

etMEMS™ Ultra Mini Single Mode Variable Optical Attenuator With Input Tap

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

Product Description

The etMEMS™ Series VOA is based on a thermal micro-electro-mechanical mechanism featuring integrated compact design, simple construction, easy direct drive, and excellent optical performance of low insertion loss. The etMEMS™ Series VOA is compliant with the Telcordia 1209 and 1221 reliability standards. The etMEMS™ Series VOA is available in either normally-open or normally-closed configurations and with an integrated input tap option.

The VOA is driven by applying an electrical voltage



Performance Specifications

etMEMS™ 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	40	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	Φ 3.5 X 15.5			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
- High Reliability
- Low IL
- Direct Drive

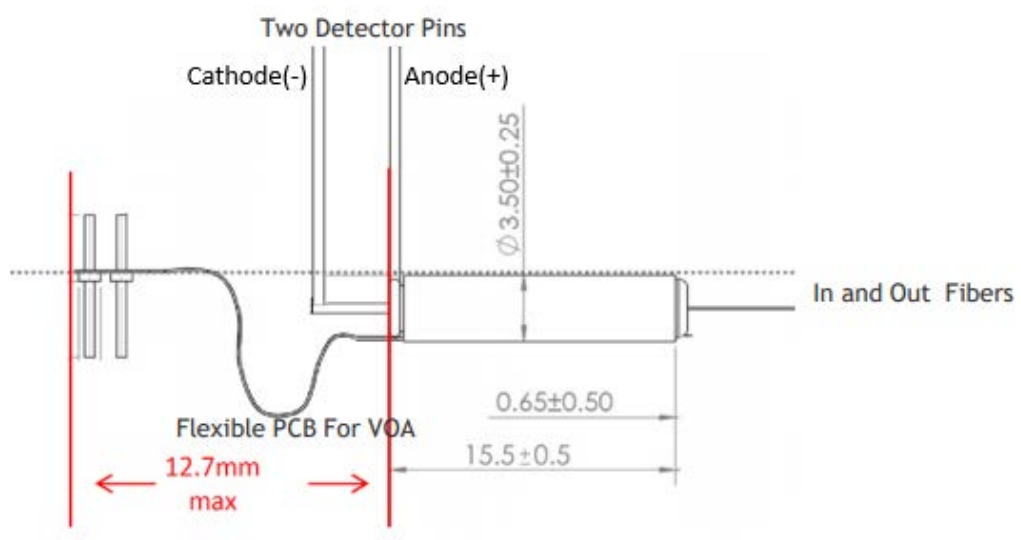
Applications

- Power Control
- Power Regulation
- Channel Balance
- Instrumentation

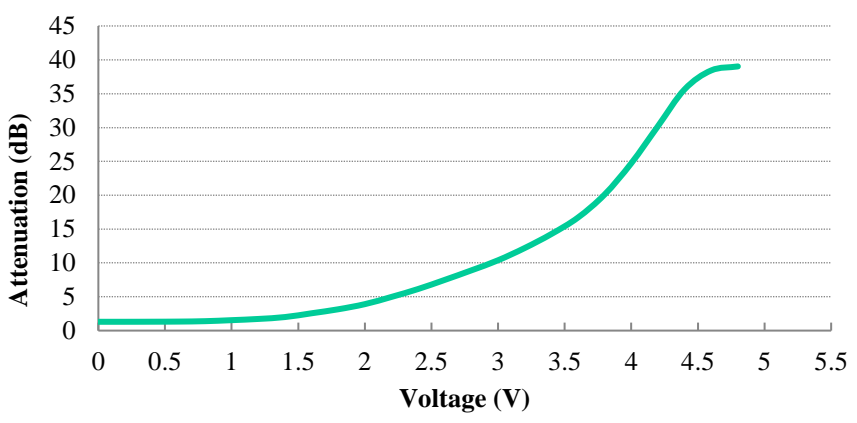


etMEMS™ Ultra Mini Single Mode Variable Optical Attenuator With Input Tap

Mechanical Footprint Dimensions (Unit:mm)



VOA Performance



Ordering Information

MMOA-	5 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Type	Wavelength	No Voltage	Detector Type	Fiber		Fiber Length	Connector	
mini	1310 = 3 1550 = 5 C+L=2 1260-1620=8 Special = 0	Transparent=1 Opaque=2	No directivity =1 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	

