SFP-1GB-BX-U-20-FT-OPC

Fortinet® Compatible TAA 1000Base-BX SFP Transceiver (SMF, 1310nmTx/1490nmRx, 20km, LC, DOM)

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:

- 1000Base-BX Ethernet
- 1x Fibre Channel
- Access (FTTx) and Enterprise

Product Description

This Fortinet® compatible SFP transceiver provides 1000Base-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 complimenting wavelengths. It is guaranteed to be 100% compatible with the equivalent Fortinet® 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.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5	4.0	V
Storage Temperature	TS	-40	85	°C
Operating Case Temperature	Тс	0	70	°C
Operating Humidity	RH	5	85	%
Receiver Power	R _{MAX}		-3	dBm
Maximum Bitrate	B _{max}		1.25	Gbps

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

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.30	3.43	V	
Power Supply Current	Icc			303	mA	
Power Consumption	P _{DISS}			1	W	
Transmitter						
Differential data input swing	Vin,pp	120		850	mV	
Input differential impedance	Zin	80	100	120	Ω	
Receiver						
Differential data output swing	Vout, pp	300		850	mV	
Output differential impedance	Zin	80	100	120	Ω	

Optical Characteristics

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes	
Transmitter							
Optical Power (average)	P _{AVE}	-9		-3	dBm	1	
Optical Extinction Ratio	ER	9			dB		
Optical Wavelength	Τλ	1260	1310	1360	nm		
Insertion loss	IL		0.6				
Receiver							
Receiver Sensitivity (average)	R _{AVE}			-19.5	dBm	3	
Receiver overload	P _{max}	-3			dBm	4	
Receiver wavelength	Rλ	1480		1500	nm		

Notes:

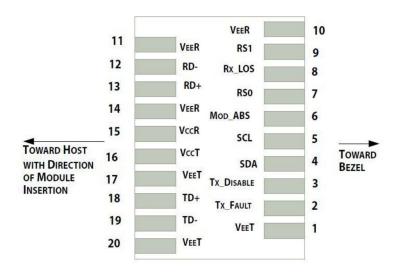
- 1. Coupled into a Single-mode fibre
- 2. Per IEEE 802.3ah specification
- 3. Average power, back-to-back, @1.25Gbps, BER 1E-12, PRBS 2³¹-1.
- 4. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX Fault	Transmitter Fault. LVTTL-O	2
3	TX Disable	Transmitter Disable. Laser output disabled on high or open. LVTT-I.	3
4	SDA	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I.	
6	MOD_ABS	Module Absent, Connect to VeeT or VeeR in Module.	4
7	RS0	Rate Select 0. Not used	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation. LVTTL-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

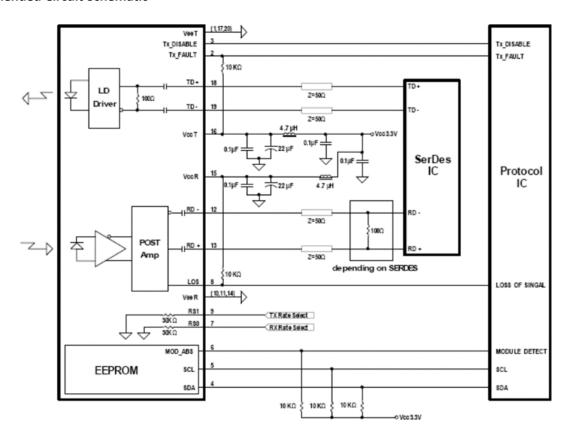
Notes:

- 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 Vcc_Host with resister in the range $4.7K\Omega$ to $10K\Omega$. 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 +0.5.V.
- 3. Tx_Disable is an input contact with a $4.7K\Omega$ to $10K\Omega$ 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 Vcc_Host with a resistor in the range from $4.7K\Omega$ to $10K\Omega$. 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 Host board

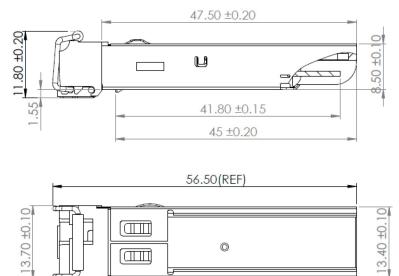
Recommended Circuit Schematic



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:

