Straight MEMS Variable Optical Attenuator

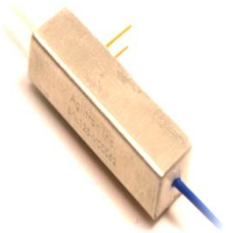
(SM, PM, MM, All Wavelength)

(US patent 8666218 and other pending patents)

Product Description

The *etMEMS™* Straight Series variable attenuator (VOA) is based on proprietary MEMS in combination with fiber-fiber technology without using lens nor any coating. It offers many industrial leading performances: exceptionally high attenuation, high power handling, and compatible with all types of fiber, as well as low cost. The device features ceramic packaging providing excellent thermal stability.

The attenuation can be continuously adjusted by directly applying a low voltage. The silicon MEMS device is highly reliable with longevity. However, it can be damaged by applying a voltage over the threshold.



Features

- Compact
- Broad-Band
- Low Cost
- High Reliability
- Low IL, PDL, WDL & TDL
- Low Power Consumption

Performance Specifications

MM Series VOA	Min	Typical	Max	Unit
Operation Wavelength	350	1550	2000	nm
Insertion Loss[1]		0.8	1.2	dB
Insertion Loss[2]		1.5	1.8	dB
Polarization Dependent Loss[3]		0.15	0.4	dB
Wavelength Dependent Loss[4]		0.3		dB
Temperature Dependent Loss[5]		0.2		dB
Extinction Ratio[6]	18	23		dB
Attenuation Range[7]			30/35	dB
Attenuation Resolution		Continuous		
Return Loss[8]		25/55		dB
Response Time		10		ms
Driving Voltage			5.2[9]	V
Optical Power Handling			150	mW
Operating Temperature	-10		75	°C
Storage Temperature	-40		85	°C
Fiber Type	See order information			
Package Dimension	5.6x6x22(rectangle) or 6x30(cylinder)			mm

Notes:

1. For SM and PM fiber devices without connector and at room temperature.
2. For MM fiber devices under CPR<15 and without connector at room temperature.
3. For SM devices and 0 dB attenuation only.
4. At 0 dB attenuation and central wavelength +/-30 nm.
5. At 0 dB attenuation and temperature from -10 to 70 °C.
6. For PM fiber devices only.
7. For SM and PM fiber devices are 35 dB but for MM fiber devices are 30 dB.
8. For SM and PM fiber devices are 55 dB but for MM fiber devices are 25 dB.
9. The applied voltage must be lower than 5.2 V, otherwise it will cause damaged.

Applications

- Power Control
- Power Regulate
- Channel Balance
- Instrumentation

RoHS Compliant

15 Presidential Way, Woburn, MA 01801 Tel:(781)935-1200 Fax:(781)935-2040

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Revisi 4-6-18

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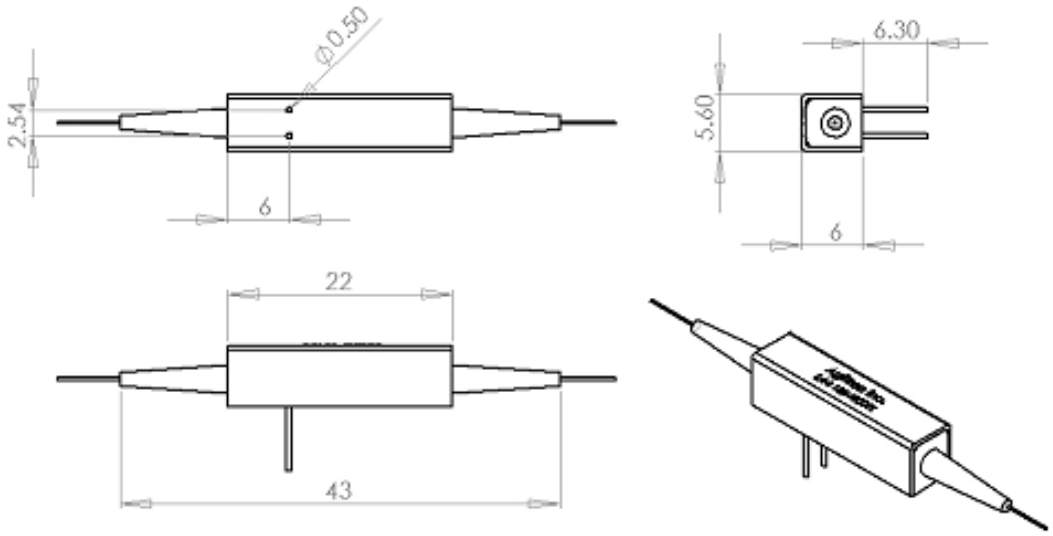
Mechanical Footprint Dimensions (mm)



Electrical Driving Instruction

NOTES

- Pin1 and Pin 2 are for control voltage without polarity.
- Do not apply voltage more than 5.2V.

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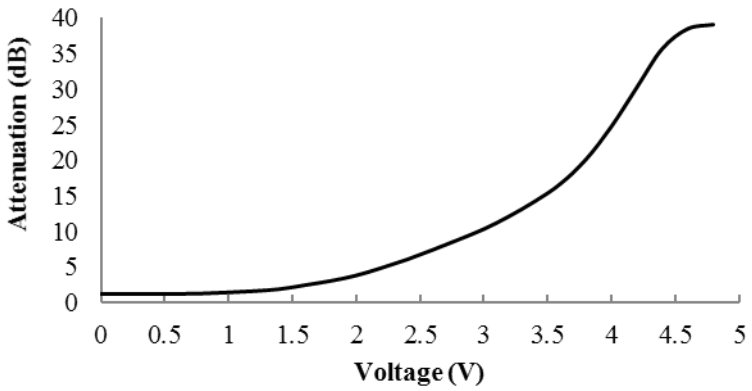
Attenuation Response

Typical SM fiber VOA voltage vs. attenuation response



Ordering Information

SSMA -	☐☐	☐	☐	☐	☐	☐	☐	☐
	Devices Type	Wavelength	Off State	Package Type	Fiber Type		Fiber Length	Connector
	SM=11 PM=22 MM=33	1060=6 1310=3 1550=5 2000=2 980=9 850=8 780=7 650=4 550=1 Special=0	Normally open =1 Normally opaque=2	Cylinder tube=1 Rectangle=0	SMF28e=1 PM1550=2 Hi1060=3 Hi780=4 PM980=9 PM850=7 62.5/125 =6 50/125=5 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

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