

10/100/1000BASE-T SFP Transceiver

Features

- ◆ Support 10/100/1000BASE-T operation in host systems with SGMII interface
- ◆ Up to 1.25Gbps bi-direction data links
- ◆ Hot-pluggable SFP footprint
- ◆ Fully metallic enclosure for low EMI
- ◆ Low power dissipation (1.05 W typical)
- ◆ Compact RJ-45 connector assembly
- ◆ 100m transmission over unshielded twisted pair(UTP) Category 5 Cable
- ◆ Access to physical layer IC via 2-wire serial bus
- ◆ Extended Operating Temperature 0°C - 85°C



Applications

- ◆ LAN 1000Base-T
- ◆ 1.25 Gigabit Ethernet over Cat 5 cable
- ◆ Switch to Switch interface
- ◆ Router/Server interface

Product Description

GLC-T-AS 10/100/1000BASE-T Copper Small Form Pluggable (SFP) is based on the SFP Multi Source Agreement (MSA). It is compatible with the Gigabit Ethernet and 10/100/1000BASE-T standards as specified in IEEE Std 802.3.

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max
Maximum Supply Voltage	V _{cc}	-0.5		4.0
Storage Temperature	TS	-40		85

Normal operating condition

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Operating Temperature	Top	0		80	°C	
Supply Voltage	V _{cc}	3.14	3.3	3.46	V	

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
+3.3 Volt Electrical Power Interface						
Supply Current	I _{cc}		300	350	mA	
Input Voltage	V _{cc}	3.13	3.3	3.47	V	
Surge Current	I _{surge}			30	mA	
Low-Speed Signals, Electronic Characteristics						
SFP Output LOW	V _{OL}	0		0.5	V	4.7k to 10k pull-up to host_V _{cc} , measured at host side of connector
SFP Output HIGH	V _{OH}	host_V _{cc} - 0.5		host_V _{cc} + 0.3	V	4.7k to 10k pull-up to host_V _{cc} , measured at host side of connector
SFP Input LOW	V _{IL}	0		0.8	V	4.7k to 10k pull-up to V _{cc} , measured at SFP side of connector
SFP Input HIGH	V _{IH}	2		V _{cc} + 0.3	V	4.7k to 10k pull-up to V _{cc} , measured at SFP side of

connector						
High-Speed Electrical Interface, Transmission Line-SFP						
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
High-Speed Electrical Interface, Host-SFP						
Single ended data input swing	Vin	250		1200	mV	Single ended
Single ended data output swing	Vout	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

General specifications

Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Datarate		10		1000	Mbps	
Distance				100	m	Category 5 UTP. BER < 10 ⁻¹²

Pin Descriptions

Pin No.	Name	Function	Plug Seq.	Notes
1	VeeT	Transmitter Ground	1	
2	TX Fault	Transmitter Fault Indication	3	Not used

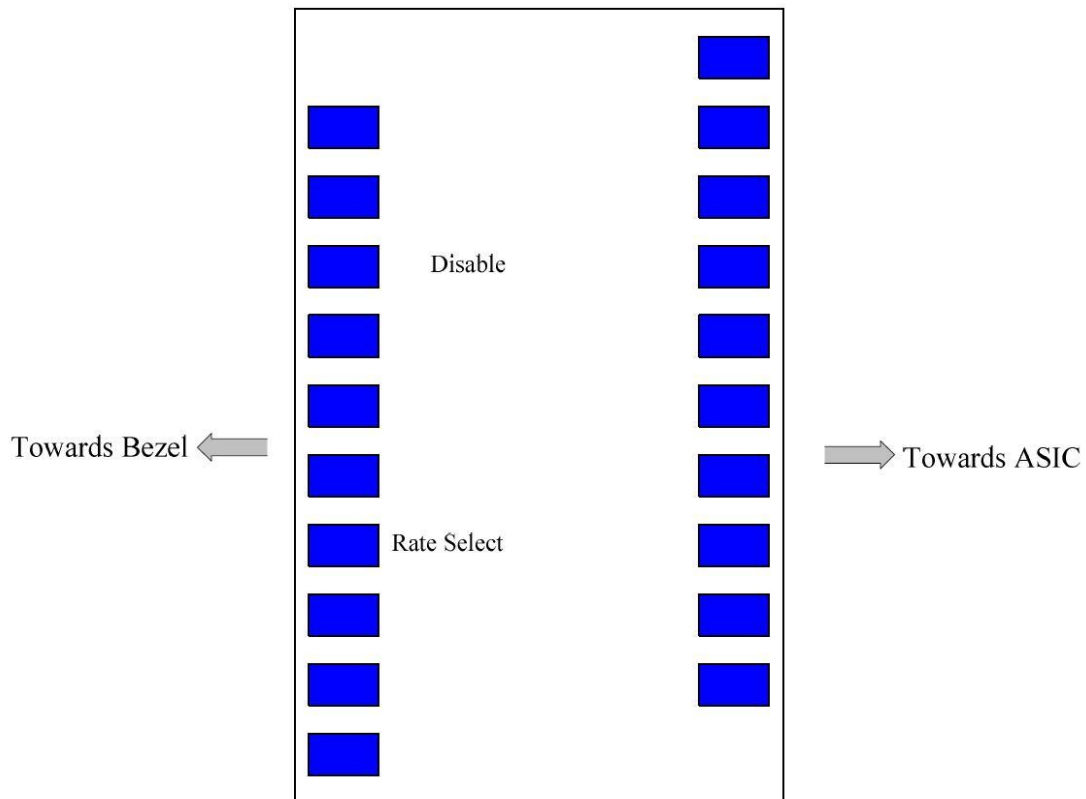


3	TX Disable	Transmitter Disable	3	1
4	MOD-DEF2	Module Definition 2	3	2
5	MOD-DEF1	Module Definition 1	3	2
6	MOD-DEF0	Module Definition 0	3	2
7	Rate Select	Not Connected	3	
8	LOS	Loss of Signal	3	Not Used
9	VeeR	Receiver Ground	1	
10	VeeR	Receiver Ground	1	
11	VeeR	Receiver Ground	1	
12	RD-	Inv. Received Data Out	3	
13	RD+	Received Data Out	3	
14	VeeR	Receiver Ground	1	
15	VccR	Receiver Power	2	
16	VccT	Transmitter Power	2	
17	VeeT	Transmitter Ground	1	
18	TD+	Transmit Data In	3	
19	TD-	Inv. Transmit Data In	3	
20	VeeT	Transmitter Ground	1	

Notes:

1. PHY disabled on TDIS > 2.0V or open, enabled on TDIS < 0.8V, used to reset the module.
2. 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.

The following is the Diagram of host board connector block pin numbers and names

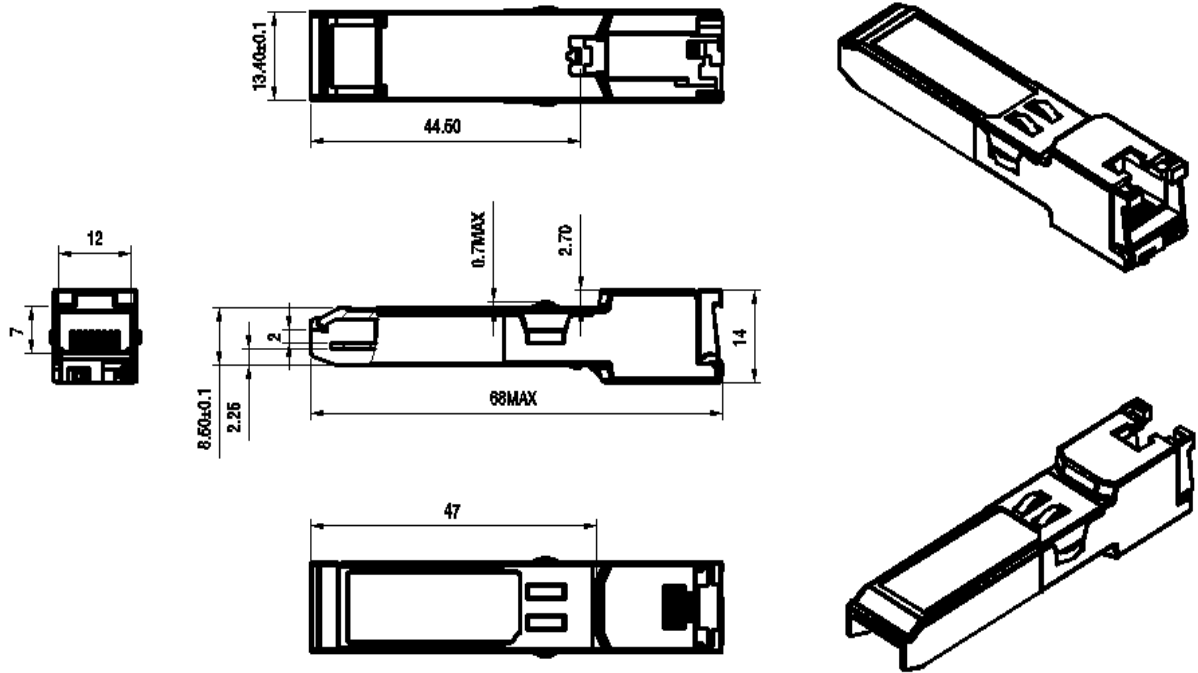


Serial Communication Protocol

Agilestar's Copper SFPs support the 2-wire serial communication protocol outlined in the SFP MSA. These SFPs use a 128 byte EEPROM with an address of A0h. The 10/100/1000BASE-T physical layer IC can also be accessed via the 2-wire serial bus at address ACh.

Mechanical Specifications

Agilestar's Copper SFP transceivers are compliant with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).



Order Information

Part No.	Data Rate	Link type	Distance	Connector
GLC-T-AS	10/100/1000M	Cat5	100m	RJ45

NOTICE:

Agilestar reserves the right to make changes to or discontinue any product or service identified in this publication, without notice, in order to improve design and/or performance.

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