

SFP-1000BASE-TW-I-C

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 Industry Standard 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. It is guaranteed to be 100% compatible with the equivalent Industry Standard transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. It is built to meet or exceed the specifications of Industry Standard, as well as to comply with MSA (Multi-Source Agreement) standards to ensure seamless network integration. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' 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.	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	VOL	0		0.5	V	1
SFP Output - High	VOH	Host_Vcc -0.5		Host_Vcc +0.3	V	1
SFP Input - Low	VIL	0		0.8	V	1
SFP Input - High	VIH	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.

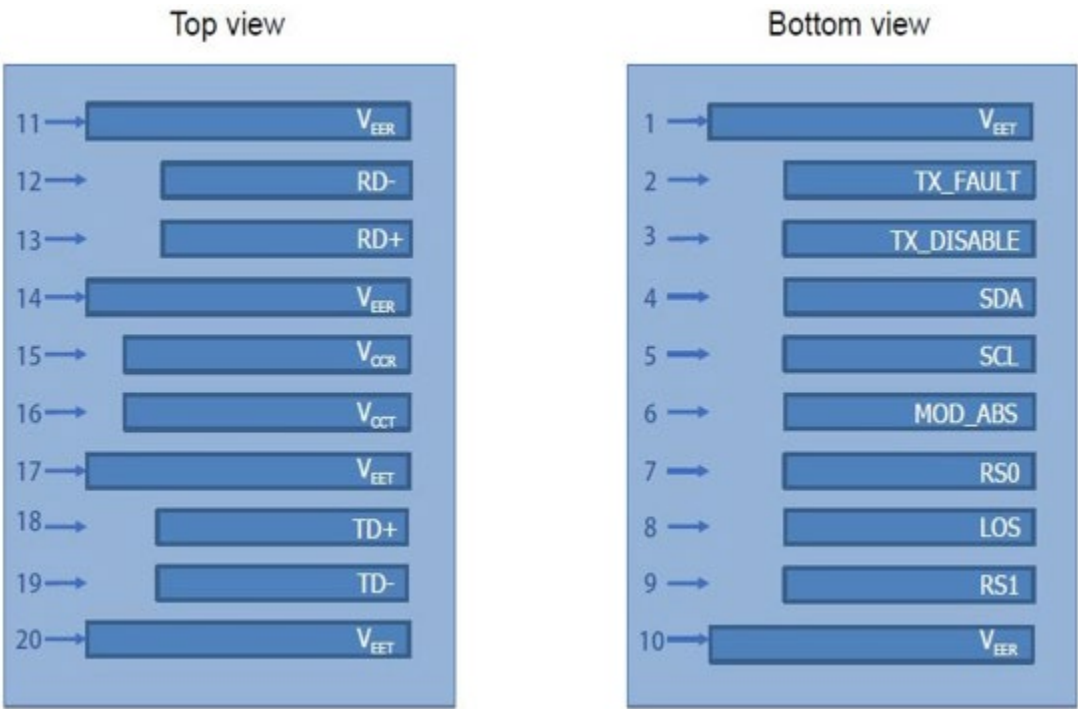
Pin Descriptions

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

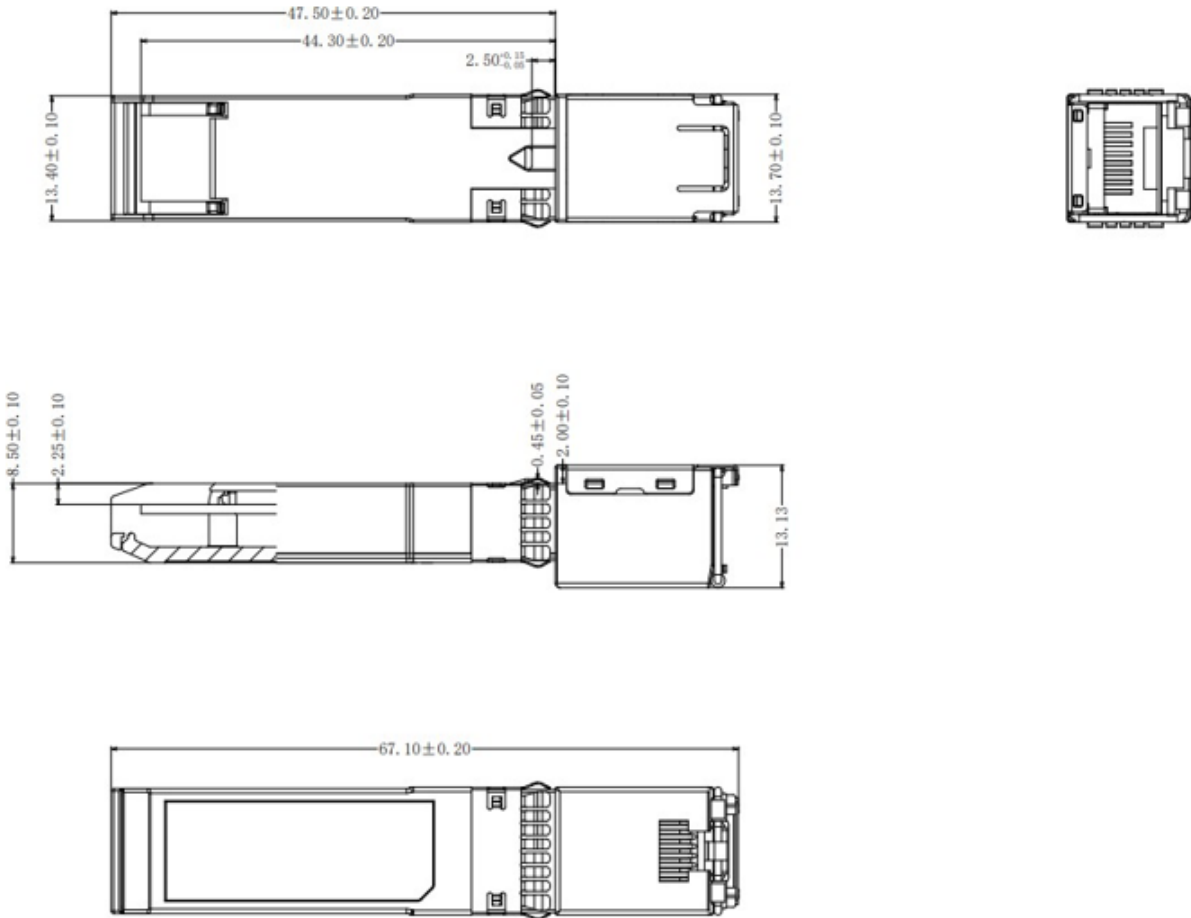
Notes:

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 $4.7k\Omega$ to $10k\Omega$ on the host board to a voltage between 2V and 3.6V.

Electrical Pin-Out Details



Mechanical Specifications



About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



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