1xN (N=4, 8, 12, … , 36) MEMS Optical Switch, Coaxial Design

Features

- Low insertion loss
- Reliable
- Up to 1x36 optical ports
- UART, I2C/SMBus and parallel interface
- Non-Latching

Applications

- Protection Switching
- Reconfiguration
- Optical Subsystems
- Array Integration

Specifications

Parameters	Unit	Single Mode
Operation Wavelength	nm	1250~1670
Insertion Loss for 1x4[1]	dB	≤1.0 (Typ. 0.4)
Insertion Loss for 1x16[1]	dB	≤1.2 (Typ. 0.8)
Insertion Loss for 1x24[1]	dB	≤1.5 (Typ. 1.0)
Insertion Loss for 1x36[1]	dB	≤2.0 (Typ. 1.2)
Polarization Dependent Loss	dB	≤0.15
Return Loss	dB	≥50
Cross Talk	dB	≥50 (Typ. 55)
Wavelength Dependent Loss at 100nm Bandwidth	dB	≤0.2
Wavelength Dependent Loss at 1250~1670nm	dB	≤1.0 (Typ. 0.5)
Temperature Dependent Loss	dB	≤0.2
Optical Power Handling[2]	mW	≤500
Switch Time	ms	≤10 (Typ. 5)
Cycle Rate	Hz	≤50 (Typ. 10)
Repeatability[3]	dB	±0.01
Durability	cycles	No Wear Out
Fiber Type		SMF-28e
Operating Relative Humidity	%	5~95
Operating Temperature	℃	-10 ~ +70
Storage Temperature	℃	-40 ~ +85
Dimensions (LxWxH) (LMSW)	mm	21x40x7
Dimensions (LxWxH) (mini Size) (MLMSW)	mm	7.5x40x7
Supply Voltage	V	4.75~5.25
Power Consumption, Normal Mode	mW	≤150
Power Consumption, Standby	mW	40 (Typ.)
UART Speed	baud	9600~115200
SMBus/I^2C Bus Speed	kbps	≤400
Input Logic Level Low	V	≤0.6 (Typ. 0)
Input Logic Level High	V	≥2.4 (Typ. 5)
Output Logic Level Low	V	≤0.6 (Typ. 0)
Output Logic Level High	V	≥2.6 (Typ. 3.3)
Reset Inactive Voltage[4]	V	≥2.4 (Typ. 5)
Reset Active Voltage	V	≤0.9 (Typ. 0)
Reset Pulse Duration	μs	≥15
ROHS Compliance		2015/863/EU (no exceptions)
Latching or Non-Lactching[5]		Non-Latching
Operation Direction[6]		Didirectional

[1] Test at 23°C, 1550nm, without connector.

[2] It is recommended to power off the laser during switch transients if optical power > 100 mW.

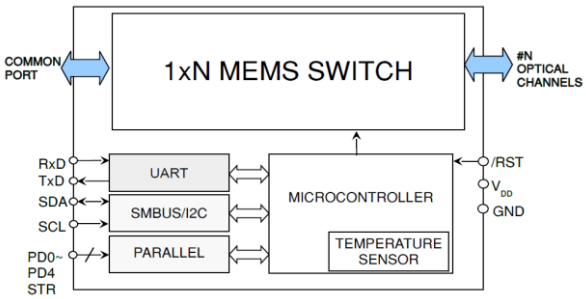
[3] For constant temperature and polarization.

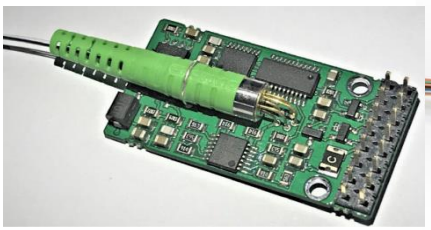
[4] Through onboard pull-up resistor.

[5] at poweroff it breaks the optical connection, routing of the common port is not controlled.

[6] The switch is bidirectional, the common port can be used as input or output.

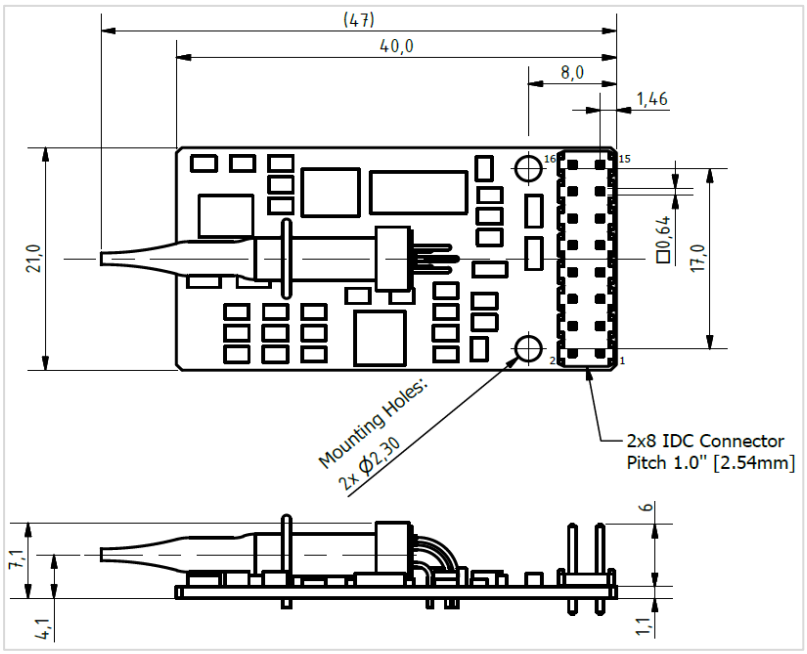
Functional Bloc Diagram and Photo





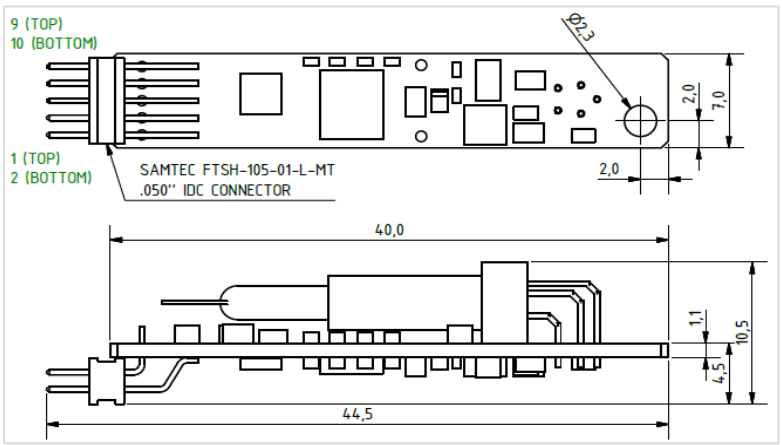
Dimensions (mm) and Pinout

Standard package (LMSW)



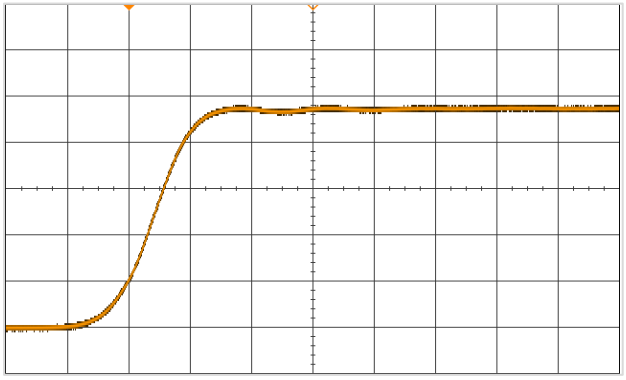
Pin	Description
1	Parallel PD3
2	Parallel PD4
3	Parallel PD1
4	Parallel PD2
5	Parallel STROBE/ENABLE
6	Parallel PD0
7	Ground (GND)
8	Supply voltage (V_{DD})
9	Reserved
10	UART TX
11	Reserved
12	UART RX
13	System reset ($\overline{RST}$)
14	SMBus/I^2C SDA
15	SMBus/I^2C SCL
16	Ground (GND)

Mini Package (MLMSW)



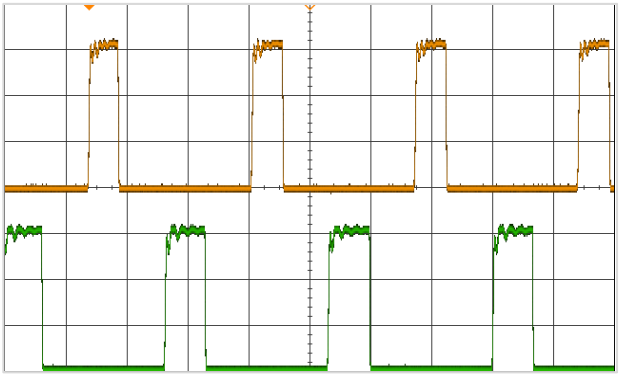
Pin	Description
1	I/F mode
2	Supply voltage (V_{DD})
3	System reset ($\overline{RST}$)
4	Ground (GND)
5	SMBus/I^2C A0
6	SMBus/I^2C A2 / UART RX
7	SMBus/I^2C A1 / UART TX
8	SMBus/I^2C SCL
9	SMBus/I^2C A3
10	SMBus/I^2C SDA

Optical Response Time



500 ms/div

Continouts Switch Operation



10 ms/div

Ordering Information

LMSW
MLMSW- ①①①-②②②②②②②②②②-③-④④④-⑤-⑥-⑦⑦

①	Port Type	1x4; 1x8; …; 1x36;
②	Wavelength	1250~1670;
③	Mode	N=Non-Latching;
④	Pigtail Type	250=250μm Fiber(8 Core Ribbon Fiber);
⑤	Fiber Type	1=SMF-28;
⑥	Fiber Length	1=m;
⑦	Connector	NE=None; FA=FC/APC; FC=FC/UPC; SA=SC/APC; SC=SC/UPC; LC=LC/UPC; XX=Others;