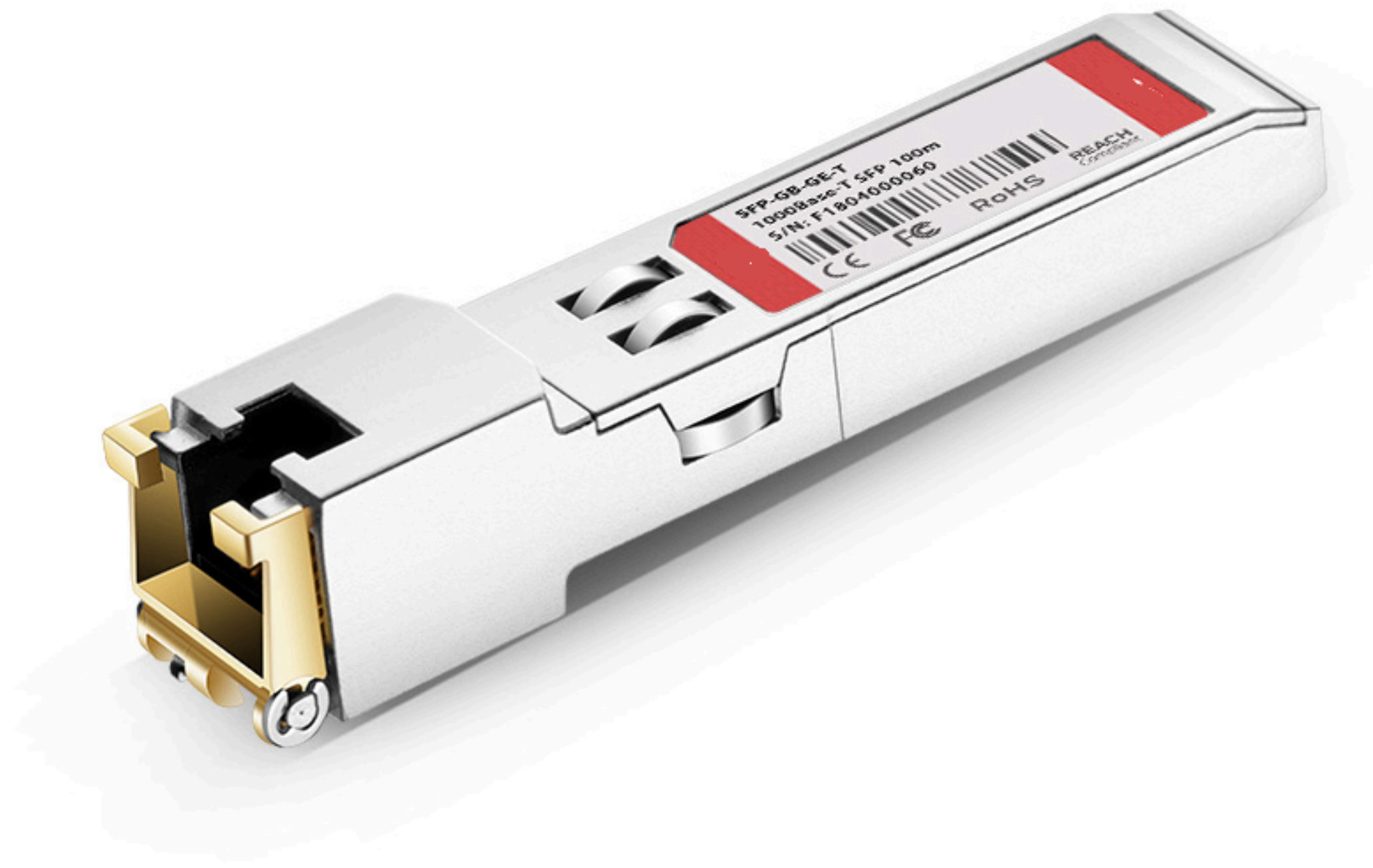


SFP-TXM

1000M SFP Copper RJ45 100m Transceiver



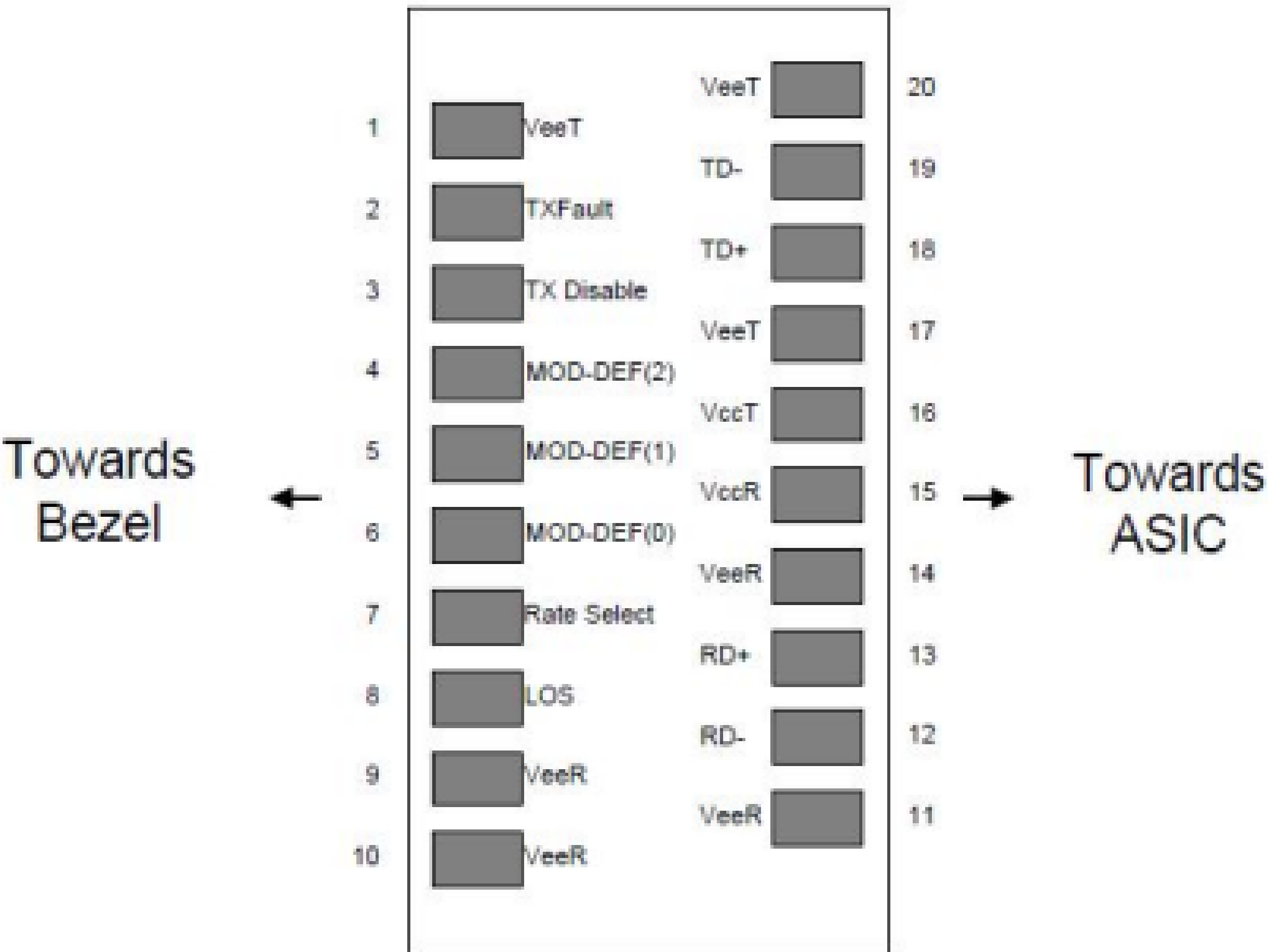
FEATURES:

- 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
- Single +3.3V power supply
- 10/100/1000 BASE-T operation in host systems with SGMII interface
- 1.25 Gigabit Ethernet over Cat 5 cable
- Case operating temperature:
 - Commercial: 0°C to +70°C
 - Extended: -10°C to +80°C
 - Industrial: -40°C to +85°C

Product Description

SFP-TXM Copper Small Form Pluggable (SFP)transceivers is high performance, cost effective module compliant with the Gigabit Ethernet and 10/100/1000BASE-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 supports1000 Mbps full duplex data-links with 5-level Pulse Amplitude Modulation (PAM) signals. All four pairs in the cable are used with symbol rate at 250Mbps on each pair. 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 ACh.

SFP to Host Connector Pin O



Pin	Symbol	Name/Description	Ref.
1	VEET	Transmitter Ground (Common with Receiver Ground)	1
2	TX_FAULT	Transmitter Fault. Not supported.	
3	TX_DISABLE	Transmitter Disable. See TX Disable.	
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	2
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	2
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	2
7	Rate Select	No connection required	
8	LOS	Loss of Signal See LOS option.	
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. Circuit ground is connected to chassis ground
2. Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a 4.7K~10K resistor on the host board. The pull-up voltage shall be VccT or VccR Mod-Def 0 is grounded by the module to indicate that the module is present Mod-Def 1 is the clock line of two wire serial interface for serial ID Mod-Def 2 is the data line of two wire serial interface for serial ID
3. RX_LOS (Loss of Signal): LVTTTL compatible with a maximum voltage of Host_Vcc. RX_LOS can enabled or disabled (Refer to Ordering information),RX_LOS is not used and is always tied to ground via 100-ohm resistor.
4. RD-/+: These are the differential receiver outputs. They are AC coupled 100 differential lines which should be terminated with 100 (differential) at the user SERDES.
5. TD-/+: These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 differential termination inside the module

3.3V Volt Electrical Power Interface

+3.3 Volt Electrical Power Interface						
Parameter	Symbol	Min	Typ	Max	unit	Notes/Conditions
Supply Current	Is		320	360	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	

Low-Speed Signa

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 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

High-Speed Electrical Interface

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,RX		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	T _r ,T _f		175		psec	20%-80%	
Tx Input Impedance	Zin		50		Ohm	Single ended	
Rx Output Impedance	Zout		50		Ohm	Single ended	

General Specifications

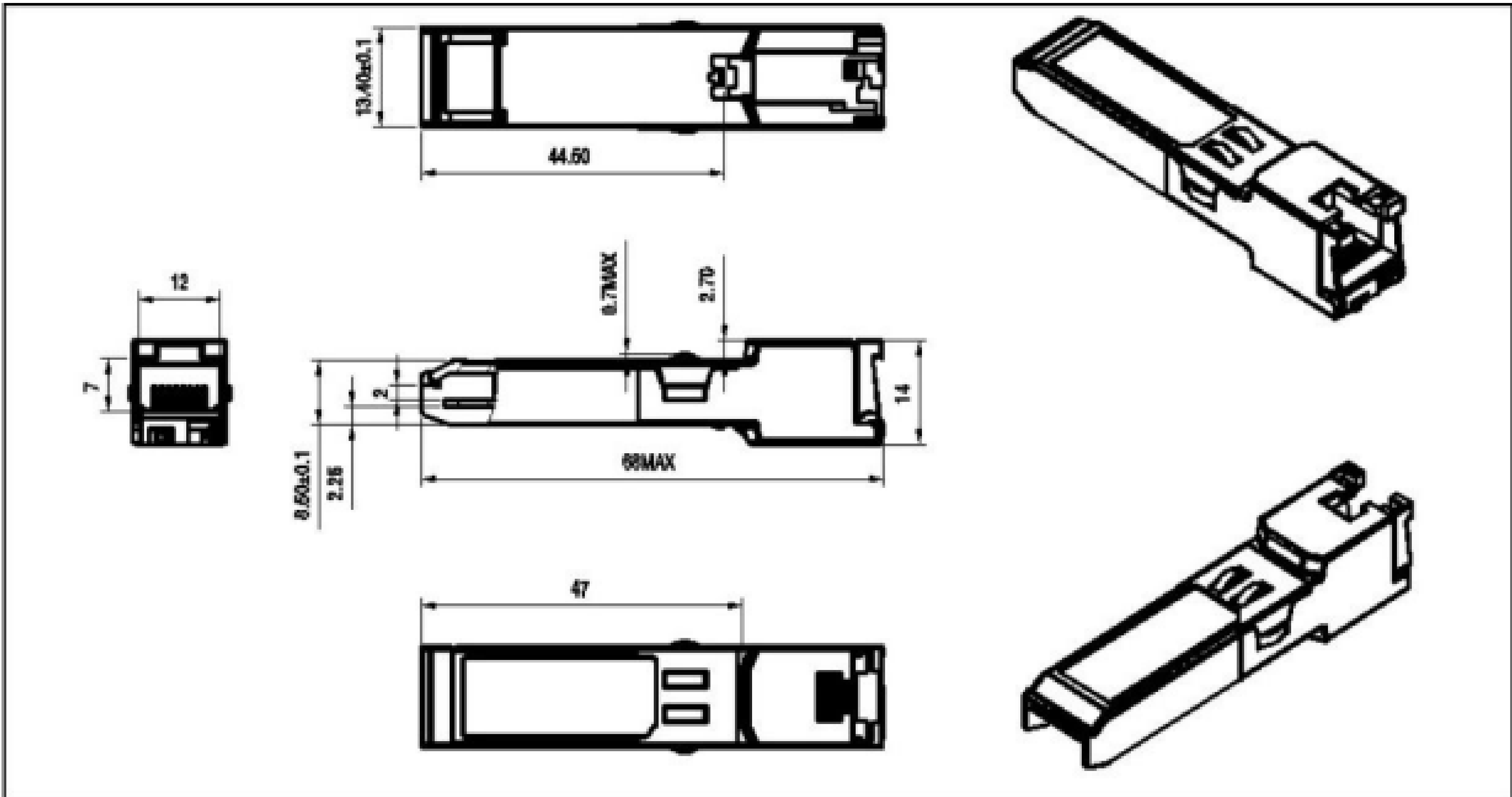
General						
Parameter	Symbol	Min	Typ	Max	unit	Notes/Conditions
Data Rate	BR	10		1000	Mb/sec	IEEE 802.3 compatible. See Notes 2 through 4 below
Cable Length	L			100	m	Category 5 UTP. BER

- Notes:
- 1. Clock tolerance is +/- 50 ppm
 - 2. By default, the SFP-TXM 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.

Environmental Specifications

Environmental Specifications						
Parameter	Symbol	Min	Typ	Max	unit	Notes/Conditions
Case Operating Temperature	Tcase	0		70	°C	SFP-TXM
		-10		80	°C	SFP-TXM-E
		-40		85	°C	SFP-TXM-I
Storage	Tsto	-40		85	°C	Ambient temperature

Mechanical Specifications (Unit:mm)



References

- 1. Small Form Factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA),September 2000.
- 2. IEEE802.3 – 2002.
- 3. AT24C01A/02/04/08/16 2-Wire Serial CMOS