

# MEMS Ultra Mini Reflective Fiber Optical Variable Attenuator

(Protected by US Patent 10752492B2)

## Product Description

The MEMS U-Mini Reflective Series Fiber Optical Variable Attenuator uses a patented thermal activated micro-mirror, moving-in and -out optical paths, uniquely featuring large extinction ratio, high stability over wide temperature range, and very long life cycle. The thermal MEMS is insensitive to moisture and ESD without drift issues, providing a high reliability platform for over 25 years continuous operation. The MEMS Straight Series VOAs are configured in single and dual channels (activated at the same time). The VOAs are bidirectional and are Telcordia standards GR1221 qualified.

Agiltron provides customized design and modular assemblies to meet control and integration applications.

## Performance Specifications

MEMS U-Mini Reflective VOA		Min	Typical	Max	Unit
Operation Wavelength	Single Mode	1260~1620			nm
	Multimode	810-890, 1260-1360, 1500-1600			
Insertion Loss <sup>[1], [2]</sup>		0.6		1.0 / 1.2 <sup>[3]</sup>	dB
PDL (Single mode)		0.1			dB
Extinction Ratio	PM	18			dB
	SM, PM	50			dB
Return Loss	Multimode	35			
	Attenuation	SM, PM	55 <sup>[4]</sup>		
		Multimode	45		
Response Time		3		7	ms
Repetition Rate		20			Hz
Durability		10 <sup>12</sup>			Cycle
Power Consumption (at maximum)		170			mW
Operating Temperature <sup>[4]</sup>		-5	+70		°C
Storage Temperature		-40	+85		°C
Optical Power Handling (CW)		300		500	mW
Package Dimension		8.9L x 3.5W x 5H			mm
Fiber Type	Single Mode	SMF-28 or equivalent			
	PM	Panda 250 PM or equivalent			
	Multimode	MM 50/125, MM 62.5/125 or equivalent			

[1]. Excluding connectors.

[2]. Multimode IL measured @ Light Source CPR < 14dB.

[3]. Dual band.

[4]. Lower temperature version is available, please call us.

## Features

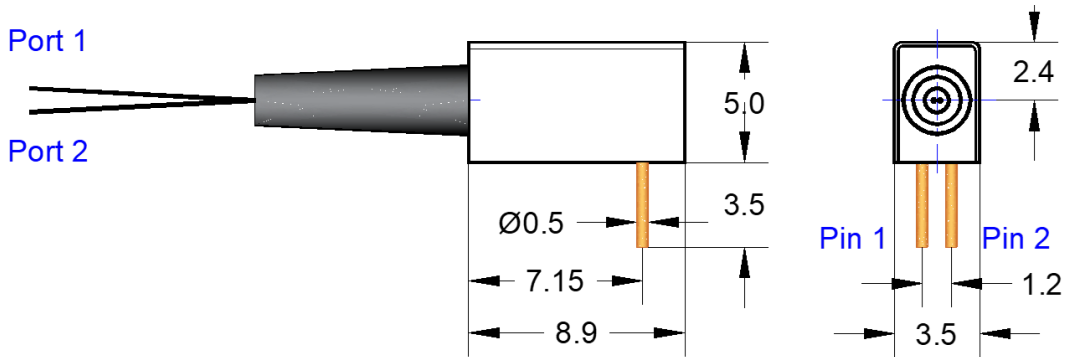
- High Reliability
- Direct DC drive
- Ultra Small
- ESD Insensitive



Revised on 01/26/23

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## Mechanical Dimension (unit: mm)

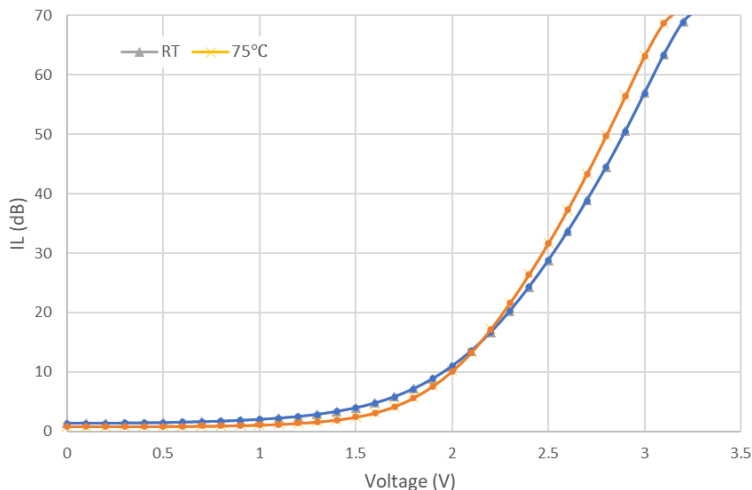


\*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

## Electrical Driving Requirements

1. Resistance load device, insensitive to ESD.
2. Pin 1 = 0V, Pin 2 = 0~4V or Pin 2 = 0V, Pin 1 = 0~4V , non-polarity device.
3. No pin electrically connects to the metal box.
4. Warning: Damaged if applying a voltage over the maximum (even for a short time).

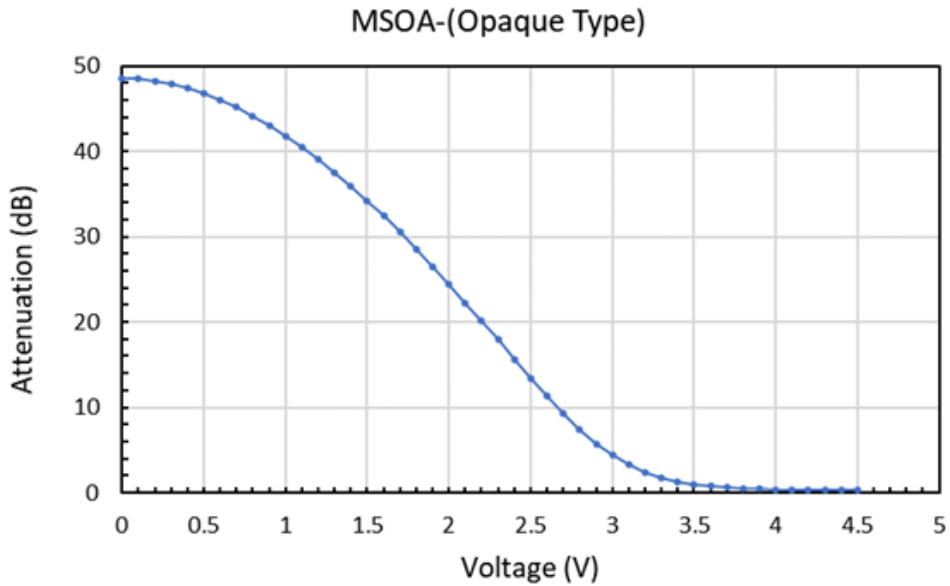
## Typical Attenuation vs. Voltage w/ T compensation for Transparent Type



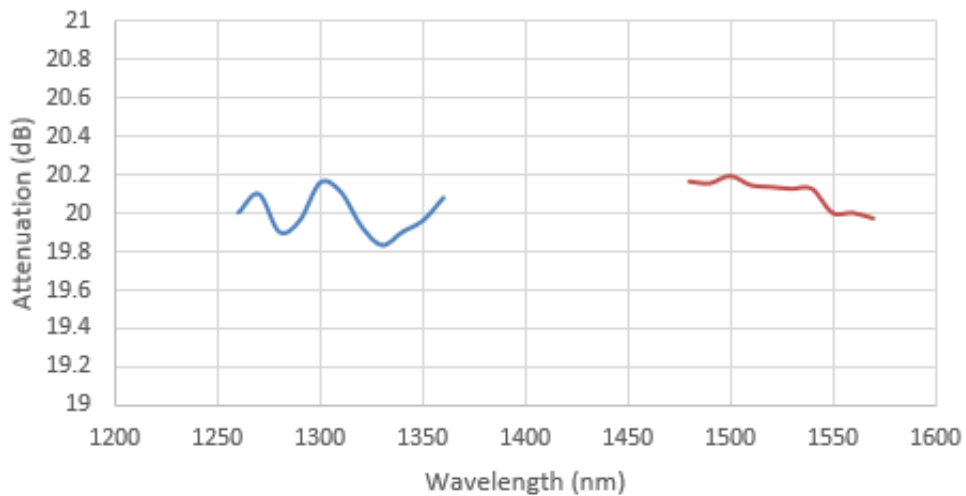
Note: Measured by adding the resistor and temperature compensation on MSOA.

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## Typical Attenuation vs. Voltage for Opaque Type



## Typical Attenuation vs. Wavelength for WDL at 20dB



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## Ordering Information

Prefix	Off State	Wavelength	Channel	Package	Fiber Type	Fiber Cover	Fiber Length	Connector
MUOA-	Transparent=01 Opaque =02	1260-1620=B 1060=1 1310=3 1550=5 850 =8 850/1310=A Special=0	Single = 1	Standard = 1 Special = 0	SMF-28=1 PM1550=B PM1310=D PM980=E PM850=F MM 50/125=5 MM 62.5/125=6 Special=0	Bare fiber=1 900 μm 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 LC=7 Special=0

[1]. MUOA: MEMS Ultra Mini VOA

## Typical Insertion Loss vs Wavelength (1240-1630nm)

1x2 MEMS Switch

