

Optical MEMS switches with specialty Single Mode Fiber OSW12-xxx-SM (1x2 switch) OSW22-xxx-SM (2x2 switch)

Description

The OSW12 / OSW22 optical switches are composed of an optical subsystem and an electrical driver interface. The optical switching function is realized by a silicon MEMS chip, on which a mirror can be moved in and out of the optical path by electrostatic actuation.

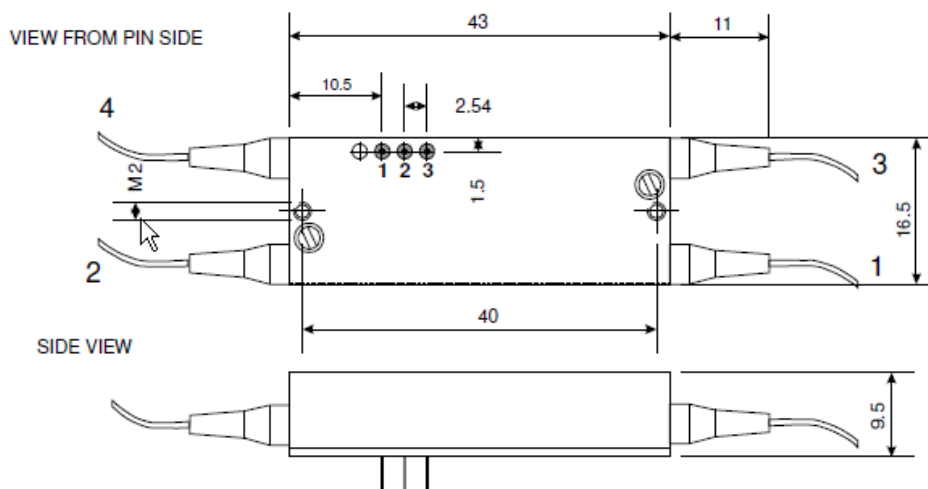
The switch returns into the bar state when electrical power is removed (non-latching).

To operate the switch 5V and 0V are applied on the supply pins, which are used by the internal DC-DC converter to supply a high voltage for the actuator control. CMOS or TTL logic levels on the control pins switch the high voltage on the electrostatic actuator.

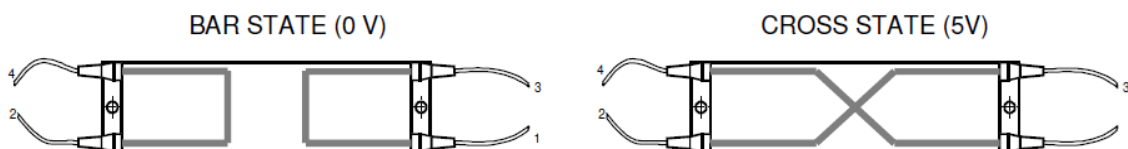
Pin 2 is used to set the state of the switch.

To set the cross state pin 2 must be at logic high. When pin 2 goes to logic low, or at power off, the switch returns into the bar state.

Pin layout and mechanical dimensions



Switching scheme



Note:
In OSW12-xxx-SM, port 4 is not accessible (no fiber connected)

Pin connections

Pin	Function
1	Power supply: 5V, 2mA
2	Selector: 0V= Bar State, 5V= Cross State
3	Ground

Item number - 1x2 switch	OSW12-488-SM	OSW12-633-SM	OSW12-780-SM	OSW12-830-SM	OSW12-980-SM	OSW12-1310-SM
Item number - 2x2 switch	OSW22-488-SM	OSW22-633-SM	OSW22-780-SM	OSW22-830-SM	OSW22-980-SM	OSW22-1310-SM
Operating Wavelength	480-650 nm	600-800 nm	750-950 nm	800-1000 nm	970-1170 nm	1280 - 1625 nm
Insertion Loss	max 2 dB at 488nm	typ 0.7 dB / max 1.5 dB				
Cross Talk	typ 75 dB / max 60 dB					
Polarization Dependent Loss	typ 0.02 dB / max 0.05 dB					
Backreflection	typ 55 dB / max 50 dB					
Switching Speed	typ 0.5 ms / max 1 ms					
Optical Power, max.	30 mW	50 mW	75 mW	85 mW	105 mW	300 mW
Fiber Type (Single Mode)	Fibercore SM450	Fibercore SM600	Fibercore SM750	Fibercore SM800	Fibercore SM980	Corning SMF-28E
Mode Field Diameter	3.3 μ m	4.3 μ m	5.3 μ m	5.6 μ m	6.2 μ m	9.2 μ m (1310nm) 10.4 μ m (1550nm)
Optical Connector	none (or on request)					
Lifetime (no Wear Out)	Proven up to 10 ⁹ switching cycles					
Operating Voltage	4.5 to 5.25 V DC					
Operating Temperature	0 to 40 °C					
Storage Temperature	-40 to +70 °C					
Dimensions (L x W x H)	43.0 mm x 16.5 mm x 9.5 mm					
Weight	<0.1 kg					