

MEMS Variable Optical Attenuator

(patents pending)

Product Description

The MM Series VOA is based on a proprietary micro-electro-mechanical mechanism featuring compact design, simple construction, easy direct drive, and excellent optical performance. The MM series VOA is compliant with the Telcordia 1209 and 1221 reliability standards. The MM 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.



Performance Specifications

MM Series VOA	Min	Typical	Max	Unit
Wavelength	1310±50 / 1480±50 / 1550±50			nm
Insertion Loss ¹		0.5	0.8	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 ²	@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 ³		5	6	V
Device resistance	600			ohm
Power consumption ³		40	80	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			
Package Dimension	See drawing below			mm

Notes:

1. Excluding connectors
2. Reference to room temperature
3. For full dynamic range. Other drive voltages available

Features

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

Applications

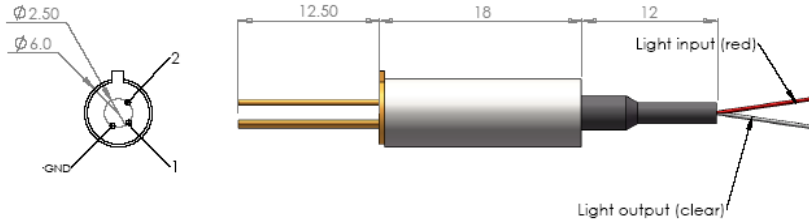
- Power Control
- Power Regulate
- Channel Balance
- Instrumentation



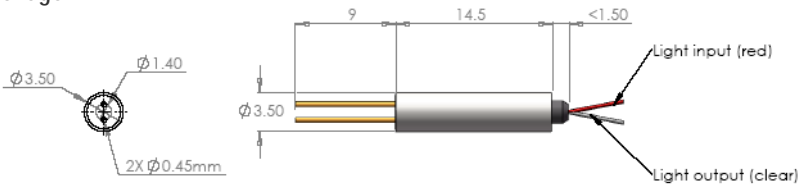
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Mechanical Footprint Dimensions (mm)

Standard Package



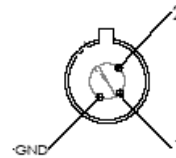
Mini Package



Electrical Driving Instruction

NOTES

- Pin1 and Pin2 are for control voltage that are reversible.
- Do not applying more than 7V.



Ordering Information

TMOA-	Type	Wavelength	Off State	Package	Fiber	Fiber Length	Connector	
<input type="checkbox"/> <input type="checkbox"/>	Drive Voltage 5V=11 3.5V=22 Special=00	1310=3 1550 = 5 S+C+L=2 1310&1550= 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

