min	Typical	Max	Unit
Operation Wavelength	Single Mode		1260~1610		nm
	Multimode		810-890, 1260-1360, 1500-1600		
Insertion Loss [1], [2]			0.6	1.0 / 1.2 [3]	dB
PDL (Single mode)				0.1	dB
Extinction Ratio	PM fiber	18			dB
Return Loss	SM, PM	50			dB
	Multimode	35			
Attenuation	SM, PM	50		60	dB
	Multimode	35		60	dB
Response Time			5	10	ms
Repetition Rate				20	Hz
Durability		10^{12}			Cycle
Power Consumption (at maximum)				170	mW
Operating Temperature [5]		-5		70	°C
Storage Temperature		-40		85	°C
Optical Power Handling			300	500	mW
Package Dimension			10L x 6.6W x 4.6H		mm
Fiber Type [4]	Single Mode		SMF-28 or equivalent		
	PM		Panda 250 PM or equivalent		
	Multimode		MM 50/125, MM 62.5/125 or equivalent		

[1]. Excluding connectors.
[2]. Multimode IL measured @ Light Source CPR < 14dB.
[3]. Dual band, and Dual 1x2, Full 2x2, Dual Full 2x2.
[4]. PM fiber version only in 1x1 and 1x2 configuration.
[5]. Lower temperature version is available, please call us.

RoHS Compliant

Revision: 10-26-2020

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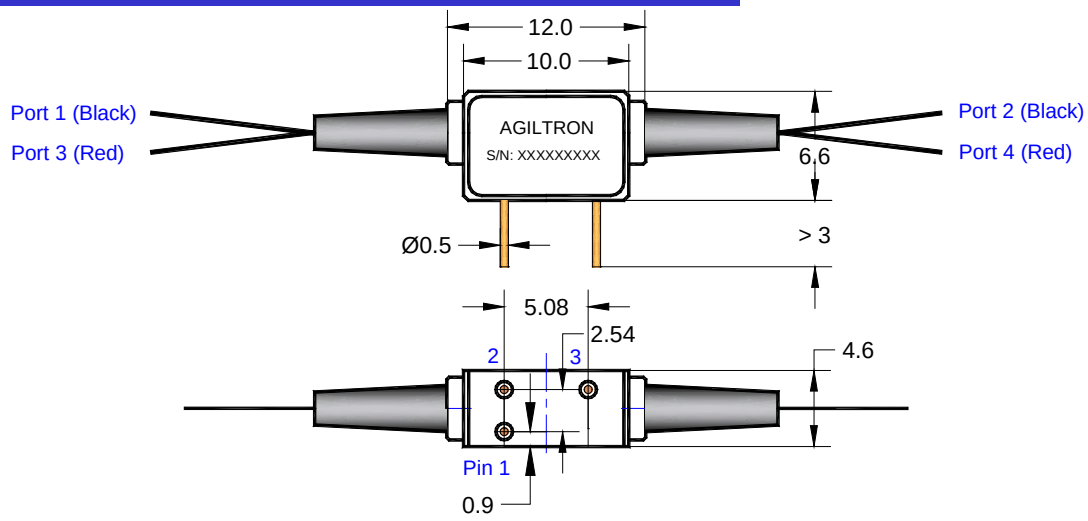
Mechanical Dimension (unit: mm)



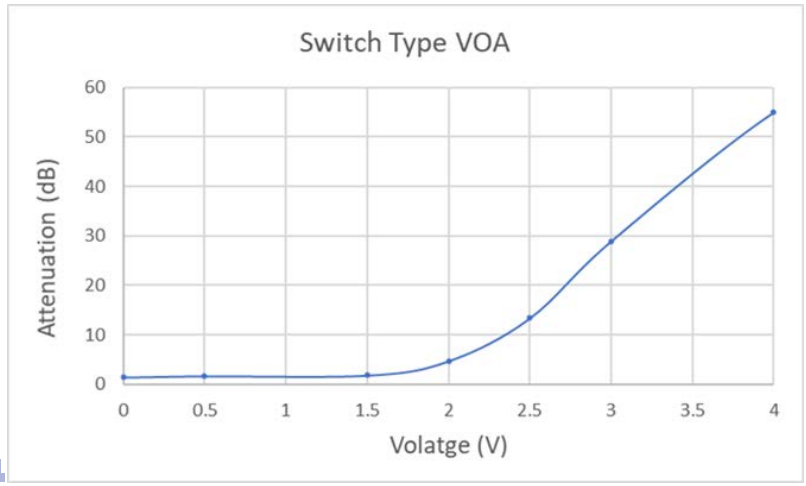
Electrical Driving Requirements

Resistance load device, no polarity, insensitive to ESD.

Warning: Damaged if applying voltage over the maximum (even for a short time)

Pin 1 = NC
Pin 2 = 0V
Pin 3 =4.5V (maximum)

Response Curve



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Ordering Information

MSOA-	☐☐	☐	☐	☐	☐	☐	☐	☐
	Non-Power State	**Wavelength**	Channel	**Package**	**Fiber Type**		**Fiber Length**	**Connector**
	Transparent=01 Opaque =02	1260~1620=B 1060=1 1310=3 1550=5 850 =8 1310/1550=9 850/1310=A Special=0	Single =1 Dual = 2	Standard Straight=1 Straight Temperature compensated =2 Special=0	SMF-28=1 Panda 250 PM=B MM 50/125=5 MM 62.5/125=6 Special=0	Bare fiber=1 900 µm tube=3 Special=0	0.25m=1 0.5m=2 1.0m=3 Special=0	None=1 FC/PC=2 FC/APC=3 SC/PC=4 SC/APC=5 LC=7 Special=0

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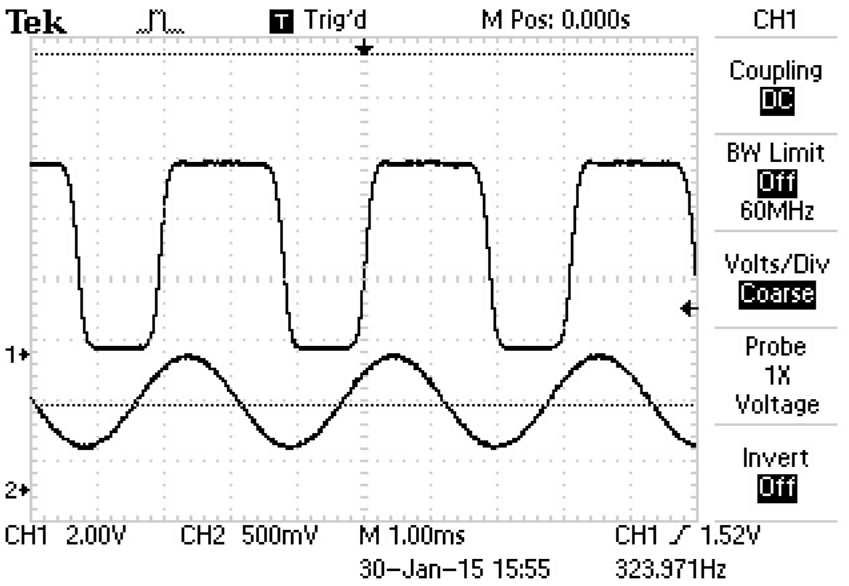
MEMS 1x1, 1x2, …, Dual 2x2 Fiber Optical Switch

(*SM & MM: 1x1, 1x2, 2x2, Dual 1x1, Dual 1x2, Dual 2x2, Quad 1x1. *PM: 1x1, 1x2)

10 ^{9} Switching Cycle Test

We have tested MEMS 1x2 switch at the resonant frequency ~300Hz for more than 40 days, as shown in the attachment, which corresponding over 10 ^{9} switching cycles. The measurements show little changes in Insertion loss, Cross Talk, Return loss ect, all parameters are within our specs.



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