Copper SFP

1.25G Copper Transceiver 100m RJ45

Part Number
WTS01GT100-T



1. Product Overview

The Copper Small Form Pluggable (SFP)transceivers is high-performance, cost-effective module compliant with the Gigabit Ethernet and 1000BASE-T standards as specified in IEEE 802. 3-2002 and IEEE 802.3ab, which supporting 1000Mbps data-rate up to 100 meters reach over unshielded twisted-pair category 5 cable. The module supports 1000Mbps full duplex data-links with 5-level Pulse Amplitude Modulation (PAM) signals. All four pairs in the cable are used with a data rate of 250 Mb/s per pair (125 MBd PAM-5 signaling). The module provides standard serial ID information compliant with SFP MSA, which can be accessed with address of A0h via the 2wire serial CMOS EEPROM protocol. The physical IC can also be accessed via 2wire serial bus at address A0h.

Features

- Up to 1.25Gb/s bi-directional data links
- Hot-pluggable SFP footprint
- Extended case temperature range (0°C to +70°C)
- Fully metallic enclosure for low EMI
- Low power dissipation (1.05 W typical)
- Compact RJ-45 connector assembly
- Access to physical layer IC via 2-wire serial bus
- 1000BASE-T operation in host systems with SERDES interface
- 10/100/1000Mbps compliant in host systems with SGMII interface

Applications

- 1.25 Gigabit Ethernet over Cat cable

2. Ordering Information

Part Number	Description
WTS01GT100-T	10/100/1000Mbps, Copper SFP, RJ45,100Meter
WTS01GT100-G	1000Mbps, Copper SFP, RJ45, 100Meter

3. Absolute Maximum Ratings

Environmental Specifications	Environmental Specifications	Environmental Specifications	Environmental Specifications	Environmental Specifications	Environmental Specifications	Environmental Specifications
Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Operating Temperature	Top	0		70	°C	Case temperature
Storage Temperature	Tsto	-40		85	°C	Ambient temperature

4. Pin Descriptions

Pin	Signal Name	Description	Plug Seq.	Notes
1	VEET	Transmitter Ground	1	
2	TX FAULT	Transmitter Fault Indication	3	Note1
3	TX DISABLE	Transmitter Disable	3	Note2
4	MOD_DEF (2)	SDA Serial Data Signal	3	Note3
5	MOD_DEF (1)	SCL Serial Clock Signal	3	Note3
6	MOD_DEF (0)	TTL Low	3	Note3
7	Rate Select	Not Connected	3	
8	LOS	Loss of Signal	3	Note 4
9	VEER	Receiver ground	1	
10	VEER	Receiver ground	1	
11	VEER	Receiver ground	1	
12	RX-	Inv. Received Data Out	3	Note 5
13	RX+	Received Data Out	3	Note 5
14	VEER	Receiver ground	1	
15	VCCR	Receiver Power Supply	2	
16	VCCT	Transmitter Power Supply	2	
17	VEET	Transmitter Ground	1	
18	TX+	Transmit Data In	3	Note 6
19	TX-	Inv. Transmit Data In	3	Note 6
20	VEET	Transmitter Ground	1	

5. Additional Specifications

+3.3V volt Electrical Power Interface	+3.3V volt Electrical Power Interface	+3.3V volt Electrical Power Interface	+3.3V volt Electrical Power Interface	+3.3V volt Electrical Power Interface	+3.3V volt Electrical Power Interface	+3.3V volt Electrical Power Interface
Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Supply Current	Is		320	375	mA	1.2W max power over full range of voltage and temperature. See caution note below
Input Voltage	Vcc	3.13	3.3	3.47	V	Referenced to GND
Maximum Voltage	Vmax			4	V	
Surge Current	Isurge			30	mA	Hot plug above steady state current. See caution note below

6. Additional Specifications

Low-Speed Signals, Electronic Characteristics	Low-Speed Signals, Electronic Characteristics	Low-Speed Signals, Electronic Characteristics	Low-Speed Signals, Electronic Characteristics	Low-Speed Signals, Electronic Characteristics	Low-Speed Signals, Electronic Characteristics
Parameter	Symbol	Min	Max	Units	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 Vcc, measured at SFP side of connector
SFP Input HIGH	VIH	2	Vcc + 0.3	V	4.7k to 10k pull-up to Vcc, measured at SFP side of connector

7. Additional Specifications

High-Speed Electrical Interface Transmission Line-SFP	High-Speed Electrical Interface Transmission Line-SFP	High-Speed Electrical Interface Transmission Line-SFP	High-Speed Electrical Interface Transmission Line-SFP	High-Speed Electrical Interface Transmission Line-SFP	High-Speed Electrical Interface Transmission Line-SFP	High-Speed Electrical Interface Transmission Line-SFP
Parameter	Symbol	Min	Typ	Max	Units	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,RX		100		Ohm	Differential, for all Frequencies between 1MHz and 125MHz

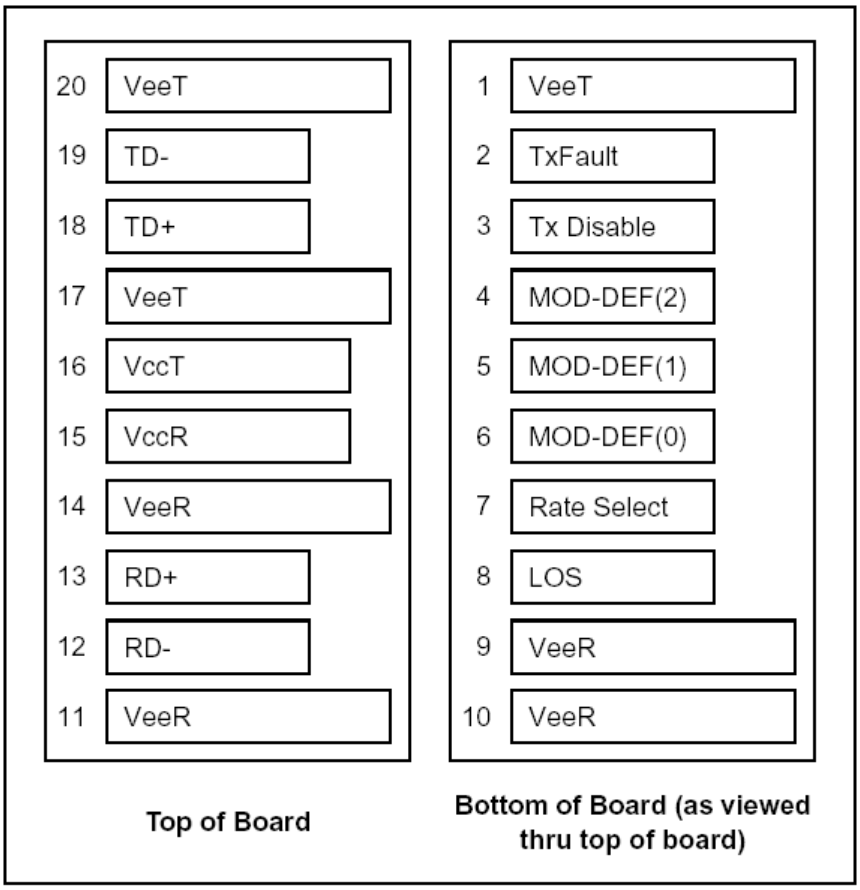
8. Additional Specifications

High-Speed Electrical Interface, Host-SFP	High-Speed Electrical Interface, Host-SFP	High-Speed Electrical Interface, Host-SFP	High-Speed Electrical Interface, Host-SFP	High-Speed Electrical Interface, Host-SFP	High-Speed Electrical Interface, Host-SFP	High-Speed Electrical Interface, Host-SFP
Parameter	Symbol	Min	Typ	Max	Units	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

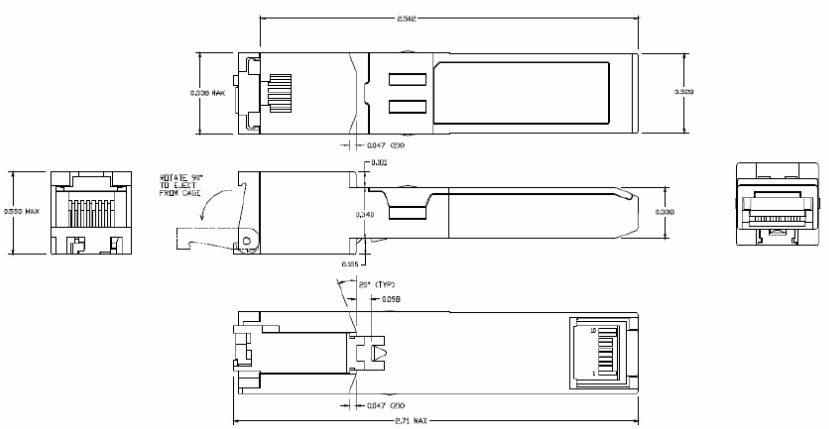
9. Additional Specifications

General	General	General	General	General	General	General
Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Data Rate	BR	10		1,000	Mb/sec	IEEE 802.3 compatible. See Notes 2 through 4 below
Cable Length	L			100	m	Category 5 UTP. BER <10-12

10. Technical Figure 1



11. Technical Figure 2



12. Revision History

Version	Date	Description	Prepared by
V6	2025	Unified WincoTek datasheet format	WincoTek
V6.1	2026-10-23	Engineering and format review	WincoTek