

Straight eMEMS™ Variable Optical Attenuator

(US patent 8,666,218 and other patents pending)

Product Description

The eMEMS™ Series Straight VOA is based on a proprietary micro-electro-mechanical mechanism featuring fiber to fiber coupling technology with great compatibility to all types of fibers and operation wavelength. The eMEMS™ Series VOA is fully compliant with the Telcordia 1209 and 1221 reliability standards. It is available in either normally-transparent or normally-dark configurations. The VOA is continuously driven By applying an electrical current at low voltage.



Performance Specifications

eMEMS™ Series straight VOA	Min	Typical	Max	Unit
Operation Wavelength	430	S+C+L	2000	nm
Insertion Loss ^[1]		0.6	0.8	dB
Polarization Dependent Loss ^[2]		0.15	0.4	dB
Wavelength Dependent Loss ^{[2],[4]}		0.3	0.6	dB
Temperature Dependent Loss ^[3]		0.05	0.2	dB
Attenuation Range		25	60	dB
Attenuation Resolution		Continuous		
Polarization Mode Dispersion ^[2]		0.01	0.05	ps
Return Loss	50			dB
Response Time ^[5]		2.5	5	ms
Operating Temperature	-5		75	°C
Electrical Resistance		10		Ωm
Driving Current			60	mA
Optical Power Handling		100	800 ^[7]	mW
Storage Temperature	-40		85	°C
Reliability		Telcordia 1209 and 1221		
Fiber Type		SMF28, Hi 780, Hi980		
Package Dimension ^[6]		Φ6.0x30		mm

Notes:

- [1]. Without connector and at room temperature; for SM S+C+L bands
- [2]. At attenuation of 20dB or less
- [3]. At 0 attenuation and at whole temperature range
- [4]. Within 30nm bandwidth
- [5]. Faster version (<1ms) is available
- [6]. Standard package
- [7]. Special order

Features

- Broad-Band
- Low Cost
- High Reliability
- Low IL, PDL, WDL & TDL
- Direct Current Drive
- Low Power Consumption

Applications

- Power Control
- Power Regulate
- Channel Balance
- Instrumentation



Straight eMEMS™ Variable Optical Attenuator

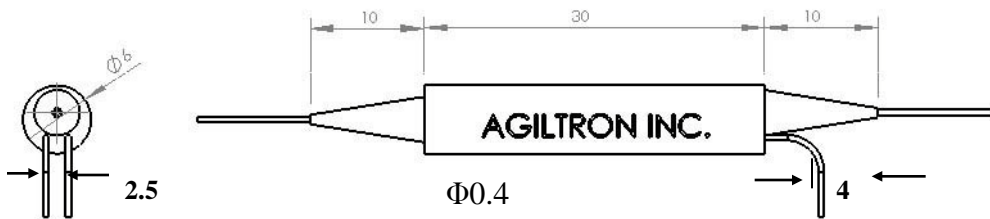
Electrical Configurations

Parameter (Two Pin)	Typical ⁷	Maximum ⁷	Unit
Control Current	40	60	mA
Control Current Slope		200	A/Sec

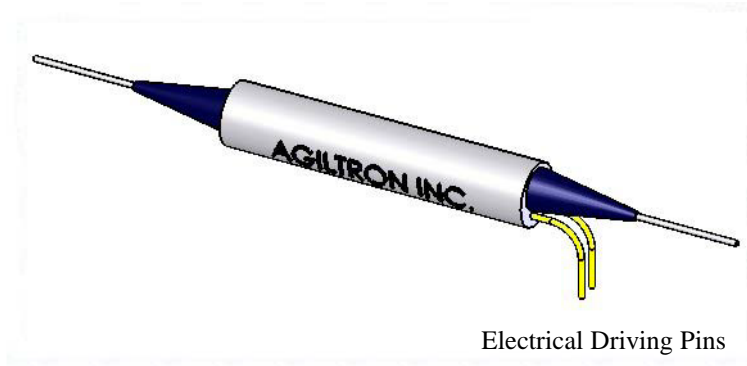
Note:

7: At 20dB attenuation

Mechanical Footprint Dimensions (mm)



Electrical Driving Pins

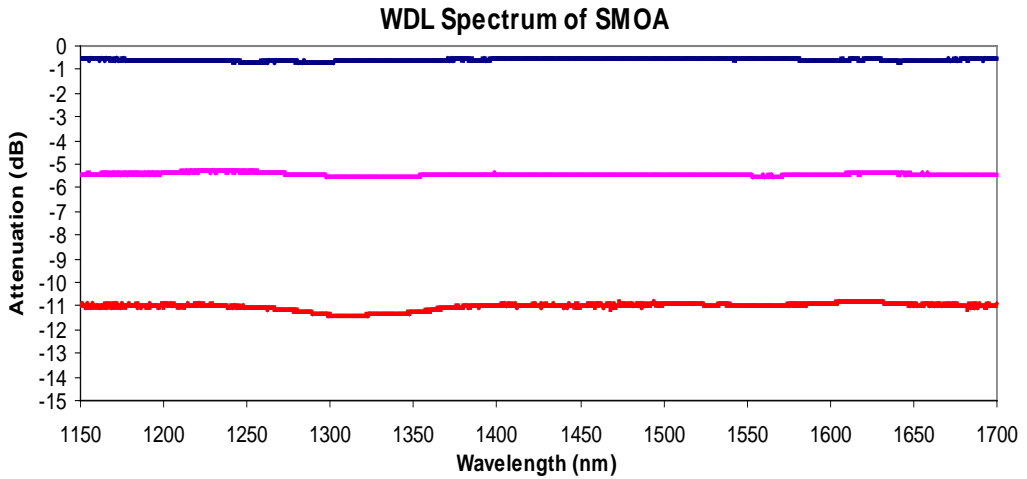


Electrical Driving Pins

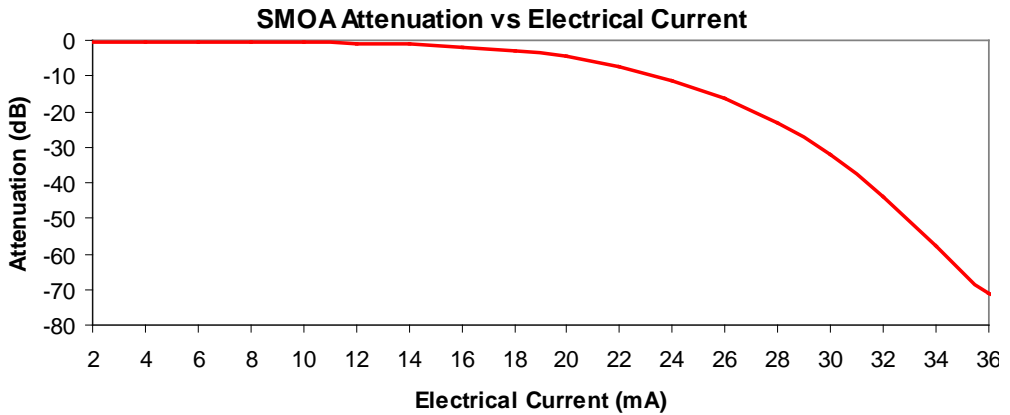
All Pin diameter = .45mm

Straight etMEMS™ Variable Optical Attenuator (SMOA)

WDL Spectrum



Attenuation Response



Package Type 1 (Standard)

Ordering Information

SMOA -	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Type	Wavelength	Off State	Package Type	Fiber Type	Fiber Length	Connector	
	Voltage control=11 Current Control=22	S+C+L=1 1310=3 1550=5 1260-1620=2 980=9 850=8 660=6 Special=0*	Normally transparent=1 Normally opaque=2	Standard=1 Special=0	SMF-28=1 Special=0	Bare fiber=1 900um 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

*: Wavelength from 450nm to 2000nm available

