

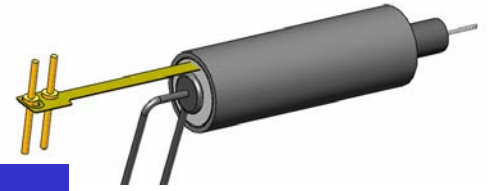
MEMS Variable Optical Attenuator With Input Tap

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

Product Description

The MEMS 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 MEMS Series VOA is compliant with the Telcordia 1209 and 1221 reliability standards. The MEMS Series VOA is available in either normally-open or normally-closed configurations and with an integrated input tap option. Temperature compensation version is available.

The VOA is driven by applying an electrical voltage. The electrical connection is a flexible PCB with two holes at the end to mate two corresponding pins on the board.



Performance Specifications

MEMS Series TVOA	Min	Typical	Max	Unit
Operation Wavelength	1260 -1360 or 1510-1620			nm
Insertion Loss ^[1]		0.5	1.0	dB
Polarization Dependent Loss ^[2] (SM version only)		0.15	0.5	dB
Wavelength Dependence Loss ^{[3], [4]}		0.2	0.6	dB
Attenuation Range		25	30	dB
Attenuation Resolution	Continuous			
Extinction Ratio (PM version only)	18	23	25	dB
Polarization Mode Dispersion (SM version only)		0.01	0.05	ps
Return Loss	45			dB
Response Time		3	6	ms
Driving Voltage ^[5]		4.5	5.2 ^[7]	V
Device Resistance	80	100	120	Ω
Optical Power handling		300	500	mW
Tap Response @ 1550nm ^[8]	12	15	40	mA/W
Tap directivity		N/A or 25		dB
Tap Wavelength Dependence Response ^[6]	0.010	0.013	0.02	dB/nm
Tap Polarization Dependence Response	0.02	0.10	0.25	dB
Tap Temperature Dependence Response			0.01	dB/°C
Tap Dark Current at 5V bias @ 23°C		0.2	1	nA
Tap Dark Current at 5V bias @ 70°C		30	70	nA
Tap 3dB Bandwidth (cutoff frequency)	10			MHz
Tap Capacitance		12		pF
Operating Temperature	-5		75	°C
Storage Temperature	-40		85	°C
Reliability	Telcordia 1209 and 1221			
Package Dimension	$\Phi 6.1 \times 35.2$			mm

Notes:

- [1]. Without connector and at room temperature
- [2]. At attenuation equal or less than 20 dB
- [3]. At 0dB attenuation and at whole temperature range
- [4]. Within 40nm Bandwidth
- [5]. At 20dB attenuation for transparent version, at 0.8dB attenuation for opaque version.
- [6]. This is related to tap ratio. The spec data is regarding 3% tap.
- [7]. Over this value will damage the device.
- [8] Tap response depends on tap ratio.

Features

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

Applications

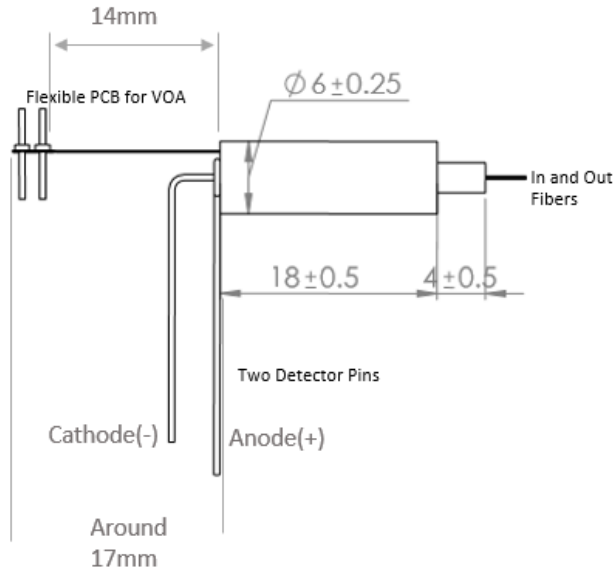
- Power Control
- Power Regulation
- Channel Balance
- Instrumentation



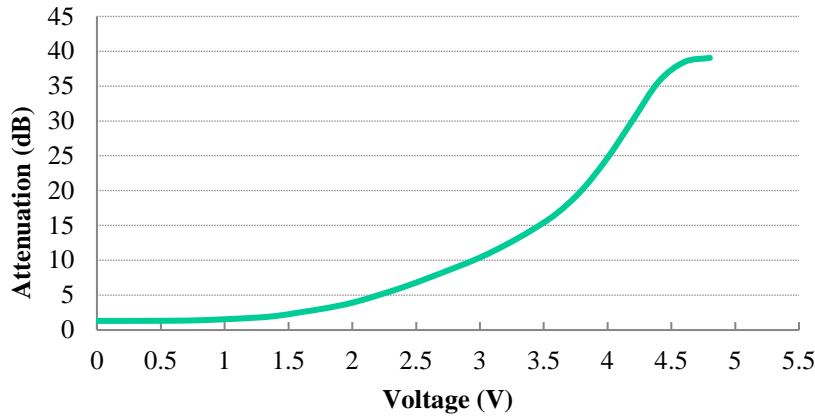
Revision: 9/3/20

etMEMS™ Single Mode Variable Optical Attenuator Integrated With Input Tap

Mechanical Footprint Dimensions (Unit:mm)



VOA Performance



Ordering Information

MEOA-	<input checked="" type="checkbox"/>	<input checked="" 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 voltage control=21	1260-1620=8 1310 = 3 1550 = 5 C+L=2 Special = 0	Transparent=1 Opaque=2	Without directivity =1 With directivity=2 Special =0	SMF-28 =1 PM1550=5 Special =0	Bare fiber=1 900um 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 Special = 0