



MFEBX1-OPC

Cisco® MFEBX1 Compatible TAA Compliant 100Base-BX SFP Transceiver (SMF, 1310nmTx/1550nmRx, 20km, LC)

Features

- INF-8074 and SFF-8472 Compliance
- Simplex LC Connector
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



Applications:

- 100Base Ethernet
- Access and Enterprise

Product Description

This Cisco® MFEBX1 compatible SFP transceiver provides 100Base-BX throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1310nmTx/1550nmRx via an LC connector. This bidirectional unit must be used with another transceiver or network appliance of complementing wavelengths. It is guaranteed to be 100% compatible with the equivalent Cisco® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. It is built to meet or exceed the specifications of Cisco, as well as to comply with MSA (Multi-Source Agreement) standards to ensure seamless network integration. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

OptioConnect's transceivers are RoHS compliant and lead-free.

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4.
- ESD to the LC Receptacle: compatible with IEC 61000-4-3.
- EMI/EMC: compatible with FCC Part 15 Subpart B Rules, EN55022:2010.
- Laser Eye Safety: compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1, 2.
- RoHS: compliant with EU RoHS 2.0 directive 2015/863/EU.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5		4.0	V
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Operating Humidity	RH	5		95	%
Data Rate			155		Mbps

Electrical Characteristics (TOP=25°C, Vcc=3.3Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.13	3.30	3.47	V	
Power Supply Current	Icc			250	mA	
Transmitter						
Single-Ended Data Input Swing	VIN, pp	250		1200	mV	
Input Differential Impedance	RIN		100		Ω	1
Receiver						
Single-Ended Data Output Swing	VOUT, pp	300	400	800	mV	2
Output Differential Impedance	ZOUT		100		Ω	

Notes:

1. AC coupled.
2. Into 100Ω differential termination.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Power (Average)	P_{AVE}	-15		-8	dBm	1
Optical Extinction Ratio	ER	10			dB	
Optical Wavelength	$T\lambda$	1275	1310	1350	nm	
Spectral Width	σ			3	nm	
Optical Rise/Fall Time	T_r/T_f			1500	ps	2
Total Jitter (Peak-to-Peak)	J_{TXp-p}			0.07	UI	3
Total Jitter (RMS)	J_{TXrms}			0.007	UI	
Receiver						
Receiver Sensitivity	S			-30	dBm	4
Receiver Overload	P_{max}	-2			dBm	5
Receiver Wavelength	$R\lambda$	1530	1550	1570	nm	
LOS De-Assert	LOSD			-32	dBm	
LOS Assert	LOSA	-40			dBm	
LOS Hysteresis	LOSH	0.5		5	dB	

Notes:

1. Class 1 Laser Safety.
2. Unfiltered, 20-80%. Complies with OC-3 eye masks when filtered.
3. Measured with DJ-free data input signal. In actual application, output DJ will be the sum of input DJ and ΔDJ .
4. Measured with PRBS $2^{23}-1$ at 10^{-10} BER.
5. Exceeding the receiver overload can physically damage the module. Please use appropriate attenuation.

Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault. LVTTTL-O.	2
3	Tx_Disable	Transmitter Disable. Laser output disabled on “high” or “open.” LVTTTL-I.	3
4	SDA	2-Wire Serial Interface Data (Same as MOD-DEF2 in INF-8074i). LVTTTL-I/O.	
5	SCL	2-Wire Serial Interface Clock (Same as MOD-DEF2 in INF-8074i). LVTTTL-I.	
6	MOD_ABS	Module Absent. Connect to VeeT or VeeR in the module.	4
7	RS0	Rate Select 0. Not used.	5
8	LOS	Loss of Signal indication. “Logic 0” indicates normal operation. LVTTTL-O.	2
9	RS1	Rate Select 1. Not used.	5
10	VeeR	Receiver Ground (Common with Transmitter Ground).	1
11	VeeR	Receiver Ground (Common with Transmitter Ground).	1
12	RD-	Receiver Inverted Data Out. AC Coupled. CML-O.	
13	RD+	Receiver Non-Inverted Data Out. AC Coupled. CML-O.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted Data In. AC Coupled. CML-I.	
19	TD-	Transmitter Inverted Data In. AC Coupled. CML-O.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

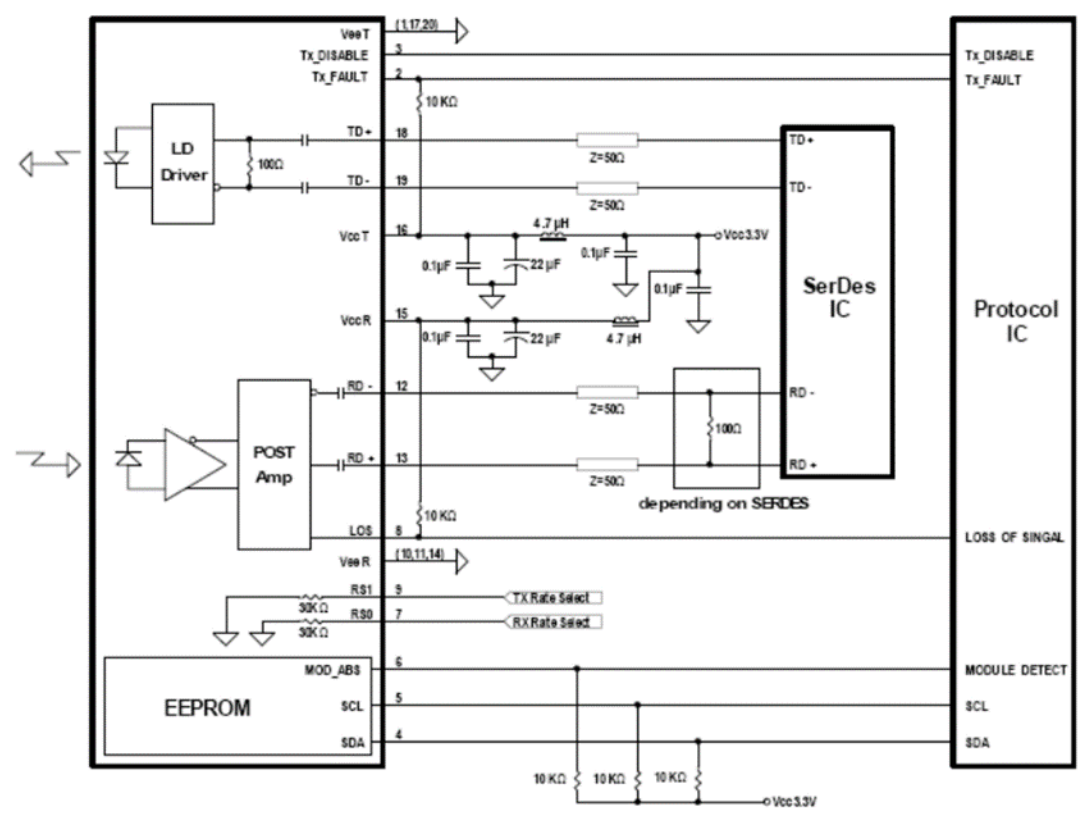
Notes:

1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Host_Vcc with resistor in the range 4.7K Ω to 10K Ω . Pull-ups can be connected to one or several power supplies; however, the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5V.
3. Tx_Disable is an input contact with a 4.7K Ω to 10K Ω pull-up resistor to VccT inside module.
4. MOD_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to the Host_Vcc with a resistor in the range from 4.7K Ω to 10K Ω . MOD_ABS is asserted “High” when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431.



Pin-Out of Connector Block on the Host Board

Recommended Circuit Schematic



Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).



EEPROM Information

EEPROM memory map-specific data field description is as below:

2 wire address 1010000X (A0h)	2 wire address 1010001X (A2h)
0	0
Serial ID Defined by SFP MSA (96 bytes)	Alarm and Warning Thresholds (56 bytes)
95	55
Vendor Specific (32 bytes)	Cal Constants (40 bytes)
127	95
Reserved, SFF8079 (128 bytes)	Real Time Diagnostic Interface (24 bytes)
	119
	Vendor Specific (8 bytes)
	127
	User Writable EEPROM (120 bytes)
	247
	Vendor Specific (8 bytes)
255	255

OptioConnect

Innovation for the Future of High-Speed Networking

Who We Are

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

What We Do

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

Smarter Networks by Design

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

Our Team

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

Our Mission

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

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