SFP-100BASE-FX85-AO

MSA and TAA 100Base-FX SFP Transceiver (MMF, 850nm, 2km, LC, DOM)

Features

- INF-8074 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

- 100Base Ethernet
- Access and Enterprise

Product Description

This MSA compliant SFP transceiver provides 100Base-FX throughput up to 2km over multi-mode fiber (MMF) using a wavelength of 850nm via an LC connector. It can operate at temperatures between 0 and 70C. 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

Absolute Maximum Ratings

Parameter		Symbol	Min.	Typ.	Max.	Unit
Storage Temperature		Tstg	-40		+85	℃
Supply Voltage		Vcc	-0.5		3.6	V
Operating Relative Humidity					+95	%
Operating Case Temperature		Tc			+70	℃
Power Supply Voltage		Vcc	3.15	3.3	3.45	V
Power Supply Current		Icc			300	mA
Data Rate	**FE**			125		Mbps

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter							
LVPECL Differential Inputs		VIN	400		2000	mVp-p	1
Input Differential Impedance		ZIN	85	100	115	Ω	2
Tx_Disable	**Disable**		2		Vcc+0.3	V	
	Enable		0		0.8		
Tx_Fault	**Fault**		2		Vcc+0.3	V	
	Normal		0		0.5		
Receiver							
LVPECL Differential Outputs		VOUT	400		2000	mVp-p	1
Output Impedance		ZOUT	85	100	115	Ω	
Rx_LOS	**LOS**		2		Vcc+0.3	V	
	Normal		0		0.8	V	
MOD_DEF(0:2)		VOH	2.5			V	3
		VOL	0		0.5	V	

Notes:

1. LVPECL logic, internally AC coupled.
2. RIN>100kΩ at DC.
3. With serial ID.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λC	830	850	860	nm	
Spectral Width (RMS)	Δλ			0.85	nm	
Average Output Power	POUT	-9.5		-4	dBm	1
Extinction Ratio	ER	8.2			dB	2
Rise/Fall Time (20-80%)	Tr/Tf			3	ns	
Total Jitter	TJ			1	ns	2
Tx_Disable Assert Time	t_off			10	us	
Output Optical Eye	IEEE 802.3 Compliant					2, 4
Receiver						
Center Wavelength	λC	760		860	nm	
Receiver Sensitivity	Pmin			-18	dBm	3
Receiver Overload	Pmax	-3			dBm	
Return Loss		14			dB	
LOS De-Assert	LOSD			-19	dBm	
LOS Assert	LOSA	-45			dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. Output power is measured by coupling into a 62.5/125μm multi-mode fiber.
2. Filtered, measured with a PRBS 2^7-1 test pattern @125Mbps.
3. Minimum average optical power is measured by coupling into a 62.5/125μm multi-mode fiber. The BER is less than $1E^{-12}$ or lower, measured with a 2^7-1 NRZ PRBS and ER=9dB.
4. Eye pattern mask.

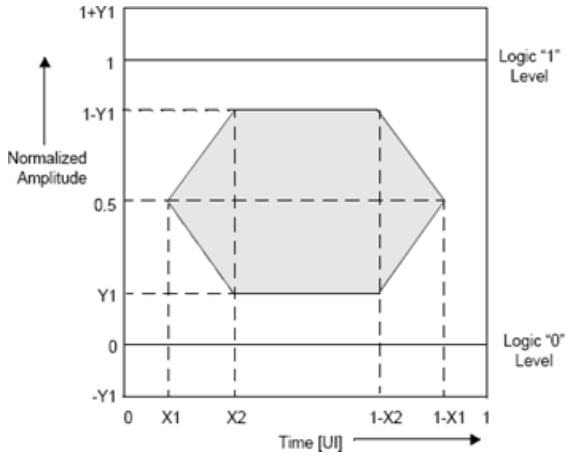
Pin Descriptions

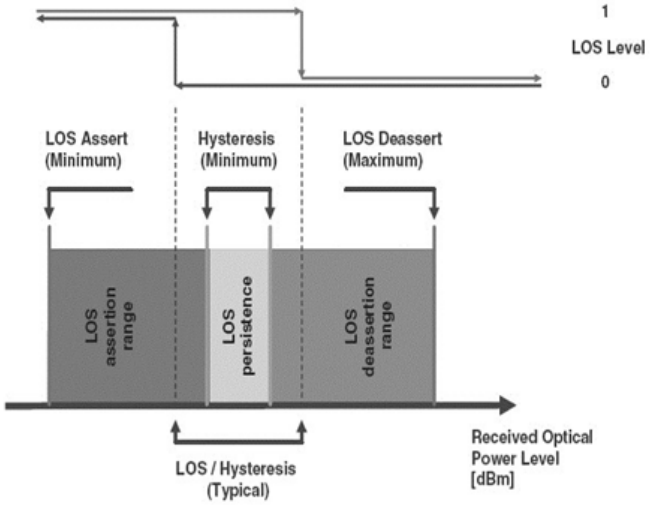
Pin	Symbol	Name/Description	Plug Sequence	Notes
1	VeeT	Transmitter Ground.	1	
2	Tx_Fault	Transmitter Fault Indication.	3	1
3	Tx_Disable	Transmitter Disable. Module disables on “high” or “open.”	3	2
4	MOD_DEF2	Module Definition 2. Data Line for Serial ID.	3	3
5	MOD_DEF1	Module Definition 1. Clock Line for Serial ID.	3	3
6	MOD_DEF0	Module Definition 0. Grounded within the module.	3	3
7	Rate Select	Not Connected.	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-	Inverted Received Data Out.	3	6
13	RD+	Received Data Out.	3	
14	VeeR	Receiver Ground.	1	5
15	VccR	3.3 ± 5% Receiver Power.	2	7
16	VccT	3.3 ± 5% Transmitter Power.	2	7
17	VeeT	Transmitter Ground.	1	5
18	TD+	Transmit Data In.	3	8
19	TD-	Inverted Transmit Data In.	3	8
20	VeeT	Transmitter Ground.	1	5

Notes:

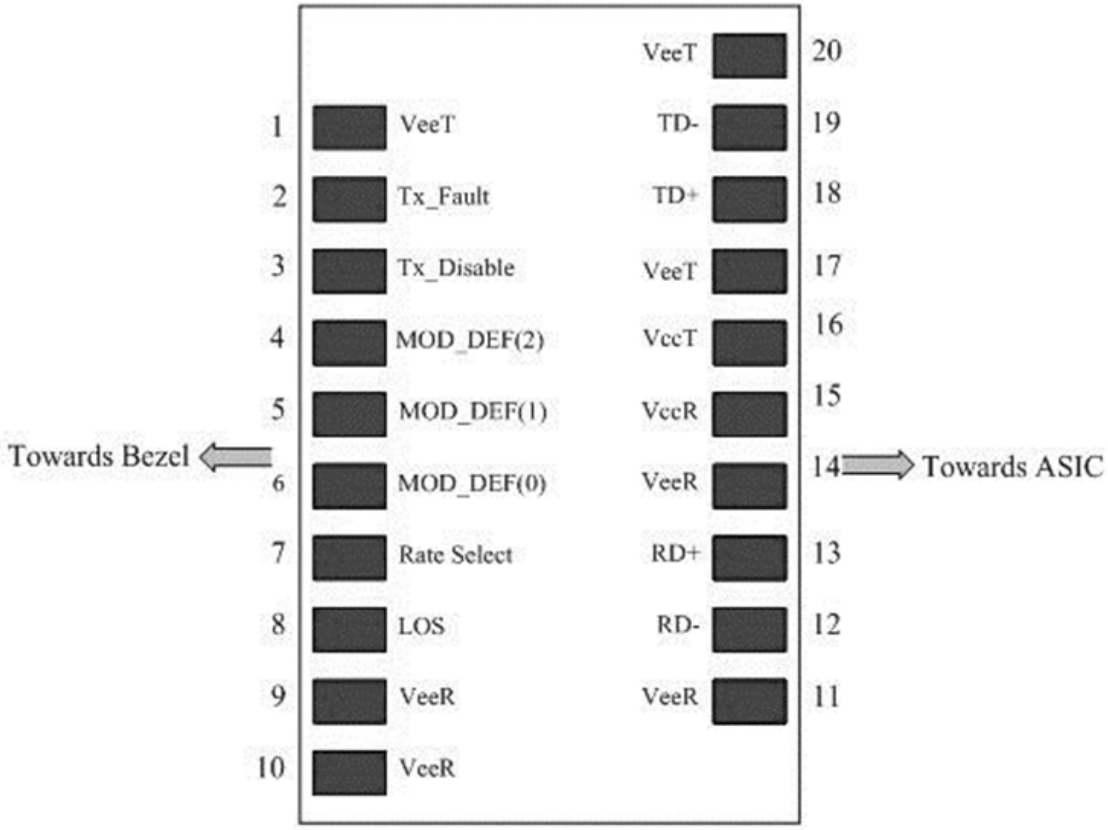
1. Tx_Fault is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. Pull-up voltage between 2.0V and VccT,R+0.3V. When “high,” output indicates a laser fault of some kind. “Low” indicates normal operation. In the “low” state, the output will be pulled to <0.8V.
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 – 0.8V): Transmitter On
   (>0.8V, <2.0V): Undefined
   High (2.0V – 3.465V): Transmitter Disabled
   Open: Transmitter Disabled.
3. Modulation absent. Connected to the VeeT or VeeR in the module.
4. LOS (Loss of Signal) is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor. Pull-up voltage between 2.0V and VccT/R+0.3V. When “high,” this output indicates that the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). “Low” indicates normal operation. In the “low” state, the output will be pulled to <0.8V.
5. VeeR and VeeT may be internally connected within the SFP module.

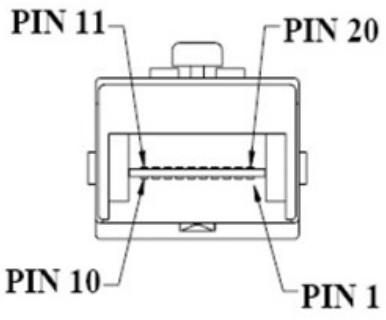
6. RD-/+. These are the differential receiver outputs. They are AC-coupled, 100Ω differential lines that should be terminated with 100Ω (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board. The voltage swing on these lines will be between 400mV and 2000mV differential (200mV and 1000mV single-ended) when properly terminated.
7. 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. Recommended host board power supply filtering is shown below. Inductors with DC resistance of less than 1Ω should be used in order to maintain the required voltage at the SFP input pin with 3.3V supply voltage. When the recommended supply-filtering network is used, hot-plugging of the SFP transceiver module will result in an in-rush current of no more than 30mA greater than the steady state value. VccR and VccT may be internally connected within the SFP transceiver module.
8. TD-/+. These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board. The inputs will accept differential swings of 400mV–2000mV (200mV–1000mV single-ended).



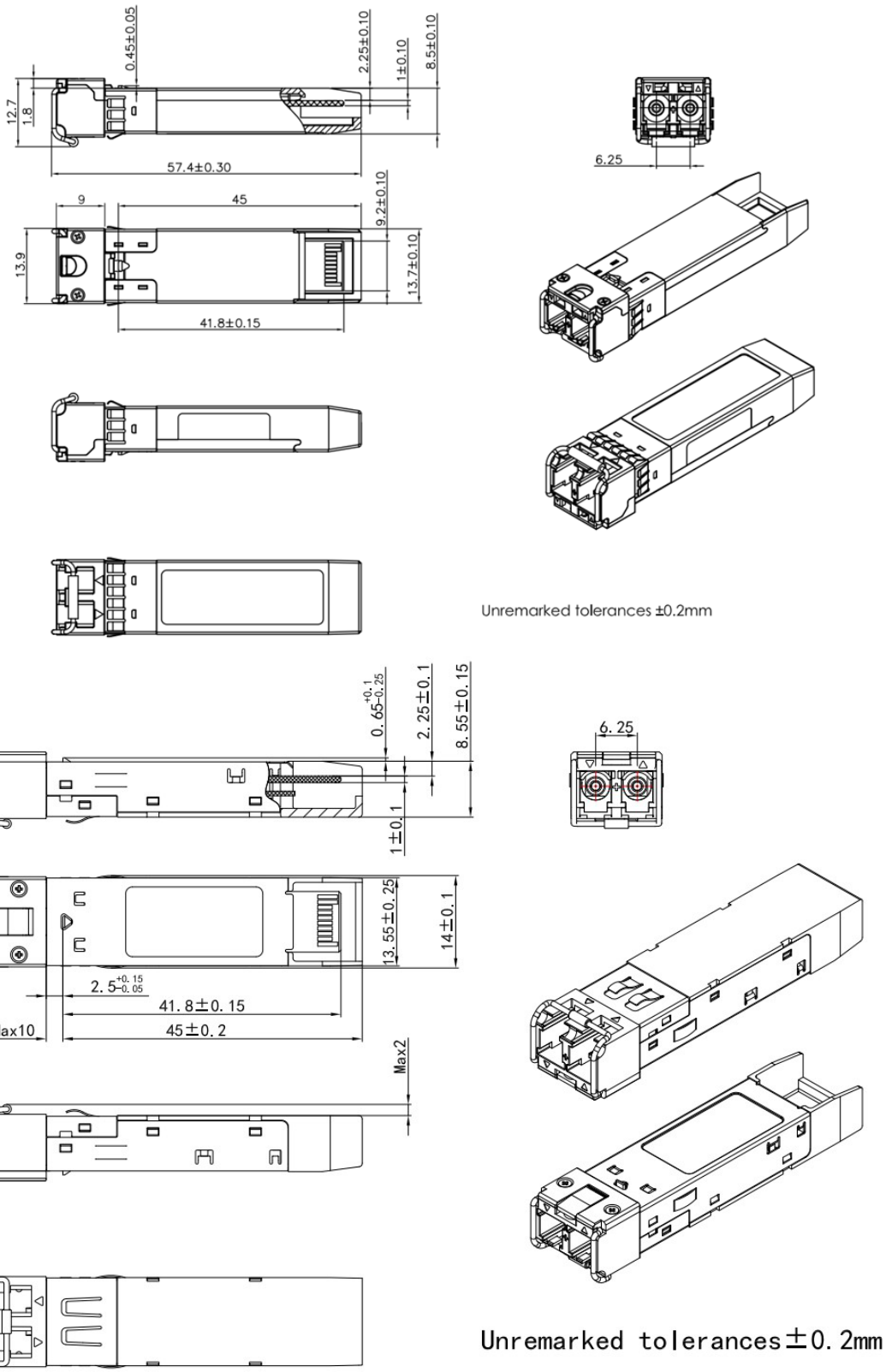


Pin-Out of Connector Block on the Host Board





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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