

MEMS Ultra Mini Variable Optical Attenuator



Vibration Insensitive, Smallest Size on the Market

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

DATASHEET

BUY NOW



Features

- Compact
- Vibration Insensitive
- High Reliability

Applications

- Power Control
- Power Regulate
- Channel Balance
- Instrumentation

The eMEMS Series VOA is based on a patented thermal micro-electro-mechanical mechanism featuring vibration insensitive, ultra-compact design, low voltage direct drive, vacuum compatible, and excellent optical performance. The eMEMS series VOA is compliant with the Telcordia 1209 and 1221 high-reliability standards. The electrical connection is a flexible PCB with two holes at the end to mate with two pins on the board. A mini surface resistor can be pre-installed in series on the flexible PCB so that the maximum driving voltage matches the customer application. A temperature compensation resistor can also be mounted to the device.

The eMEMS series VOA is available in either normally-open or normally-closed configurations and with an integrated tap option. The VOA is driven by applying an electrical voltage.

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	1260		1620	nm
Insertion Loss ^[1]		1.2	1.4	dB
Wavelength Dependent Loss	@ 10dB	0.2	0.4	dB
	@ 20dB	0.4	0.7	dB
Attenuation Resolution	Continuous			dB
Return Loss	38			dB
Response Time		1	5	ms
Mechanical Resonance Frequency	2K			Hz
Optical Power Handling (CW)		300	500	mW
Driving Voltage ^[3]	3.5	4.5	5.5	VDC
Power Consumption ^[3]		80	120	mW
Reliability	Telcordia 1209 and 1221			
Operating Temperature		-20 ~ 75		°C
Storage Temperature		-40 ~ 85		°C
Fiber Type		SMF-28		
Package Dimension	See drawing below			mm

Note:

- [1]. Excluding connectors
- [2]. Reference to room temperature
- [3]. For full dynamic range, it is selectable on the order part number

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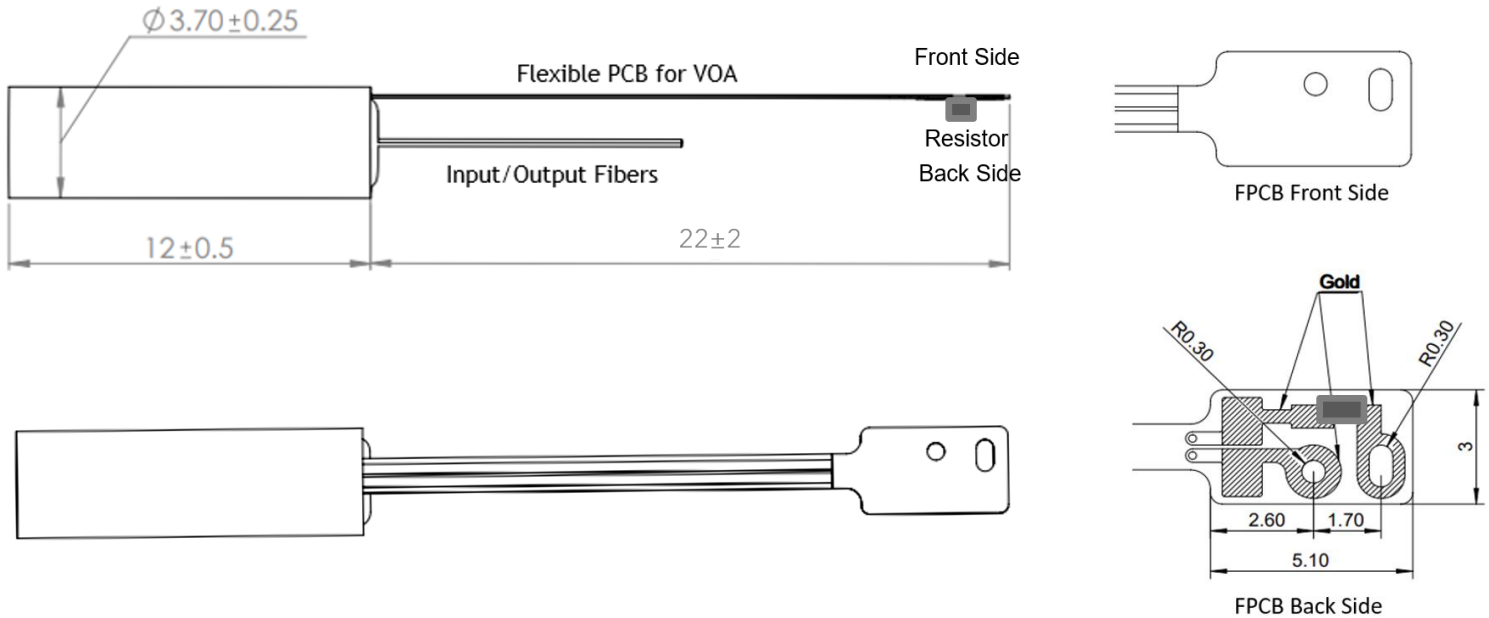


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Mechanical Footprint Dimensions (mm)



Electrical Driving Instruction

- The maximum control voltage corresponding to the part number, higher than the corresponding value may cause device damage.
- The electrical character is similar to a pure resistor, no polarity, and ESD insensitive.

Ordering Information

Prefix	Type	Wavelength*	Off State	Package	Fiber Type	Fiber Cover	Fiber Length	Connector
USOA-	No-resistor = 01 Drive Voltage 4.5V = 10 Drive Voltage 5V = 11 DrivingVoltage3.5V = 22 Special = 00	1550 = 5 1260-1620 = 8 1310 = 3 S+C+L = 2 Special = 0	Transparent = 1 Opaque = 2	L12mm = 1 Special = 0	SMF-28 = 1 Special = 0	Bare fiber = 1 900um 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 ST/PC = 6 LC/PC = 7 LC/APC = 8 Special = 0

*tested wavelength

NOTE:

“transparent” means no attenuation without applying a controlling voltage, the “opaque” means the highest attenuation without applying a controlling voltage.

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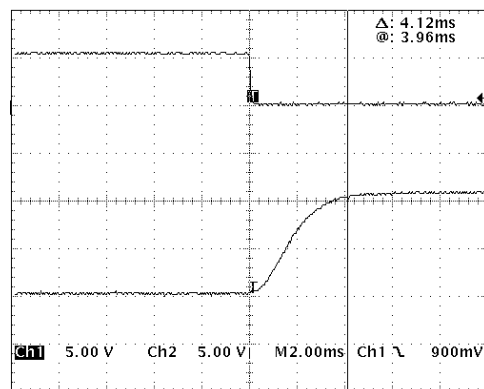
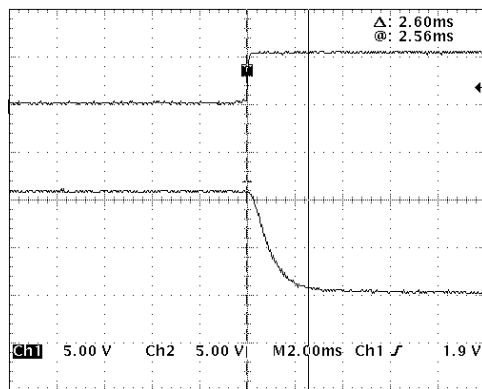
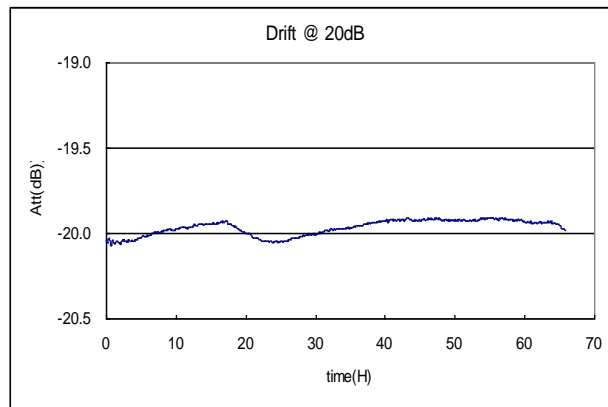
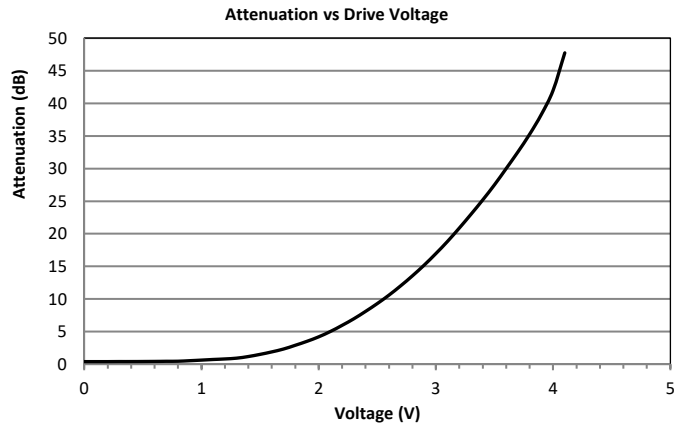


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Typical Performance Charts



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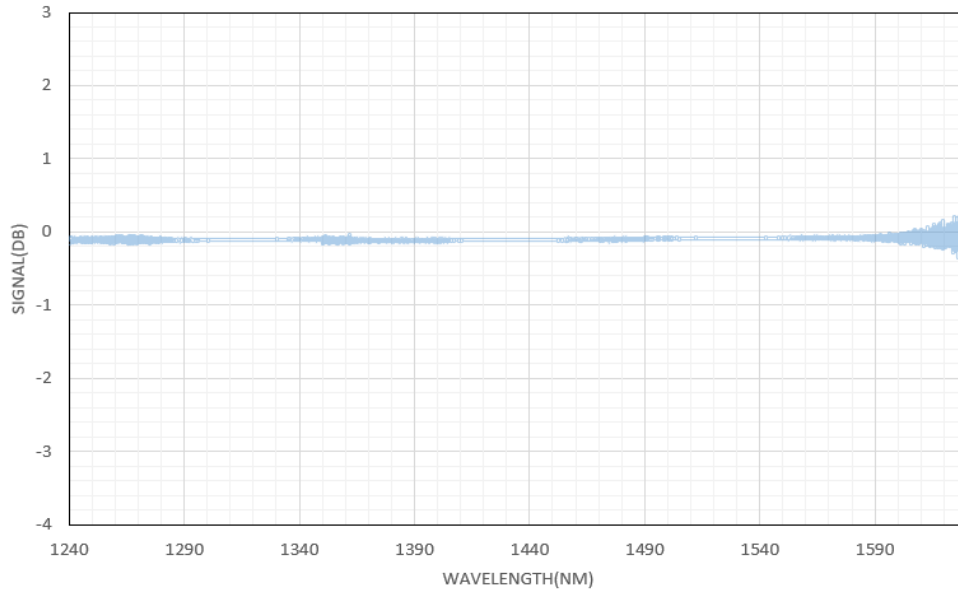
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Typical Insertion Loss vs Wavelength (1240-1630nm)

1x2 MEMS Switch



Response 0~20dB

