

# 0.3mm Motion *et*MEMS™ Free Space Attenuator Chip

(Protected by US patents pending)

## Product Description

The *et*MEMS™ series of free space variable optic attenuator (FS-VOA) is based on a proprietary patent pending micro-electro-mechanical mechanism featuring exceptionally compact size with large shutter movement, simple construction, and direct drive. The *et*MEMS™ series of FS-VOA is designed to completely block a collimated light beam  $\leq 300 \mu\text{m}$  in diameter and be operated in air without the need for hermetic seal and is fully compliant with the Telcordia 1209 and 1221 reliability standards. The device is ideally suited to be integrated into laser and coherent detection systems.

The different movement FS-VOA chip up to 700um is available, please contact us.

## Performance Specifications

FS Series VOA/Shutter	Min	Typical	Max	Unit
Attenuation Resolution	Continuous			
Shutter Movement		300		$\mu\text{m}$
Response Time		20	60	ms
Optical Power Handling		400		mW
Driving Voltage <sup>[1]</sup>		3.3	4	V
Device Resistance		60 <sup>[2]</sup>	95	Ohm
Power Consumption		190	210	mW
Resonant Frequency	1500			Hz
Operating Temperature	-5		75	°C
Storage Temperature	-40		85	°C
Reliability	Telcordia 1209 and 1221			
Package Dimension	See drawing			mm

Notes:

[1]. For full dynamic range.

[2]. At voltage 3.5V.

## Features

- Compact
- High Reliability
- Low IL, PDL, WDL & TDL
- Intrinsic tolerance to ESD

## Applications

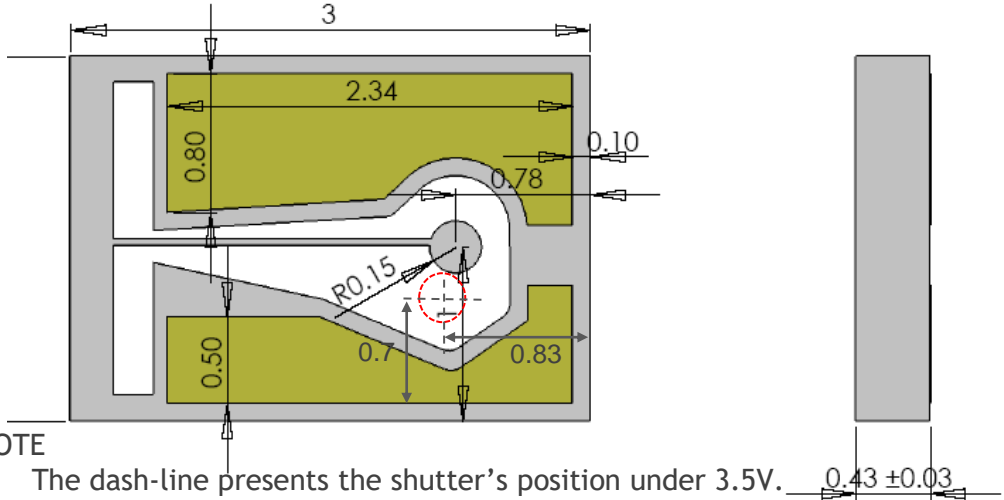
- Power Control
- Power Regulate
- Channel Balance
- Instrumentation



Revised on 01/17/23

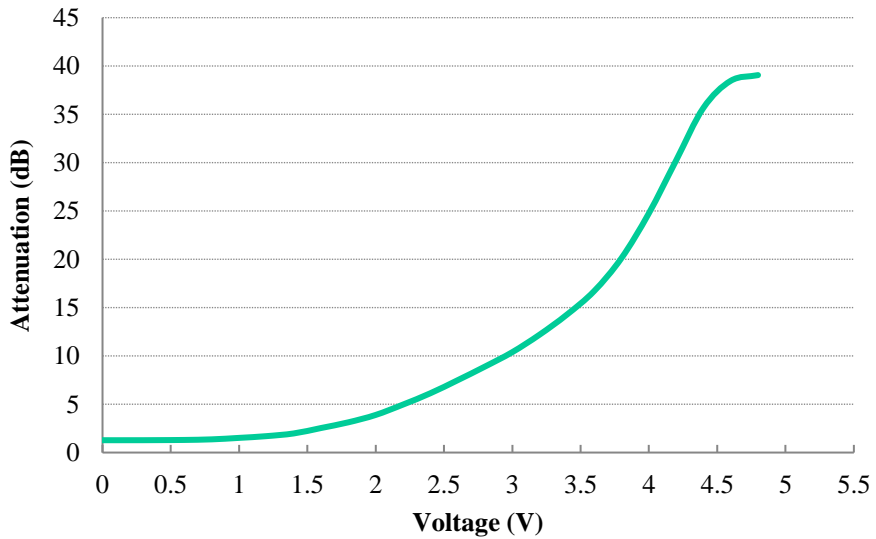
# Free Space etMEMS™ Attenuator/Shutter Chip

## Mechanical Footprint Dimensions (mm)



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

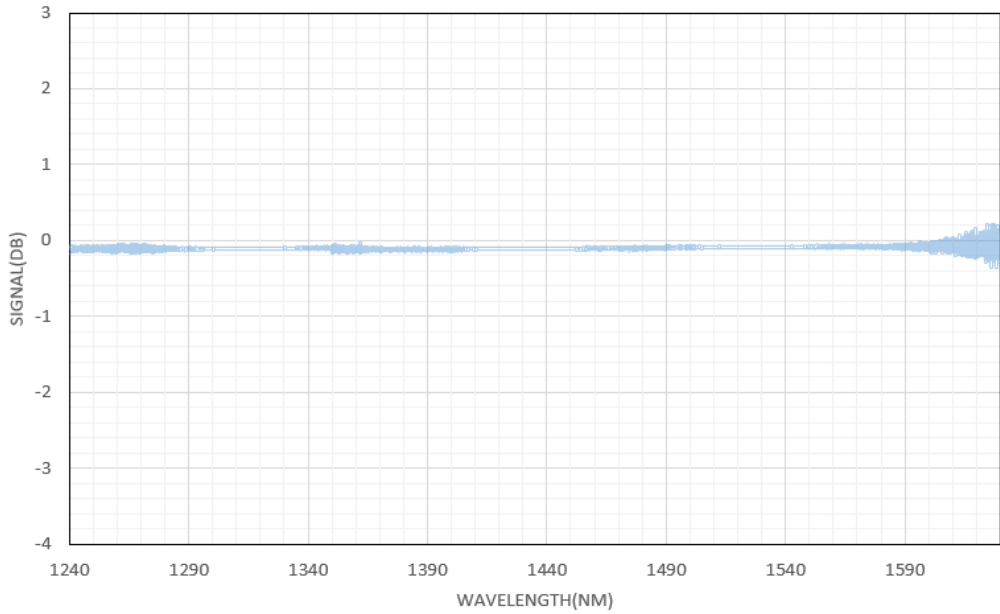
## VOA Performance



# Free Space *et*MEMS™ Attenuator/Shutter Chip

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

1x2 MEMS Switch



# Free Space *et*MEMS™ Attenuator/Shutter Chip

## Electronic Driving Instruction

### NOTES

- Electrode pads on front surface are for control voltage without polarity.
- Do not apply more than 5V.

## Order Instruction

P/N: FSVOA-30111010C (Standard)

	3 0	1	<input type="checkbox"/>	1	0	<input type="checkbox"/>	0	C
Prefix	Shutter size	Wavelength	VOA type	Shutter surface	Package Configuration	Chip design	Electric connection	
FSVOA-	Ø300um = 30 <sup>[1]</sup>	Broadband = 1	Standard = 1 Special = 0	Gold coated = 1	Standard = 1 No hold-chip = 0	Standard = 1 Special = 0	No PIN = 0	Bare chip = C

[1]. The different shutter size is available, please check other size FS-VOA chip data sheet.

[2]. The different orientation or customization might be available, please contact us.

