

*miniature*  
**VARIABLE  
OPTICAL  
ATTENUATOR**  
*coaxial design*

## OVERVIEW

**Sercalo**'s fiber optic Variable Optical Attenuator is based on an electrostatic MEMS mirror. A voltage between 0-5 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 normally closed (dark) type.

The open type has its lowest loss state at 0 V.

The dark variant reaches its lowest insertion loss at a voltage between 4.5 – 5V. It has better linearity at high attenuation. When the voltage is increased beyond the minimum point, the attenuation increases again.

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

The component is compliant to RoHS requirements 2015/863/EU.

## FEATURES

- 3.5 mm diameter
- Laser welded package
- Reliable
- 0-5 V
- RoHS compliant

## APPLICATIONS

- Telecom
- Instrumentation
- Test and measurement

### Contact

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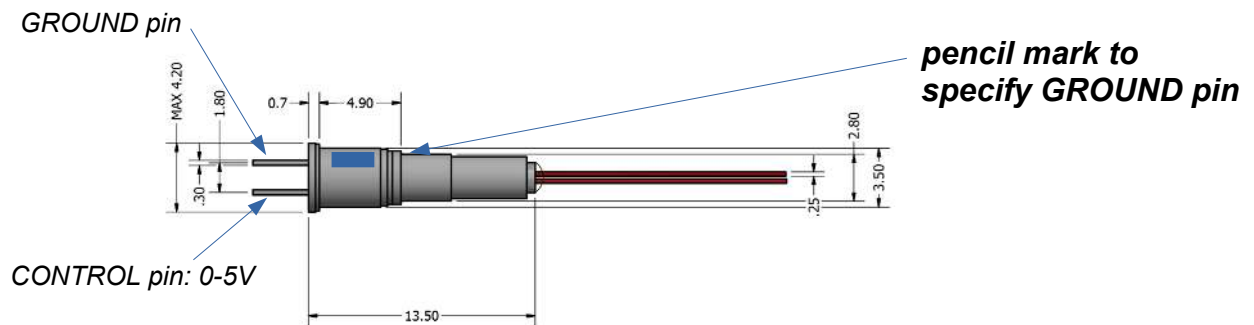
**sercalo**

## TECHNICAL SPECIFICATIONS for SMF28ultra single mode fiber

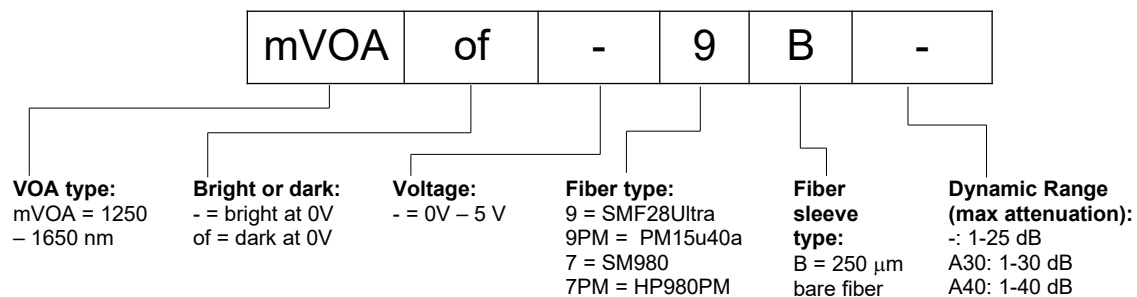
	Unit	Min	Typ	Max
<b>Optical Specifications</b>				
Wavelength range <sup>1</sup> (SMF 28ultra type)	nm	1250		1670
Insertion Loss <sup>2</sup> @ min. attenuation	dB		0.5	1.0
Max. Attenuation <sup>3</sup>	dB	25	45	
Wavelength d. Loss @ 10 dB (C Band)	dB		0.1	
Wavelength d. Loss @ 20 dB (C Band)	dB		0.3	
Polarisation d. Loss @ 10 dB	dB		0.10	
Polarisation d. Loss @ 20 dB	dB		0.10	
Return loss	dB	50	55	
Switching time (linear scale)	ms			1
Cycle Rate	Hz		50	100
Durability	cycles	No wear out		
<b>Electrical Specifications</b>				
Operation voltage <sup>4</sup>	V		5.0	6.7
Current consumption	nA			10
ESD (internal protection diode)	V	500		
Pins	Nb			2
Pin Length	mm	8	13	
<b>Package</b>				
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 14 on 4.2 mm header		
RoHS Compliance		2015/863/EU (no exceptions)		

<sup>1</sup> Insertion loss is for smf28ultra fiber. <sup>2</sup> without connectors. <sup>3</sup> For dark variant attenuation max attenuation is at 0 V. <sup>4</sup> For dark Variant minimum IL is reached at 4.5 – 5.0 V.

## PACKAGE DIMENSIONS (hermetically sealed TO41 Header)

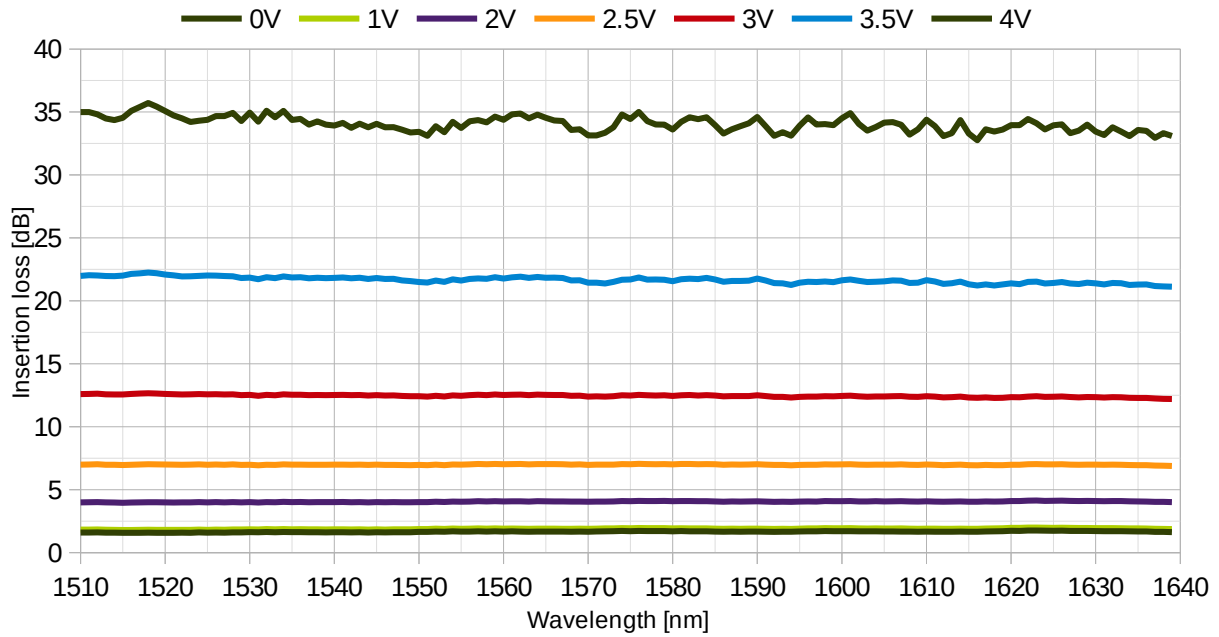


## ORDERING INFORMATION

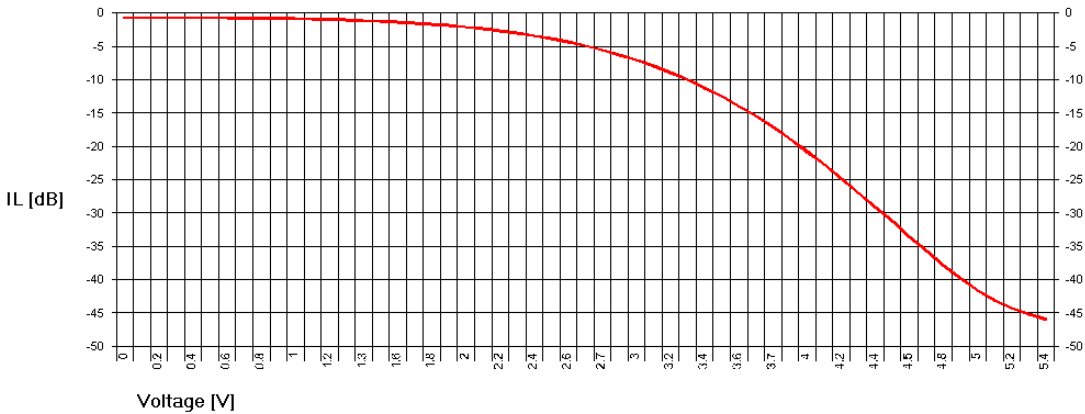


Other fiber types upon request

## WAVELENGTH DEPENDENT LOSS



## TYPICAL RESPONSE OF BRIGHT VARIANT: *minimum attenuation at 0V*



## TYPICAL RESPONSE OF DARK VARIANT: *minimum attenuation at 4.5 - 5 V*

