DiCon Fiberoptics, Inc.

MEMS OPTICAL ATTENUATOR

MEMS VOA, Polarization Maintaining Fiber

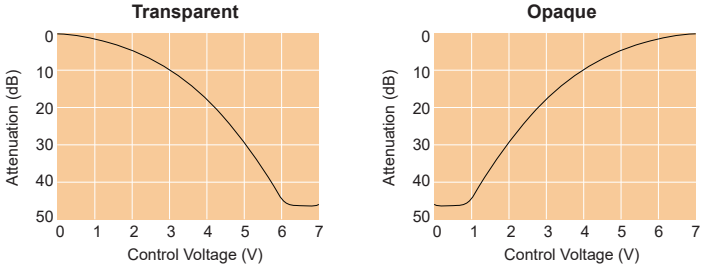
DiCon's **PM MEMS Optical Attenuator** is based on a microelectro-mechanical system (MEMS) chip. The PM MEMS chip consists of an electrically movable mirror on a silicon support. A voltage applied to the PM MEMS chip causes the mirror to rotate, which changes the coupling of light between the input and output fibers of the PM MEMS Optical Attenuator.

- Small attenuator package
- Based on DiCon's proven MEMS platform
- Available in opaque or transparent versions
- Qualified to GR-1221
- High Extinction Ratio

Applications

PM MEMS Optical Attenuators are used for distributed power equalization within OADMs, MUX/DMUXes, Band Equalizers, Channel Equalizers, Optical Cross-Connects, Line Cards and Transponders. Polarization Maintaining Optical Attenuators can also be used for power adjustment in polarization sensitive devices such as modulators.

Optical Performance



ORDERING INFORMATION

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Housing Type

C	Cylindrical

Attenuator Type

T	Transparent*
O	Opaque**

**Minimum insertion loss at 0 V*
***Minimum insertion loss at 6-7 V (high isolation at 0 V)*

Test Wavelength

O	1310 nm
C	1550 nm
L	1590 nm

**Custom Wavelength Ranges Available*

Attenuator Range

30	30 dB min.*
X	Specify X dB min. (X <= 40)

**Transparent type DC drive voltage is 0-5 VDC for up to 30 dB of attenuation*

Flatness Type

S	Superior broad band flatness
F	Fine narrow band flatness

Connector Key Orientation

PMF	Fast axis
PMS	Slow axis
PMN	No Connector

Fiber / Jacket Type

2B	9/125 µm Panda Fiber, 250 µm buffer
2/LT	9/125 µm Panda Fiber, 900 µm loose tube over 250 µm buffer
4B	9/125 µm Panda Fiber, 400 µm buffer
4/LT	9/125 µm Panda Fiber, 900 µm loose tube over 400 µm buffer

Connector Type

N	None
FC	FC/UPC
FC/APC	FC/APC
LC	LC/UPC
LC/APC	LC/APC
SC	SC/UPC
SC/APC	SC/APC

**Other connector types available upon request*

Pigtail Length

1	1 Meter
X	Specify X Meters

**Tolerance is ±0.1 m*

Pin Bending

S	Straight Pins
B	Bent Pins

DiCon® FIBEROPTICS

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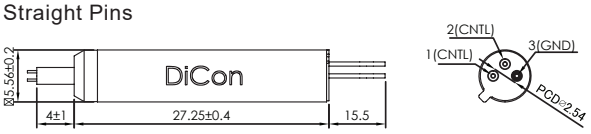
OPTICAL SPECIFICATIONS[1]

Insertion Loss[2]		0.6 dB max.	
WDL[3]	Superior	0 to 1 dB	0.3 dB max.[5]
		1 to 5 dB	0.5 dB max.[5]
		5 to 10 dB	0.6 dB max.[5]
		10 to 20 dB	1.0 dB max.[5]
	Fine[4]	0 to 15 dB	0.3 dB max.
		15 to 20 dB	0.4 dB max.
Extinction Ratio[6]		18 dB min.	
Attenuation Slope		20 dB/V max.	
Back Reflection		-50 dB max.	
Optical Power		500 mW max.	
Response Time		2 ms max.	
Repeatability[7]		0.1 dB max.	
Durability		1 x 10^9 cycles min.	
Fiber Type		Panda PM Fiber	

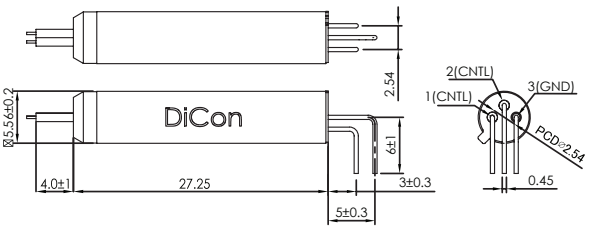
1. All specifications at room temperature
2. Excluding connector loss. Measured with 3-jumper method or equivalent (See TIA/EIA 526-7)
3. WDL is defined within Test Wavelength ±20 nm
4. Maximum change of each 2 nm segment within the Test Wavelength ±20 nm
5. Operation in the O-band range adds 0.1 dB
6. 16 dB min. with connector
7. Repeatability is defined within 100 cycles

Dimensions in mm

Straight Pins



Bent Pins



ELECTRICAL SPECIFICATIONS

Actuation type	Non-latching
DC Drive Voltage	0-7 VDC
Voltage Damage Threshold	10 VDC max.
Resistance	2 MΩ min.
Power Consumption	20 uWatt max.

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-5 to 70°C
Storage Temperature	-40 to 85°C