



0.7mm Movement Free Space *etMEMS*TM Attenuator/Shutter Chip

(Protected by US patents pending)

Product Description

The *etMEMS*TM 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 easy direct drive. The *etMEMS*TM series of FS-VOA is designed to completely block a collimated light beam $\leq 700 \mu\text{m}$ 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 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 | 700 | | | μm |
| Response Time | 20 | | 60 | ms |
| Optical Power Handling | 500 | | | mW |
| Driving Voltage ^[1] | 4 | | 5 | V |
| Device Resistance | 100 ^[2] | | | Ohm |
| Power Consumption | | | 210 | mW |
| Resonant Frequency | 100 | | | Hz |
| Operating Temperature | -5 | | 75 | $^{\circ}\text{C}$ |
| Storage Temperature | -40 | | 85 | $^{\circ}\text{C}$ |
| Reliability | Telcordia 1209 and 1221 | | | |
| Package Dimension | See drawing below | | | mm |

- Notes:
- [1]. For full dynamic range.
 - [2]. At voltage 4V.

Features

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

Applications

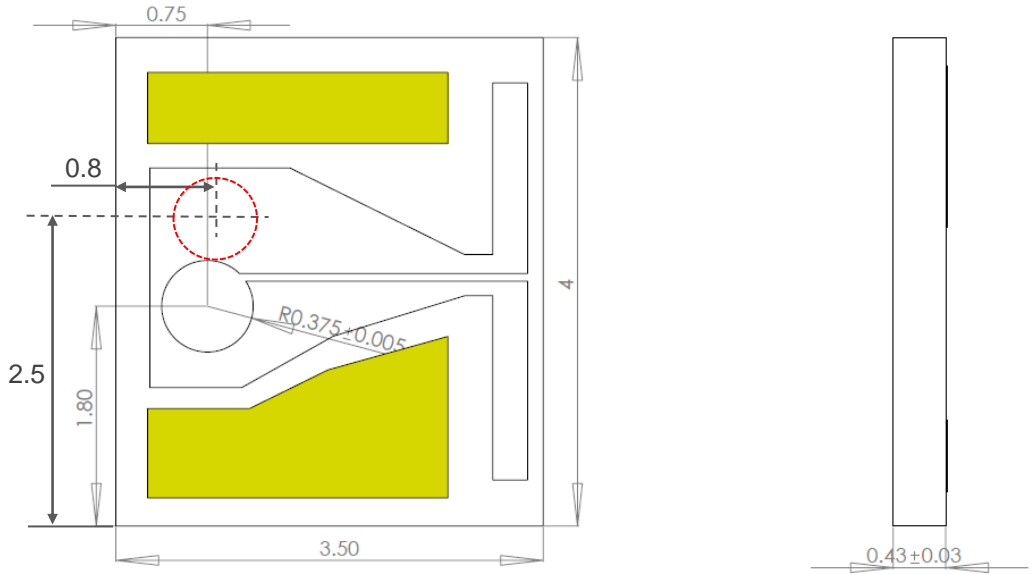
- Power Control
- Power Regulate
- Channel Balance
- Instrumentation



Revised on 01/17/23
 (Click here for latest revision)

Free Space *et*MEMS™ Attenuator/Shutter Chip

Mechanical Footprint Dimensions (mm)

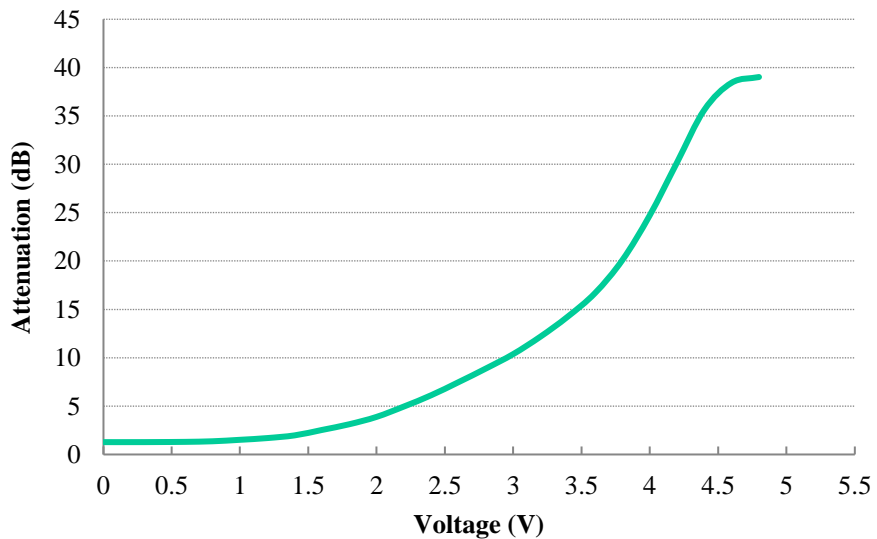


NOTES

- The red dash-line represents the shutter's position under ~4V.

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

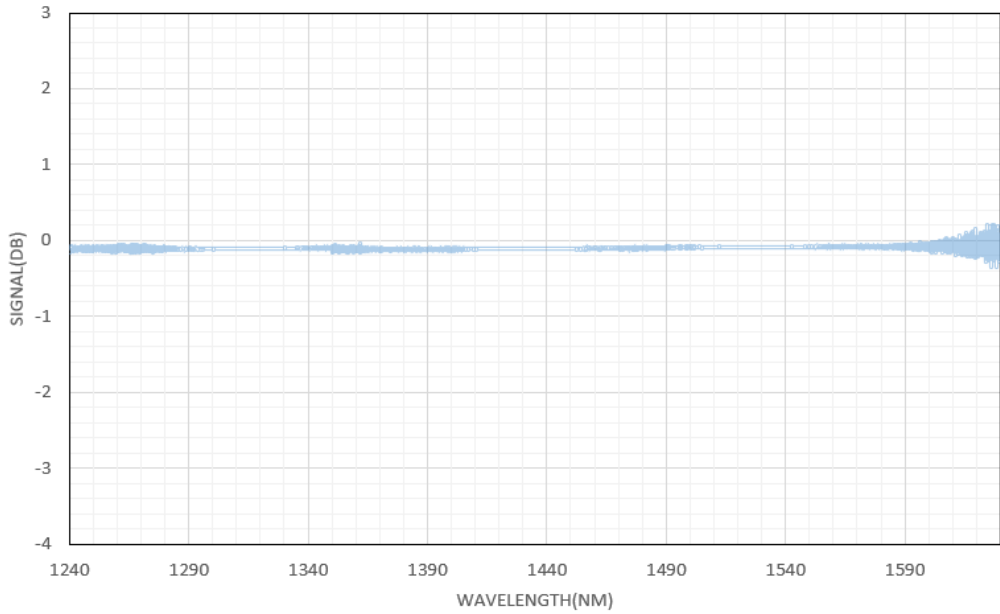
VOA Performance



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 6V.

Ordering Information

P/N: FSVOA-70111010C (Standard)

| | 70 | 1 | □ | 1 | □ | □ | 0 | C |
|--------|----------------------------|---------------|-----------------------------|-----------------|--|-----------------------------|---------------------|---|
| Prefix | Shutter size | Wavelength | VOA Type | Shutter Surface | Chip Package | Chip Design | Electric connection | |
| FSVOA- | Ø700um = 70 ^[1] | Broadband = 1 | Standard = 1 Special = 0 | Gold = 1 | Bare = 2 Surmount = 1 ^[2] Special = 0 | Standard = 1 Special = 0 | No PIN = 0 | |

[1]. Different shutter size is available, please check another size FS-VOA chip datasheet.

[2]. Flying wires type; two leads are provided

