multimode

FIBER OPTIC 1xN SWITCH

coaxial design

OVERVIEW

sercalo's fiber optic multimode switch is bidirectional opto-mechanical switches based on a coaxial design where a single MEMS mirror redirects light from a common fiber to one of N ports.

The underlying MEMS technology results in low insertion loss and while keeping a constant switching performance over billion of switch cycles. The switch communicates over a UART, I^2C/SMBus or TTL-compatible parallel interface.

The part is designed to conform to Telcordia 1221 reliability standards. No epoxy is present in the optical path. The laser welded collimator withstands rugged environments and is well suited for direct mounting on printed circuit boards.

FEATURES

- Low insertion loss
- Reliable
- UART, I^2C/SMBus and parallel interface
- Ethernet interface available on request

APPLICATIONS

- *Telecom*
- *Instrumentation*
- *Test and measurement*

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DESCRIPTION

sercalo's COAXIAL TYPE multimode switches are based on a bidirectional architecture. The switch is non latching type and at power-off the connections are in a undefined state, i.e. a link with undefined loss may be established when power is removed.
The switch works over a single band at specified performance. The band is software selectable. When the wavelength range covers more than one band, the insertion loss increases, but the switching function is still performed.

TECHNICAL SPECIFICATIONS for Multi Mode fiber

	Unit	*Min*	*Typ*	*Max*
Optical Specifications				
Wavelength range[1]	nm	800		1350
Insertion loss up to 1x16[2]	dB		0.4	1.2
Crosstalk	dB	30	45	
Return loss	dB	23	30	
Switching time	ms		5	20
Cycle Rate	Hz		1	10
Repeatability[3]	dB			0.01
Durability	cycles	No wear out		
Electrical Specifications				
Supply voltage	V	4.75	5	5.25
Power consumption, normal mode	mW			75
Power consumption, standby	mW		20	
UART speed	baud	9600		115200
SMBus/I^{2}C bus speed	kbps			400
Logic level low	V		0	0.6
Logic level high	V	2.4	5	
Reset inactive voltage[4]	V	2.4	5	
Reset active voltage	V		0	0.9
Reset pulse duration	µs	15		
Package				
Operation temperature	°C	-10		70
Storage temperature	°C	-40		85
Pigtail length	cm	50		100
Weight	g	75		
Dimensions	mm	40 x 21 x 10		

[1] Insertion loss is optimized to cover both 850 and 1310 nm bands. [2] Values for standard range at 25°C, without connectors. [3]For constant temperature and polarization. [4]Through onboard pull-up resistor.

ORDERING INFORMATION

SC	1x4	-	50	B

Switch type:
SC= 800 – 1350 nm

Network:
1x4
1x8
1x12
1x16

Fiber type:
50 = OM4
62 = OM1

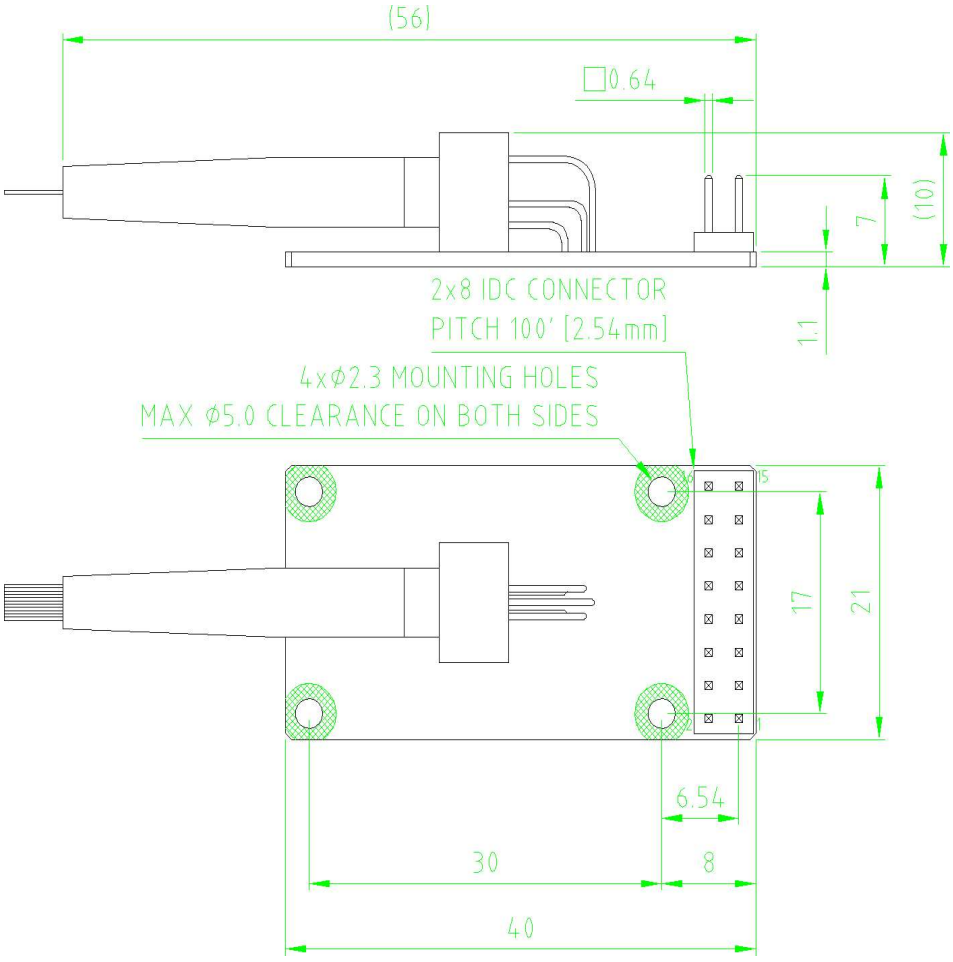
Fiber sleeve type:
B = 250 um bare fiber
R= 8 way ribbon fiber

CONNECTOR PINOUT

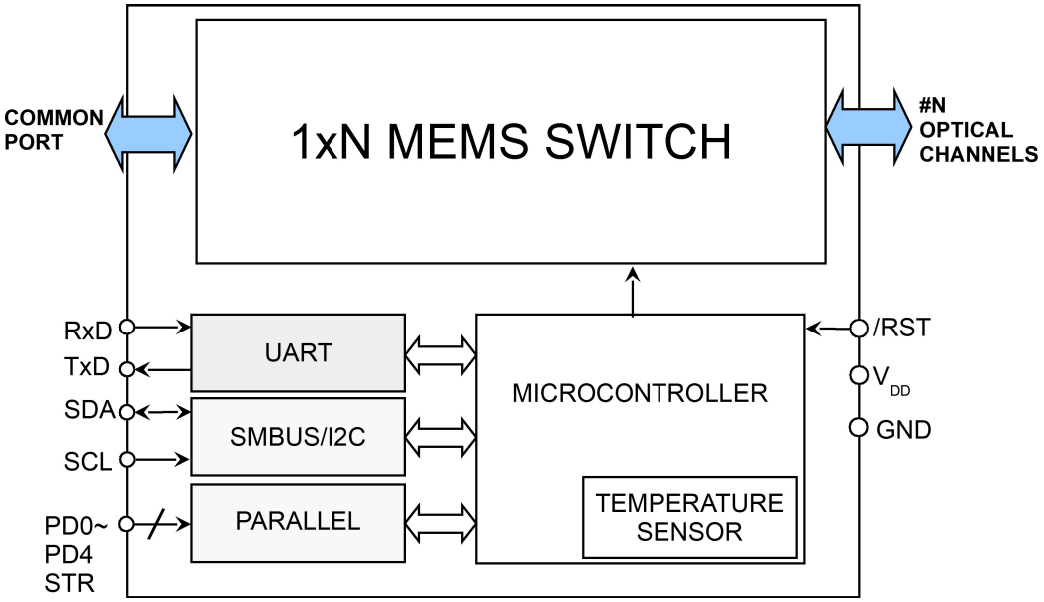
Pin number	*Description*
1	Parallel PD3
2	Parallel PD4
3	Parallel PD1
4	Parallel PD2
5	Parallel STROBE
6	Parallel PD0
7	Ground (GND)
8	Supply voltage (V_{DD})
9	Reserved[4]
10	UART TX data
11	Reserved[4]
12	UART RX data
13	System reset (/RST)
14	SMBus/I²C SDA
15	SMBus/I²C SCL
16	Ground (GND)

[4]*Let reserved pins unconnected.*

PRODUCT DIMENSIONS (IN MILLIMETERS)



FUNCTIONAL BLOC DIAGRAM



LIST OF AVAILABLE COMMANDS

Command		Description
Binary	**ASCII**	
0x01	ID	Returns the equipment identification
0x02	RST	Resets the device
0x04	ERM	Returns or changes the error returning mode
0x08	TMP	Returns the temperature of the microcontroller
0x10	UART	Returns or changes the baud rate of the UART
0x20	IIC	Returns or changes the address for SMBus/I^2C
0x52	SET	Sets the network configuration
0x59	POS	Returns the network configuration
0x5A	STB	Returns or changes the STROBE/$\overline{\text{ENABLE}}$ pin mode
0x5B	BAND	Returns or changes the optical band
0x5C	DBAND	Returns or changes the default optical band
0x5D	BASE	Returns or changes the origin of the parallel interface port numbering