

# Mini etMEMS VOA with Input Power Monitor

(Directional and Unidirectional)

(patent pending)

## 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
Temperature Dependence Loss <sup>[3]</sup>		0.05	0.2	dB
Attenuation Range		25	35	dB
Attenuation Resolution		Continuous		
Polarization Mode Dispersion <sup>[2]</sup>	0.005	0.01	0.05	ps
Return Loss	45			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		
Fiber Type		Corning SMF28		
Package Dimension		Φ3.5 X 17		mm

Notes:

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

## Features

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

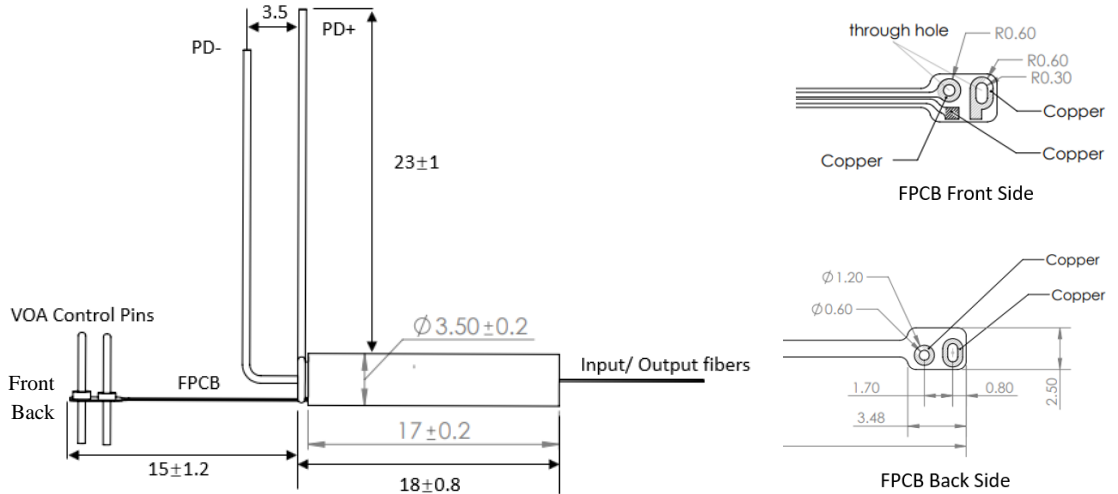
## Applications

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



# Mini Integrated Power Monitor

## Mechanical Footprint Dimensions (Unit:mm)



## Electrical Configuration

- The maximum control voltage is 5 V, higher than this value may cause device damage.
- ESD protection is imperative. Use of grounding straps, antistatic mats, and other ESD protective equipment is recommended when handling or testing this device.

## Ordering Information

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	Tap ratio	Wavelength	VOA Off State		Fiber		Fiber Length	Connector
	3%=03 Special=00	1310=3 1550=5 C+L=2 1310/1550=8 1260-1620=B Special=0	Transparent=1 Opaque=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