

etMEMS™ 1x16 Series Non-Latching Fiber Optic Switch

(Bidirectional, Single Mode, PM)

(Protected by U.S. patent 13/210,703 and pending patents)

Product Description

The etMEMS™ 1x16 Series Non-Latching Fiber Optic Switch connects optical channels by redirecting incoming optical signals into selected output fibers. This is achieved using a patent pending etMEMS™ configuration and activated via an electrical control signal. It uniquely features rugged thermal activated micro-mirror movement instead of rotation.

This novel design significantly reduces packaging requirement, and simplifies the driving electronics, unprecedented high stability as well as an unmatched low cost.

Performance Specifications

etMEMS™ Series 1x16 Switch	Min	Typical	Max	Unit
Operation Wavelength	Singe Band	1260-1360 or 1510-1610		nm
	Dual Band	1260-1360 and 1510-1610		
	Broad Band	1260-1620		
Insertion Loss ^[1]		1.0	1.8	dB
Wavelength Dependent Loss		0.2	0.3 ^[2]	dB
Polarization Dependent Loss (SM)			0.15	dB
Extinction Ratio (PM)	18	25		dB
Return Loss ^[1]	50			dB
Cross Talk ^[1]	50			dB
Repeatability			±0.05	dB
Switching Time		20		ms
Durability	10 ⁹			Cycle
Switching Type		Non-Latching		
Operating Temperature	-5		70	°C
Storage Temperature	-40		85	°C
Optical Power Handling		300	500	mW
Fiber Type	SM	SMF-28 fiber, or equivalent		
	PM	Panda 250 PM, 400 PM fiber, or equivalent		

[1]. Excluding connectors.

[2]. Dual band and Broad band.

Applications

- Channel Blocking
- Configurable Add/Drop
- System Monitoring
- Instrumentation



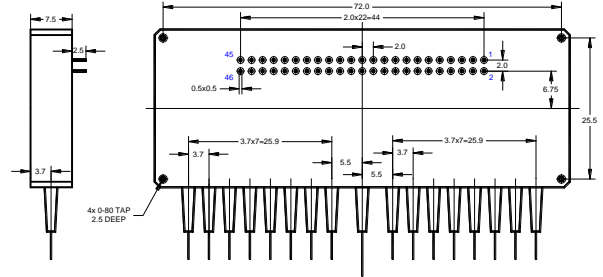
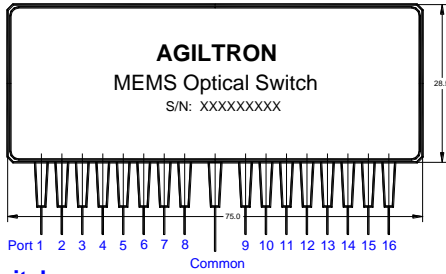
etMEMS™ 1x16 Series

Non-Latching Fiber Optic Switch

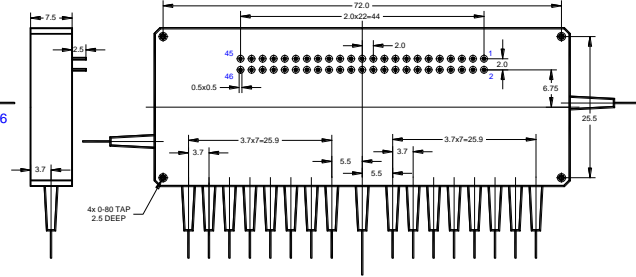
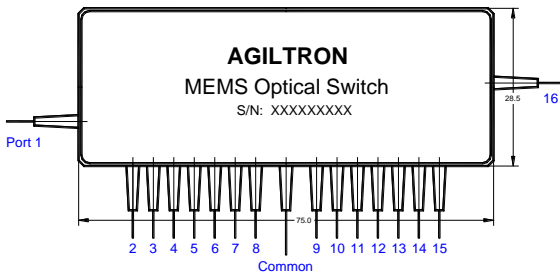
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Mechanical Dimensions (Unit: mm)

Single Mode Switch



PM Switch



Electrical Driving Requirements

MEMS 1x16 Non-Latching Switch Driving Table

Optical Path	Control Signal Applied on Pin #																																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
C→P1	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P2	H	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P3	NC	NC			H	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P4	NC	NC			NC	NC	H	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P5	NC	NC			NC	NC	NC	NC			H	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P6	NC	NC			NC	NC	NC	NC			NC	NC	H	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P7	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			H	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P8	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	H	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P9	NC	NC		GND	NC	NC	NC	NC		GND	NC	NC	NC	NC		GND	NC	NC	NC	NC		GND	NC	NC	NC	NC		GND	NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC		GND
C→P10	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	H	NC			NC	NC	H	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P11	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	H	NC			NC	NC	H	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P12	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	H	NC			NC	NC	H	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P13	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	H	NC			NC	NC	H	NC			NC	NC	H	NC			NC	NC	NC	NC		
C→P14	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	H	NC			NC	NC	H	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P15	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	H	NC			NC	NC	H	NC			NC	NC	NC	NC			NC	NC	NC	NC		
C→P16	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	NC	NC			NC	NC	H	NC			NC	NC	H	NC			NC	NC	NC	NC			NC	NC	NC	NC		

Note: [1].C: Common port. [2].NC: No electrical connection.

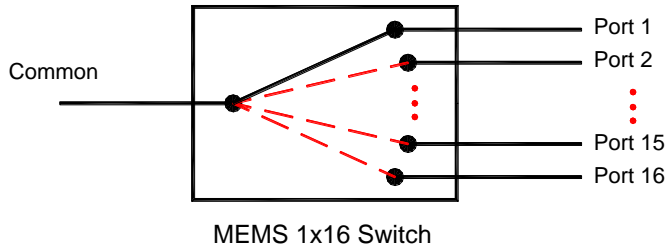
Driving Voltage	Min	Typical	Max	Unit
H	4	4.5	5	V
Power Consumption (for each Chip)		170		mW

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(Bidirectional, Single Mode, PM)

Functional Diagram



Ordering Information

Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector
MEMS ^[1] MEPM ^[2]	1060=1 C+L=2 1310=3 1550=5 1310 & 1550=9 1260-1620=B Special=0	Non-Latching=2	Standard=1 Special=0	SMF-28=1 PM 400=A PM 250=B Special=0	Bare fiber=1 900um tube=3 Special=0	None=1 FC/PC=2 FC/APC=3 SC/PC=4 SC/APC=5 ST/PC=6 LC=7 Duplex LC=8 Special=0

[1]. MEMS: MEMS 1x16 Single Mode Switch.
 [2]. MEPM: MEMS 1x16 PM Switch.

