

# COMPACT MEMS ATTENUATOR

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



## FEATURES

- Small attenuator package
- Based on DiCon's proven MEMS platform
- Available in opaque or transparent versions

## APPLICATIONS

MEMS Attenuators are used for distributed power equalization within OADMs, MUX/DMUXes, Band Equalizers, Channel Equalizers, Optical Cross-Connects, Line Cards and Transponders. MEMS Attenuators can also be used for input power adjustment in erbium-doped fiber amplifiers.



# COMPACT MEMS ATTENUATOR

## OPTICAL SPECIFICATIONS<sup>1</sup>

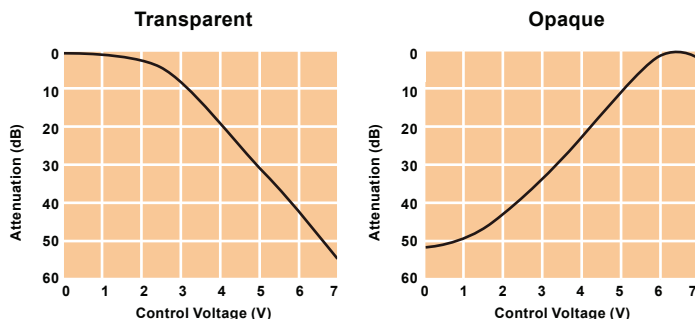
PARAMETER		RATING	
Excess Loss		0.8 dB max	
WDL	Broad Band Application	0 to 15 dB <sup>2</sup>	0.4 dB max.
		15 to 20 dB <sup>3</sup>	0.7 dB max.
	Narrow Band Application <sup>4</sup>	0 to 20 dB <sup>3</sup>	0.2 dB max.
PDL <sup>5</sup>	0 to 15 dB	0.15 dB max.	
	15 to 20 dB	0.2 dB max.	
Attenuation Slope		20 dB/V max.	
Polarization Mode Dispersion		0.05 ps max.	
Back Reflection		-50 dB max.	
Optical Power		500 mW max.	
Response Time		2 ms max.	
Repeatability <sup>6</sup>		0.1 dB max.	
Durability		1 x 10 <sup>9</sup> cycles min.	
Fiber Type		9/125 single mode fiber	
Operating Temperature		-5°C to +70°C	
Storage Temperature		-40°C to +85°C	

1. All Specifications at room temperature, without connectors
2. Operation from 1290 - 1330nm adds 0.4dB
3. Operation from 1290 - 1330nm adds 0.3dB
4. Maximum change of each 2 nm segment within the operating range
5. Operation from 1290 - 1330nm adds 0.1dB
6. Repeatability is defined after 100 cycles

## ELECTRICAL SPECIFICATIONS

PARAMETER	RATING
Actuation type	Non-latching
DC Drive Voltage	0-5 VDC (7 V for opaque)
Voltage Damage Threshold	10 VDC max.
Resistance	2 MΩ min.
Power Consumption	20 uWatt max.

## OPTICAL PERFORMANCE



## ORDERING INFORMATION

MTR - C - □ - □ - □ - □ - 9 - 2B - □ - □ - □

### Housing Type

C Cylindrical

### Attenuator Type

T Transparent<sup>1</sup>

O Opaque<sup>2</sup>

### Operating Wavelength Range

13 1290 - 1330 nm

15 1528 - 1563 nm

16 1570 - 1610 nm

### Attenuator Range

20 20 dB min.

X Specify X dB min. (X ≤ 40)

### Ripple Type

S Slow ripple (broad band)

F Fast ripple (narrow band)

### Fiber Type

9 9/125 μm Singlemode

### Jacket Type

2B 250 μm barefiber

### Connector Type

FC FC/SPC

FC/APC FC/APC

X specify connector type<sup>3</sup>

N None

### Pigtail Length

1 1 meter

X Specify X meters

### Pin Bending

S Straight Pins

B Bent Pins

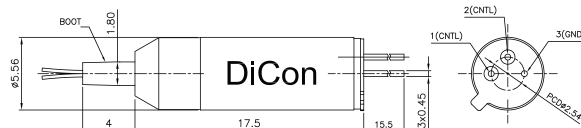
1. Minimum insertion loss at 0 V.

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

3. Connector Types: FC/UPC, SC, SC/APC, SC/UPC, LC, LC/UPC, MU/UPC.

## MECHANICAL DIMENSIONS

### Straight Pins



### Bent Pins

