SFP-25GB-LRL-I-AO

MSA and TAA 25GBase-LRL SFP28 Transceiver Capable (SMF, 1310nm, 2km, LC, DOM, -40 to 85C)

Features

- Up to 25.78Gbps Bi-Directional Data Links
- Up to 2km on 9/125µm SMF
- SFP28 MSA Package with Duplex LC Connectors
- Class 1 Laser Safety Certified
- Built-In Dual CDR with Shut-Off Control
- Single 3.3V Power Supply
- Power Consumption: less than 1.2W
- Uncooled 1310nm DFB Laser
- RoHS Compliant and Lead-Free
- Operating Temperature: -40 to 85 Celsius

Applications

- 25GBase Ethernet
- Access and Enterprise

Product Description

This MSA Compliant SFP28 transceiver provides 25GBase-LRL throughput up to 2km over single-mode fiber (SMF) using a wavelength of 1310nm 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."

TAA COMPLIANT

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	-0.5		4.0	V	
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	-40	25	85	°C	
Relative Humidity	RH	5		95	%	
Maximum Receive Power				2	dBm	
Data Rate		9.8304		25.78125	Gbps	

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage		Vcc	3.135	3.3	3.465	V	
Module Supply Current		Icc			360	mA	
Power Dissipation		P_{DISS}			1200	mW	
Transmitter							
Input Differential Impedance		ZIN		100		Ω	
Differential Data Input Swing		VIN,pp	180		700	mVp-p	
Tx_Fault	**Transmitter Fault**	VOH	2.0		Host_Vcc	V	
	Normal Operation	VOL	0		0.8	V	
Tx_Disable	**Transmitter Disable**	VIH	2.0		Host_Vcc	V	
	Transmitter Enable	VIL	0		0.8	V	
Receiver							
Output Differential Impedance		ZO		100		Ω	
Differential Data Output Swing		VOUT,pp	300		850	mVp-p	1
Data Output Rise/Fall Time		Tr/Tf	15			ps	2
Rx_LOS	**Loss of Signal (LOS)**	VOH	2.0		Host_Vcc	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	Pavg	-5		2	dBm	1
Optical Modulation Amplitude	POMA	-7		2	dBm	
Extinction Ratio	ER	3.5			dB	
Center Wavelength Range	λC	1295	1310	1325	nm	
Transmitter Dispersion Penalty	TDP			1.0	dB	
SMSR		30			dB	
Spectral Width	Δλ			1	nm	2
Optical Return Loss Tolerance	ORLT			20	dB	
Transmitter Reflectance				-26	dB	
POUT @Tx_Disable Asserted	Poff			-30	dBm	
Eye Test : {X1, X2, X3, Y1, Y2, Y3}		5			%	3
Receiver						
Center Wavelength	λC	1295	1310	1325	nm	
Receiver OMA Sensitivity	RxSENS			-11	dBm	4
Receiver Overload (Pavg)	POL	2			dBm	
Receiver Reflectance				-26	dB	
LOS De-Assert	LOSD			-15	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis		0.5		5	dB	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. 20dB spectral width.
3. Test condition: {0.31, 0.4, 0.45, 0.34, 0.38, 0.4}. Hit count = $5E^{-5}$.
4. Measured with PRBS 2^{31}-1 at 5×10^{-5} BER.

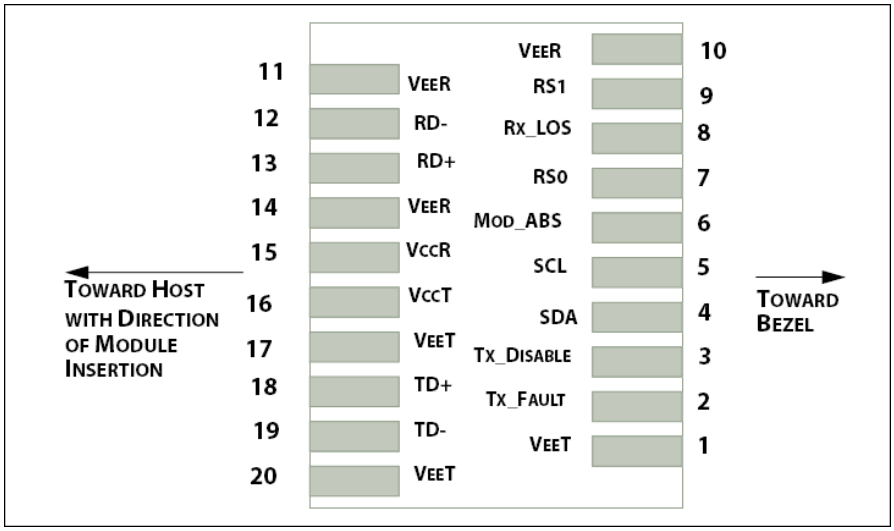
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground.	1
2	Tx_Fault	Transmitter Fault (LVTTL-O). “High” indicates a fault condition.	2
3	Tx_Disable	Transmitter Disable (LVTTL-I). “High” or “open” disables the transmitter.	3
4	SDA	2-Wire Serial Interface Data (LVCMOS-I/O, MOD_DEF2).	4
5	SCL	2-Wire Serial Interface Clock (LVCMOS-I/O, MOD_DEF1).	4
6	MOD_ABS	Module Absent (Output). Connected to the VeeT or VeeR in the module.	5
7	RS0	Hardware Tx Rate Select Pin.	6
8	Rx_LOS	Receiver Loss of Signal (LVTTL-O).	2
9	RS1	Hardware Rx Rate Select Pin.	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	+3.3V Receiver Power.	
16	VccT	+3.3V Transmitter Power.	
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

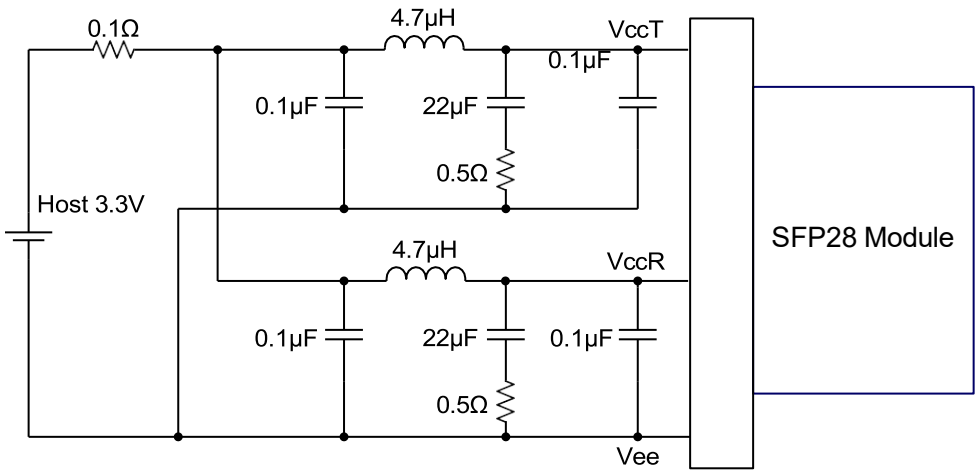
Notes:

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 the Host_Vcc.
3. This input is internally biased “high” with a 4.7kΩ to 10kΩ pull-up resistor to the VccT.
4. 2-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 the Host_Vcc.
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, and Address A2h. Tx Rate Select is set at Bit 3, Byte 118, and Address A2h.
   Note: Writing a “1” selects the maximum bandwidth operation. Rate Select is the logic OR of the input state of Rate Select Pin and 2-wire bus.

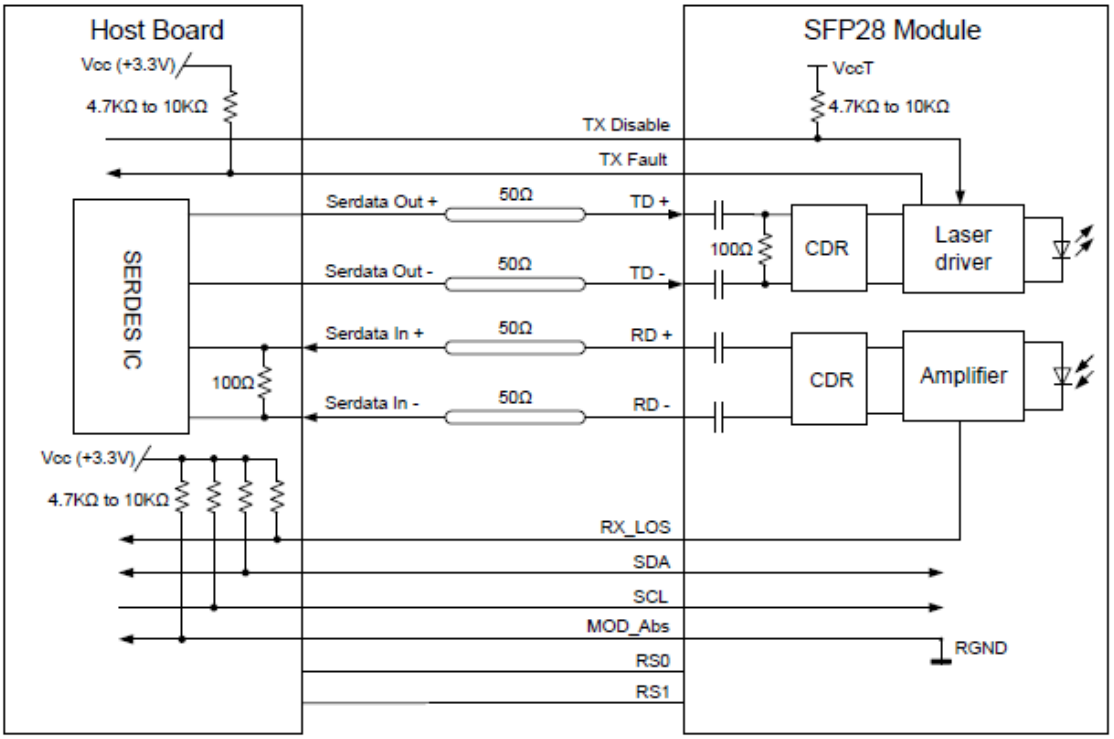
Electrical Pin-Out Details



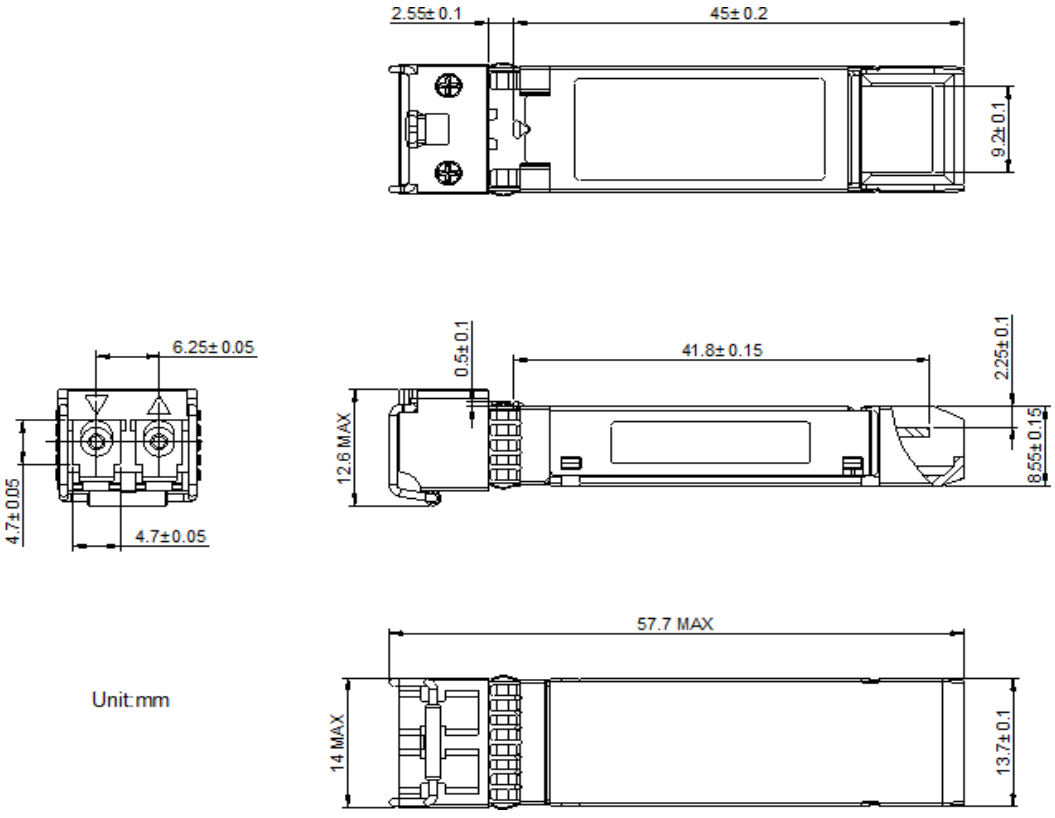
Recommended Host Board Power Supply Filter Network



Recommended Application Interface Block Diagram



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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