SFP-1000BASE-TW-I-OPC

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
- 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.

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.

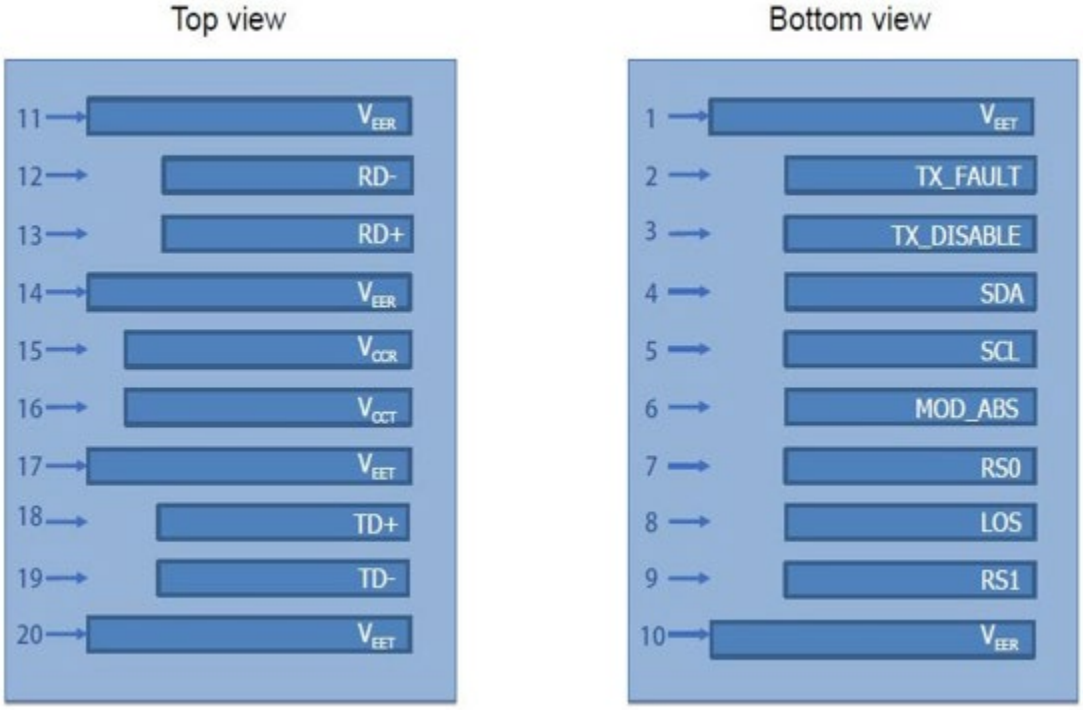
Pin Descriptions

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