

SFP-25GB-BX20-D-AO

MSA and TAA 25GBase-BX SFP28 Transceiver (SMF, 1330nmTx/1270nmRx, 20km, LC)

Features

- SFF-8432 and SFF-8472 Compliance
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



Applications

- 25GBase Ethernet
- Access and Enterprise

Product Description

This MSA Compliant SFP-25GB-BX20-D compatible SFP28 transceiver provides 25GBase-BX throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1330nmTx/1270nmRx via an LC connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. 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.

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."



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	V _{CC}	-0.3		4.0	V
Storage Temperature	T _S	-40		85	°C
Operating Case Temperature	T _c	0	25	70	°C
Relative Humidity	RH	5		95	%
Receiver Power	R _{MAX}			-3	dBm
Data Rate	DR		24.33 25.78		Gbps

Electrical Characteristics (TOP=25°C, V_{CC}=3.3Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes	
Power Supply Voltage	V _{CC}	3.135	3.30	3.465	V		
Module Supply Current	I _{CC}			450	mA		
Power Dissipation	P _D			1500	mW		
Transmitter							
Differential Data Input Swing	V _{in,p-p}	180		700	mVp-p		
Input Differential Impedance	Z _{in}		100		Ω		
TX_FAULT	Transmitter Fault	VOH	2.0		VCCHOST	V	
	Normal Operation	VOL	0		0.8	V	
TX_DISABLE	Transmitter Disable	VIH	2.0		VCCHOST		
	Transmitter Enable	VIL	0		0.8		
Receiver							
Output Differential Impedance	Z _o		100		Ω		
Differential Data Output Swing	V _{out,p-p}	300		850	mVp-p	1	
Data Output Rise Time, Fall Time	t _r , t _f			15	ps	2	
RX_LOS	Loss of signal (LOS)	VOH	2.0		VCCHOST	V	3
	Normal Operation	VOL	0		0.8	V	3

Notes:

1. Internally AC coupled but requires an external 100Ω differential load termination.
2. 20–80%.
3. LOS is an open collector output. Should be pulled up with 4.7kΩ on the host board.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power	P _o	0		+5	dBm	1
Center Wavelength Range	λ _c	1320	1330	1340	nm	
Extinction Ratio	EX	3.5			dB	2
Spectral Width (-20dB)	Δλ			1	nm	
Transmitter and Dispersion Penalty	TDP			4.5	dB	
Side Mode Suppression Ratio	SMSR	30			dB	
Optical Rise/Fall Time @25.78Gb/s	t _r /t _f	15			ps	3
Optical Return Loss Tolerance	ORLT			12	dB	
P _{out} @TX-Disable Asserted	P _{off}			-30	dBm	1
Receiver						
Center Wavelength	λ _c	1260	1270	1280	nm	
Receiver OMA Sensitivity	RxSENS1			-12	dBm	4
Receiver OMA Sensitivity	RxSENS2			-8	dBm	5
Receiver Overload (P _{avg})	P _{OL}	-3			dBm	
Optical Return Loss	ORL	26			dB	
LOS De-Assert	LOS _D			-19	dBm	
LOS Assert	LOS _A	-35			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. 20dB spectral width.
3. Unfiltered, 20-80%.
4. Measured with PRBS 2³¹-1 at 5×10⁻⁵ BER.
5. Measured with PRBS 2³¹-1 at 1×10⁻¹² BER.

General Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Rate	BR		25.78		Gb/s	
Bit Error Rate	BER			5×10 ⁻⁵		1
Supported Link Length on 9/125um SMF, 25.78Gb/s	L		20		km	2

Notes:

1. Tested with a PRBS 2³¹-1 test pattern for 25.78Gb/s operation.
2. Distances are based on FC-PI-6 Rev. 3.1 and IEEE 802.3 standards, with FEC.

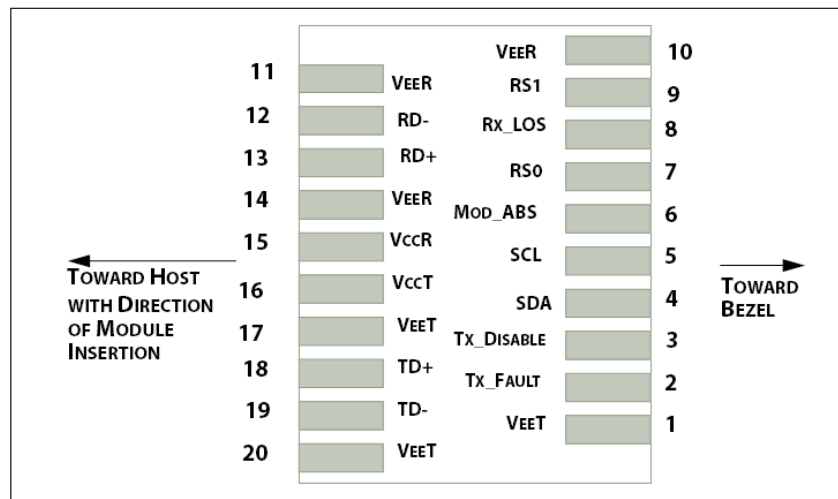
Pin Descriptions

Pin	Symbol	Name/Descriptions	Notes
1	VeeT	Transmitter Ground	1
2	TX_Fault	Transmitter Fault (LVTTTL-O) - High indicates a fault condition	2
3	TX_Disable	Transmitter Disable (LVTTTL-I) – High or open disables the transmitter	3
4	SDA	Two wire serial interface Data Line (LVCMOS-I/O) (MOD-DEF2)	4
5	SCL	Two wire serial interface Clock Line (LVCMOS-I/O) (MOD-DEF1)	4
6	MOD_ABS	Module Absent (Output), connected to VeeT or VeeR in the module	5
7	RS0	NA	6
8	RX_LOS	Receiver Loss of Signal (LVTTTL-O)	2
9	RS1	NA	6
10	VeeR	Receiver Ground	1
11	VeeR	Receiver Ground	1
12	RD-	Inverse Received Data out (CML-O)	
13	RD+	Received Data out (CML-O)	
14	VeeR	Receiver Ground	
15	VccR	Receiver Power - +3.3V	
16	VccT	Transmitter Power - +3.3 V	
17	VeeT	Transmitter Ground	1
18	TD+	Transmitter Data In (CML-I)	
19	TD-	Inverse Transmitter Data In (CML-I)	
20	VeeT	Transmitter Ground	1

Notes:

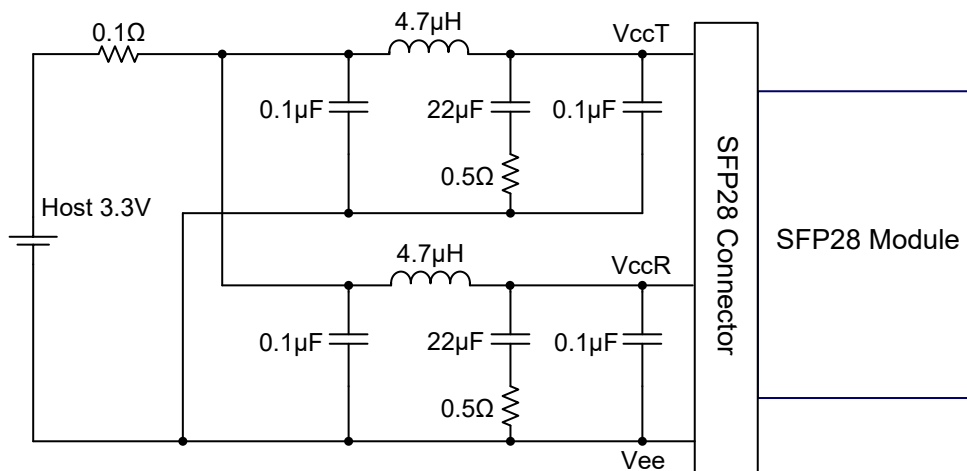
1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.

3. This input is internally biased high with a 4.7KΩ to 10KΩ pull-up resistor to VccT.
 4. Two-Wire Serial interface clock and data lines require an external pull-up resistor dependent on the capacitance load.
 5. This is a ground return that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.
 6. Rate select can also be set through the 2-wire bus in accordance with SFF-8472 v. 12.1, Rx Rate Select is set at Bit 3, Byte 110, Address A2h. Tx Rate Select is set at Bit 3, Byte 118, Address A2h.
- Note:** writing a “1” selects maximum bandwidth operation. Rate select is the logic OR of the input state of Rate Select Pin and 2-wire bus.

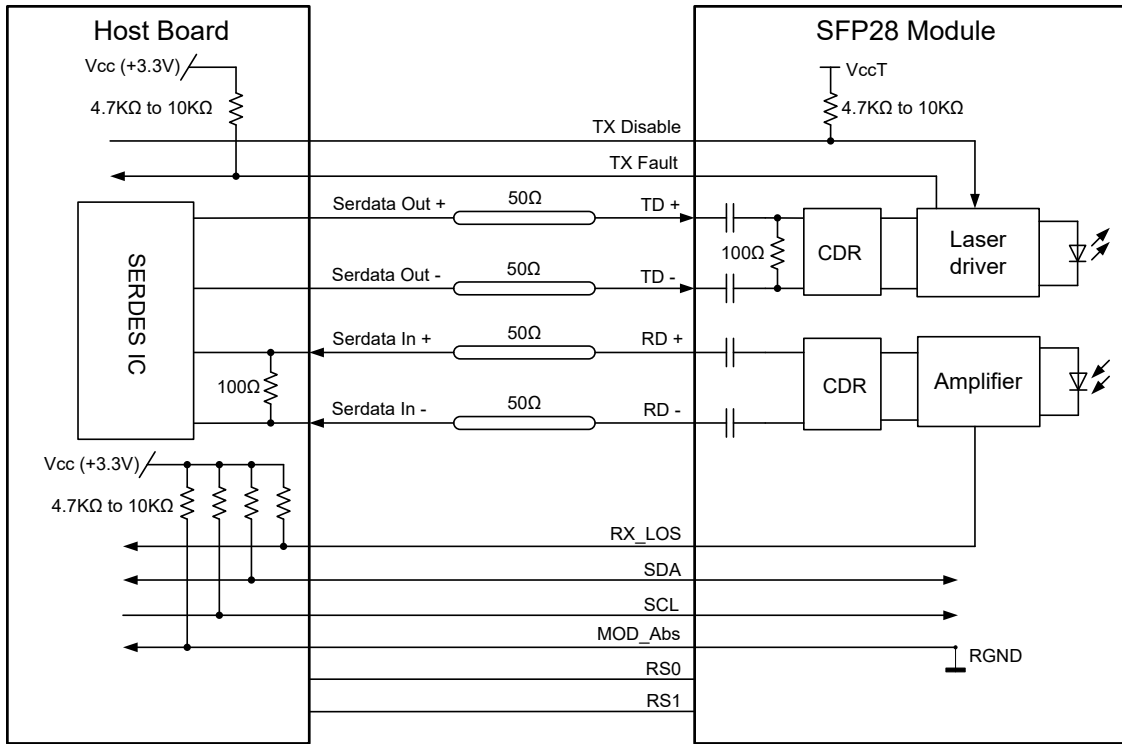


Pin-out of connector Block on Host board

Recommended Host Board Power Supply Filter Network

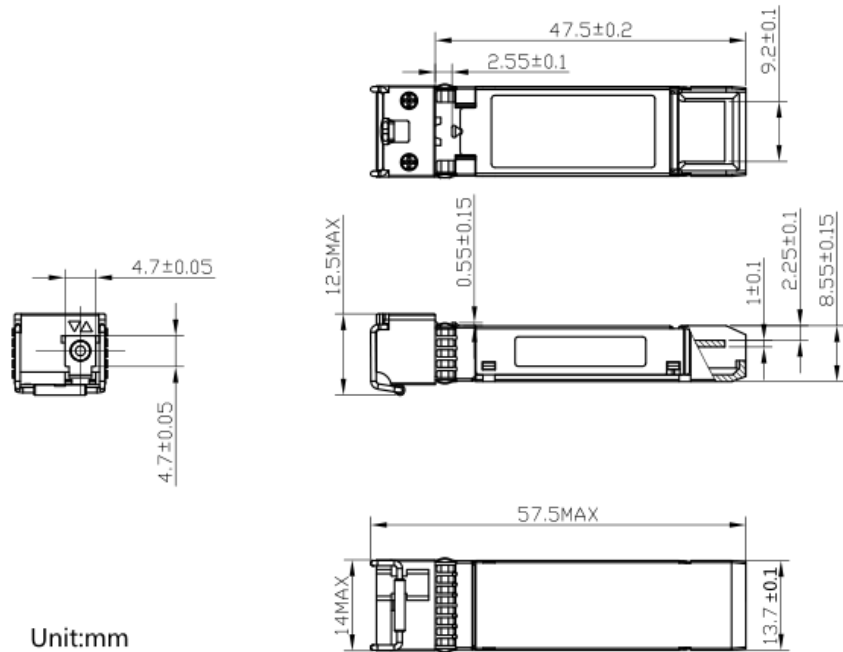


Recommended Application Interface Block Diagram



Mechanical Specifications

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



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 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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