10.3Gbps SR/SW Dual Port Fiber Bypass Module

Product Description

The SR/SW Dual port fiber single bypass modules is design expressly for Intrusion Prevention System (IPS) provides complete visibility to network traffic, It also introduces a point of failure should the IPS lose power, cable fail or application freeze. The module design for PCI Express X8 interface, which means it can support 10.3Gbit/s in full duplex mode per port of data transfer rate and OM-3 Multi-mode fiber operations. SR/SW Quad port fiber bypass modules designed to be compliant digital diagnostic monitoring function: Temperature, VCC , TX optical power, TX laser bias current, and RX received optical power, The post-amplifier of the SR/SW Dual port fiber single bypass modules also includes a Loss of Signal (LOS) circuit that provides a TTL logic-high output when the received optical level is below a preset LOS Assert threshold.

Features

- Compliant with IEEE 802.3ae 10GBASE-SR
- Compliant with IEEE 802.3ae 10GBASE-SW
- Link Distances at 10.3Gbps 300m links with 50/125um OM-3 MMF Cable
- EEPROM with Series ID Function
- Quad LC Connector interface with optical Bypass Function
- Laser Class 1 Product with comply with Requirements of IEC 60825-1 and IEC 60825-2
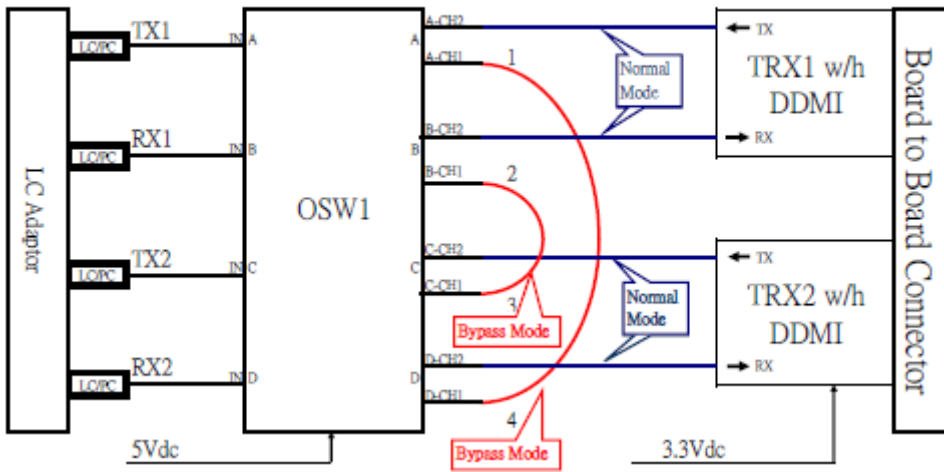- LED indicate operation function

Applications

- In-Line tracffic Monitoring, Analyzing and Optimization
- Intrusion Prevention System
- Quality of Service
- In-Line Sercurity
- Load balance
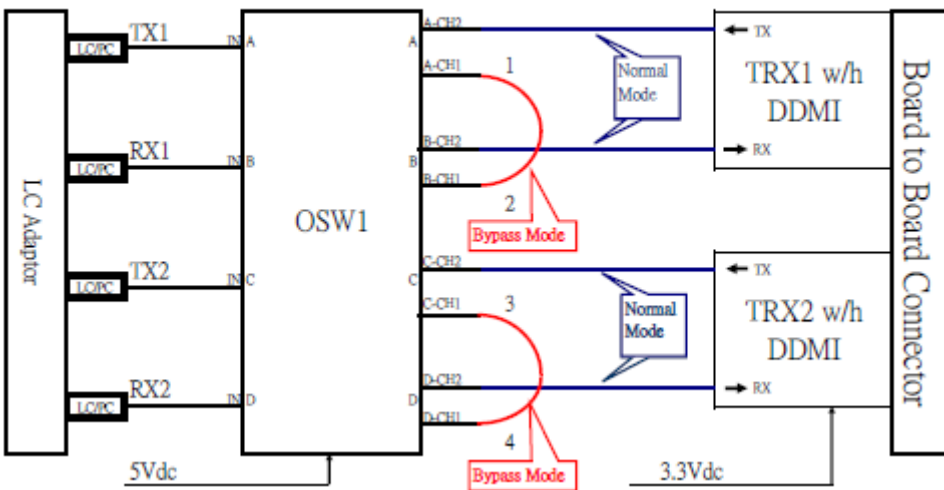- Web Acceleration Apliances

LASER SAFETY

This Multi-mode Quad Port Fiber Bypass Module is a Class 1 laser product. It complies with IEC 68025 and FDA 21 CFR 1040.10 and 1040.11. The module must be operated within the specified temperature and voltage limits. The optical port of the module shell be terminated with an optical connector or with a dust plug.

SR/SW Quad Port Bypass Module – Optical Path Portion
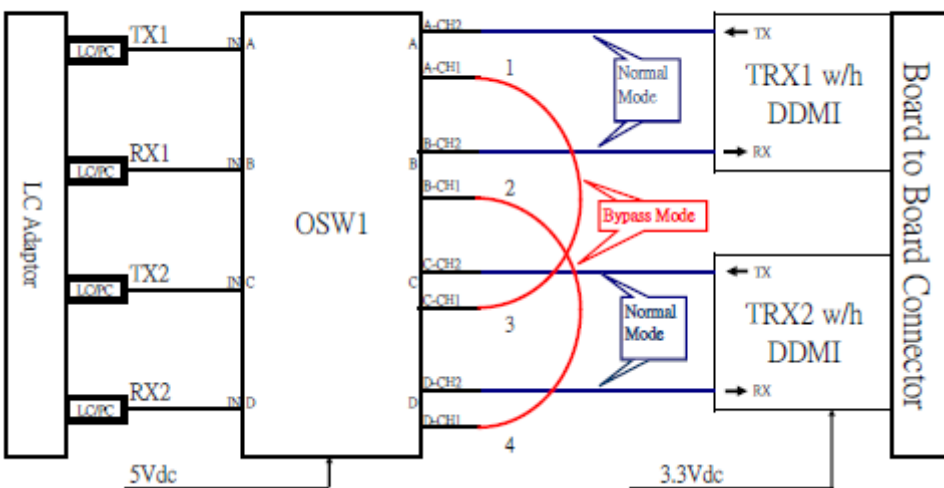
Dual Port One Bypass Path is 1<—>4 & 2<—>3

Dual Port One Bypass Path is 1<—>2 & 3<—>4

Dual Port One Bypass Path is 1<—>3 & 2<—>4

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	Ts	-40		85	℃	
Supply Voltage	Vcc	0		5	V	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operation Temperature	Ts	-5		70	℃	1
+5V Supply Voltage	Vcc5	4.75		5.25	V	Vcc5,6
+3.3V Supply Voltage	Vcc3	3.135		3.465	V	Vcc1,2,3,4
+5V Supply Current	Icc5			500	mA	Icc5,6
+3.3V Supply Current	Icc3			1200	mA	Icc1,2,3,4
Relative Humidity	—	5		85	%	2

Note：

1. Consuming Temperature

2. Non Condensation

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter						
Differential Input Impedance	Z_d		100		Ω	1
Differential Input Voltage Swing	V_{DIFF}	180		700	mV	1
Differential Input Voltage	V_{DT}	0.5		2.4	V	1
Disable Input-High	V_{DISH}	2.4		V_{cc}+0.3	V	
Disable Input-Low	V_{DISL}	0		0.8	V	
Fault Pull Up Resistor	R_{TX_FAULT}	4.7		10	KΩ	2
Fault Output-High	V_{TXFH}	2.4		V_{cc}	V	2
Fault Output-Low	V_{TXFL}	0		0.5	V	2
TX_DISABLE Asserted Time	t_{OFF}			10	μsec	
TX_DISABLE Deasserted Time	t_{ON}			1	msec	
Time to initialize, include reset of TX_FAULT	t_{init}			300	msec	
TX_FAULT from fault to assertion	t_{fault}			100	μsec	
TX_DISABLE time to reset	t_{reset}	10			μsec	
Receiver						
Differential Output Impedance	Z_d		100		Ω	1
Differential Output Voltage	V_{DR}	0.35		0.85	V	3
LOS Load Resistor	R_{RX_LOS}	4.7		10	KΩ	2
LOS Output Voltage-High	V_{LOSH}	2.4		V_{cc}	V	2
LOS Output Voltage-Low	V_{LOSL}	0		0.5	V	2

LOS Asserted Time (Transmitter off to on)	$t_{A.RX\_LOS}$			100	μsec	4
LOS Deasserted Time (Transmitter on to off)	$t_{D..RX\_LOS}$			100	μsec	4
Optical Bypass Switch						
Operation Voltage	V_{SW}	4.5	5.0	5.5	V	
Operation Current	I_{SW}		80	100	mA	
Latching Voltage-High	V_{LATH}	4.5	5.0	5.5	V	
Latching Voltage-Low	V_{LATL}	0		0.8	V	
Latching Resistance	R_{LAT}		125		Ω	±10%
Switching Time (Input Pulse $\geqq$ 20ms)	t_{ST}			5.0	msec	
Timing						
Series ID Clock Rate	F_serial_clock			100	KHz	DDMI function

Note：

1. Internally AC couples and terminated to 100-Ohms differential load.

2. Pull up to Vcc on Host-Board.

3. Internally AC coupled, but requires a 100-Ohms differential termination at or internal to Serializer/Deserialer.

4. These are 20%~80% values.

5.

Optical Characteristics

Parameter	Multimode Fiber Type	Min. Modal Bandwidth (MHz-Km)	Operating Distance Range (m)	Max. Channel Insertion Loss (dB)
Operating Range 10.3Gbps	50um MMF OM3	2000	300	6.0

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter						
Output Optical Power	P_{OUT}	-7.1		-1.0	dBm	50/125um
Optical Modulation Amplitude	OMA	-4.3			dBm	
Center Wavelength	$λ_C$	840	850	860	nm	
Spectral Width (RMS)	Δλ			0.45	nm	
Transmitter and Dispersion Penalty	TDP			3.9	dB	
Relative Intensity Noise	RIN			-128	dB	
Output Eye	Compliant with IEEE802.3ae					
Max. Pout TX-DISABLE Asserted	P_{OFF}			-35	dB	
Receiver						
Optical Input Power (Over Load)	P_{IN1}	-1.0			dBm	1, 50/125um
Receiver Sensitivity (AVG.) (BER<10E-12 and PRBS=231-1)	P_{IN2}			-9.9	dBm	1, 50/125um
Receiver Sensitivity (OMA) (BER<10E-12 and PRBS=231-1)	P_{IN3}			-11.1	dBm	1, 0/125um

Stressed Receiver Sensitivity (OMA) (BER<10E-12 and PRBS=231-1)	P_{IN4}			-7.5	dBm	1, 50/125um ISI=3.5dB
Center Wavelength	λ_C	840	850	860	nm	
Optical Return Loss	ORL	12			dB	
LOS Asserted (AVG.)	P_A	-30			dBm	
LOS Deasserted (AVG.)	P_D	-30		-14	dBm	
LOS Hysteresis	P_A-P_D	0.5		3.0	dB	
Optical Bypass Switch						
Center Wavelength	λ_C	670	850	980	nm	
Insertion Loss	IRL	2.5		3.0	dB	1, 0/125um
Return Loss	ORL	30			dB	1, 0/125um

Note：

Normal Mode (Bypass Mode Off).