The GigaTech Products **AXM765-10000S-GT** is programmed to be fully compatible and functional with all intended NetGear switching devices. This SFP+ module is based on the Gigabit Ethernet IEEE 802.3az standard and is designed to be compliant with SFF-8472 SFP Multi-Source Agreement (MSA). This module is designed for copper wire cabling up to 30 meters.

Features:

- Up to 10GBd bi-directional data links

- Hot-pluggable SFP footprint

- Support 10GBase-T operation in host system

- RJ-45 Connectors

- Auto-sense MDI/MDIX

- Up to 30M over Cat 6A/7 copper cabling

- Operating temperature range

  C-Temp: 0℃ to 70℃

Compliance:

- IEEE 802.3az

- SFP MSA SFF-8472, SFF-8431

- RoHS

Applications

- 10GBd Gigabit Ethernet

Warranty:

GigaTech Branded Optical Transceivers- Lifetime Warranty

General Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Data Rate	DR		10		Gb/s	IEEE 802.3
Cable Length	CL		30		M	Category 6A/7 UTP
Bit Error Rate	BER			10^{-12}		
Input Voltage	V_{CC}	3.13	3.3	3.47	V	
Maximum Voltage	V_{MAX}			4	V	Electric Power Interface
Supply Current	I_S		700	750	mA	Electric Power Interface
Surge Current	I_{SURGE}			30	mA	Hot Plug
Storage Temperature	T_{STO}	-40		85	℃	Ambient Temperature

High Speed Electrical Interface Host- SFP

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Differential Input Voltage	V_{INDIFF}	250		1200	mV	Differential peak-peak
Differential Output Voltage	$V_{OUTDIFF}$	350		800	mV	Differential peak-peak
Tx Input Impedance	Z_{IN}		50		Ohm	Single ended
Rx Output Impedance	Z_{OUT}		50		Ohm	Single ended

High Speed Electrical Interface Transmission Line- SFP

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Tx Input Impedance	Z_{IN}		100		Ohm	1MHz - 125MHz
Rx Output Impedance	Z_{OUT}		100		Ohm	1MHz - 125MHz

Low Speed Electrical Signal

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
SFP Output Low	V_{OL}	0		0.5	V	Note 1
SFP Output High	V_{OH}	Host_V_{CC} -0.5		Host_V_{CC} +0.3	V	Note 1
SFP Input Low	V_{IL}	0		0.8	V	Note 1
SFP Input High	IH_L	2		V_{CC} +0.3	V	Note 1

Note 1: External 4.7-10k ohm pull-up resistor required

Dimensions

9.2±0.1

41.8±0.15

13.7±0.1

8.5±0.1

45±0.2

28.5

13.4±0.1   unit: millimeter
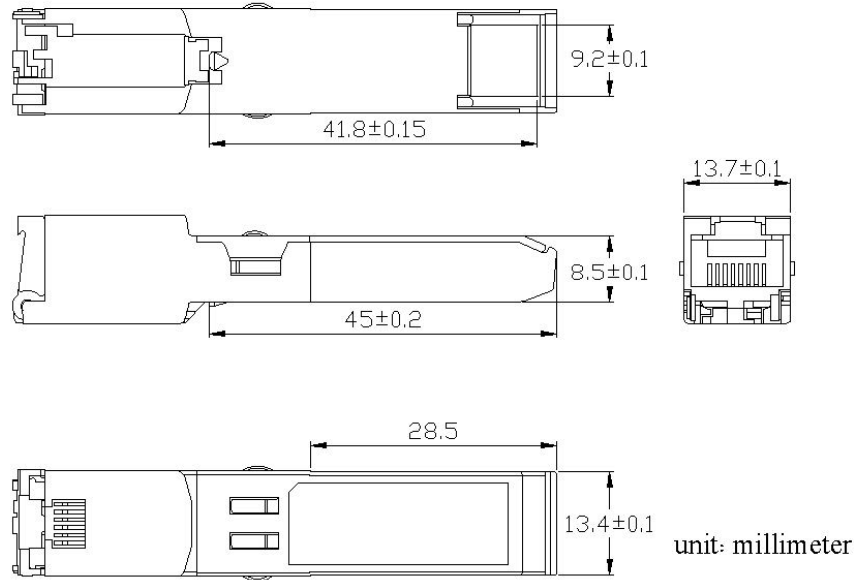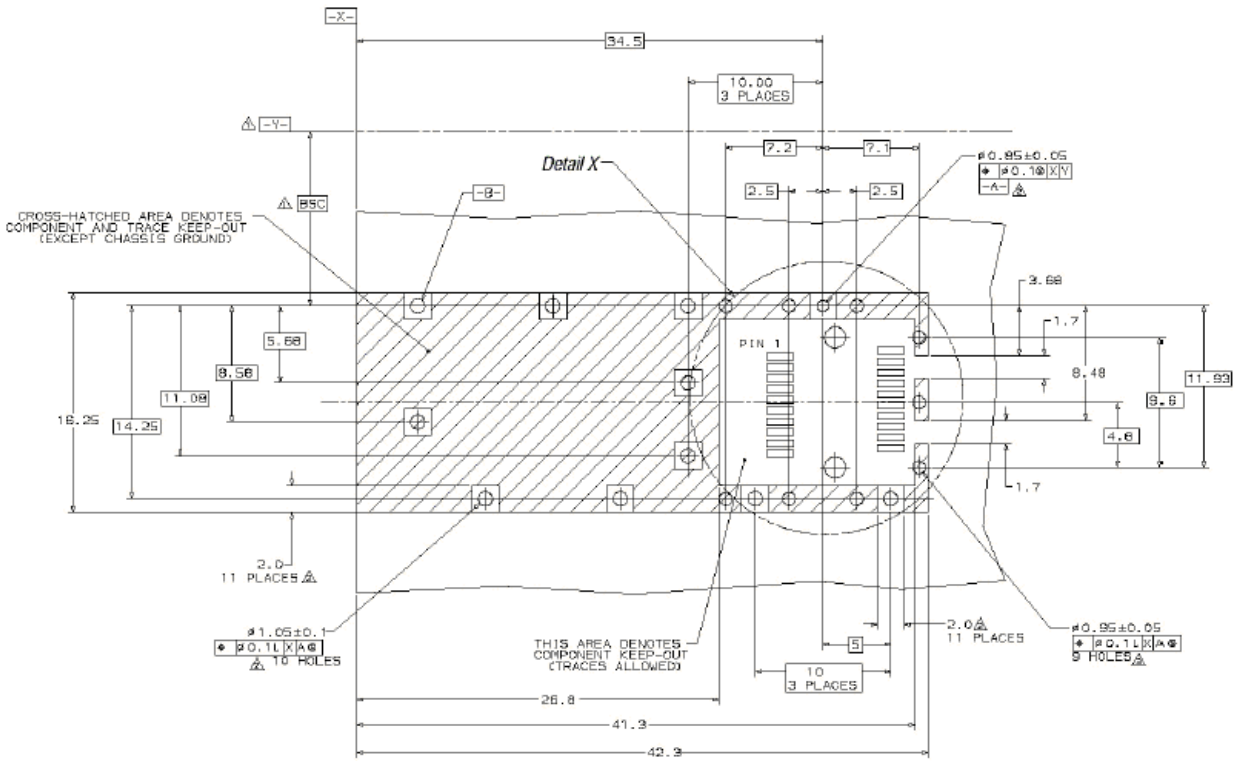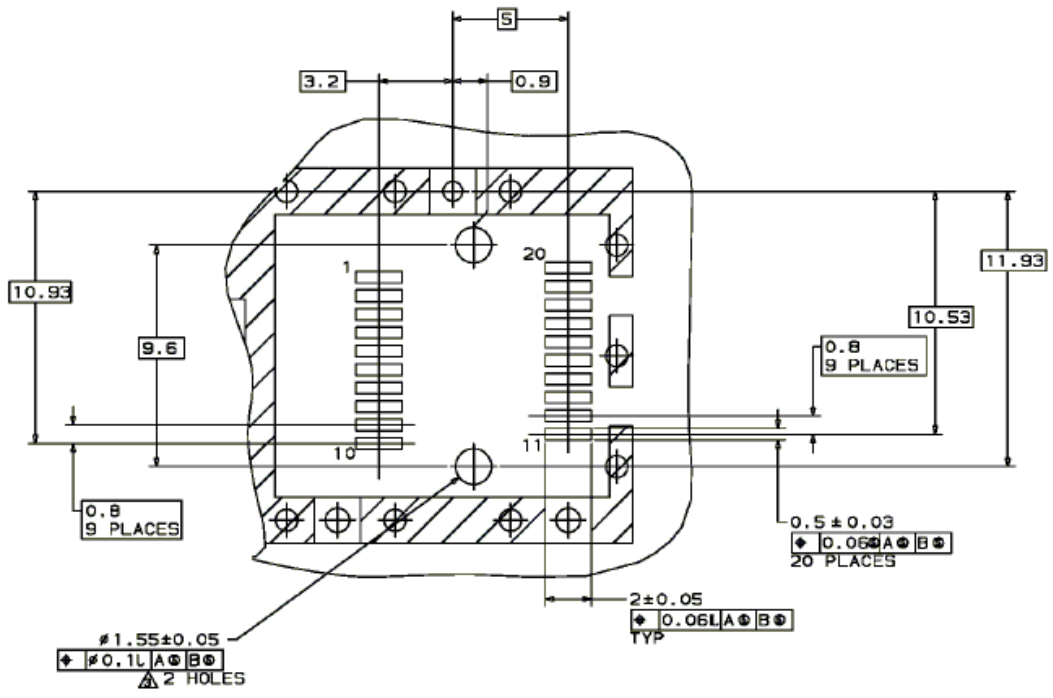
ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE SPECIFIED
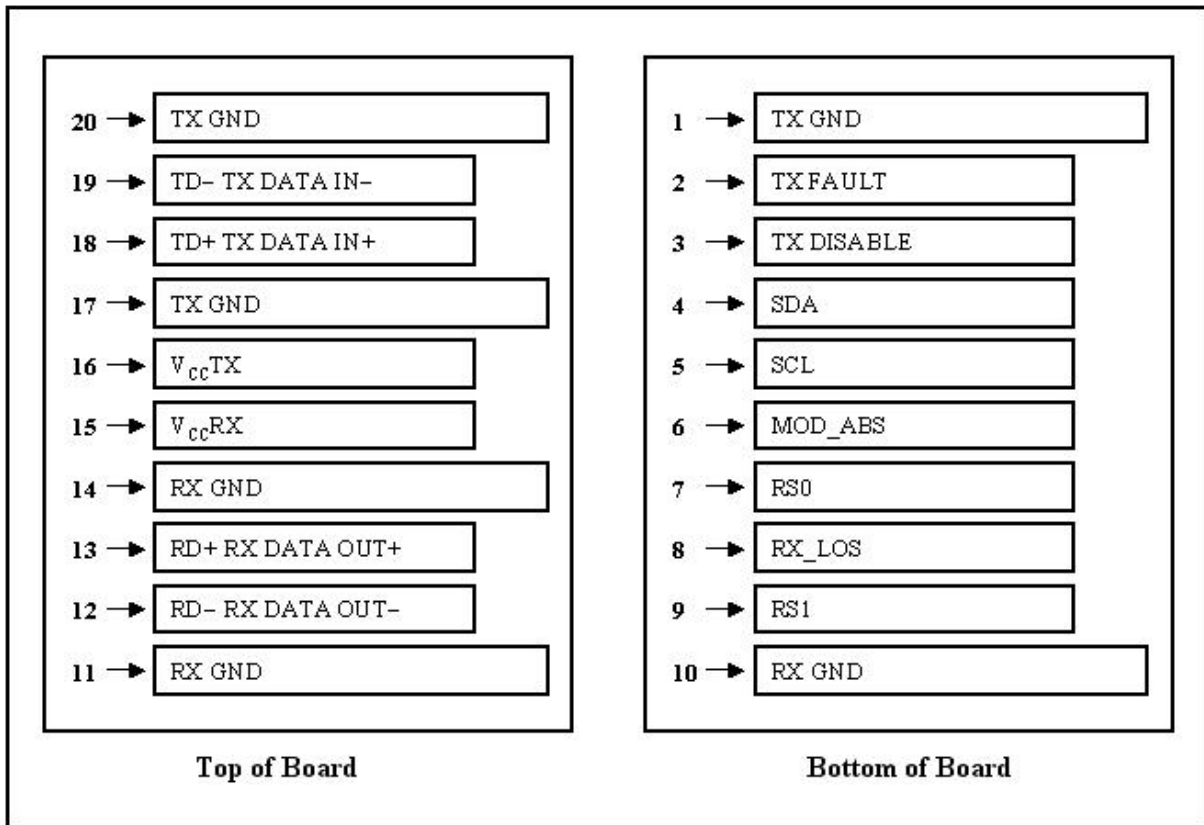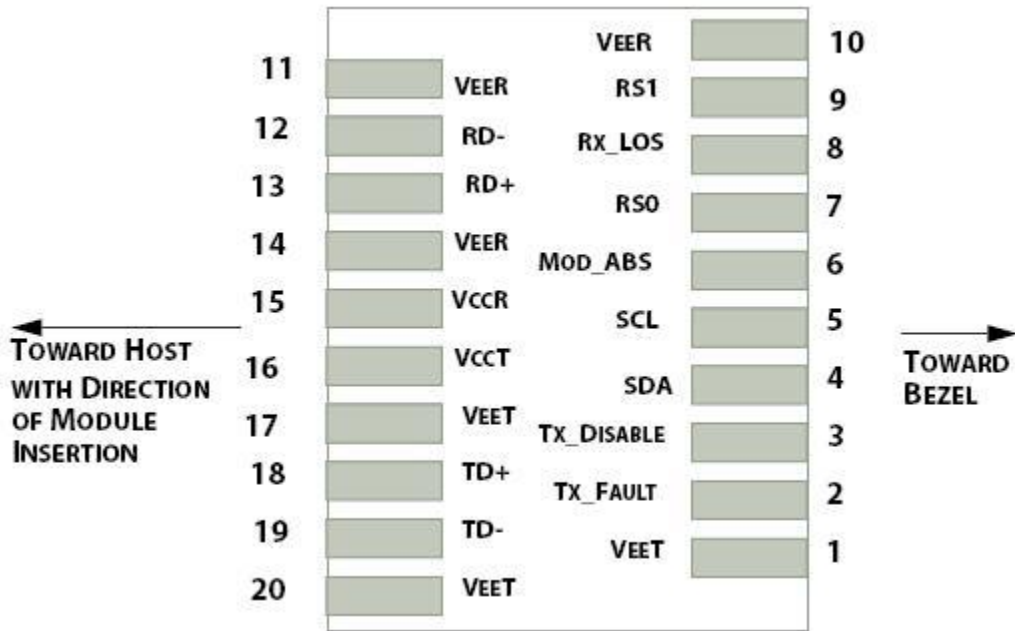
UNIT: mm

PCB Layout Recommendation

1. Datum and Basic Dimension Established by Customer

2. Pads and Vias are Chassis Ground, 11 Places

3. Through Holes are Unplated

Electrical Pad Layout

11	VEER	
12	RD-	
13	RD+	
14	VEER	
15	VccR	
16	VccT	
17	VEET	
18	TD+	
19	TD-	
20	VEET	

TOWARD HOST WITH DIRECTION OF MODULE INSERTION

VEER	10	
RS1	9	
RX_LOS	8	
RS0	7	
MOD_ABS	6	
SCL	5	
SDA	4	
TX_DISABLE	3	
TX_FAULT	2	
VEET	1	

TOWARD BEZEL

Top of Board

20	TX GND
19	TD- TX DATA IN-
18	TD+ TX DATA IN+
17	TX GND
16	V_{cc}TX
15	V_{cc}RX
14	RX GND
13	RD+ RX DATA OUT+
12	RD- RX DATA OUT-
11	RX GND

Bottom of Board

1	TX GND
2	TX FAULT
3	TX DISABLE
4	SDA
5	SCL
6	MOD_ABS
7	RS0
8	RX_LOS
9	RS1
10	RX GND

Pin Assignment

PIN #	Symbol	Description	Remarks
1	VEET	Transmitter ground (common with receiver ground)	Circuit ground is isolated from chassis ground
2	TFAULT	Transmitter Fault	
3	TDIS	Transmitter Disable. Laser output disable on high or open	Disabled: TDIS>2V or open Enabled: TDIS<0.8V
4	MOD_DEF (2)	Module Definition 2. Data Line for Serial ID	Should Be pulled up with 4.7k – 10k ohm on host board to a voltage between 2V and 3.6V
5	MOD_DEF (1)	Module Definition 1. Data Line for Serial ID	
6	MOD_DEF (0)	Module Definition 0. Data Line for Serial ID	
7	RS	No Connection required	
8	LOS	Loss of Signal indication	Not Supported
9	VEER	Receiver ground (common with transmitter ground)	Circuit ground is isolated from chassis ground
10	VEER	Receiver ground (common with transmitter ground)	
11	VEER	Receiver ground (common with transmitter ground)	
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)	Circuit ground is isolated from chassis ground
15	VCCR	Receiver power supply	
16	VCCT	Transmitter power supply	
17	VEET	Transmitter ground (common with receiver ground)	Circuit ground is connected to chassis ground
18	TD+	Transmitter Non-inverted DATA out. AC coupled	
19	TD-	Transmitter Inverted DATA out. AC coupled	
20	VEET	Transmitter ground (common with receiver ground)	Circuit ground is connected to chassis ground

References

1. IEEE standard 802.3. IEEE Standard Department, 2005.

2. Small Form Factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA), September 2000.