

MEMS Variable Optical Attenuator Integrated With Input Tap (Voltage & Current control)

Product Description

The MM Series VOA is based on a micro-electro-mechanical mechanism featuring integrated compact design, simple construction, easy direct drive, and excellent optical performance of ultra low insertion loss, low PDL, and broad wavelength operation range. 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 input tap option. The VOA is driven with an electrical current at low voltage or a converted voltage; and the attenuation can be continuously adjusted with the applied current.



Features

- VOA + Tap
- Compact Size
- Low Cost
- High Reliability
- Low IL, PDL, WDL and TDL
- Direct Low Voltage Drive

Performance Specifications

MM Series TVOA	Min	Typical	Max	Unit
Wavelength	1260-1360 and/or 1510-1620			nm
Insertion Loss ¹	0.3	0.5	0.7	dB
Polarization Dependent Loss ²		0.15	0.4	dB
Wavelength Dependence Loss ^{3,4}			0.2	dB
Temperature Dependence Loss ³		0.05	0.2	dB
Attenuation Range		25	55	dB
Attenuation Resolution	Continuous			
Polarization Mode Dispersion ²	0.005	0.01	0.05	ps
Return Loss	50			dB
Response Time			5	ms
Tap Response @ 1550nm	12	15	40	mA/W
Wavelength Dependence Response	0.010	0.020	0.025	dB/nm
Polarization Dependence Response ²	0.02	0.10	0.25	dB
Temperature Dependence Response			0.01	dB/°C
Dark Current at 5V bias @ 23°C			1	nA
Dark Current at 5V bias @ 70°C		30	70	nA
3dB Bandwidth (cutoff frequency)	10			MHz
Capacitance		12		pF
Device Resistance		3		Ω
Power Consumption		30		mW
Optical Power		300	500	mW
Operating Temperature	-5		75	°C
Storage Temperature	-40		85	°C
Reliability	Telcordia 1209 and 1221			
Fiber Type	Corning SMF28			
Package Dimension ⁵	Φ6.1 X 35.2			mm

Notes:

1. Without connector and in room temperature
2. At attenuation equal or less than 20dB
3. At 0dB attenuation and in whole temperature range
4. Within 30nm Bandwidth
5. Length can be shorter (minimum=25mm)

Applications

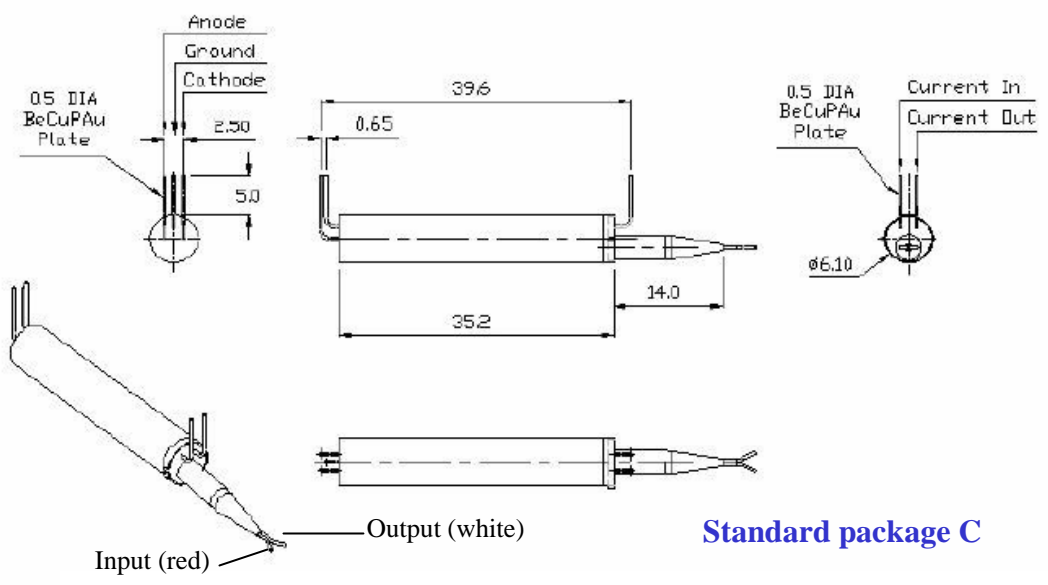
- Power Control
- Power Regulation
- Channel Balance
- Instrumentation



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Mechanical Footprint Dimensions (Unit:mm)



Standard package C

Electrical Connector Configurations

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 Voltage control is realized through matching with resistor. Customer may specify.

Ordering Information

MMOA-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Type	Wavelength	Off State	Package	Fiber		Fiber Length	Connector	
Input tap current control=12 Input tap voltage control=13	1310 = 3 1550 = 5 C+L=2 1310/1550=8 Special = 0	Transparent=1 Opaque=2	Standard C=3 Special=0	SMF-28 =1 Customized=2	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	

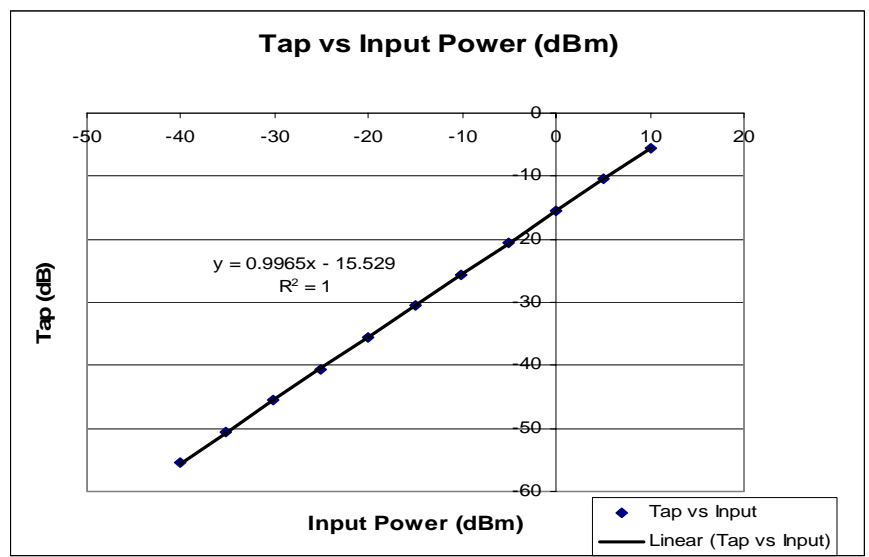


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MEMS TVOA Typical Tap Performance Charts (1)

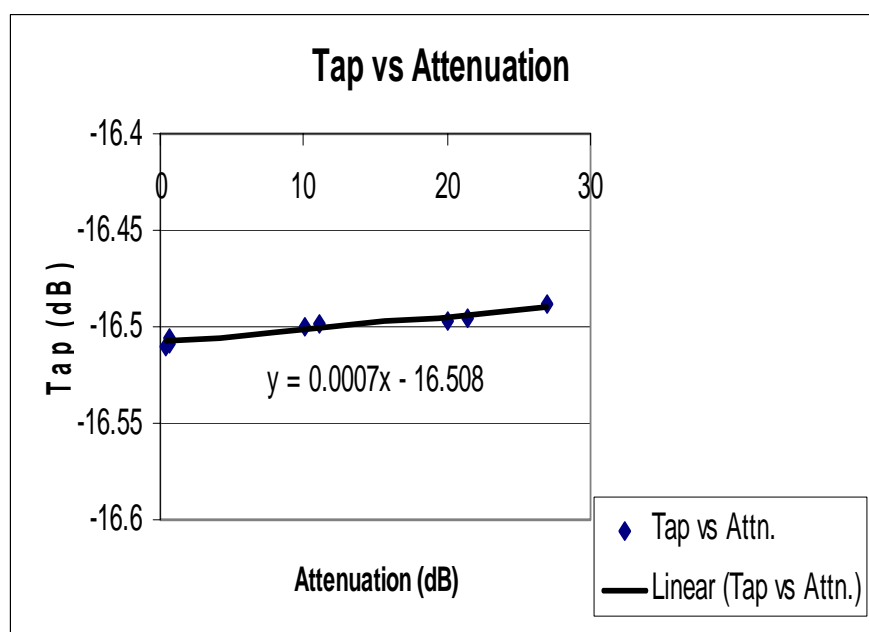
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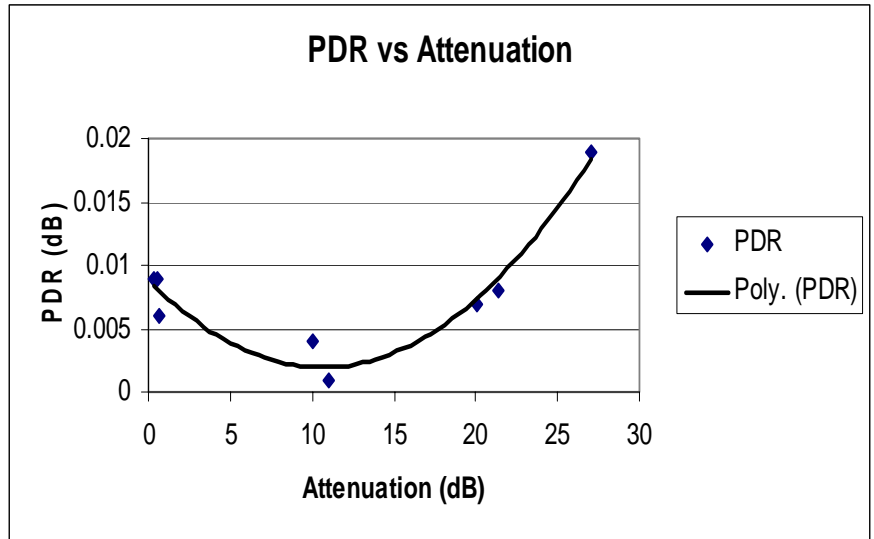


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MEMS TVOA Typical Tap Performance Charts (2)

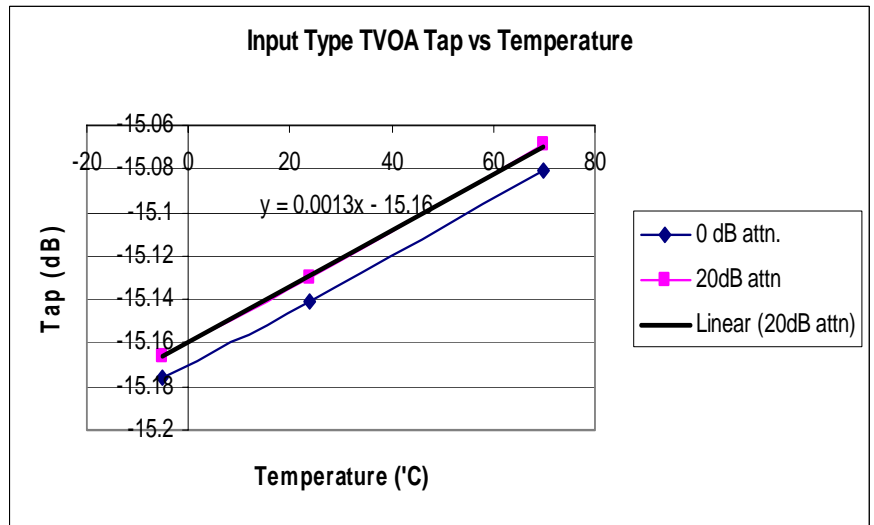
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