SFP-1G-BX-U34-20-SC-I-AO

MSA and TAA 1000Base-BX SFP Transceiver (SMF, 1310nmTx/1490nmRx, 20km, SC, DOM, -40 to 85C)

Features

- Compliant with SFF-8472
- Up to 20km Reach with 9/125µm SMF
- Operating Data Rate up to 1.25Gbps
- Hot-Pluggable SFP Footprint
- SC Connector Interface
- Single 3.3V Power Supply
- RoHS Compliant and Lead-Free
- Operating Temperature: -40 to 85 Celsius
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free

Applications

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

Product Description

This MSA compliant SFP transceiver provides 1000Base-BX throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1310nmTx/1490nmRx via an SC connector. This bidirectional unit must be used with another transceiver or network appliance of complementing wavelengths. It can operate at temperatures between -40 to 85C. All of our transceivers are built to comply with Multi-Source Agreement (MSA) standards and are uniquely serialized and tested for data-traffic and application to ensure seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows 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.

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

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S.-made or designated country end products.")

TAA COMPLIANT

Rev. 022726

Absolute Maximum Ratings

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Operating Temperature		Tc	-40		85	°C	
Storage Temperature		Tstg	-40		85	°C	
Supply Voltage		Vcc	-0.5		3.6	V	
Relative Humidity		RH	5		85	%	
9μm Core Diameter MMF		L		20		km	
Data Rate	**GBE**			1.25		Gbps	
	FC			1.063			

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage		Vcc	3.13	3.3	3.47	V	
Supply Current		Icc			300	mA	
Transmitter							
LVPECL Differential Inputs		VIN	400		1800	mVp-p	1
Input Differential Impedance		ZIN	90	100	110	Ω	2
Tx_Disable	**Disable**		2		Vcc+0.3	V	
	Enable		0		0.8		
Tx_Fault	**Fault**		2		Vcc+0.3	V	
	Normal		0		0.8		
Receiver							
LVPECL Differential Outputs		VOUT	400		2000	mVp-p	
Output Differential Impedance		ZOUT	90	100	110	Ω	
Tx_Disable Assert Time		T_off			10	μs	
Rx_LOS	**LOS**		2			V	
	Normal		0				
MOD_DEF(0.2)		VOH	2.5			V	
		VOL	0				

Notes:

1. AC coupled inputs. LVPECL logic. Internally AC coupled.
2. RIN > 100kΩ @DC.
3. AC coupled outputs. LVPECL logic. Internally AC coupled.
4. With serial ID.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λC	1290	1310	1330	nm	
Spectral Width (-20dB)	Δλ			1	nm	
Spectral Width (RMS)	Δλ			4	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Average Output Power	Pavg	-9		-3	dBm	1
Extinction Ratio	ER	9			dB	
Rise/Fall Time (20-80%)	Tr/Tf			0.26	ns	
Total Jitter	TJ			0.43	UI	
POUT @Tx_Disable Asserted	POUT			-35	dBm	
Output Optical Eye		Compliant with IEEE 802.3				2
Receiver						
Center Wavelength	λC	1450	1490	1540	nm	
Receiver Sensitivity	Pmin			-24	dBm	3
Receiver Overload	Pmax	-3			dBm	
LOS De-Assert	LOSD			-25	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis		1		4	dB	3

Notes:

1. Output power is power coupled into a 9/125μm single-mode fiber.
2. Filtered, measured with a PRBS 2^7-1 test pattern @1250Mbps.
3. Minimum average optical power is measured at BER less than $1E^{-12}$ with a 2^7-1 PRBS and ER=9dB.

Pin Descriptions

Pin	Symbol	Name/Description	Plug Seq.	Notes
1	VeeT	Transmitter Ground.	1	5
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 Used.	3	
8	LOS	Loss of Signal.	3	4
9	VeeR	Receiver Ground.	1	5
10	VeeR	Receiver Ground.	1	5
11	VeeR	Receiver Ground.	1	5
12	RD-	Inverse Received Data Out.	3	
13	RD+	Received Data Out.	3	6
14	VeeR	Receiver Ground.	1	5
15	VccR	+3.3V ± 5% Receiver Power.	2	6
16	VccT	+3.3V ± 5% Transmitter Power.	2	6
17	VeeT	Transmitter Ground.	1	5
18	TD+	Transmit Data In.	3	
19	TD-	Inverse Transmit Data In.	3	
20	VeeT	Transmitter Ground.	1	5

Notes:

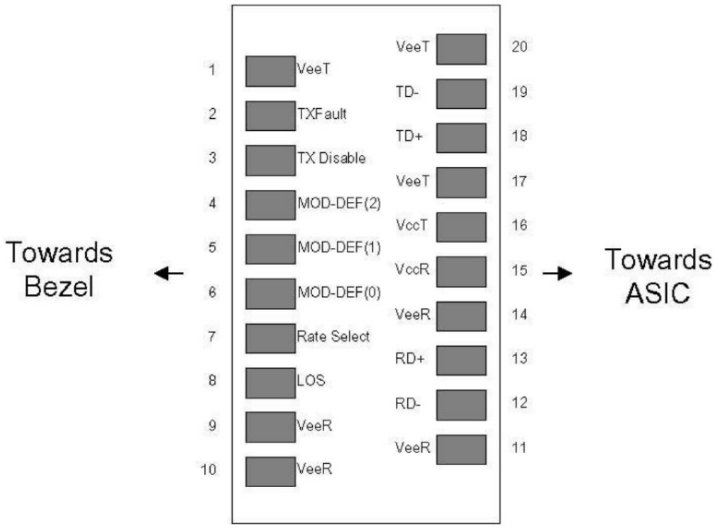
1. Tx_Fault is an open collector output that should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. When “high,” this output indicates a laser fault of some kind. “Low” indicates normal operation.
2. Tx_Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7kΩ to 10kΩ resistor. Its states are:

   Low (0V to 0.8V): Transmitter On
   (>0.8V and <2V): Undefined
   High (2.0V to 3.465V): 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.

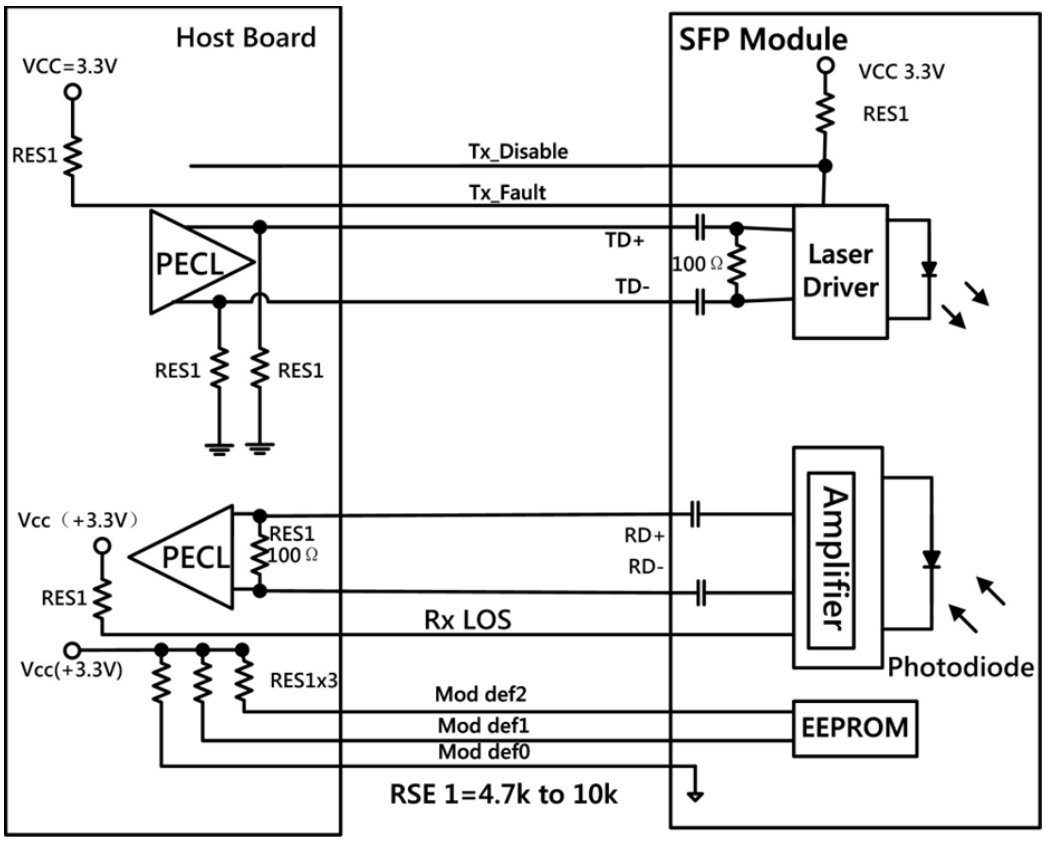
   MOD_DEF0 is grounded by the module to indicate that the module is present.
   MOD_DEF1 is the clock line of the 2-wire serial interface for optional serial ID.
   MOD_DEF2 is the data line of the 2-wire serial interface for optional serial ID.
4. LOS (Loss of Signal) is an open collector/drain output which should be pulled up externally with a 4.7kΩ to 10kΩ resistor. When “high,” this output indicates that the received optical power is below the worst-case receiver sensitivity. “Low” indicates normal operation.

5. VeeR and VeeT may be internally connected within the SFP module.
6. VccR and VccT are the receiver and transmitter power supplies. They are defined as 3.3V±5% at the SFP connector pin. Maximum supply current is 300mA. VccR and VccT may be internally connected within the SFP transceiver module.

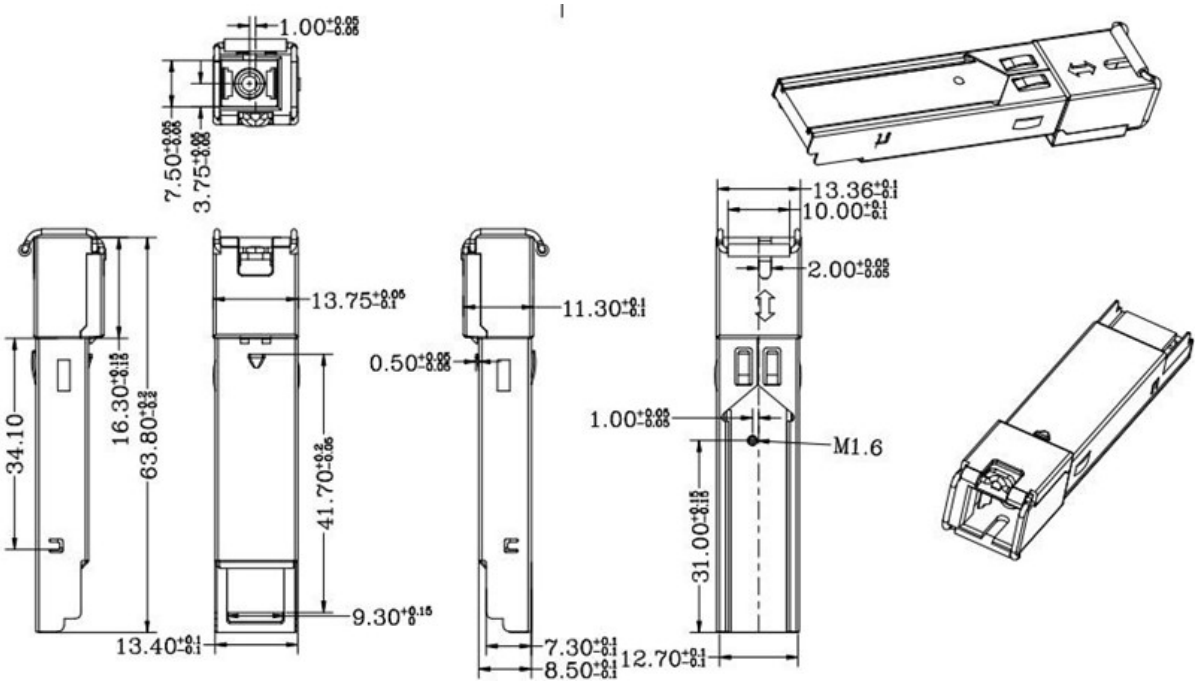
Host Board Connector



Recommended Application Interface Circuit



Mechanical Specifications



About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is in engrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.

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