

10Gbps XFP Optical Transceiver RTXM226-408

The RTXM226-408 is a hot pluggable 10Gbps small-form-factor transceiver module integrated with the high performance un-cooled 1310nm DFB laser and high sensitivity PIN 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.

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
Transmission Distance ¹	L	km	-	-	10
Optical Power	P ₀	dBm	-6	-	-1
Center Wavelength Range	λ _c				

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Ordering Information

Part No.	Specifications								
	Package	Data rate	Laser	Optical Power	Detector	Sensitivity	Top	Reach	Others
RTXM226-408	XFP	10G	1310nm DFB	-6 ~ -1dBm	PIN	<-14.4dBm	-5~70°C	10km	DDM,RoHS

Block Diagram

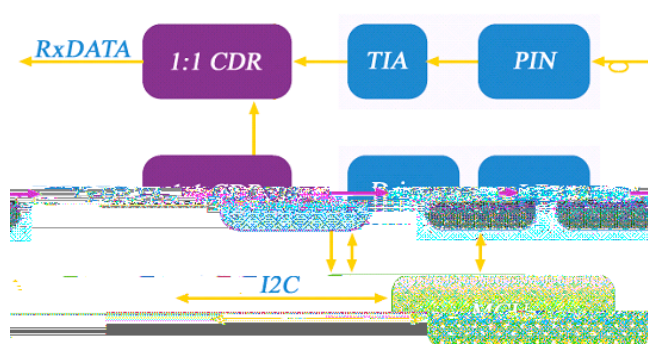


Figure Transceiver functional diagram

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Supply Voltage	V_{CC3}	V	-0.5	4.0
Storage Temperature	T_s	°C	-40	85
Operating Case Temperature	T_c	°C	-5	70
Relative Humidity (Non condensation)	-	%	5	90

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Operating Case Temperature	T_c	°C	-5	-	70
Supply Voltage	V_{CC3}	V	3.13	3.3	3.47
Supply Current	I_{CC3}	mA	-	-	650
Power Dissipation	-	W	-	1.7	-

Electrical Characteristics

(Tested under recommended operating conditions, unless otherwise noted)

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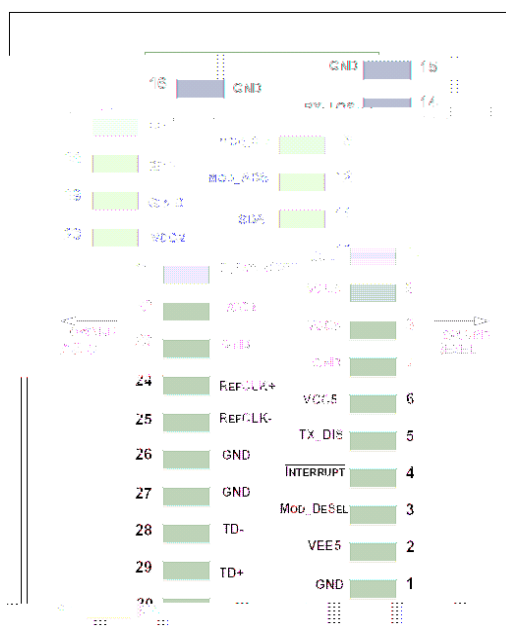
Parameter	Symbol	Unit	Min	Typ	Max	Note
Transmitter						
Input Differential Impedance	Rin	Ω	-	100	-	
Differential Data Input Swing	Vin,pp	mV	120	-	1000	
Transmit Disable Voltage	VD	V	2.0	-	V _{cc3}	
Transmit Enable Voltage	VEN	V	0	-	+0.8	
Transmit Disable Assert Time	-	μs	-	-	10	
Receiver						
Differential Data Output Swing	Vout,pp	mV	400	-	800	
Data Output Rise Time	Tr	ps	24	-	-	
Data Output Fall Time	Tf	ps	24	-	-	
LOS Fault	-	V	V _{dd3} -0.5	-	V _{dd3}	
LOS Normal	-	V	0	-	+0.5	1
Power Noise Output	-			-		2
Note1: V _{dd3} is host +3.3V power supply.						
Note2: Compliant with INF 8077i XFP MSA section 2.7.1.						

Low Speed Electrical Interface

Parameter	Symbol	Unit	Min	Max	Note
XFP Tx_Dis,P_Down/RST	V _{IH}	V	2.0	V _{cc3} +0.3	
	V _{IL}	V	-0.3	0.8	
XFP Interrupt,Mod_NR,Rx_Los	V _{OH}	V	V _{dd3} -0.5	V _{dd3} +0.3	1
	V _{OL}	V	0.0	0.4	
XFP SCL and SDA Input	V _{IH}	V	V _{dd3} *0.7	V _{dd3} +0.5	1
	V _{IL}	V	-0.3	V _{dd3} *0.3	
XFP SCL and SDA Output	V _{OH}	V	V _{dd3} -0.5	V _{dd3} +0.3	
	V _{OL}	V	0.0	0.4	
Leakage Current	I _L	μA	-10	10	
I ² C Clock Rate	-	KHz	-	400	
Note1: V _{dd3} is host +3.3V power supply.					

Pin Description

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Pin	Logic	Symbol	Name/Description	Note
1		GND	Module Ground	1
2		VEE5	Optional -5.2V Power Supply (Not Required)	
3	LVTTL-I	Mod_DeSel	Module De-select; When held low allows module to respond to 2-wire serial interface	
4	LVTTL-O	Interrupt	Interrupt; Indicates presence of an important condition which can be read over the 2-	

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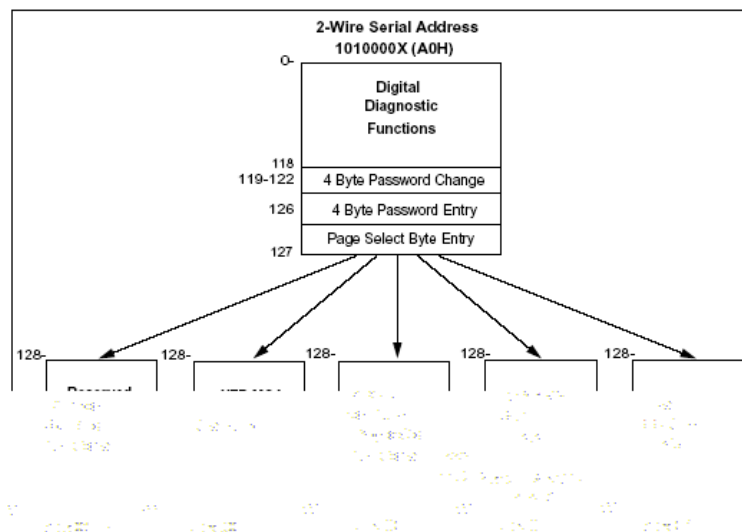
21	LVTTTL-I	P_Down/RST	Power down; When high, requires the module to limit power consumption to 1.5W or below. 2-Wire serial interface must be functional in the low power mode. Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power 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.

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

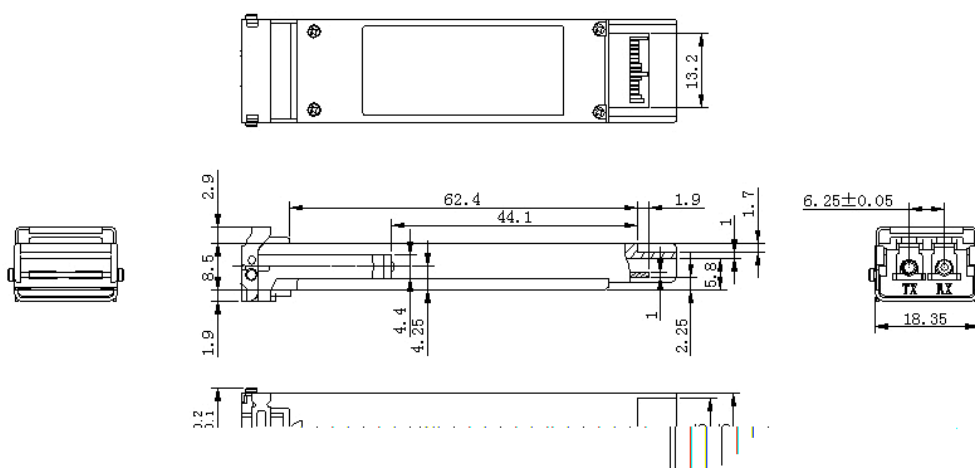


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Typical Application Circuit for Power Supply



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	Compliant with Class 1 laser product

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	EN 60825-2: 2004	
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