



miniature

Variable Optical Attenuator

coaxial design

OVERVIEW

Sercalo's fiber optic Variable Optical Attenuator is based on an electrostatic MEMS mirror. A voltage between 0-6.5 V on the drive pin sets the optical attenuation. When power is removed the VOA returns into its default state.

There are 2 variants available with different default states: The normally open (bright) type or high attenuation (dark) type. The dark variant has better linearity and is used in applications where the light is cut at power off.

The MEMS component is hermetically sealed. The part is designed to conform to Telcordia 1221 reliability standards. No epoxy is present in the optical path. The optical collimator is assembled using laser welding techniques which results in long term stability and excellent reliability. The component withstands rugged environments. It can directly be mounted on printed circuit boards.

The component is compliant to ROHS requirements 2011/65/EU.

APPLICATIONS

- *Telecom*
- *Instrumentation*
- *Test and measurement*

FEATURES

- 3.5 mm diameter
- Laser welded package
- Reliable
- 0-6.5 V
- ROHS compliant

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Sercalo

Sercalo's COAXIAL TYPE VOA is non latching and returns to the default position at power-off, i.e. the bright variant returns to the minimum insertion loss position, whereas the dark variant returns to the high attenuation state (i.e. it is blocking the light at power off). The VOA works over the wavelength range of the fiber, but wavelength dependent loss is specified within one single band (50 nm).

The VOA is also available for specialty fiber at 650, 750, 850 and 980 nm. Also variants with Polarisation Maintaining fibers are available.

TECHNICAL SPECIFICATIONS for *Single Mode fiber*

| | Unit | Min | Typ | Max |
|--|--------|----------------------------|------|------|
| Optical Specifications | | | | |
| Wavelength range ¹ (SMF 28ultra type) | nm | 1250 | | 1670 |
| Insertion Loss ² @ min. attenuation | dB | | 0.3 | 1.0 |
| Max. Attenuation ³ | dB | 30 | 40 | |
| Wavelength d. Loss @ 10 dB | dB | | 0.3 | |
| Polarisation d. Loss @ 10 dB | dB | | 0.15 | |
| Return loss | dB | 50 | 55 | |
| Switching time (linear scale) | ms | | 0.5 | 2 |
| Cycle Rate | Hz | | 50 | 100 |
| Durability | cycles | No wear out | | |
| Electrical Specifications | | | | |
| Operation voltage 0-5V | V | | 5.0 | 6.7 |
| ESD Protection | V | 500 | | |
| Pins | Nb | | | 2 |
| Package | | | | |
| Operation temperature | °C | -10 | | 70 |
| Storage temperature | °C | -40 | | 85 |
| Pigtail length | cm | 50 | | 100 |
| Weight | g | 2.5 | | |
| Dimensions diameter x Length | mm | 3.5 x 15 | | |
| ROHS Compliance | | 2011/65/EU (no exceptions) | | |

¹ Insertion loss is for smf28ultra fiber.

² Values for standard range at 25°C, without connectors. For Dark Variant minimum IL is reached at 6.5 V.

³ For Bright variant the max. attenuation is reached at 5 V. For dark variant max. attenuation is > 40 dB at 0 V.

ORDERING INFORMATION

| | | | | |
|------|----|---|---|---|
| mVOA | of | - | 9 | B |
|------|----|---|---|---|

VOA type:

mVOA = 1250 – 1650 nm
 other wavelength bands are 200 nm
 above cut off wavelength

Bright or dark:

- = bright at 0V
 of = dark at 0V

Fiber type:

9 = SMF28Ultra
 Z = ZBL
 4 = SM600
 6 = SM850
 6PM = HP850PM
 7 = SM980
 7PM = HP980PM

Fiber sleeve type:

B = 250 um bare fiber