SFP-1GB-BXD53-80-C-OPC

Cisco® Compatible TAA 1000Base-BX SFP Transceiver (SMF, 1550nmTx/1310nmRx, 80km, LC, DOM)

Features

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

Applications:

- 1000Base Ethernet

Product Description

This Cisco® compatible SFP transceiver provides 1000Base-BX throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1550nmTx/1310nmRx 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. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. 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.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		4.0	V	
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	-10	25	70	°C	
Operating Relative Humidity	RH	5		95	%	
Power Supply Current	Icc			300	mA	
Data Rate		0.1		1.25	Gbps	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	3.135	3.3	3.465	V	
Module Supply Current	Icc			300	mA	
Power Dissipation	PD			1000	mW	
Transmitter Differential Input Voltage (TD+/-)		300		2200	mVp-p	1
Receiver Differential Output Voltage (RD+/-)		600		1200	mVp-p	2
Low-Speed Output: Transmitter Fault (Tx_Fault)/Loss of Signal (LOS)	VOH	2.0		Vcc	V	3
	VOL	0		0.8	V	
Low-Speed Input: Transmitter Fault (Tx_Fault), MOD_DEF1, MOD_DEF2	VIH	2.0		Vcc	V	4
	VIL	0		0.8	V	
Timing Characteristics						
Tx_Disable Assert Time	T_off			10	us	
Tx_Disable Negate Time	T_on			1	ms	
Time to Initialize, Includes Reset of Tx_Fault	T_init			300	ms	
Tx_Fault from Fault to Assertion	T_fault			100	us	
Tx_Disable Time to Start Reset	T_reset	10			us	
Receiver LOS Assert Timer (On to Off)	T_D, Rx_LOS			80	us	
Receiver LOS Assert Timer (Off to On)	T_A, Rx_LOS			80	us	
Serial I2C Clock Rate	I2C_Clock			100	kHz	

Notes:

1. Internally AC coupled and terminated to 100Ω differential load.
2. Internally AC coupled but requires a 100Ω differential termination or internal to serializer/deserializer.
3. Pulled up externally with a 4.7kΩ to 10kΩ resistor on the host board to VccT/R.
4. MOD_DEF1 and MOD_DEF2 must be pulled up externally with a 4.7kΩ to 10kΩ resistor on the host board to VccT/R.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power	Po	0		5	dBm	
Center Wavelength	λC	1530	1550	1570	nm	
Extinction Ratio	ER	9			dB	
Spectral Width (-20dB)	Δλ			1	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Optical Rise/Fall Time	Tr/Tf			260	ps	
POUT @ Tx_Disable Asserted	Poff			-45	dBm	
Eye Diagram	IEEE Std 802.3-2005 1000Base-BX-D Compatible					
Receiver						
Wavelength Range		1260	1310	1360	nm	
Receiver Sensitivity	S			-26	dBm	1
Receiver Overload	Pol	-3			dBm	1
Optical Return Loss	ORL	12			dB	
LOS De-Assert	LOSD			-27	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis		0.5	3	5	dB	

Notes:

1. Measured with a PRBS 2^7-1 test pattern @1.25Gbps with BER<10^{-12}.

Pin Descriptions

Pin	Symbol	Name/Description	Plug Seq.	Notes
1	VeeT	Transmitter Ground.	1	
2	Tx_Fault	Transmitter Fault Indication.	3	1
3	Tx_Disable	Transmitter Disable. Module disables on “high” or “open.”	3	2
4	MOD_DEF2	Module Definition 2. 2-Wire Serial ID Interface.	3	3
5	MOD_DEF1	Module Definition 1. 2-Wire Serial ID Interface.	3	3
6	MOD_DEF0	Module Definition 0. Grounded within the module.	3	3
7	Rate Select	Not Connected. Function Not Available.	3	
8	LOS	Loss of Signal.	3	4
9	VeeR	Receiver Ground.	1	
10	VeeR	Receiver Ground.	1	
11	VeeR	Receiver Ground.	1	
12	RD-	Inverse Received Data Out.	3	5
13	RD+	Received Data Out.	3	5
14	VeeR	Receiver Ground.	1	
15	VccR	3.3 ± 5% Receiver Power.	2	6
16	VccT	3.3 ± 5% Transmitter Power.	2	6
17	VeeT	Transmitter Ground.	1	
18	TD+	Transmitter Data In.	3	7
19	TD-	Inverse Transmitter Data In.	3	7
20	VeeT	Transmitter Ground.	1	

Notes:

1. Tx_Fault is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. Pull-up voltage between 2.0V and VccT/R+0.3V. When “high,” output indicates a laser fault of some kind. "Low" indicates normal operation. In the low state, the output will be pulled to <0.8V.
2. Tx_Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7kΩ to 10kΩ resistor. Its states are:

   Low (0V – 0.8V): Transmitter On.
   Between (0.8V and 2.0V): Undefined.
   High (2.0V – VccT): Transmitter Disabled.
   Open: Transmitter Disabled.

3. MOD_DEF0, 1, & 2. These are the module definition pins. They should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. The pull-up voltage shall be VccT or VccR.

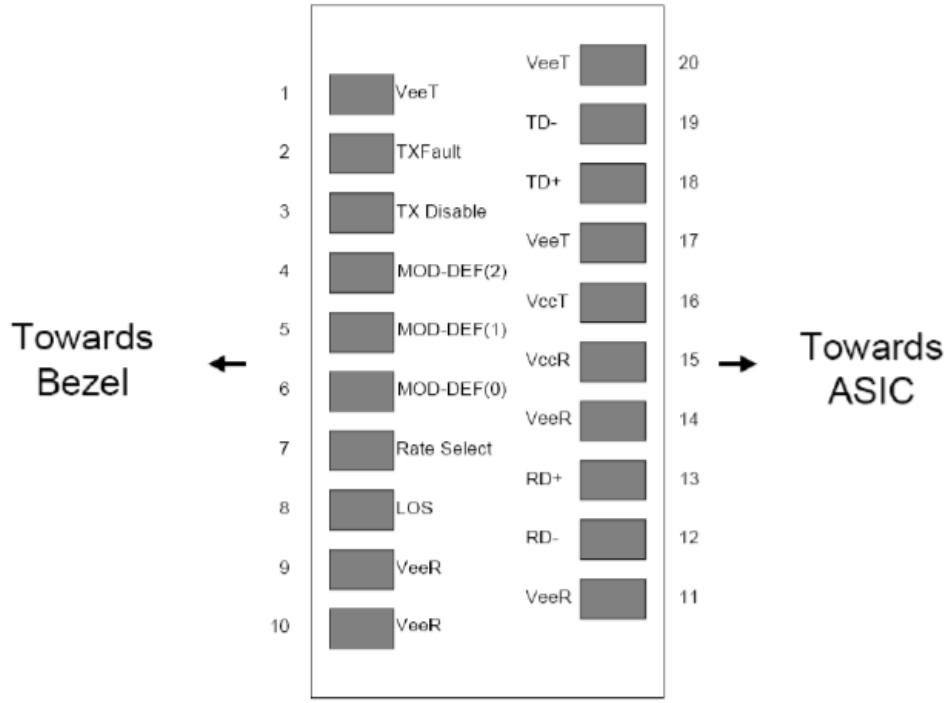
   MOD_DEF0 is grounded by the module to indicate that the module is present.
   MOD_DEF1 is the clock line of the 2-wire serial interface for optional serial ID.
   MOD_DEF2 is the data line of the 2-wire serial interface for optional serial ID.

4. LOS (Loss of Signal) is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ

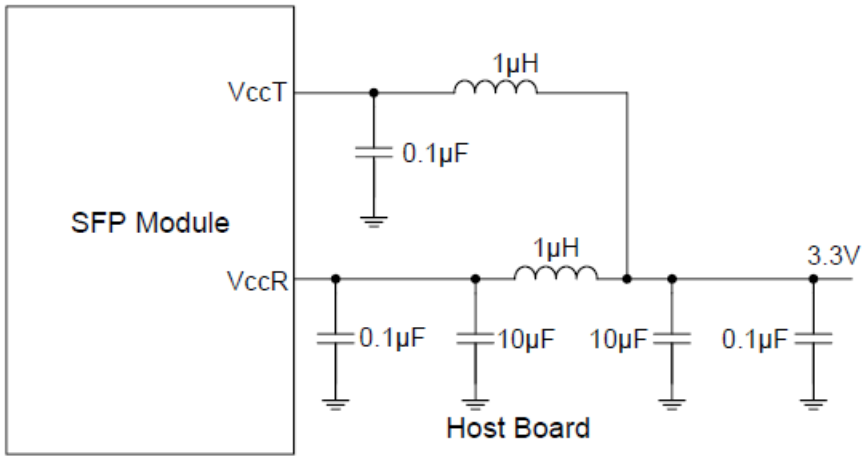
resistor on the host board to supply <VccT+0.3V or VccR+0.3V. When “high,” this output indicates the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). "Low" indicates normal operation. In the low state, the output will be pulled to <0.8V.

5. RD-/+. These are the differential receiver outputs. They are AC-coupled, 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board.
6. VccR and VccT are the receiver and transmitter power supplies. They are defined as 3.3V±5% at the SFP connector pin. The in-rush current will typically be more than 30mA above the steady state supply current after 500ns.
7. TD-/+. These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential terminations inside the module. The AC coupling is done inside the module and is thus not required on the host board.

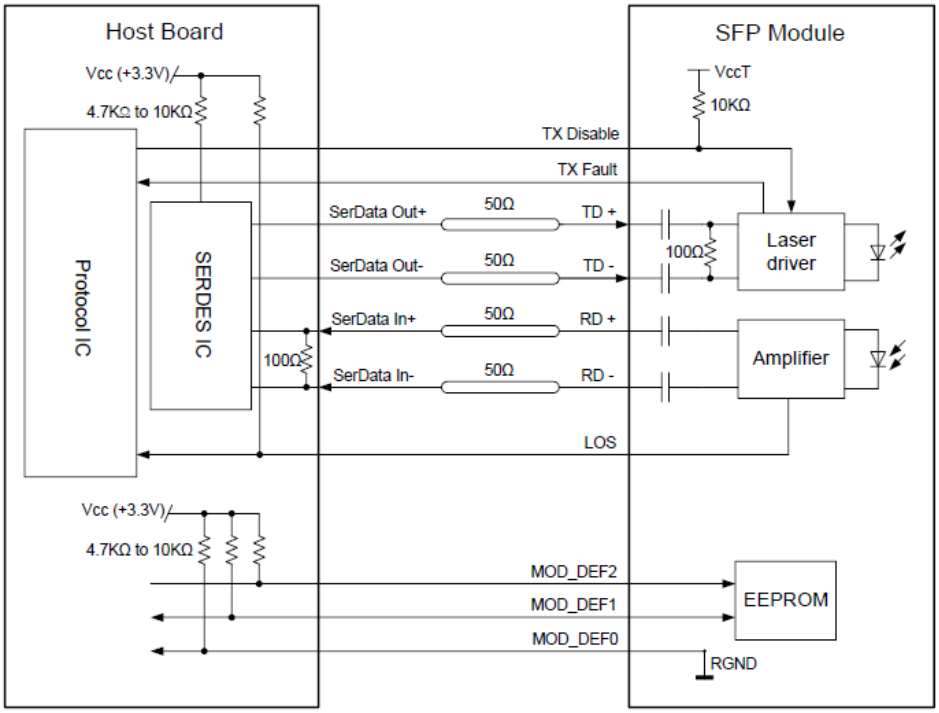
Pin Connectors



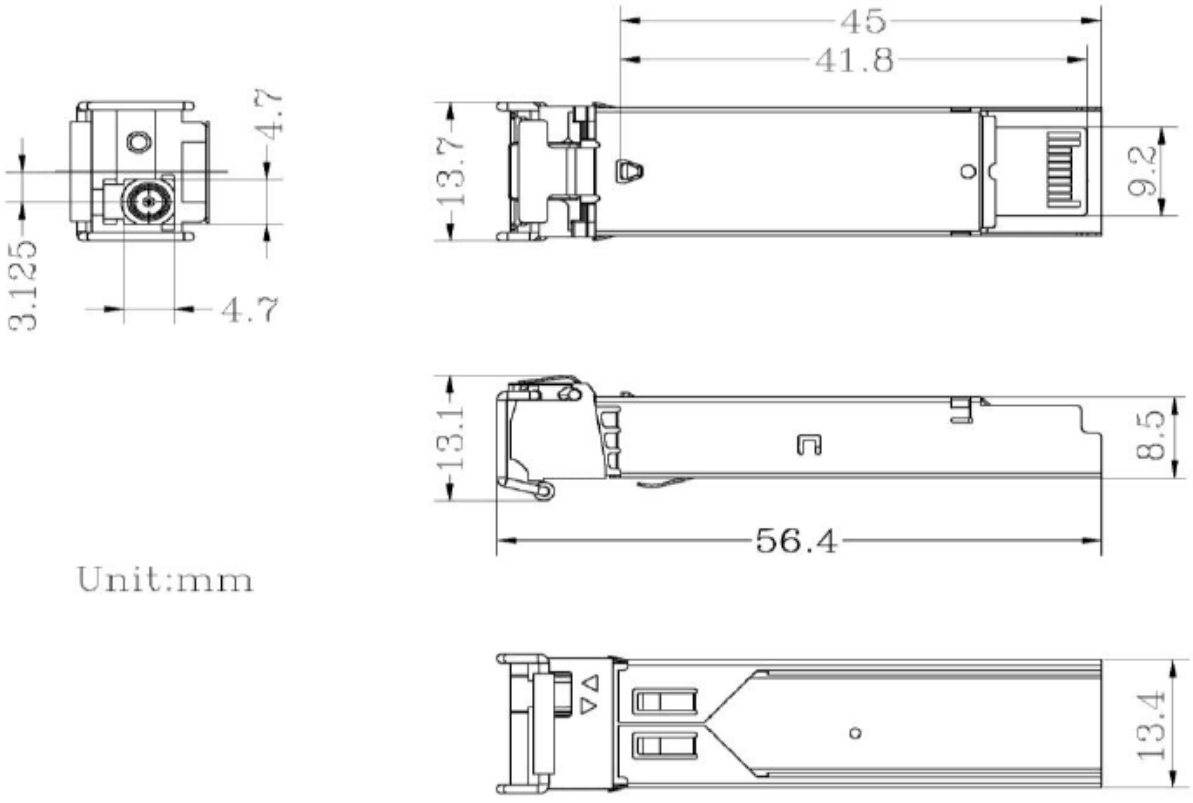
Recommended Host Board Power Supply Circuit



Recommended Application Interface Circuit



Mechanical Specifications



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.

Let's Connect
Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.
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