MEMS Variable Optical Attenuator (Polarization Maintaining)

Product Description

The MM Series VOA is based on a 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-transparent or normally-dark configurations. The VOA is driven with an electrical current at low voltage or directly with converted voltage; and the attenuation can be continuously adjusted with the applied current.

Features

- Compact
- Low Cost
- High Reliability
- Low Insertion Loss
- Low Power Consumption

Applications

- Power Control
- Power Regulate
- Channel Balance
- Instrumentation

Performance Specifications

MM Series PM VOA	Min	Typical	Max	Unit
Wavelength	1310±50 or 1550±50			nm
Insertion Loss[1]	0.2	0.4	0.7	dB
Wavelength Dependent Loss[3, 4]			0.2	dB
Temperature Dependent Loss[3]		0.05	0.2	dB
Attenuation Range		25	50	dB
Attenuation Resolution		Continuous		
Extinction Ratio	18	23	35	dB
Return Loss	50			dB
Response Time		2.5	5	ms
Operating Temperature	-5		75	°C
Device Resistance		3		Ω
Driving Current (Driving Voltage[5]	10 0.02	40 3	60 5	MA V)
Optical Power		300	500	mW
Storage Temperature	-40		85	°C
Reliability		Telcordia 1209 and 1221		
Fiber Type		Corning panda PM 400/250		
Dimension		L18.0xϕ6.0		mm

Notes:

1. Without connector and at room temperature
2. At attenuation of 20dB or less
3. At 0 dB attenuation and at whole temperature range
4. Within 30nm bandwidth
5. Voltage control is realized by matching with resistor or converter circuit. Adjustable on customer's request.

RoHS Compliant

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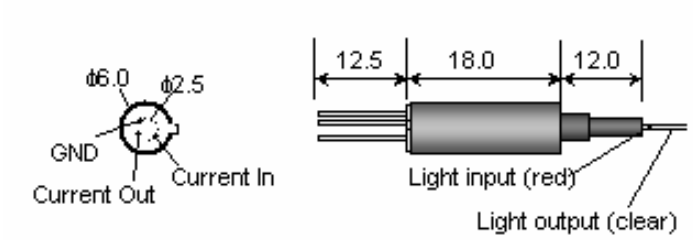
Electrical Configurations (for Each Channel)

Parameter	Minimum [6]	Typical [6]	Maximum [6]	Unit
Control Voltage[7]	0.02	3	5	V
Control Current[7]	10	40	60	mA

Note: 6 At 20dB attenuation
7 Customer may specify

Mechanical Footprint Dimensions (mm)



Standard Package A

Ordering Information

MMOA-	☐	☐	☐	☐	☐	☐	☐	☐
	Type	Wavelength	Off State	Package	Fiber		Fiber Length	Connector
	PM voltage control= 81 PM current control=82	1310=3 1550 = 5 C+L=2 1310/1550=8 Special = 0	Transparent=1 Opaque = 2	Standard=1 Special=0	Panda 250um=1 Panda 400um=2 Customized=3	Bare fiber=1 900um loose 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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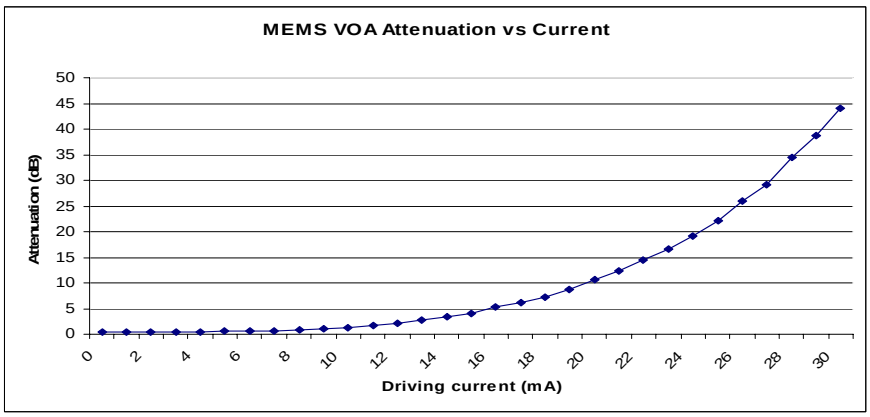
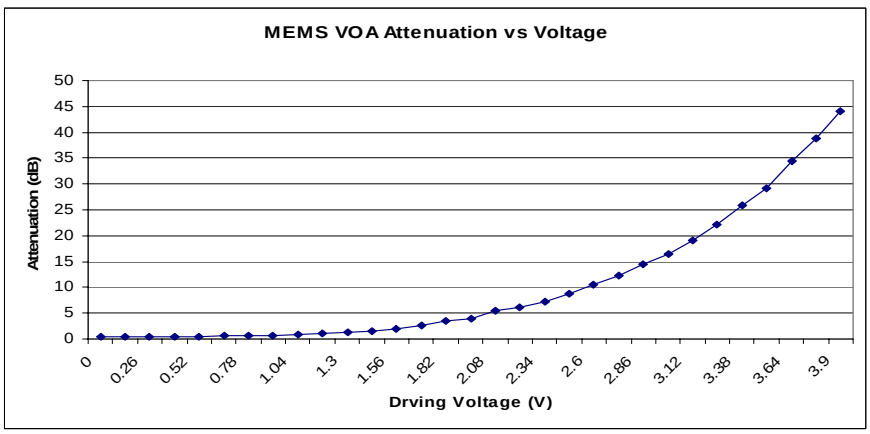
MEMS PM VOA Typical Performance Charts (1)

Features

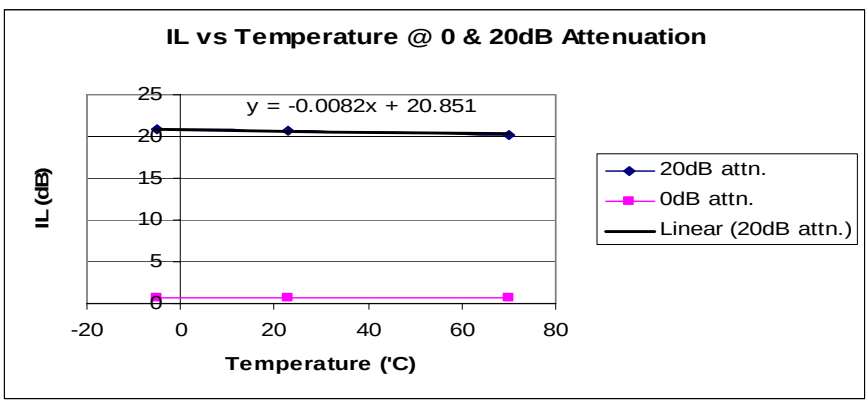
- Compact
- Low Cost
- High Reliability
- Low IL & TDL
- Low Power Consumption





Applications

- Power Control
- Power Regulation
- Channel Balance
- Instrumentation



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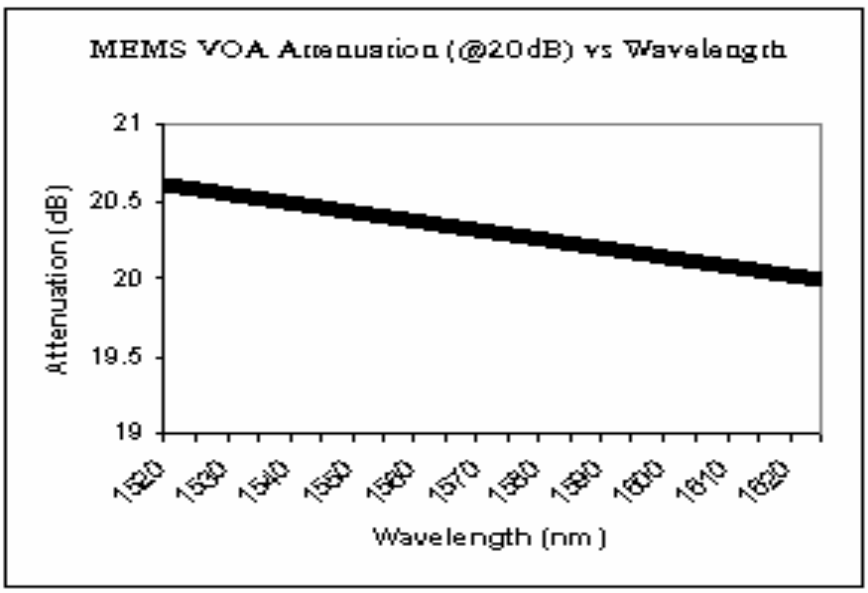
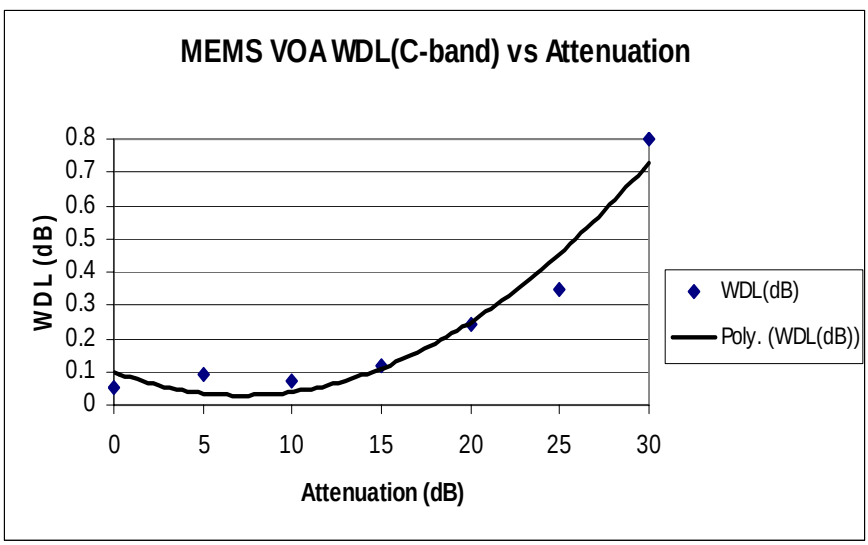
MEMS PM VOA Typical Performance Charts (2)

Features

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

VOA Performance





Applications

- Power Control
- Power Regulation
- Channel Balance
- Instrumentation

RoHS Compliant

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MEMS PM VOA Typical Performance Charts (3)

Features

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

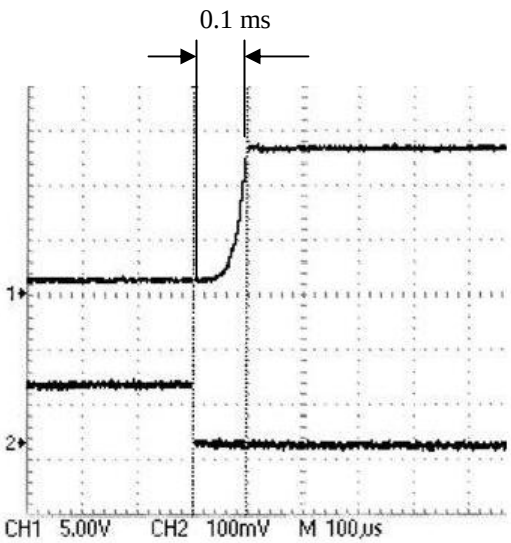
Applications

- Power Control
- Power Regulation
- Channel Balance
- Instrumentation

RoHS Compliant

VOA Responses

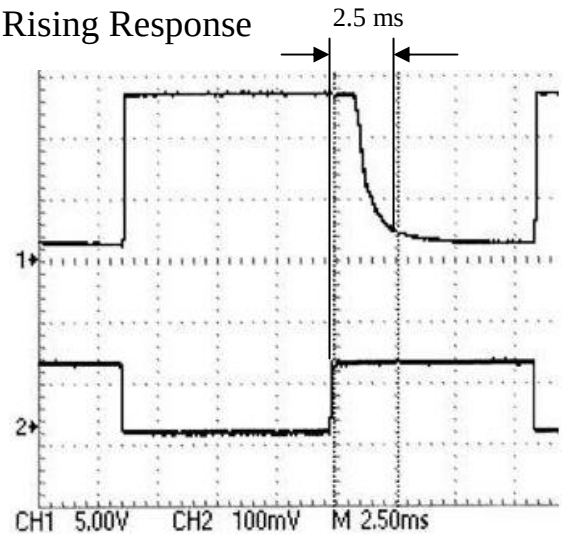
(a) Falling Response



Optical Output

Electrical Control

(b) Rising Response



Optical Output

Electrical Control

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