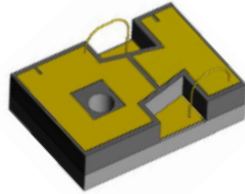


0.5mm Movement Free Space etMEMS™ Attenuator/Shutter Chip

(Protected by US patent 10752492B2)

DATASHEET



The **etMEMS™** 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™** series of FS-VOA is designed to block a collimated light beam completely $\leq 500\mu\text{m}$ in diameter and be operated in the air without the need for a 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 $700\mu\text{m}$ is available,

Features

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

Specifications

Parameter	Min	Typical	Max	Unit
Attenuation Resolution	Continuous			
Shutter Movement		500		μm
Response Time		20	40	ms
Optical Power Handling		500		mW
Driving Voltage ^[1]		3,5	4,5	V
Device Resistance		70 ^[2]	100	Ohm
Power Consumption		210	250	mW
Resonant Frequency	200			Hz
Operating Temperature	-5		75	°C
Storage Temperature	-40		85	°C
Reliability	Telcordia 1209 and 1221			
Package Dimension	See drawing below			mm

Note:

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

Applications

- Power Control
- Power Regulate
- Channel Balance
- Instrumentation

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Rev 06/23/23

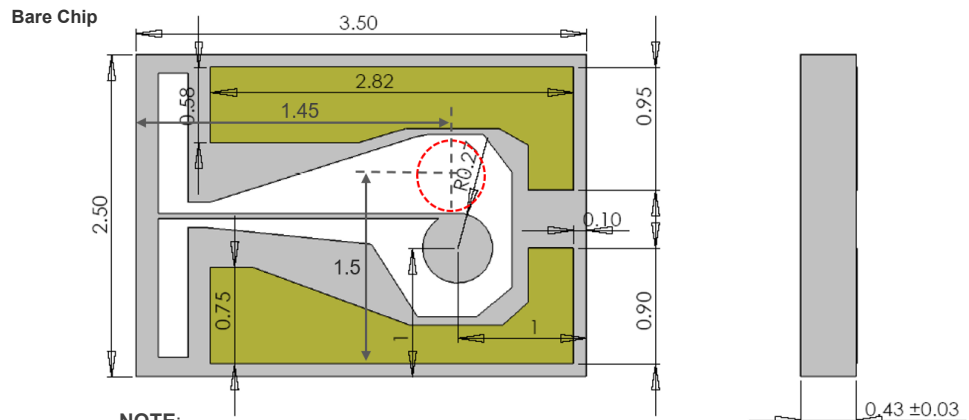
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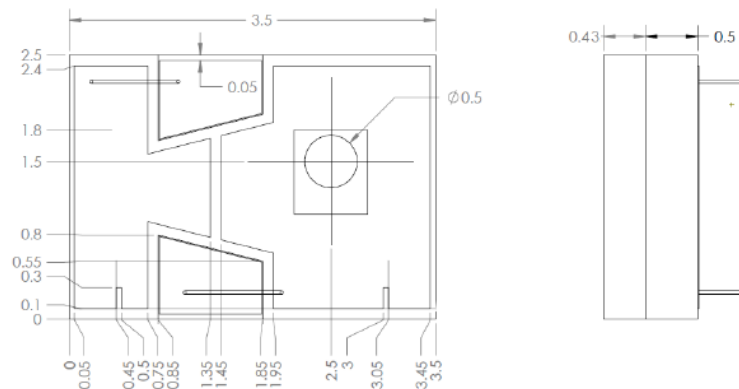
Mechanical Footprint Dimensions (mm)



NOTE:

- The red dash-line represents the shutter's position under ~4.5V.

Chip on Submount: connecting wires are soldered



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

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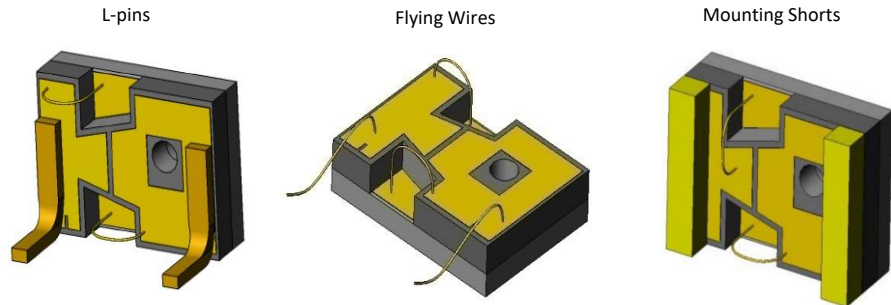
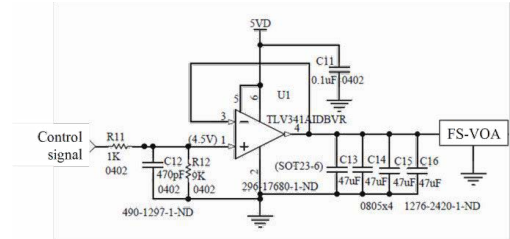
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DATASHEET

Electronic Driving Instruction

NOTES:

- Resistive without polarity
- Applying >5V will burn the chip
- Two pads are for applying a voltage
- Reference driving circuit on the right



Ordering Information

Prefix	Shutter size	Wavelength	VOA Type	Shutter Surface	Chip Package	Chip Design	Electric connection	
FSVOA-	Ø500um = 50 [1]	Broadband = 1	Standard = 1 Special = 0	Gold = 1	Bare = 2 Surmount = 1 [2] Special = 0	Standard = 1 Special = 0	No PIN = 0	C

[1]. Different shutter size is available, please check another size FS-VOA chip datasheet.
 [2]. Flying wires type; two leads are provided

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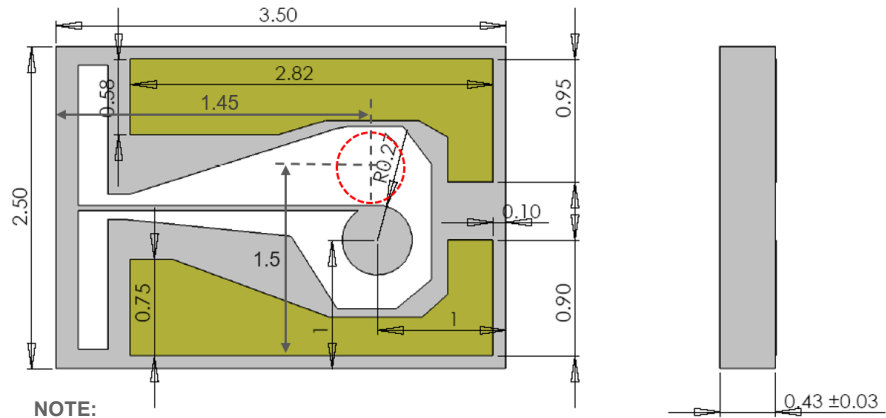
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Mechanical Footprint Dimensions (mm)

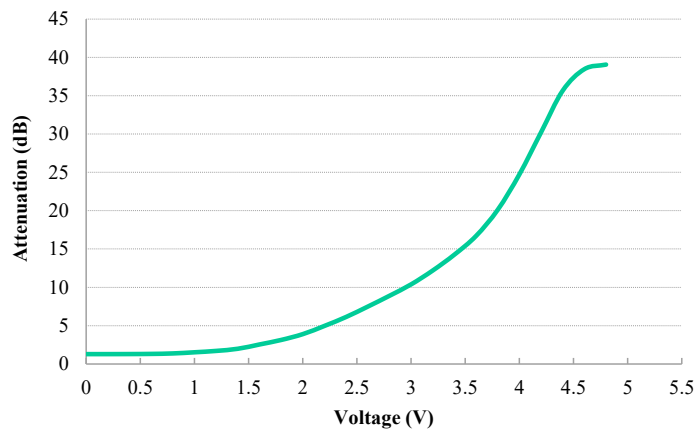


NOTE:

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VOA Performance



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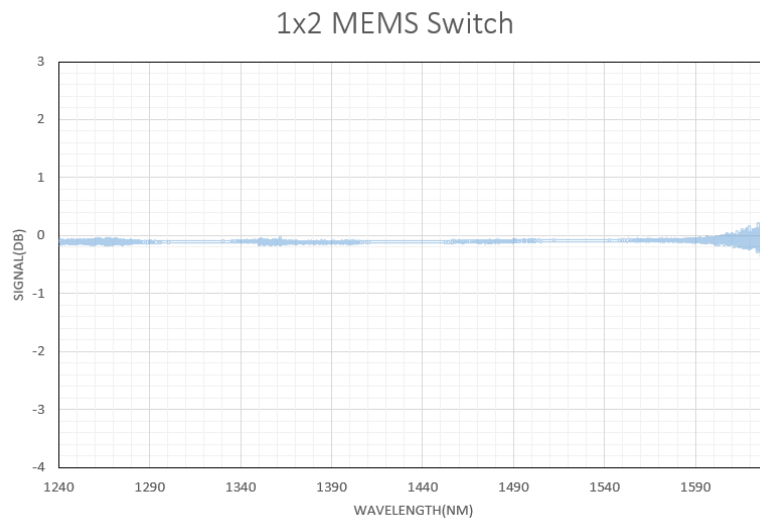
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Typical Insertion Loss vs Wavelength (1240-1630nm)



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