

2X2 BYPASS Module

OVERVIEW

The **sercalo** quad2X2 bypass module is a fiber optic switch based on the MEMS technology.

The switching mechanism offers the reliability of a solid state device; it neither wears out nor degrades over time. The miniature package withstands rugged environments and is well suited for direct mounting on printed circuit boards.

The component is designed to meet Telcordia 1221 quality standards.

FEATURES

- low insertion loss
- low response time
- miniature size
- MM and SMF Version
- Quad and Double Version

APPLICATIONS

- optical cross-connect
- optical network protection/restoration

Contact:

Sercalo microtechnology ltd
Landstrasse 151, 9494 Schaan
Principality of Liechtenstein
Tel. +423 237 57 97 Fax. +423 237 57 48
www.sercalo.com e-mail: info@sercalo.com

DESCRIPTION

Sercalo's quad-2x2 bypass switch is powered by a 4.75 – 5.25 V voltage on the supply pin. It comes with latching (option A) or non-latching (option B) fiber optic switches. To set the state of a switch, a logic level high must be applied to the correspondent pin for at least 20 ms (latching, option A) or continuously (non-latching, option B). All the control pins must remain at a defined potential during use. A capacitive sensor allows reading out the switch position. The sensor's output is a pulled-up collector. The sensor output is low (0V) in cross and high (5V) in bar state.

TECHNICAL SPECIFICATIONS

	Unit	Min	Typ	Max
Optic				
Wavelength Range ¹	nm	1240		1640
Insertion Loss ²	dB		1	2
Crosstalk	dB	60	75	
Return loss	dB	50	55	
Polarisation Dependent Loss	dB		0.03	0.1
Switching Time	ms		0.4	1
Durability	cycles		No Wear	
Electric				
Supply Voltage (Vcc)	V	4.75	5	5.25
Logic level low (BR and CR select)	V	0		0.5
Logic level high (BR and CR select)	V	3.0		5.25
Selection pulse duration (option A only)	ms	20		
Power Consumption	mW		40	200
Sensor output response time	ms		15	30
Package				
Operation Temperature	°C	0		70
Storage Temperature	°C	-40		85
Size (L x W x H)	mm		125x115x18.5	

¹ for multimode: range: 600 – 1700 nm; ² value @ 25 °C, without connectors.

ORDERING INFORMATION:

Single Mode Version

A/B/Bypass: QUAD 2 x 2 - 9N

Multi Mode Version

A/B/Bypass: QUAD 2 x 2 - 62N

Single Mode Version

A/Bypass: DOUBLE 2 x 2 - 9N

Multi Mode Version

A/Bypass: DOUBLE 2 x 2 - 62N



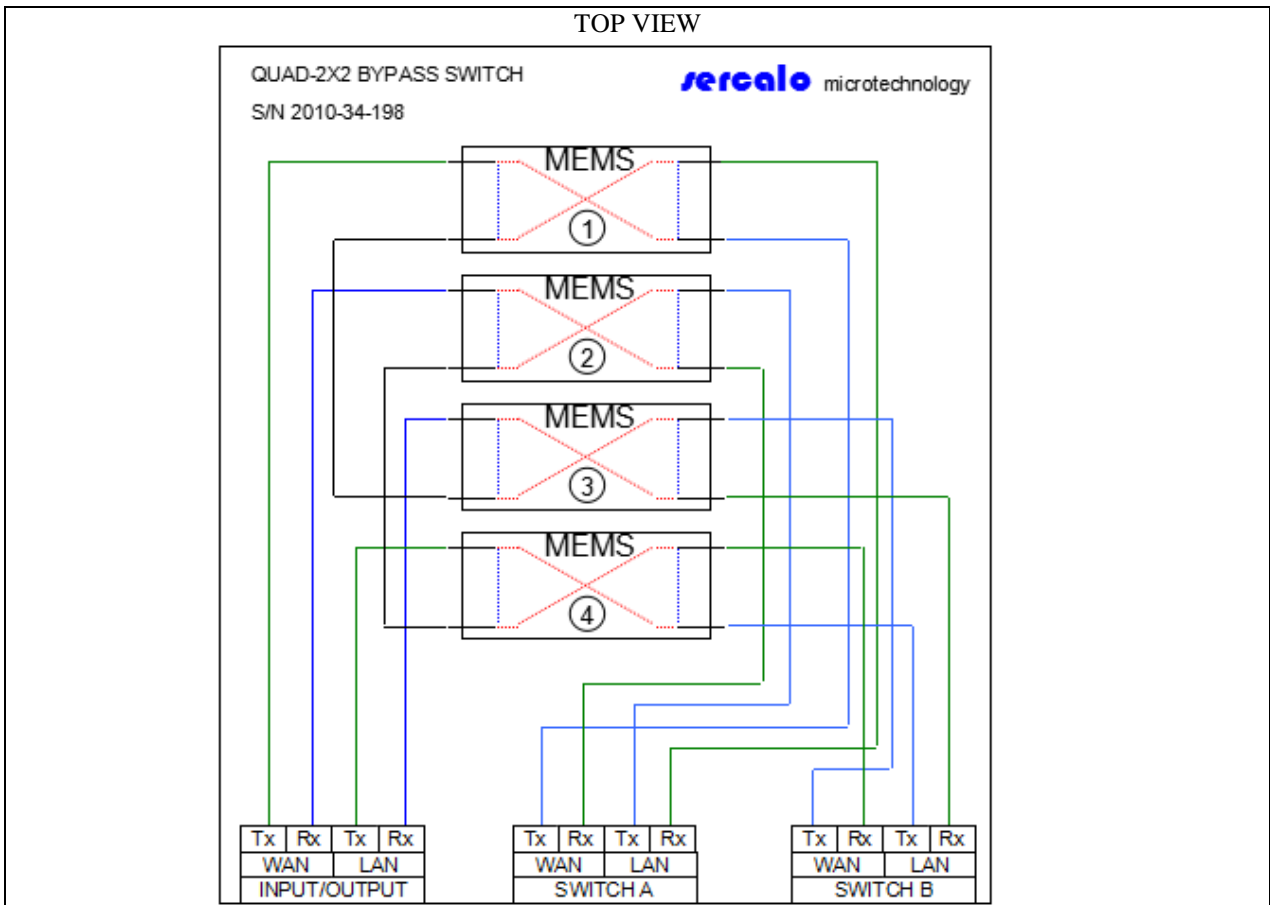


Figure 1: Functional Block Diagram (QUAD TOP VIEW)

MEMS 1 BR	MEMS 1 CR	MEMS 2 BR	MEMS 2 CR	MEMS 3 BR	MEMS 3 CR	MEMS 4 BR	MEMS 4 CR	Mode
0	1	0	1	1	0	1	0	Switch A (Normal Mode) WAN-Rx to A-WAN-Rx WAN-Tx to A-WAN-Tx LAN-Rx to A-LAN-Rx LAN-Tx to A-LAN-Tx
1	0	1	0	0	1	0	1	Switch B (1. Level Protection) WAN-Rx to B-WAN-Rx WAN-Tx to B-WAN-Tx LAN-Rx to B-LAN-Rx LAN-Tx to B-LAN-Tx
1	0	1	0	1	0	1	0	Bypass (2. Level Protection) WAN-Rx to LAN-Tx WAN-Tx to LAN-Rx

Figure 2: Truth table (QUAD)

DUAL-2X2 BYPASS SWITCH
S/N 2010-34-198

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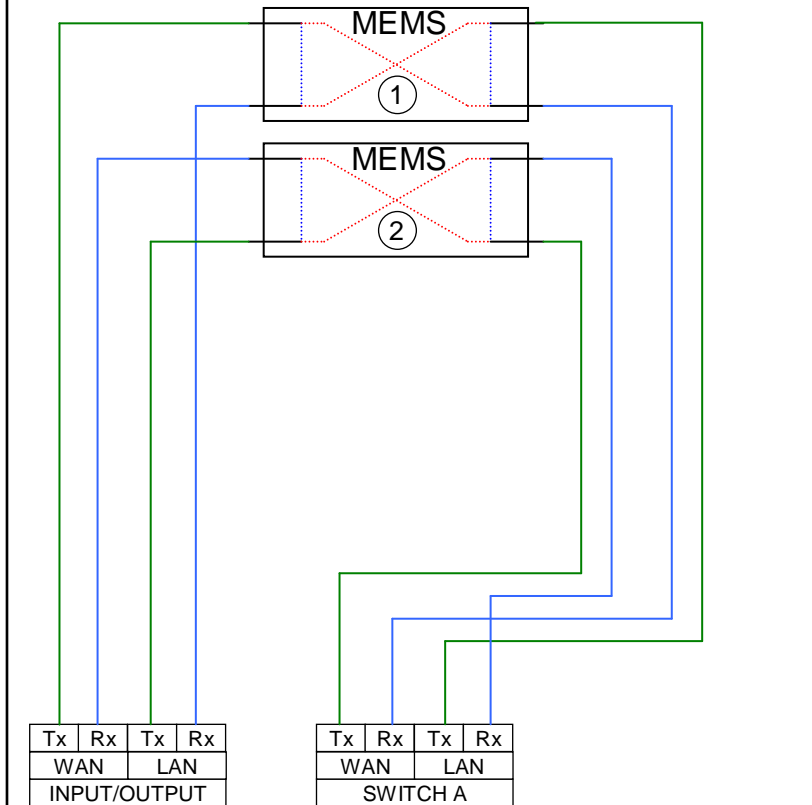


Figure 1: Functional Block Diagram (DOUBLE)

MEMS 1 BR	MEMS 1 CR	MEMS 2 BR	MEMS 2 CR	Mode
0	1	0	1	Switch A (Normal Mode) WAN-Rx to A-WAN-Rx WAN-Tx to A-WAN-Tx LAN-Rx to A-LAN-Rx LAN-Tx to A-LAN-Tx
1	0	1	0	Bypass (Protection Mode) WAN-Rx to LAN-Tx WAN-Tx to LAN-Rx

Figure 2: Truth table (DOUBLE)

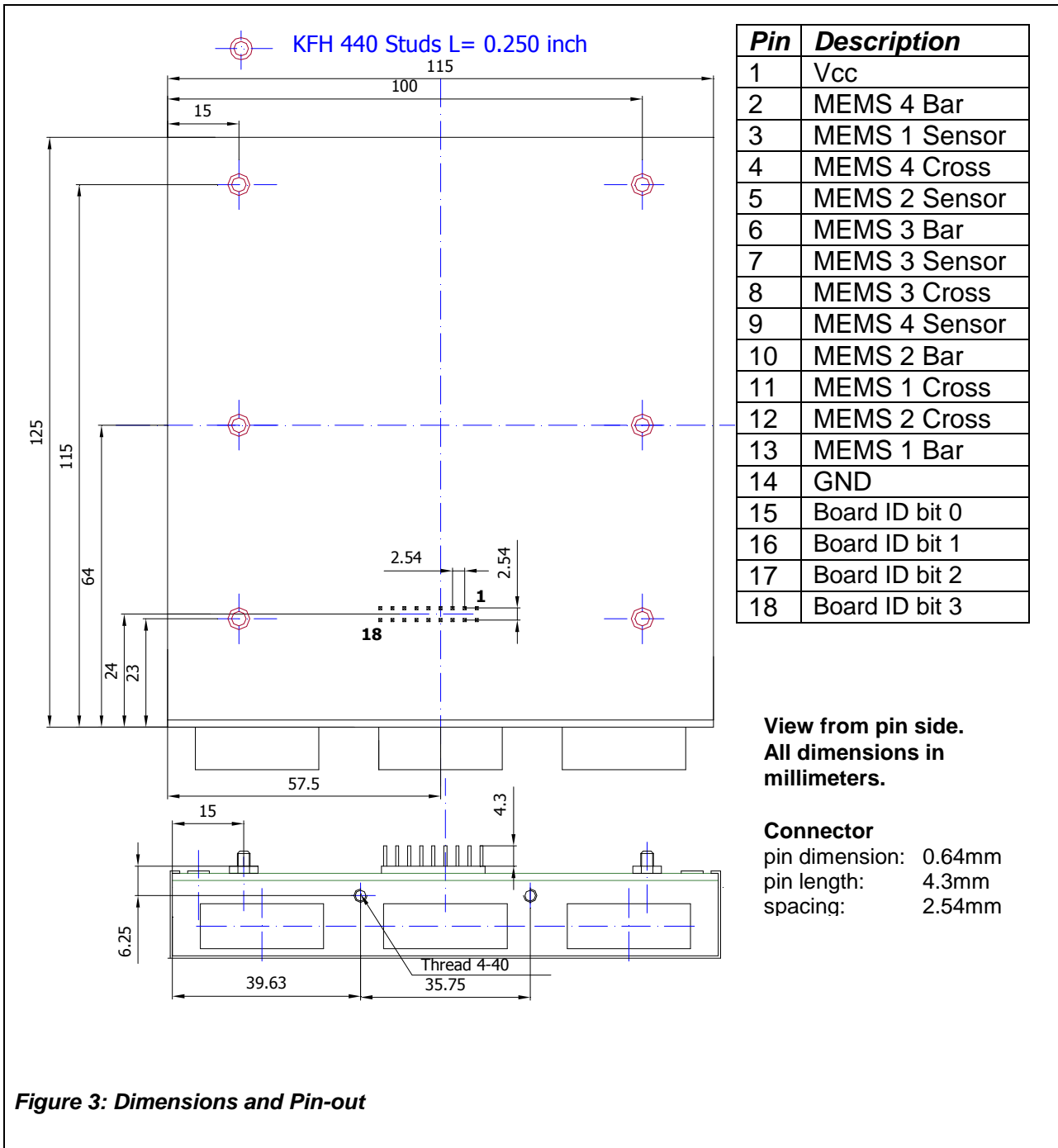


Figure 3: Dimensions and Pin-out

Board ID Configuration:

Board ID bit	Pin	SMF A/B/Bypass	MM A/B/Bypass	SM A/Bypass	MM A/Bypass
0	15	NC	GND	NC	GND
1	16	NC	NC	GND	GND
2	17	NC	NC	NC	NC
3	18	NC	NC	NC	NC