SFP-1000BASE-TW-I-AO
MSA and TAA 10/100/1000Base-TX SFP Transceiver (Copper, RJ-45, 100m, SGMII, LOS, Auto Negotiation, Trap Door and Wire Bail, -40 to 85C)

Features

- Up to 1.25Gbps Bi-Directional Data Links
- Compliant with IEEE 802.3z, IEEE 802.3u, & IEEE 802.3ab
- Compliant with SFP MSA
- Hot-Pluggable
- Supports 10/100/1000BASE-T Operation in Host Systems with SGMII Interface
- RJ-45 Connector
- Auto-Sense MDI/MDIX
- Single 3.3V Power Supply
- Operating Temperature: -40 to 85 Celsius
- RoHS Compliant and Lead-Free

Applications:

- 1000Base Copper

Product Description

This MSA and TAA compatible SFP transceiver provides 10/100/1000Base-TX throughput up to 100m over a copper connection via a RJ-45 connector. This TX module supports 10/100/1000Base auto-negotiation and can be configured to fit your needs. 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."

Rev. 020425

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	-40		85	°C	
Relative Humidity		0		95	%	
Bit Error Rate	BER			10^{-12}		
Supply Current	Icc		370	420	mA	
Input Voltage	Vcc	3.14	3.3	3.46		
Maximum Voltage	Vmax			4	V	
Power Consumption	P		1.22	1.38	W	
Cable Length	CL			100	m	
Data Rate	DR	10		1000	Mbps	

Notes:

1. Category 5 UTP.

Low-Speed Electrical Signal

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
SFP Output - Low	V_{OL}	0		0.5	V	1
SFP Output - High	V_{OH}	Host_Vcc -0.5		Host_Vcc +0.3	V	1
SFP Input - Low	V_{IL}	0		0.8	V	1
SFP Input - High	V_{IH}	2		Vcc+0.3	V	1

Notes:

1. External 4.7kΩ to 10kΩ pull-up resistor required.

High-Speed Signals

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmission Line - SFP						
Line Frequency	LF		125		MHz	1
Tx Output Impedance	ZOUT, Tx		100		Ω	2
Rx Input Impedance	ZIN, Rx		100		Ω	2
Host - SFP						
Single-Ended Input Swing	VIN,pp	250		1200	mV	
Single-Ended Output Swing	VOUT,pp	275		800	mV	
Rise/Fall Time (20-80%)	Tr/Tf		175		ps	
Tx Input Impedance	ZIN		50		Ω	3
Rx Output Impedance	ZOUT		50		Ω	3

Notes:

1. 5-level encoding, per IEEE 802.3.
2. For all Frequencies between 1MHz and 125MHz.
3. Single-ended.

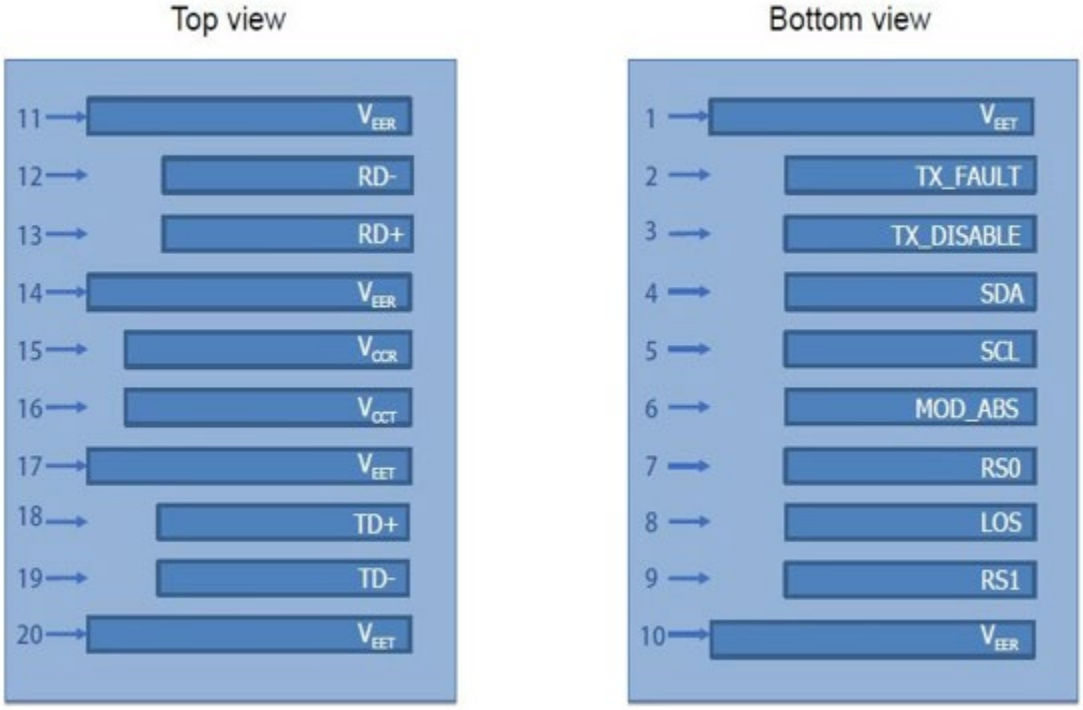
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground. Common with receiver ground.	1
2	Tx_Fault	Transmitter Fault Out. OC.	
3	TDIS	Transmitter Disabled. PHY disabled on "high" or "open."	2
4	MOD_DEF2	Module Definition 2. Data line for serial ID.	3
5	MOD_DEF1	Module Definition 1. Clock line for serial ID.	3
6	MOD_DEF0	Module Definition 0. Grounded within the module.	3
7	Rate Select	No Connection Required.	
8	LOS	Loss of Signal Indication.	
9	VeeR	Receiver Ground. Common with transmitter ground.	1
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.	
13	RD+	Receiver Non-Inverted Data Out. AC coupled.	
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.	
19	TD-	Transmitter Inverted Data In. AC coupled.	
20	VeeT	Transmitter Ground. Common with receiver ground.	1

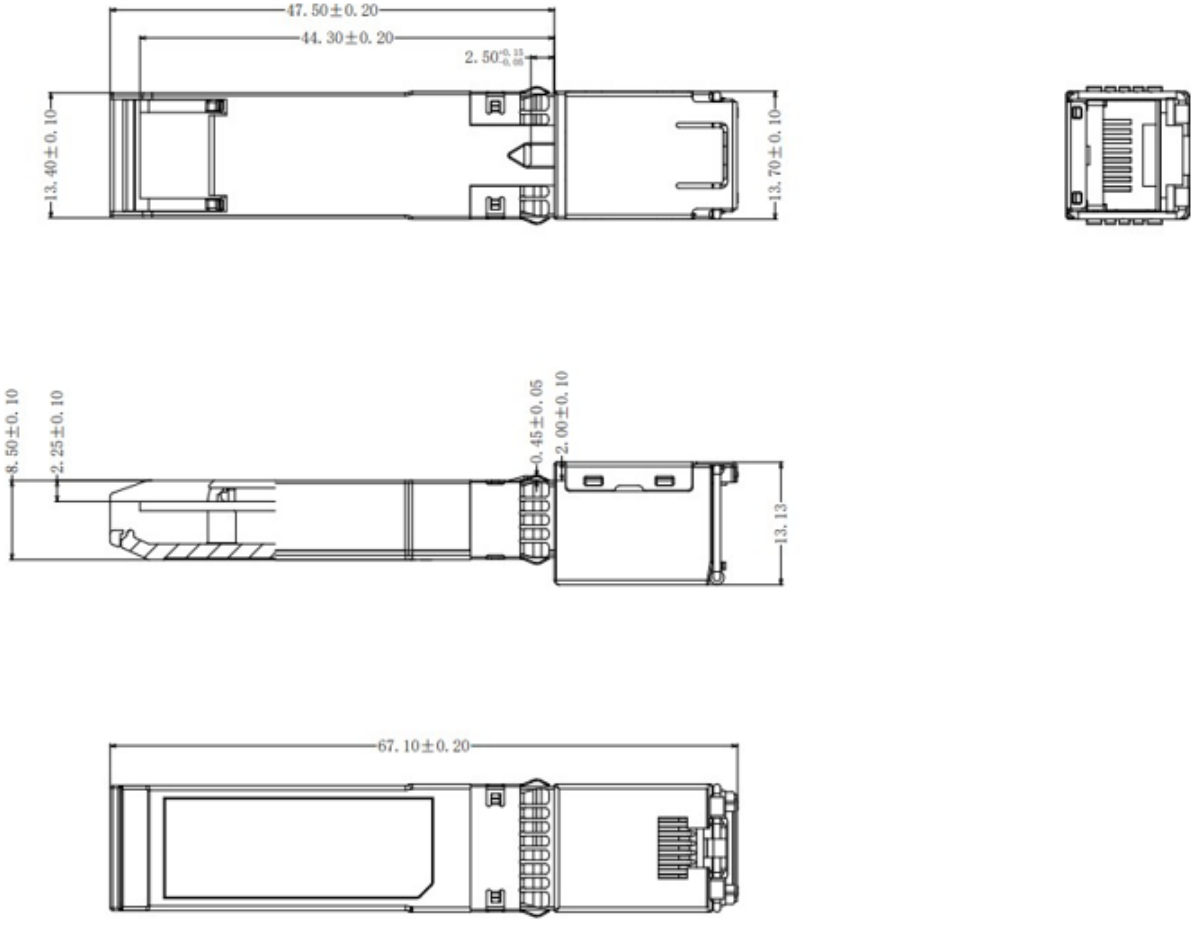
Notes:

1. The circuit ground is connected to the chassis ground.
2. Disabled: T_{DIS}>2V or open, enabled: T_{DIS}<0.8V.
3. Should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 2V and 3.6V.

Electrical Pin-Out Details



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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