

SFP-16GBASE-SW-AO

MSA and TAA 16GBase-SW Fibre Channel SFP+ Transceiver (MMF, 850nm, 300m, LC, DOM)

Features

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



Applications

- Fibre Channel
- Access and Enterprise

Product Description

This MSA Compliant SFP+ transceiver provides 16GBase-SW Fibre Channel throughput up to 300m over multi-mode fiber (MMF) using a wavelength of 850nm 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. 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."



Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	V _{cc}	-0.5	4.0	V
Storage Temperature	T _S	-40	85	°C
Operating Case Temperature	T _c	-5	70	°C
Operating Humidity	RH	5	95	%
50/125µm G.652 MMF (OM3)	L _{max}		300	m

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V _{cc}	3.13	3.30	3.47	V	
Power Supply Current	I _{cc}			300	mA	
Transmitter						
Differential data input swing	V _{in,pp}	120	600	850	mV	
Input differential impedance	Z _{in}	90	100	110	Ω	
TX Disable-High		2.0		V _{cc} +0.3	V	
TX Disable-Low		V _{ee} -0.3		0.8	V	
TX Fault-High		2.0		V _{cc} +0.3	V	
TX Fault-Low		V _{ee} -0.3		0.8	V	
Receiver						
Differential data output swing	V _{out, pp}	300	600	850	mV	
Output differential impedance	Z _{in}	90	100	110	Ω	
LOS-High		2.0		V _{cc} +0.3	V	
LOS-Low		V _{ee} -0.3		0.8	V	

Optical Characteristics

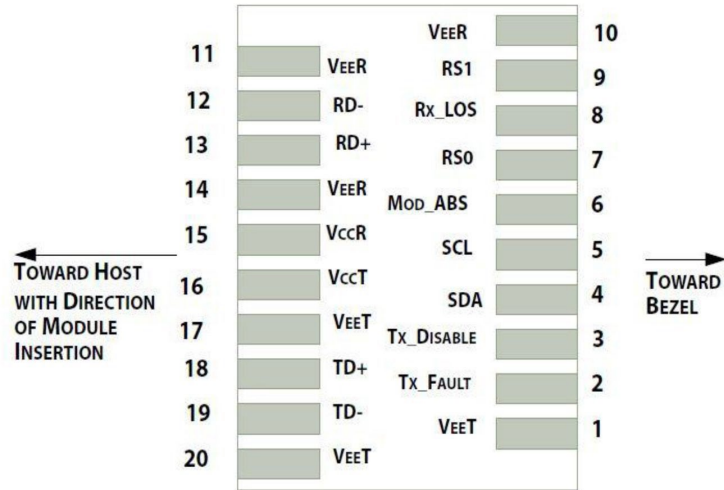
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Output Optical Power (average)	P_{AVE}	-7.3		-1	dBm	
Optical Modulation Amplitude	P(OMA)	-4.3	-2		dBm	
Extinction Ratio	ER	3			dB	
Transmitter and Dispersion Penalty	TDP			3.9	dB	
Average Launch power OFF TX	Poff			-30	dBm	
Optical Wavelength	$\lambda\lambda$	840	855	860	nm	
Optical Return Loss Tolerance	ORLT			12	dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Eye Diagram		Compatible with IEEE 802.3-2005				
Receiver						
Receiver Sensitivity	PIN			-9.9	dBm	
Receiver Sensitivity @ FEC rate	PIN-OMA			-11.1	dBm	
Receiver Overload	P_{max}	-1			dBm	
Optical Center Wavelength	λ_C	840		860	nm	
LOS De-Assert	LOSD			-13	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis		0.5			dB	

Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX Fault	Transmitter Fault. LVTTTL-O	2
3	TX Disable	Transmitter Disable. Laser output disabled on high or open. LVTTTL-I.	3
4	SDA	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTTL-I/O.	
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTTL-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. LVTTTL-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

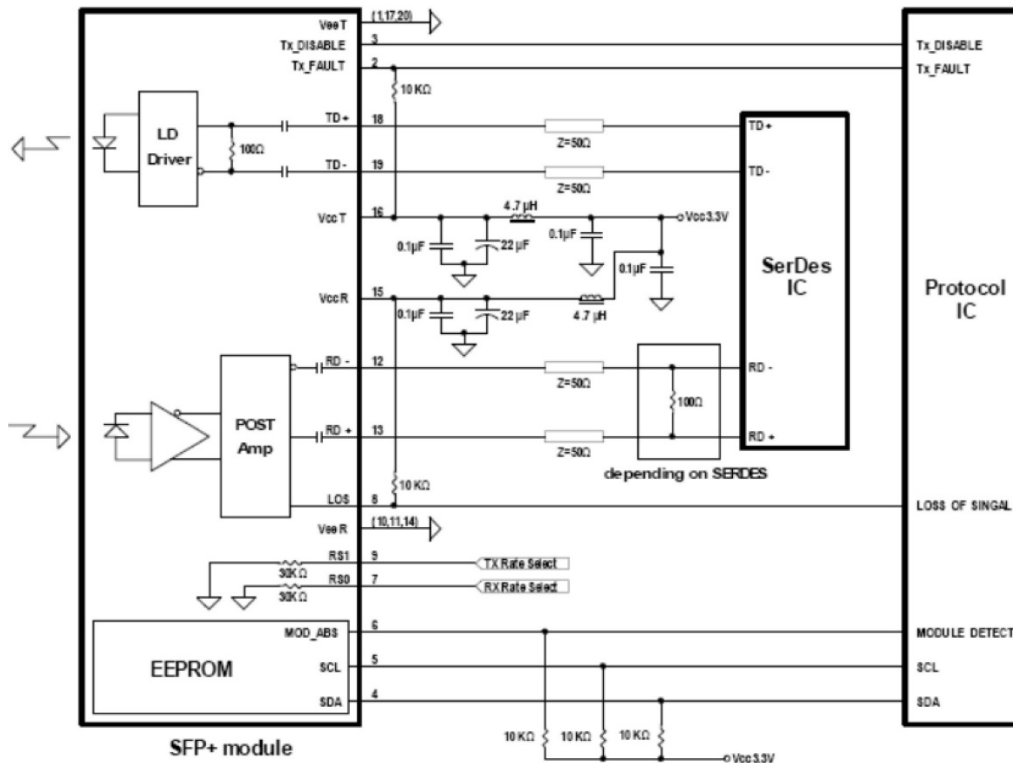
Notes:

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 resistor in the range 4.7K Ω to 10K Ω . 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 Ω to 10K Ω 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 Ω to 10K Ω . Mod_ABS is asserted "High" when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431



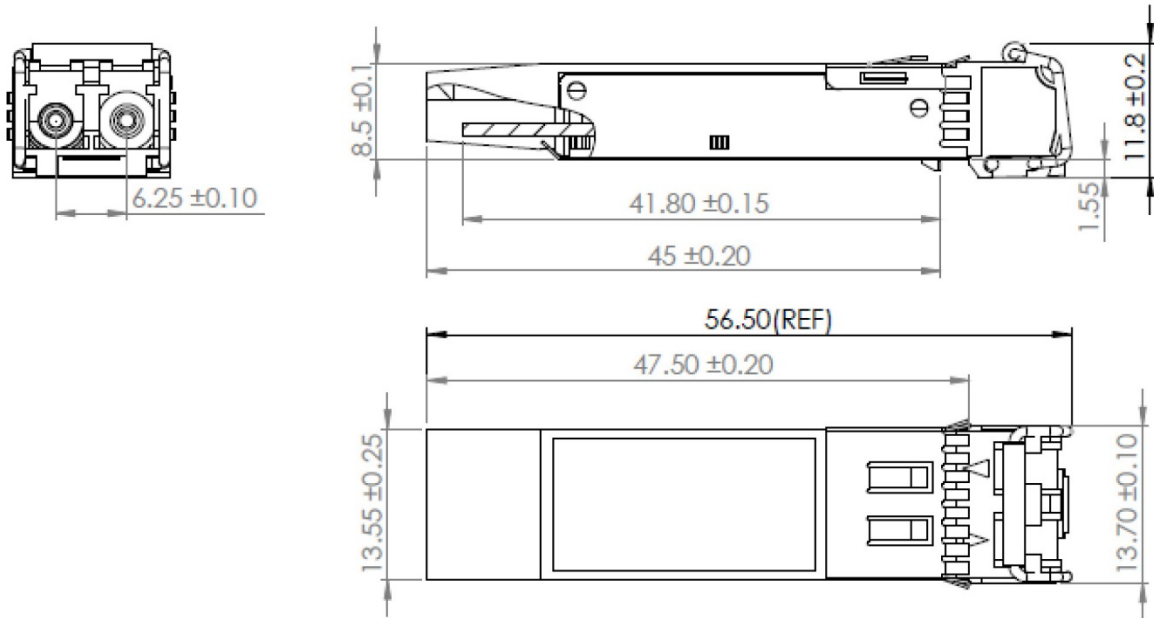
Pin-out of connector Block on Host board

Recommended Circuit Schematic



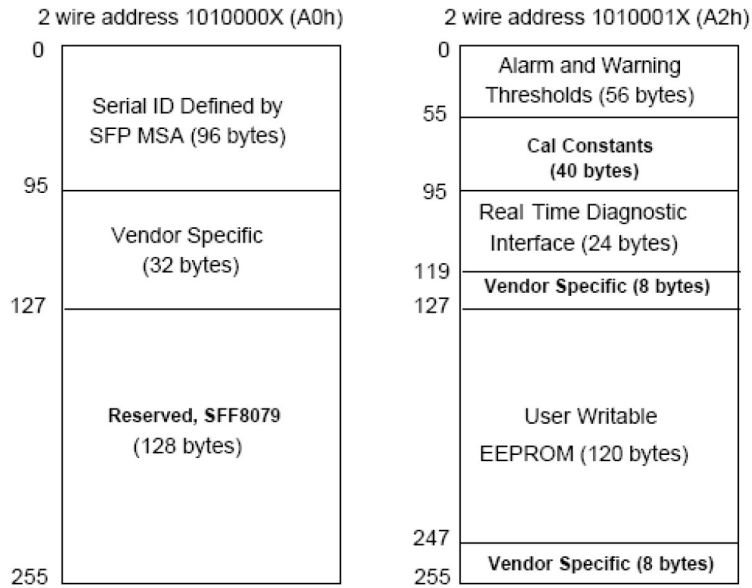
Mechanical Specifications

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:



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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