MEMS Ultra Mini Variable Optical Attenuator

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

Product Description

The *et*MEMS Series VOA is based on a patented micro-electro-mechanical mechanism featuring ultra-compact design, simple construction, easy direct drive, and excellent optical performance. The *et*MEMS 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. Temperature compensation resistor can also be mounted to the device.

The *et*MEMS 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.

Features

- Compact
- Low Cost
- High Reliability
- Low IL, PDL, WDL and TDL
- Low Power Consumption

Applications

- Power Control
- Power Regulate
- Channel Balance
- Instrumentation

Performance Specifications

SM series VOA		Min	Typical	Max	Unit
Wavelength		1260		1620	nm
Band Width			+/-50		nm
Insertion Loss [1]			0.5	1	dB
Wavelength Dependent Loss	@10dB		0.2	0.4	dB
	@20dB		0.4	0.7	dB
Temperature Dependent Loss [2]	@10dB		0.4	0.7	dB
	@20dB		0.8	1.2	dB
Attenuation Resolution			Continuous		dB
Return Loss		45			dB
Response Time			3	6	ms
Power Handling			300	500	mW
Driving Voltage [3]			5	6	VDC
Power Consumption [3]			80	120	mW
Reliability			Telcordia 1209 and 1221		
Operating Temperature			-5 ~ 75		°C
Storage Temperature			-40 ~ 85		°C
Fiber Type			SMF-28		
Package Dimension			See drawing below		mm

Notes:
[1]. Excluding connectors
[2]. Reference to room temperature
[3]. For full dynamic range, other drive voltage available

RoHS Compliant

Revised on 9/21/21

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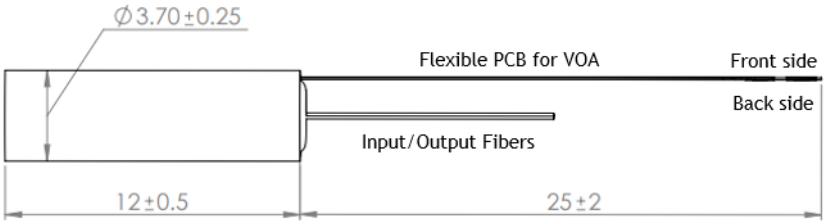
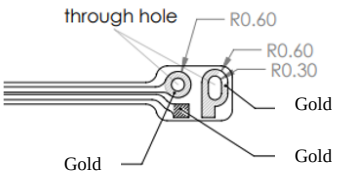
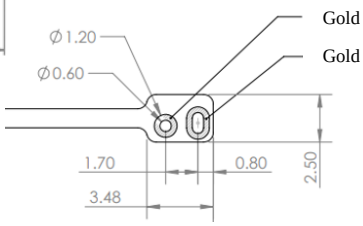
Mechanical Footprint Dimensions (mm)





FPCB Front Side



FPCB Back Side

Electrical Driving Instruction

- The maximum control voltage is 5 V, higher than this value may cause device damage.
- ESD protection is imperative. Use of grounding straps, antistatic mats, and other ESD protective equipment is recommended when handling or testing this device.

Ordering Information

UMOA-	☐☐	☐	☐	☐	☐	☐	☐	☐	-LP02A
	Type	Wavelength	Off State	Package	Fiber		Fiber Length	Connector	
	Drive Voltage 5V=11 DrivingVoltage3.5V=22 5V T compensation=13 3.5V T compensation=12 Special-00	1260~1620= 8 1310=3 1550 = 5 S+C+L=2 Special = 0	Transparent=1 Opaque = 2	L14.5mm=1 L12mm=2 Special=0	SMF-28 =1 Special = 0	Bare fiber=1 900um loose 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	

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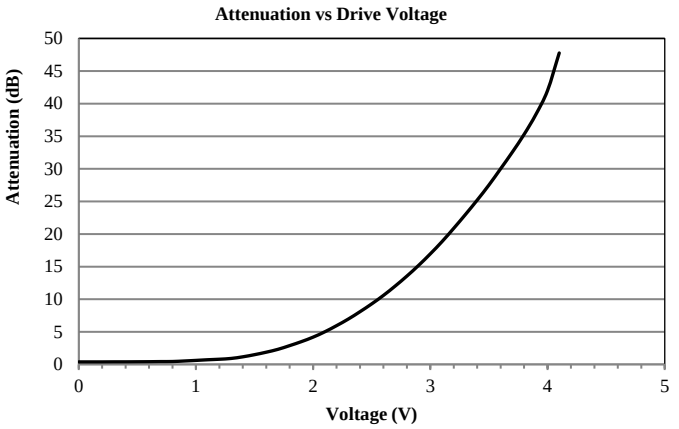
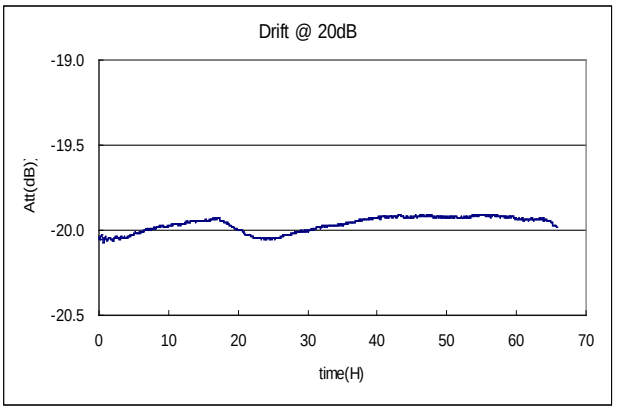
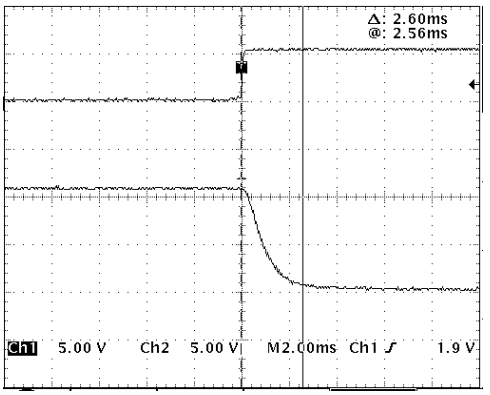
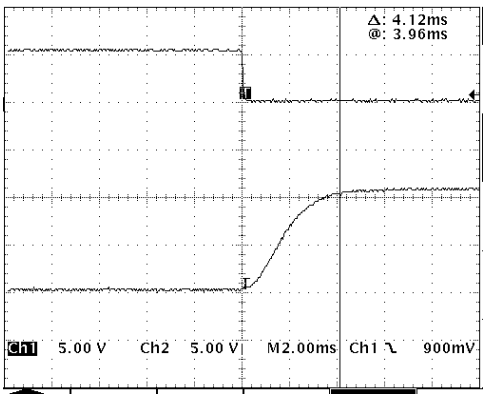
Typical Performance Charts









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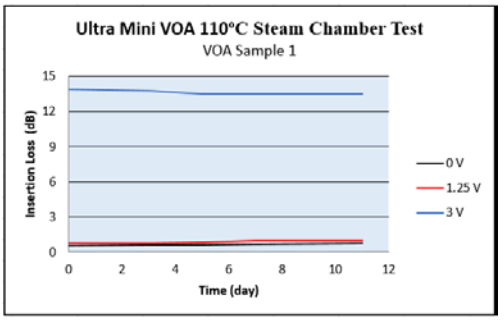
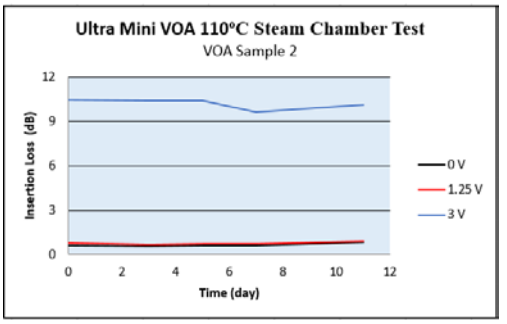
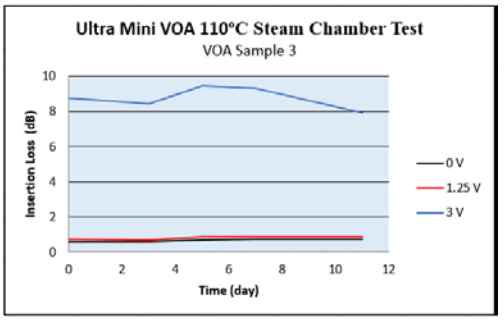
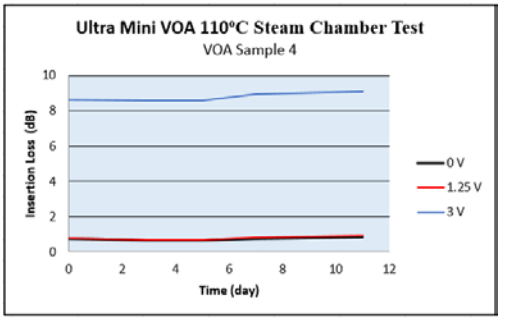
Temperature/Humidity Test Charts

Ultra Mini VOA Thermal Shock Test Cold @-40°C and Hot @85°C, 100 cycles						
	Driving Voltage @ 0V Insertion Loss (dB)		Driving Voltage @ 1.25V Attenuation (dB)		Driving Voltage @ 3V Attenuation (dB)	
	Before	After	Before	After	Before	After
VOA 1	0.71	0.66	0.95	0.89	13.5	13.01
VOA 2	0.61	0.58	0.7	0.67	9.62	10.01
VOA 3	0.59	0.55	0.62	0.57	8.88	8.45
VOA 4	0.72	0.87	0.89	1.04	9.31	9.5
VOA 5	0.78	0.72	0.81	0.77	8.95	9.2
VOA 6	0.62	0.67	0.73	0.79	12.42	12.7
VOA 7	0.66	0.65	0.71	0.72	11.92	12.19
VOA 8	0.67	0.64	0.76	0.74	11.23	11.85
VOA 9	0.79	0.85	0.84	0.91	9.21	9.03
VOA 10	0.84	0.81	0.88	0.85	9.21	9.04
VOA 11	0.61	0.93	1.06	1.33	12.99	12.41
VOA 12	0.75	0.68	0.87	0.81	11.35	11.44









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