

MEMS OPTICAL ATTENUATOR

DiCon's MEMS Optical 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 Optical Attenuator.



FEATURES

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

APPLICATIONS

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



MEMS OPTICAL ATTENUATOR

OPTICAL SPECIFICATIONS¹

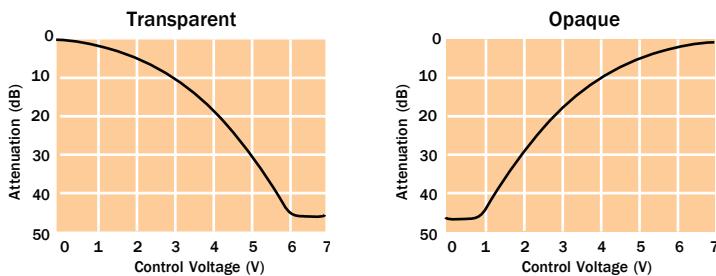
PARAMETER		RATING	
Excess Loss		0.8 dB max	
WDL Flatness ²	Superior	0 to 1 dB	0.2 dB max.
		1 to 5 dB	0.3 dB max.
		5 to 10 dB	0.5 dB max.
		10 to 20 dB	0.8 dB max.
	Regular	0 to 1 dB	0.3 dB max.
		1 to 5 dB	0.5 dB max.
		5 to 10 dB	0.8 dB max.
		10 to 20 dB	1.2 dB max.
Fine ⁴	0 to 20 dB	0.2 dB max.	
PDL	Superior & Fine	0 to 15 dB	0.15 dB max. ³
		15 to 20 dB	0.2 dB max. ³
	Regular	0 to 15 dB	0.2 dB max. ³
		15 to 20 dB	0.3 dB max. ³
Attenuation Slope		20 dB/V max.	
Back Reflection		-50 dB max.	
Optical Power		500 mW max.	
Response Time		2 ms max.	
Repeatability ⁵		0.1 dB max.	
Durability		1 x 10 ⁹ cycles min.	
Fiber Type		9/125 single mode fiber	
Operating Temperature		-5°C to +70°C	
Storage Temperature		-40°C to +85°C	

- All specifications at room temperature, without connectors
- WDL is measured from CWL
- Operation from 1290 - 1330nm or 1570-1610 nm adds 0.1dB
- Maximum change of each 2 nm segment within the operating range
- Repeatability is defined within 100 cycles

ELECTRICAL SPECIFICATIONS

PARAMETER	RATING
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.

OPTICAL PERFORMANCE



ORDERING INFORMATION

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Housing Type	
C	Cylindrical
Attenuator Type	
T	Transparent ¹
O	Opaque ²
Operating Wavelength Range	
13	1290 - 1330 nm
15	1525 - 1570 nm
16	1570 - 1610 nm
<i>Custom Wavelength Ranges Available</i>	
Attenuator Range	
30	30 dB min. ³
X	Specify X dB min. (X <= 40)
Flatness Type	
S	Superior broad band flatness
R	Regular broad band flatness
F	Fine narrow band flatness
Fiber Type	
9	9/125 μm Singlemode
Jacket Type	
2B	250 μm barefiber
9L	900 μm looetube
Connector Type	
FC	FC/SPC
FC/APC	FC/APC
X	Specify connector type ⁴
N	None
Pigtail Length	
1	1 meter
X	Specify X meters
Pin Bending	
S	Straight Pins
B	Bent Pins

- Minimum insertion loss at 0 V.
- Minimum insertion loss at 6 - 7 V (high isolation at 0 V).
- Transparent type DC drive voltage is 0-5 VDC for up to 30 dB of attenuation
- Connector types: FC/UPC, SC, SC/APC, SC/UPC, LC, LC/UPC, MU/UPC.

MECHANICAL DIMENSIONS

