

10Gbps XFP Optical Transceiver RTX226-480



The RTX226-480 is a hot pluggable 10Gbps small-form-factor transceiver module integrated with the high performance cooled 1550nm EML transmitter and high sensitivity APD receiver. It is compliant to INF-8077i XFP Multi-source Agreement(MSA). The module is a multirate optical transceiver, intended to support Telecom and Datacom applications.

Features

- Data rate from 9.95 Gbps to 11.3Gbps
- 1550nm EML TOSA and APD ROSA
- Industry-standard, protocol-independent, XFI interface
- Transmission distance up to 80km
- LC duplex receptacle package
- Hot pluggable
- Built in digital diagnostic functions
- Operating case temperature range:-5°C~70°C
- RoHS compliant

Applications

- SONET OC-192&SDH STM 64
- 10G Base-ZR
- 10Gigabit Fiber Channel

Standards

- XFP MSA (INF-8077i)
- IEEE802.3ae
- ITU-T G.691

Specifications

(Tested under recommended operating conditions, unless otherwise noted)

Parameter	Symbol	Unit	Value		
			Min	Typ	Max
Optical Transmitter Characteristics					
Data Rate	-	Gbps	9.95	-	11.3
Optical Power	P ₀	dBm	0	-	4
Center Wavelength Range	c	nm	1530	1550	1565
Extinction Ratio	ER	dB	9	-	-
Spectral Width (-20dB)		nm	-	-	0.4
SMSR	-	dB	30	-	-
Relative Intensity Noise	RIN	dB/Hz	-	-	-128
Eye Diagram	Compliant with ITU-T G.691				
Dispersion Penalty ¹	-	dB	-	-	2
Optical Receiver Characteristics					
Data Rate	-	Gbps	9.95	-	11.3
Center Wavelength Range	c	nm	1260	-	1600
Receiver Sensitivity ²	S	dBm	-	-	-24
Overload Input Optical Power	-	dBm	-7	-	-
Receiver Reflectance	-	dB	-	-	-30
LOS	Optical Dessert	-	-	-	-27
	Optical Assert	-	-37	-	-
LOS Hysteresis	-	dB	0.5	-	6
Note1: 80KmSMF,9.95Gbps					
Note2:Ber<10 ⁻¹² ,2 ³¹ -1 PRBS NRZ,1550nm,ER=9dB					

10Gbps XFP Optical Transceiver RTX226-480

Ordering Information

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Supply Voltage 1	V _{CC3}	V	-0.5	4.0
Supply Voltage 2	V _{CC5}	V	-0.5	6.0
Storage Temperature	T _s	°C	-40	85
Operating Case Temperature	T _c	°C	-5	70
Relative Humidity (Non condensation)	-	%	5	90

Recommended Operating Conditions

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Symbol	Unit	Min	Max	Note
V_{IH}	V	2.0	$V_{cc3}+0.3$	
V_{IL}	V	-0.3	0.8	
V_{OH}	V	$V_{dd3}-0.5$	$V_{dd3}+0.3$	1
V_{OL}	V	0.0	0.4	
V_{IH}	V	$V_{dd3} * 0.7$	$V_{dd3} + 0.5$	

1

10Gbps XFP Optical Transceiver RTX226-480

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 module to respond to 2-wire serial interface	
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	
6		VCC5	+5V Power Supply	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	I/O	SCL	2-Wire Serial Interface Clock	2
11	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	
29	CML-I	TD+	Transmitter Non-Inverted Data Input	
30		GND	Module Ground	1

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

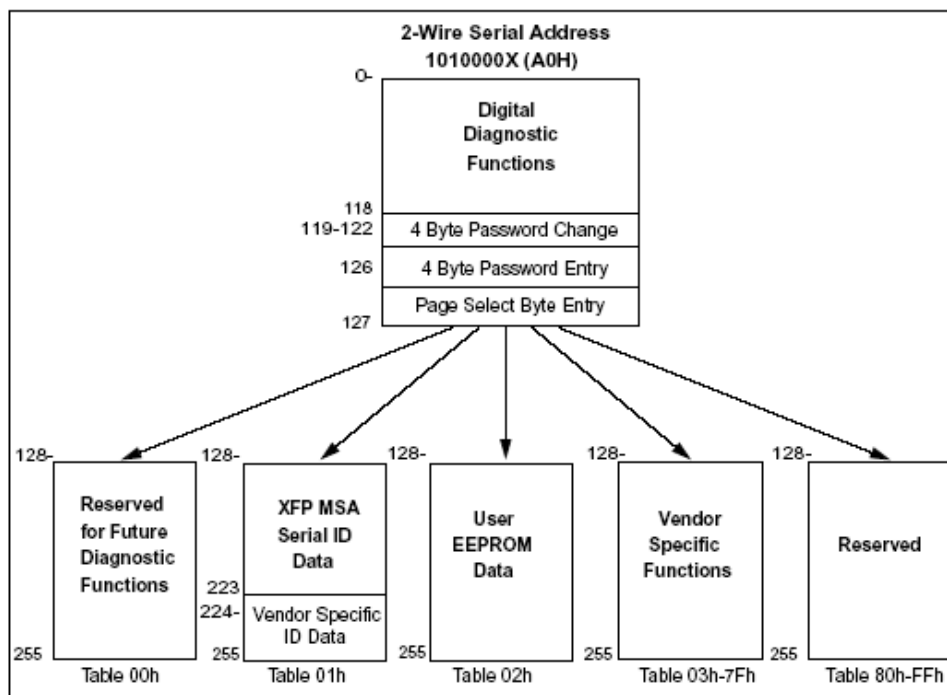
Note2: Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.

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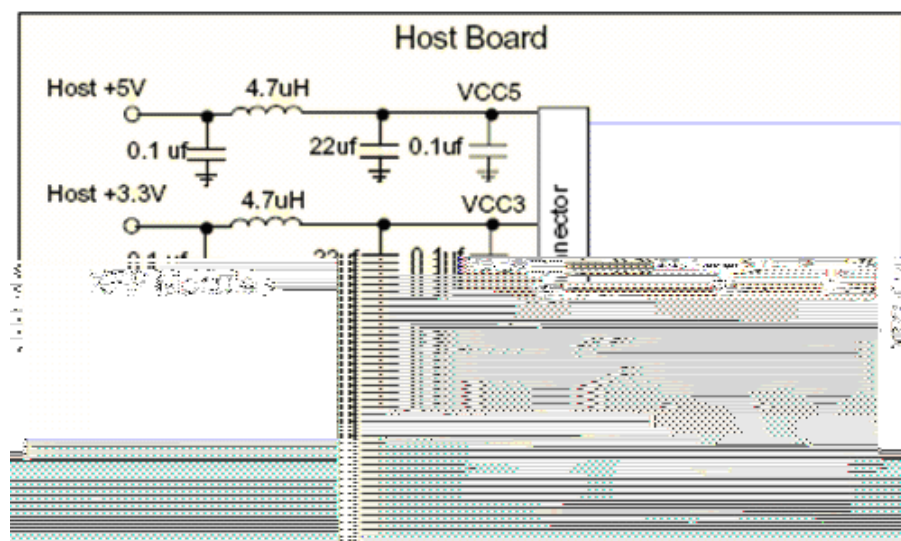
Digital Diagnostic Functions

As defined by the XFP MSA, digital diagnostic functions are provided via a 2-wire serial interface, which allows real-time access to the following operating parameters:

- Transceiver Temperature
- Tx Bias Current
- Tx Optical Power
- RX Received Optical Power
- Transceiver +3.3V Supply Voltage
- Laser Temperature

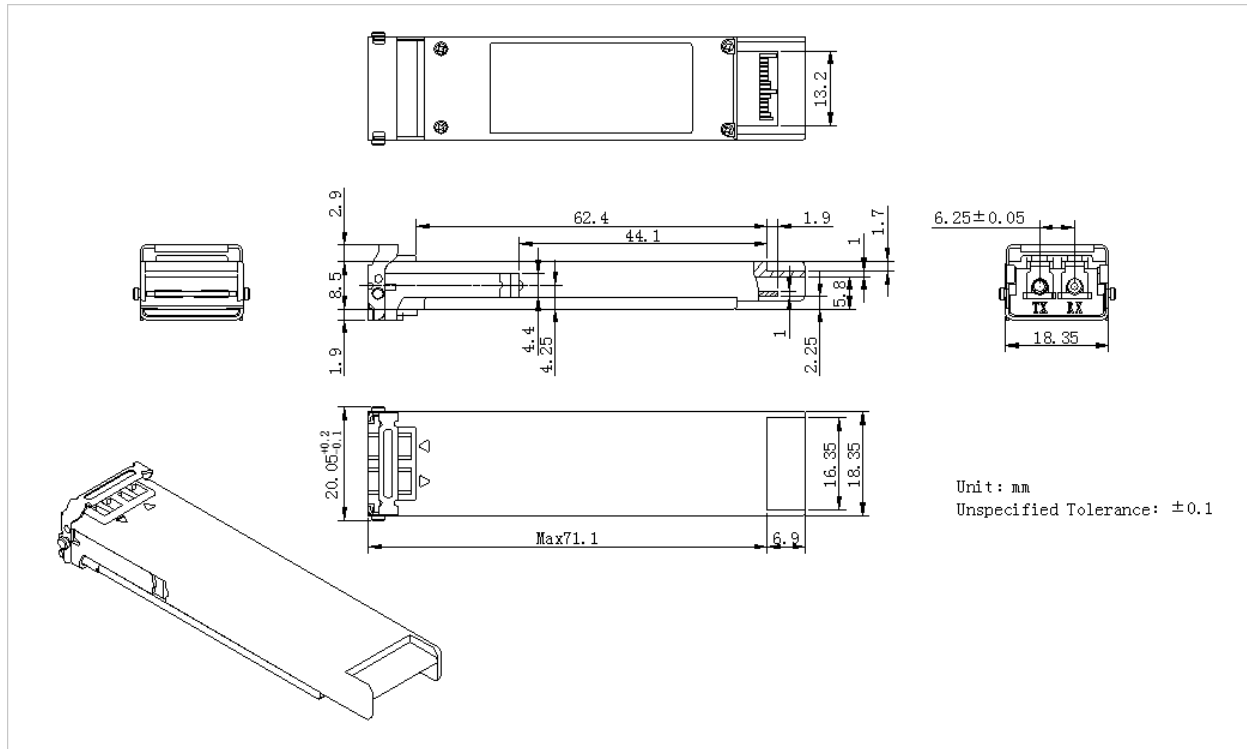


Typical Application Circuit for Power Supply



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Package Outline



Regulatory Compliance

Feature	Test Method	Performance
Laser Eye Safety	FDA 21 CFR 1040.10 and 1040.11 IEC 60825-1: 1994+ A11: 1996+ A2: 2001 IEC 60825-2: 2004 + A1: 2006 EN 60825-1:1994+A1:2002+A2:2001 EN 60825-2: 2004	Compliant with Class 1 laser product
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7 Human Body Model	Class 1 (>1.5kV)
Electrostatic Discharge (ESD) Immunity	IEC 61000-4-2: 2001	Class 2 (>4.0kV)
Electromagnetic Interference (EMI)	FCC Part 15 Subpart J Class B CISPR22:1997+A1:2000+A2:2002, Class B EN55022:1998+A1:2000+A2:2003, Class B	Compliant with standards