

# Mini etMEMS VOA with Input Power Monitor

(Directional and Unidirectional)

(patent protection [US8666218B2](#))

## Product Description

The mini MEMS Variable Optical Attenuator Integrated with Input Optical Power Monitor is a hybrid fiber optical device that integrates a thin-film tap of flat spectral response and a high sensitivity PIN photodiode for power monitoring applications with a MEMS VOA. The Power Monitor minimizes component assembly costs and module footprint. The thermal MEMS VOA has little temperature dependence and drift. It is intrinsically more reliable than electrostatic MEMS VOAs.

The Power Monitor has low insertion loss and low dark current with high temperature stability over a wide wavelength range from 1260nm to 1620nm band.



## Performance Specifications

etMEMS™ TVOA	Min	Typical	Max	Unit
Wavelength	1260		1620	nm
Insertion Loss <sup>[1]</sup>		0.6	0.8	dB
Polarization Dependent Loss <sup>[2]</sup>		0.15	0.4	dB
Wavelength Dependence Loss <sup>[3],[4]</sup>			0.3	dB
Attenuation Range		25	35	dB
Attenuation Resolution		Continuous		
Polarization Mode Dispersion <sup>[2]</sup>	0.005	0.01	0.05	ps
Return Loss	41			dB
Response Time			5	ms
TAP ratio	1	3	5	%
Tap Response @ 1550nm	12	15	40	mA/W
Wavelength Dependence Response		0.02	0.03	dB/nm
Polarization Dependence Response <sup>[2]</sup>	0.02	0.10	0.25	dB
Temperature Dependence Response			0.01	dB/°C
Dark Current at 5V bias @ 23°C			1	nA
3dB Bandwidth (cutoff frequency)		10		MHz
Capacitance			6	pF
Power Consumption		130	180	mW
Operating Temperature	-5		75	°C
Storage Temperature	-40		85	°C
Reliability		Telcordia 1209 and 1221		

Notes:

- Without connector and in room temperature. If the tap ratio higher than 3%, the insertion loss will increase.
- At attenuation equal or less than 20dB
- At 0dB attenuation and in whole temperature range
- Within 30nm Bandwidth

## Features

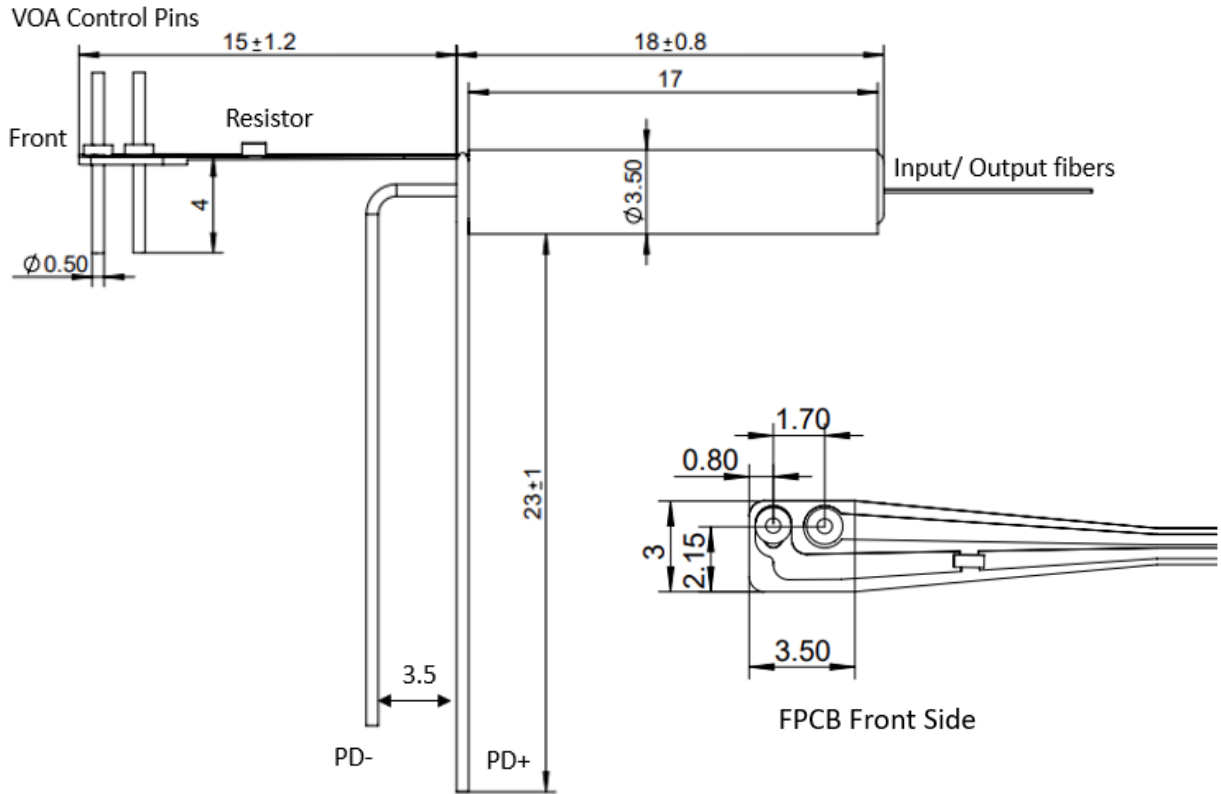
- Integrated
- Low Loss Device
- Custom Tap Ratios Available
- Compact Design

## Applications

- Channel Monitoring
- Power Monitoring in Optical Interface Modules
- Gain Monitoring for Amplifier
- DWDM System Monitoring



## Mechanical Footprint Dimensions (Unit:mm)



## Electrical Configuration

- The VOA is a resistor load without polarity and not ESD sensitive. The maximum control voltage is 5 V, higher than this value may cause device damage.
- The Tap is extremely ESD sensitivity, once damaged it may take a while to degrade. Always shorting the two pins when handling it. The black conductive foam should not be removed.

## Ordering Information

MOAP-	Tap ratio	Wavelength	VOA Off State	Directivity	Fiber	Fiber Length	Connector
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	3%=03 Special=00	1310=3 1550=5 C+L=2 1310/1550=8 1260-1620=B Special=0	Transparent=1 Opaque=2	N0=1 Yes=2	SMF-28=1 PM1550=2 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/PC=7 LC/APC=8 Special=0