Lanmus

LMT-XG-T

DATASHEET

10G BASE-T Copper SFP+ Transceiver

The LMT-XG-T is a versatile 10G copper SFP+ transceiver that delivers high-speed Ethernet connectivity over standard copper cables. With multi-rate support, easy installation, and robust performance across harsh environments, it provides a cost-efficient alternative to fiber while ensuring compatibility, flexibility and reliability for modern networking needs.



PRODUCT INTRODUCTION

Product Overview

The LMT-XG-T 10GBASE-T Copper SFP+ Transceiver is a high-performance, cost-effective solution designed to deliver reliable 10 Gigabit Ethernet connectivity over standard copper cabling. Built in compliance with the SFP+ Multi-Source Agreement (MSA), this transceiver ensures seamless interoperability with a wide range of networking equipment including switches, routers and servers.

Supporting multiple data rates such as 10G, 5G, 2.5G and 1G Ethernet, the LMT-XG-T offers flexible deployment options for modern and legacy network infrastructures. It enables high-speed data transmission over Cat6a and Cat5e cables, eliminating the need for costly fiber installations while maintaining strong performance and stability. Designed with a compact, hot-pluggable SFP+ form factor, the module allows easy installation and replacement without network downtime.

It operates on a single 3.3V power supply and is engineered to perform in demanding environments, with an extended operating temperature range from -40°C to +85°C.

The LMT-XG-T is ideal for data centers, enterprise networks and edge deployments where high-speed connectivity, flexibility and cost efficiency are critical. With its robust design and compliance with IEEE 802.3 standards, it ensures dependable performance across diverse networking applications.

PRODUCT INTRODUCTION

Product Features

- Supports 10GBASE-T/5GBASE-T/2.5GBASE-T/1000BASE-T
- Compliant with SFP+ MSA and IEEE 802.3 standards
- Hot-pluggable SFP+ form factor for easy deployment
- Enables 10Gbps transmission over Cat6a (up to 30m)
- Backward compatible with Cat5e cabling for lower speeds
- Compact RJ-45 connector design
- Operates on single +3.3V power supply
- Wide operating temperature: -40°C to +85°C
- RoHS compliant and lead-free
- Reliable performance for data centers and enterprise networks

Cable Length

Line Port	Cable	Reach	Host
10Gbase-T	CAT6A F/FTP	30m	10GBase-R
5Gbase-T	CAT5E	50m	10GBase-R
2.5Gbase-T	CAT5E	50m	10GBase-R
1000base-T	CAT5E	100m	10GBase-R
100base-Tx	CAT5E	100m	10GBase-R

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SFP To Host Connector Pin Out

PIN	Symbol	Description
1	VEET	Transmitter Ground
2	TFAULT	Transmitter Fault (Not supported)
3	TDIS	Transmitter Disable
4	MOD_DEF(2)	Data line for Serial ID
5	MOD_DEF(1)	Clock line for Serial ID
6	MOD_DEF(0)	Module Definition Ground
7	Rate Select	No connection required
8	LOS	Link indication
9-11	VEER	Receiver Ground
12	RD-	Receiver Data Out
13	RD+	Receiver Data Out
14	VEER	Ground
15	VCCR	Receiver Power
16	VCCT	Transmitter Power
17	VEET	Ground
18	TD+	Transmitter Data In
19	TD-	Transmitter Data Out

SFP To Host Connector Pin Out

PIN	Symbol	Description
20	VEET	Ground

Note :

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 2.0V and 3.6V.

MOD_DEF(0) pulls line low to indicate module is plugged in.

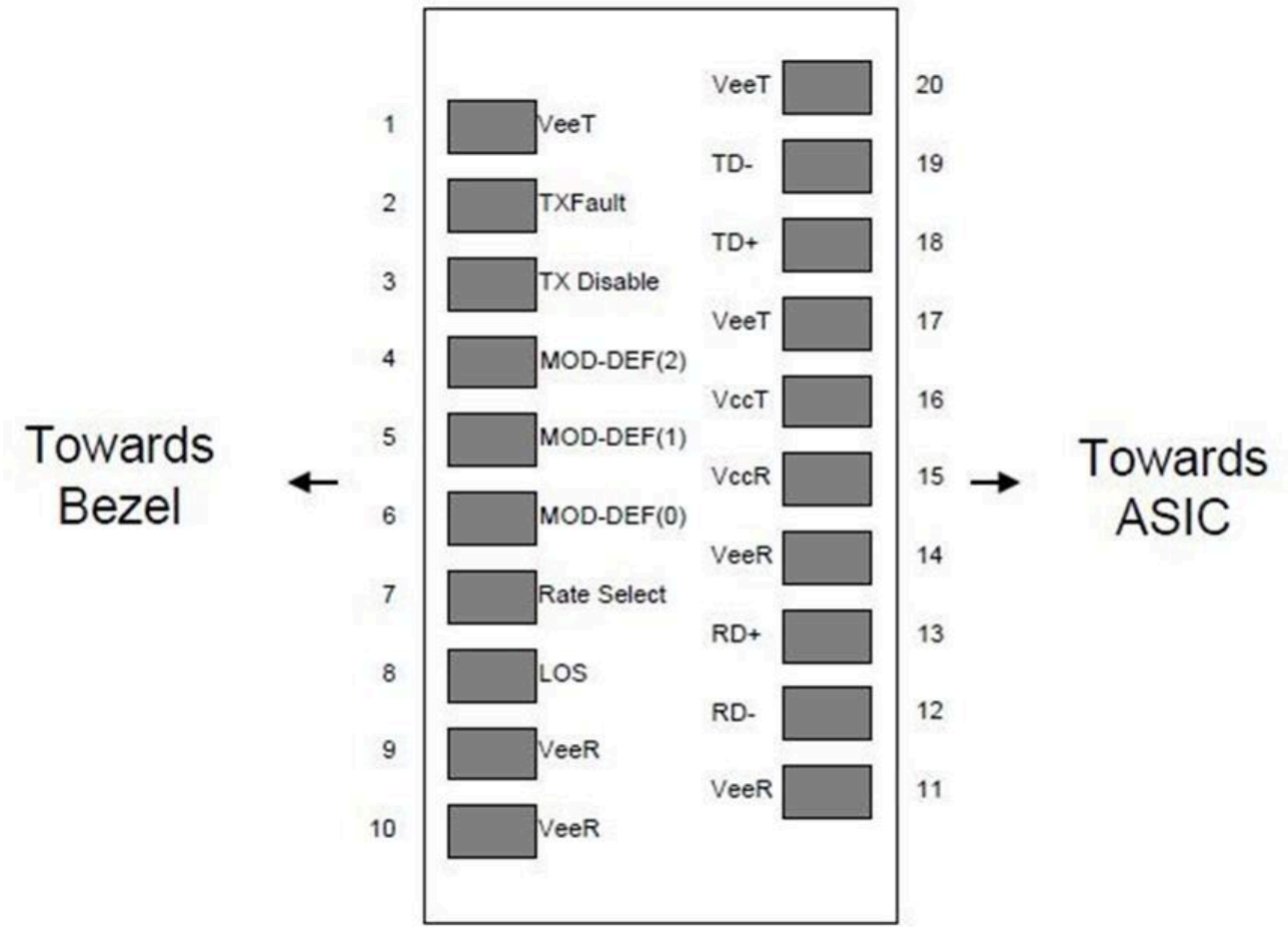


Figure 1. *Diagram of host board connector block pin numbers and names*

+3.3V Volt Electrical Power Interface

The SFP+ -10GBASE-T has an input voltage range of 3.3V+/-5%. The 4V maximum voltage is not allowed for continuous operation.

PIN	Min	Typ	Max	Unit
Supply Current	750	-	1000	mA
Input Voltage	3.13	3.3	3.47	V
Maximum Voltage	-	-	4	V

Low-Speed Signals

MOD_DEF(1) (SCL) and MOD_DEF(2) (SDA) are open drain CMOS signals (see section VII, "Serial Communication Protocol"). Both MOD_DEF(1) and MOD_DEF(2) must be pulled up to host_Vcc

Low-Speed Signals, Electronic Characteristics					
Parameter	**Symbol**	**Min**	**Max**	**Unit**	**Notes/Conditions**
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 host_Vcc, measured at host side of connector
SFP Input HIGH	VIH	2	Vcc + 0.3	V	4.7k to 10k pull-up to host_Vcc, measured at host side of connector

High-Speed Electrical Interface

All high-speed signals are AC-coupled internally.

High-Speed Electrical Interface, Transmission Line-SFP						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Notes/Conditions**
Line Frequency	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	Zin, TX		100		Ohm	Differential, for all frequencies between 1MHz and 125MHz

High-Speed Electrical Interface, Host-SFP						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Notes/Conditions**
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	Zin	-	50	-	Ohm	Single ended
Rx Output Impedance	Zout	-	50	-	Ohm	Single ended

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General Specification

General						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Notes/Conditions**
Data Rate	BR	1	-	10	GB/ sec	IEEE 802.3 compatible. See Notes 1,2 below

Notes:

1. Clock tolerance is +/- 50 ppm

EEPROM Information

Addr	Field Size (Bytes)	Name of Field	HEX	Description
0	1	Identifer	03	SEP
1	1	Ext. Identifier	04	MOD4
2	1	Connector	07	LC
3-10	8	Transceiver	00 00 00 00 00 00 00 00	Transmitter Code
11	1	Encoding	06	64B66B
12	1	BR, nominal	67	10000Mbps
13	1	Reserved	00	-
14	1	Length (9um)-km	00	-
15	1	Length (9um)	00	-
16	1	Length (50um)	08	80

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EEPROM Information

Addr	Field Size (Bytes)	Name of Field	HEX	Description
17	1	Length (62.5um)	03	30
18	1	Length (copper)	00	-
19	1	Reserved	1E	30
20-35	16	Vendor name	57 49 4E 54 4F 50 20 20 20 20 20 20 20 20 20 20	WINTOP
36	1	Reserved	00	-
37-39	3	Vendor OUI	00 00 00	-
40-55	16	Vendor PN	xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx	ASC II
56-59	4	Vendor rev	31 2E 30 20	V1.0
60-61	2	Wavelength	00 00	850nm
62	1	Reserved	00	-
63	1	CC BASE	xx	Check sum of byte 0~62
64-65	1	Options	00 1A	LOS, TX_DISABLE, TX_FAULT
66	1	BR, max	00	-
67	1	BR, min	00	-
68-83	16	Vendor SN	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Unspecified
84-91	8	Vendor date code	xx xx xx 20	Year, Month, Day
92-94	3	Reserved	xx xx xx	-
95	1	CC_EXT	xx	Check sum of byte 64~94

EEPROM Information

Addr	Field Size (Bytes)	Name of Field	HEX	Description
96-255	160	Vendor specific		

Environmental Specifications

Environmental Specifications						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Notes/Conditions**
Operating Temperature	Top	-40	-	85	°C	Case temperature
Storage Temperature	Tsto	-40	-	85	°C	Ambient temperature

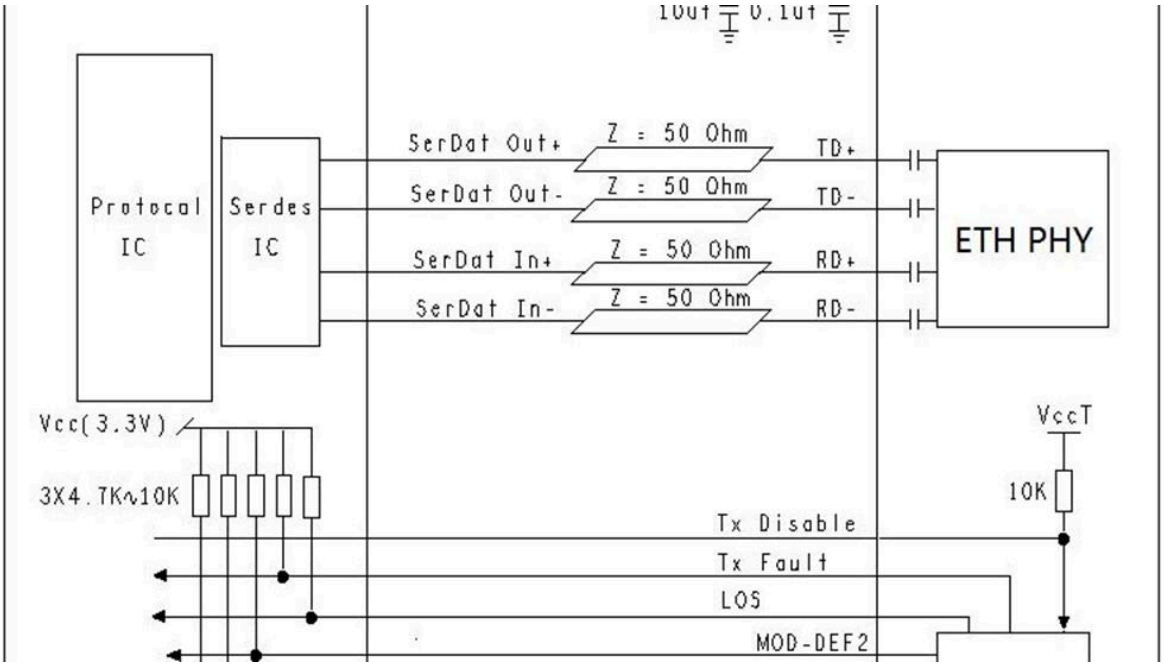
Serial Communication Protocol

All WINTOP SFPs support the 2-wire serial communication protocol outlined in the SFP MSA. These SFPs use an MCU, can be accessed with address of A0h.

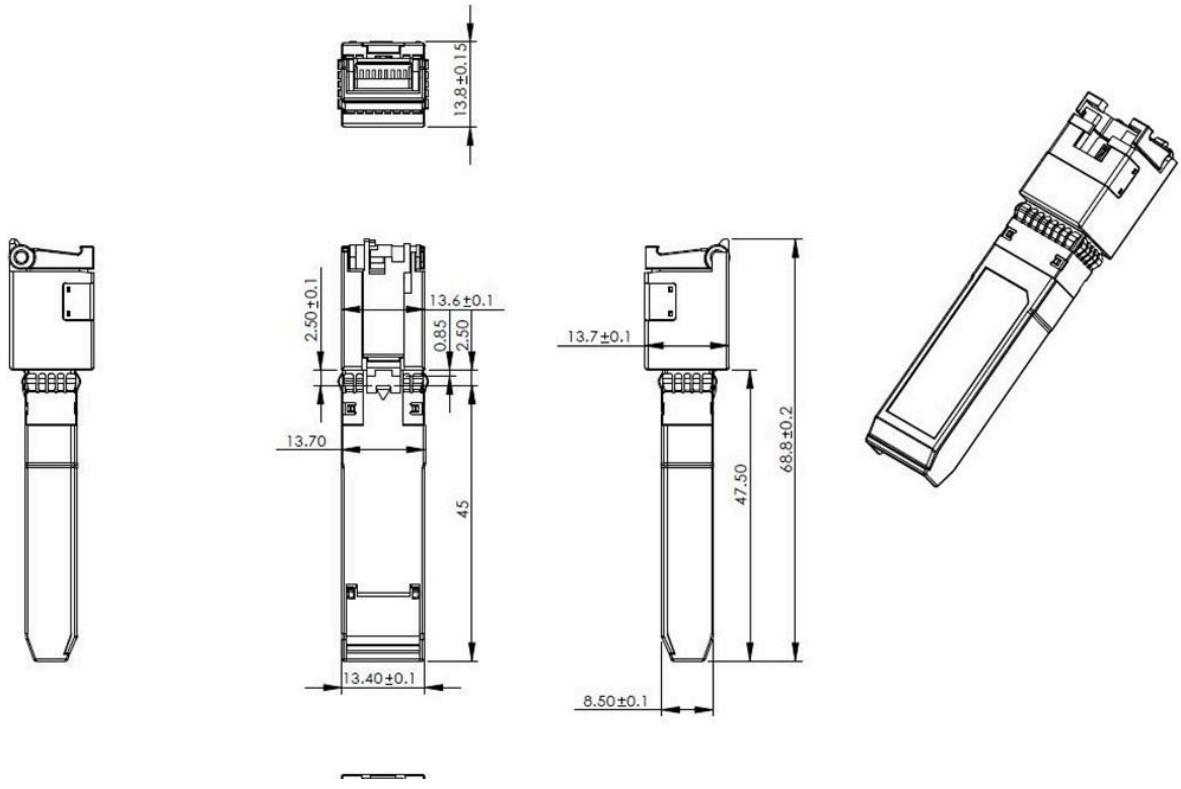
Serial Bus Timing, Requirements						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Notes/Conditions**
I 2C Clock Rate	-	0	-	200,000	Hz	-

All WINTOP SFPs support the 2-wire serial communication protocol outlined in the SFP MSA. These SFPs use an MCU, can be accessed with address of A0h.

Recommended Application Circuit



Outline Dimensions (Mm)




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