



10Gigabit XFP Optical Receiver

RTXM226-406

Features

- *Compliant with XFP MSA*
- *Data Rate from 9.953 Gbps to 10.7 Gbps*
- *APD ROSA*
- *Industry-standard, protocol-independent XFI interface*
- *Power dissipation < 1W*
- *LC duplex receptacle package*
- *Low power dissipation*
- *Hot Pluggable*
- *Built in digital diagnostic Functions*
- *Operating case temperature range: 0°C ~ 70°C*
- *RoHs compliant*

Application

- *SONET OC-192 SR-1&SDH STM I-64.1*
- *10GBASE-LR/LW 10Gigabit Ethernet*

Standards

- *XFP MSA*

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature	T_s	°C	-40	85
Supply Voltage 1	VCC3	V	-0.5	4.0
Supply Voltage 2	VCC5	V	-0.5	6.0

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Case Operating Temperature Range	T_c	°C	0		70
Supply Voltage 1	VCC3	V	3.13	3.3	3.45
Supply Voltage 2	VCC5	V	4.75	5.0	5.25

Electrical Characteristics

(Tested under recommended operating conditions, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Test condition
Receiver						
Output differential impedance	R_{out}	Ω	-	100	-	1
Differential data output swing	$V_{out,pp}$	mV	600	700	800	2
Data output rise time	T_r	ps	24		34	3
Data output fall time	T_f	ps	24		34	3
LOS Fault	$V_{LOS\ fault}$	V	VCC-0.5		$V_{CC\ HOST}$	4
LOS Normal	$V_{LOS\ norm}$	V	0		+0.5	4
Power Supply Rejection	PSR		See Note 5 below			5

Note1: After internal AC coupling.

Note2: Into 100 ohms differential termination.

Note3: 20-80%

Note4: Loss of Signal is open collector to be pulled up with a 4.7k-10kohm resistor to 3.15-3.6V. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

Note5: Per Section 2.7.1.in the XFP MSA Specification

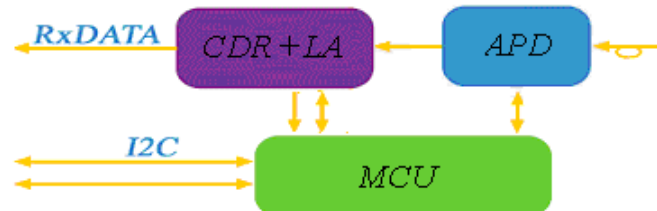
Optical Characteristics

(Tested under recommended operating conditions, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Test condition
Optical transmitter Characteristics						
Data rate		Gbps	9.95		10.7	
Receiver Sensitivity		dBm			-24	Ber < 10^{-12} , 2 ³¹ -1PRBS
Maximum input optical Power	P_{in-MAX}	dBm	-7			Ber < 10^{-12} , 2 ³¹ -1PRBS
Optical Center Wavelength	λ_c	nm	1280		1610	

LOS De-Assert	LOS _D	dBm	-28
LOS Assert	LOS _A	dBm	-35
LOS Hysteresis		dB	0.5
Bit Error Ratio	BER		10 ⁻¹² 2 ³¹ -1PRBS

Block Diagram



Pin Description

Pin	Logic	Symbol	Name/Description	Note
1		GND	Module Ground	1
2		VEE5	Optional -5.2V Power Supply (Not Required)	
3	LVTTTL-I	Mod_DeSel	Module De-select; When held low allows the module to respond to 2-wire serial interface commands	
4	LVTTTL-O	Interrupt	Interrupt; Indicates presence of an important condition which can be read over the 2-wire serial interface	2
5	LVTTTL-I	TX_DIS	Transmitter Disable; Turns off transmitter laser output (Not Required)	
6		VCC5	+5V Power Supply	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	LVTTTL-I/O	SCL	2-Wire Serial Interface Clock	2
11	LVTTTL-I/O	SDA	2-Wire Serial Interface Data Line	2
12	LVTTTL-O	Mod_Abs	Indicates Module is not present. Grounded in the Module	2
13	LVTTTL-O	Mod_NR	Module Not Ready; Indicating Module Operational Fault	2
14	LVTTTL-O	RX_LOS	Receiver Loss Of Signal Indicator	2
15		GND	Module Ground	1
16		GND	Module Ground	1
17	CML-O	RD-	Receiver Inverted Data Output	
18	CML-O	RD+	Receiver Non-Inverted Data Output	
19		GND	Module Ground	1
20		VCC2	+1.8V Power Supply(Not Required)	
21	LVTTTL-I	P_Down/RST	Power down; When high, requires the module to limit power consumption to 1.5W or below. 2-Wire serial interface must be functional in the low power mode.	

			Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle.	
22	VCC2		+1.8V Power Supply(Not Required)	
23	GND		Module Ground	1
24	PECL-I	RefCLK+	Reference Clock Non-Inverted Input,AC coupled on the host board (Not Required)	
25	PECL-I	RefCLK-	Reference Clock Inverted Input,AC coupled on the host board (Not Required)	
26	GND		Module Ground	1
27	GND		Module Ground	1
28	CML-I	TD-	Transmitter Inverted Data Input (Not Required)	
29	CML-I	TD+	Transmitter Non-Inverted Data Input (Not Required)	
30	GND		Module Ground	1

Note1: Module ground pins GND are isolated from the module case and chassis ground within the module.

Note2: Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.

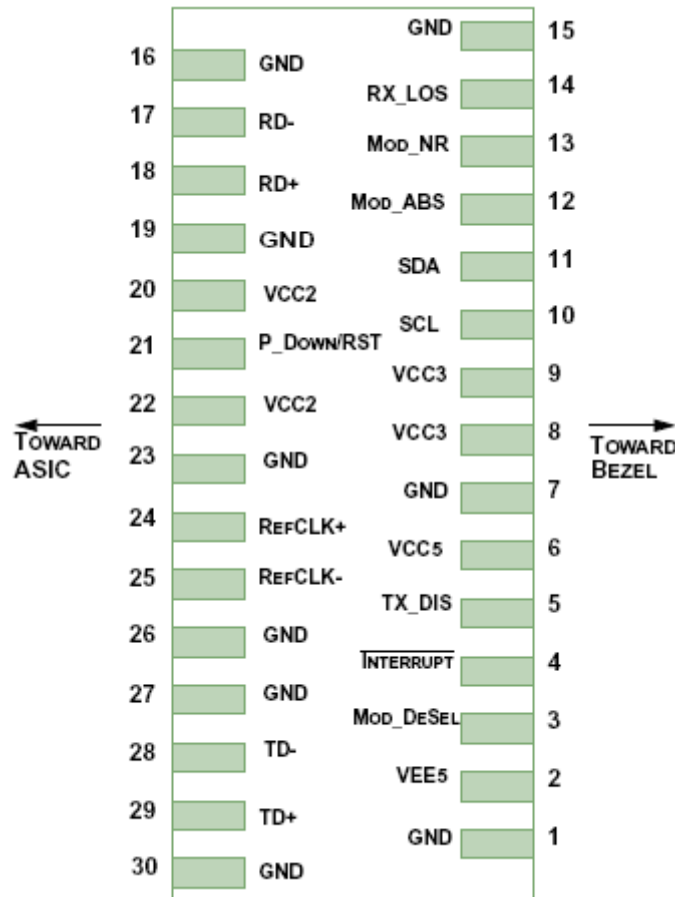
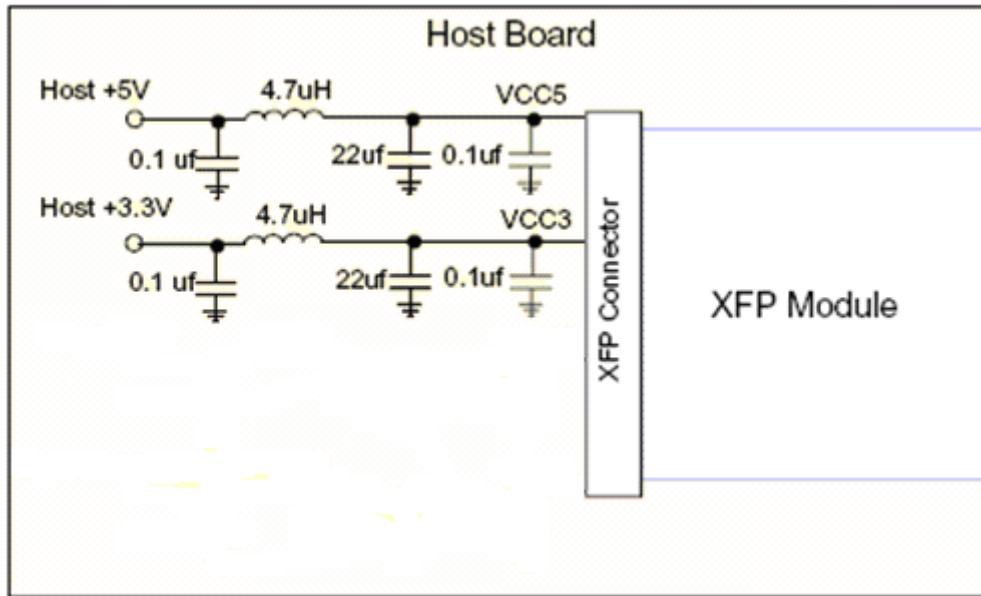


Diagram of Host Board Connector Block Pin Numbers and Names

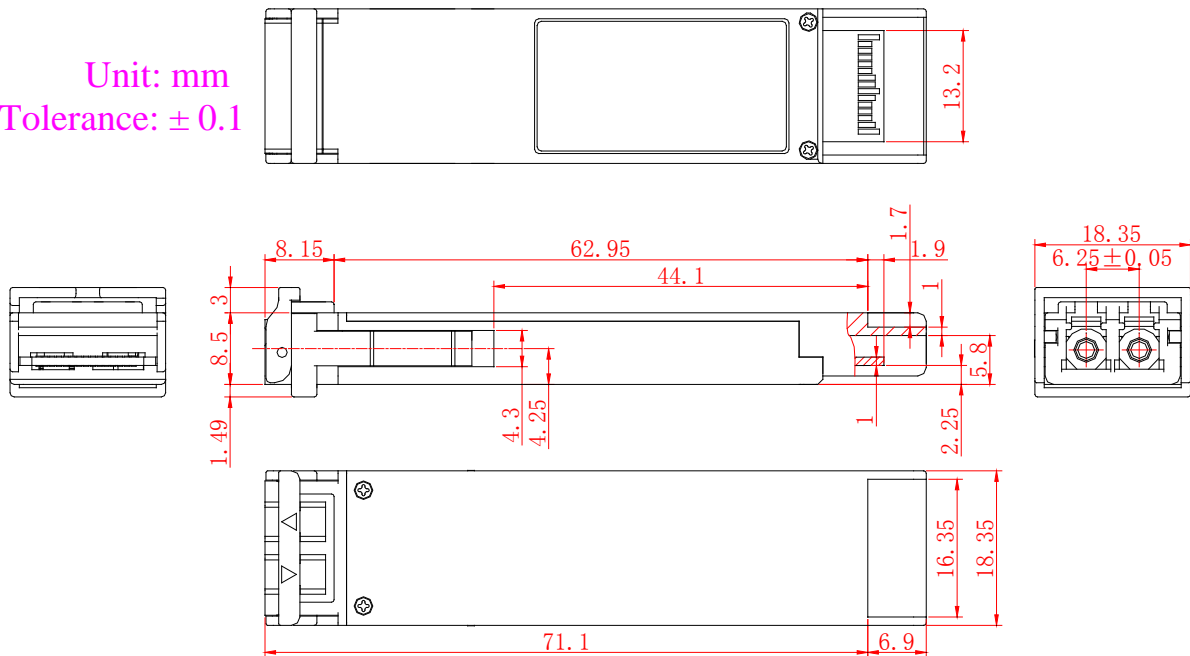
Typical Application Circuit



Package Outline

WTD's XFP transceivers are compliant with the dimensions defined by the XFP Multi-Sourcing Agreement (MSA).

Unit: mm
Tolerance: ± 0.1



Regulatory Compliance

Feature	Test method	Performance
Electrostatic Discharge (ESD) to Electrical Pins	MIL-STD 883C, Method 3015.4 Human Body Model	TBD ¹
Electrostatic Discharge (ESD) to Optical Connector	IEC 61000-4-2; 1999	TBD ¹
Electromagnetic Interference (EMI)	FCC Part 15 Subpart J Class B, CISPR 22: 1997; EN 55022: 1998 Class B, VCCI Class I	Compliant with standards

NOTE 1: TBD: to be determined

Ordering Information

Part No.	Specifications					
	Package	Data rate	Detector	Sensitivity	Temp	Others
RTXM226-406	XFP	10G	APD	< -24dBm	0~70 °C	RoHS

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