

# ATTENUATORS

## 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.



Cylindrical Package

## FEATURES

- Small attenuator package
- Qualified to GR-1221
- Available in opaque or transparent versions
- Available in both cylindrical and 14-pin DIP packages

## 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.



# ATTENUATORS

## OPTICAL SPECIFICATIONS<sup>1,2</sup>

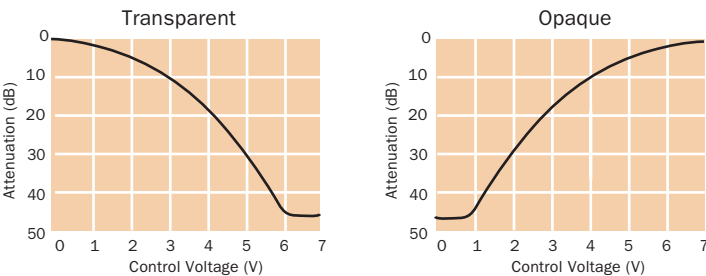
Excess loss		0.8 dB max.	
Flatness	Broad band Application	0 to 15 dB	0.4 dB max.
	Narrow band Application <sup>3</sup>	15 to 20 dB	0.7 dB max.
Polarization dependent loss	0 to 15 dB	0.15 dB max.	
	15 to 20 dB	0.2 dB max.	
Attenuation slope		20 dB/V max.	
Polarization mode dispersion		0.05 ps max.	
Back-reflection		-50 dB max.	
Optical power		500 mW max.	
Response time		2 ms max.	
Repeatability		0.1 dB max.	
Wear-out		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 referenced without connectors.
2. At room temperature.
3. Maximum change of each 2 nm segment within the operating range.

## ELECTRICAL SPECIFICATIONS

Actuation type	Non-latching
DC drive voltage	0 - 5 VDC (6.5 V for opaque)
Voltage damage threshold	10 VDC max.
Resistance	2 MΩ min.
Power consumption	20 uWatt max.

## OPTICAL PERFORMANCE



## ORDERING INFORMATION

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**Housing Type**

C	Cylindrical
D	14-Pin DIP

**Attenuator Type**

T	Transparent <sup>1</sup>
O	Opaque <sup>2</sup>

**Operating Wavelength Range**

13	1280 - 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)

**Jacket Type**

2B	250 μ barefiber
9L	900 μ loostube

**Connector Type**

FC	FC/SPC
FC/APC	FC/APC
X	specify connector type <sup>3</sup>
N	None

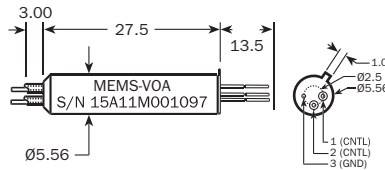
**Pigtail Length**

1	1 meter
X	Specify X meters

1. Minimum insertion loss at 0 V.
2. Minimum insertion loss at 6.5 V (high isolation at 0 V).
3. Connector Types: FC/UPC, SC, SC/APC, SC/UPC, LC, LC/UPC, MU/UPC

## HOUSING DIMENSIONS

### Cylindrical Package



### 14-pin DIP Package

