

etMEMS™

## Mini Variable Optical Attenuator

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

### Product Description

The **etMEMS™** Series VOA is based on a patented micro-electro-mechanical mechanism featuring compact design, high reliability, direct drive, and excellent optical performance. The MM series VOA is compliant with the Telcordia 1209 and 1221 reliability standards.

The VOA is available in either normally-open or normally-closed configurations. The VOA is driven by applying an electrical voltage.



### Performance Specifications

etMEMS™ Series VOA	Min	Typical	Max	Unit
Wavelength	1310±50 / 1480±50 / 1550±50			nm
Insertion Loss <sup>1</sup>		0.5	1	dB
Attenuation Range	25	30		dB
Polarization Dependent Loss	@10dB	0.15	0.3	dB
	@20dB	0.25	0.5	dB
Wavelength Dependent Loss	@10dB	0.2	0.4	dB
	@20dB	0.4	0.7	dB
Temperature Dependent Loss <sup>2</sup>	@10dB	0.4	0.7	dB
	@20dB	0.8	1.2	dB
Attenuation Resolution		Continuous		
Polarization Mode Dispersion		0.01	0.05	ps
Return Loss	45			dB
Repeatability			0.1	dB
Response Time		3	6	ms
Driving Voltage <sup>3</sup>		4.5	5.2 <sup>4</sup>	V
Device Resistance		100		ohm
Power Consumption <sup>3</sup>		80	130	mW
Optical Power Handling		300	500	mW
Operating Temperature	-5		75	°C
Storage Temperature	-40		85	°C
Reliability	Telcordia 1209 and 1221			
Fiber Type	Corning SMF28 or equivalent			
Notes:				
1. Excluding connectors				
2. Reference to room temperature				
3. For full dynamic range. Other drive voltages available				
4. Over this value will damage the device				
<b>MM VOA Pigtail</b>	Min	Typical	Max	Unit

### Features

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

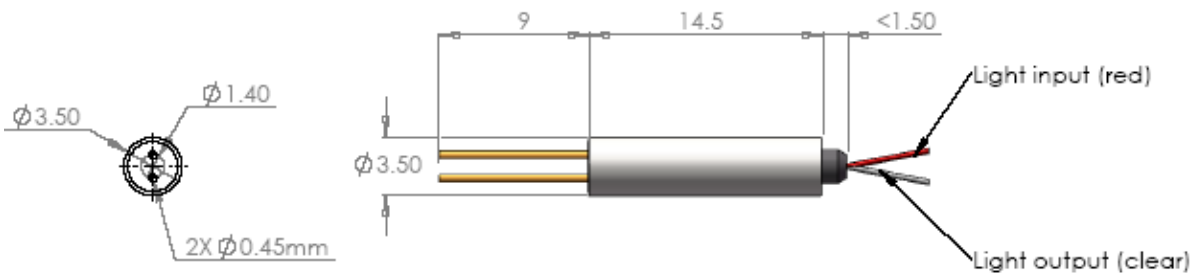
### Applications

- Power Control
- Power Regulate
- Channel Balance
- Instrumentation



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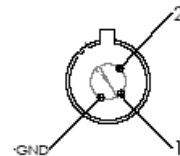
## Mechanical Footprint Dimensions (mm)



## Electrical Driving Instruction

### NOTES

- Pin1 and Pin2 are for control voltage without polarity.
- GND connect to the case. It can be cut.
- Do not apply more than 5.2V.



## Ordering Information

TMOA-	Type	Wavelength	Off State	Package	Fiber	Fiber Length	Connector	
	Drive Voltage 5V=11 3.5V=22 Special=00	1310=3 1550 = 5 S+C+L=2 1260~1620= 8 Special = 0	Transparent=1 Opaque = 2	Φ6.0mm=1 Φ3.5mm=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 = 7 Special = 0

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## Typical Performance Charts

