

10/100/1000 BASE-T Copper SFP Transceiver

- * Up to 1.25 Gb/s bi-directional data links
- * Hot-pluggable SFP footprint
- * Low power dissipation (1.05W typical)
- * Compact RJ-45 connector assembly
- * Fully metal enclosure, for lower EMI
- * RoHS compliant and lead-free
- * 10/100/1000 BASE-T operation with SGMII interface
- * 1.25 Gigabit Ethernet over Cat 5 cable



Absolute Maximum Rating

Operating Temperature (°C)	0 ~ +70 (Tst)
Supply Voltage (V)	+3.3 (Vcc)
Operating Relative Humidity (%)	0 ~ 85 (RH)

Low speed signals / Electronic Characteristics

Parameters	Min.	Max.	Unit	Notes
SFP Output LOW (VOL)	0	0.5	V	4.7k to 10k pull-up to host_Vcc, measured at host side of connector
SFP Output HIGH (VOH)	host_Vcc -0.5	host_Vcc +0.3	V	4.7k to 10k pull-up to host_Vcc, measured at host side of connector
SFP Input LOW (VIL)	0	0.8	V	4.7k to 10k pull-up to Vcc, measured at SFP side of connector
SFP Output LOW (VHI)	2	Vcc +3	V	4.7k to 10k pull-up to Vcc, measured at SFP side of connector

ORDERING INFORMATION

SFP Type	Distance
CUSFP	1 10/100M
	2 10/100/1000M

ORDERING INFORMATION EXAMPLE

CUSFP	2
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Configuration: Copper SFP 1.25 Gbps 100Mts

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TECHNICAL SPECIFICATION

High-Speed Electrical Interface, Transmission-SFP

Parameters	Min.	Typical	Max.	Unit	Notes
Line (fl)	-	125	-	MHz	5-level encoding, per IEEE 802.3
Tx Output Impedance (Zout,TX)	-	100	-	Ohm	Differential, for all frequencies between 1MHz and 125MHz
Rx Input Impedance (Zout,RX)	-	100	-	Ohm	Differential, for all frequencies between 1MHz and 125MHz

High-Speed Electrical Interface, Host-SFP

Parameters	Min.	Typical	Max.	Unit	Notes
Single ended data input swing (Vinsing)	250	-	1200	mV	Single ended
Single ended data output swing (Voutsing)	350	-	800	mV	Single ended
Rise/Fall Time (Tr,Tf)	-	175	-	psec	20% ~ 80%
Tx Input Impedance	-	50	-	Ohm	Single ended
Rx Output Impedance (Zout)	-	50	-	Ohm	Single ended

General Specifications

Parameters	Min.	Typical	Max.	Unit	Notes
Data Rate (BR)	10	-	1000	Mb/sec	IEEE 802.3 compatible. See Notes 2 through 4 below
Cable Length (L)	-	-	100	M	Category 5 UTP

1. Clock tolerance is +/- 50 ppm.

2. By default, it is a full duplex device in preferred master mode.

3. Automatic crossover detection is enabled. External crossover cable is not required.

4. 10/100/1000 BASE-T operation requires the host system to have an SGMII interface with no clocks. With a SERDES that does not support SGMII, the module will operate at 10/100/1000BASE

High-Speed Electrical Interface, Host-SFP

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SFP to Host Connector Pin Out			
Pin	Logic	Name	Ref.
1	VEET	Transmitter Ground (Common with receiver ground)	1
2	TFAULT	Transmitter Fault. Not supported.	-
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEE(2)	Module Definition 2. Data line for Serial ID.	3
5	MOD_DEE(1)	Module Definition 1. Clock line for Serial ID.	3
6	MOD_DEE(0)	Module Definition 0. Grounded within the module.	3
7	Rate Select	No connection required	-
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	4
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)	-
15	VCCR	Receiver Power Supply	-
16	VCCT	Transmitter Power Supply	-
17	VEET	Transmitter Ground (Common with receiver ground)	-
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. Circuit ground is connected to chassis ground.

2. PHY disabled on TDIS > 2.0V or open, enabled on TDIS < 0.8V

3. Should be pulled up with 4.7k - 10k Ohms on host board to a voltage between 2.0 V and 3.6 V. MOD_DEF (0) pulls line low to indicate module is plugged in.

4. LVTTTL compatible with a maximum voltage of 2.5V. Not supported on XGSF-T12-02-2.

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