The GigaTech Products **J8177B-GT** is programmed to be fully compatible and functional with all intended HP switching devices. This SFP module is based on the Gigabit Ethernet IEEE 802.3 and 1000Base-T 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 100 meters.

Features:

- Up to 1.25GBd bi-directional data links
- Hot-pluggable SFP footprint
- Support 1000Base-T full duplex default
- Support 10/100/1000Base-T operation in host with SGMII
- RJ-45 Connectors
- Auto-sense MDI/MDIX
- Up to 100M over copper wire cabling
- Single power supply 3.3V
- Operating temperature range

  C-Temp: 0℃ to 70℃

Compliance:

- IEEE 802.3z, IEEE 802.3u, IEEE802.3ab
- SFP MSA SFF-8472
- RoHS

Applications

- 1.25GBd Gigabit Ethernet

Warranty:

GigaTech Branded Optical Transceivers- Lifetime Warranty

General Specifications

Parameter	*Symbol*	*Min*	*Typ*	*Max*	*Unit*	*Remarks*
Data Rate	*DR*	10		1000	Mb/s	IEEE 802.3
Cable Length	*CL*			100	M	
Bit Error Rate	*BER*			10^{-12}		
Input Voltage	V_{CC}	3.13	3.3	3.47	V	
Maximum Voltage	V_{MAX}	-0.5		4	V	Electric Power Interface
Supply Current	I_S		320	375	mA	Electric Power Interface
Surge Current	I_{SURGE}			30	mA	Hot Plug
Storage Temperature	T_{STO}	-40		85	℃	Ambient Temperature

Note: 10/100/1000M operation requires the host system to have an SGMII interface with no clock. With a SERDES interface, this transceiver will operate at 1000M only.

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
Rise/Fall Time	T_{R-F}		175		psec	20% - 80%
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

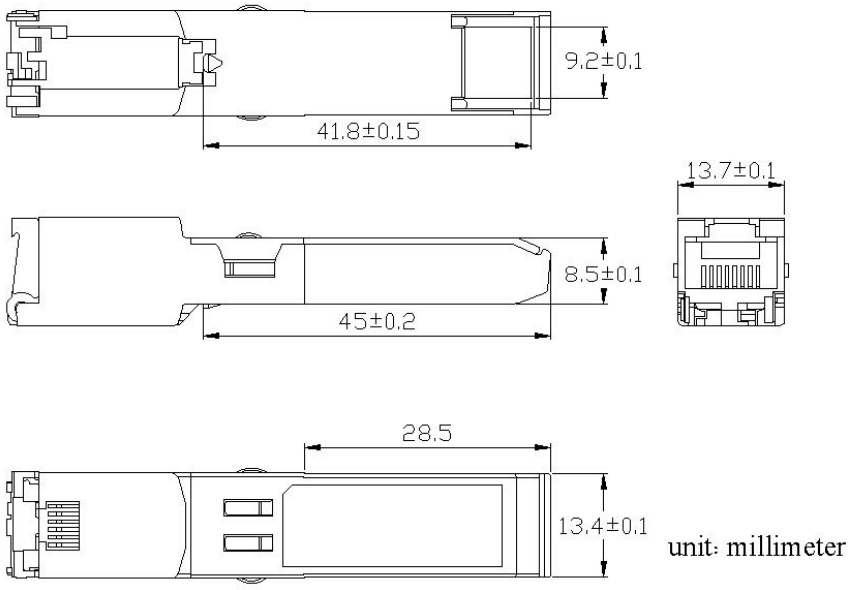
Parameter	*Symbol*	*Min*	*Typ*	*Max*	*Unit*	*Remarks*
Line Frequency	F_L		125		MHz	5-pevel encoding
Tx Input Impedance	Z_{IN}		100		Ohm	1MHz - 125MHz
Rx Output Impedance	Z_{OUT}		100		Ohm	1MHz - 125MHz

Low Speed Electrical Signal (External 4.7 - 10k ohm pull-up resistor required)

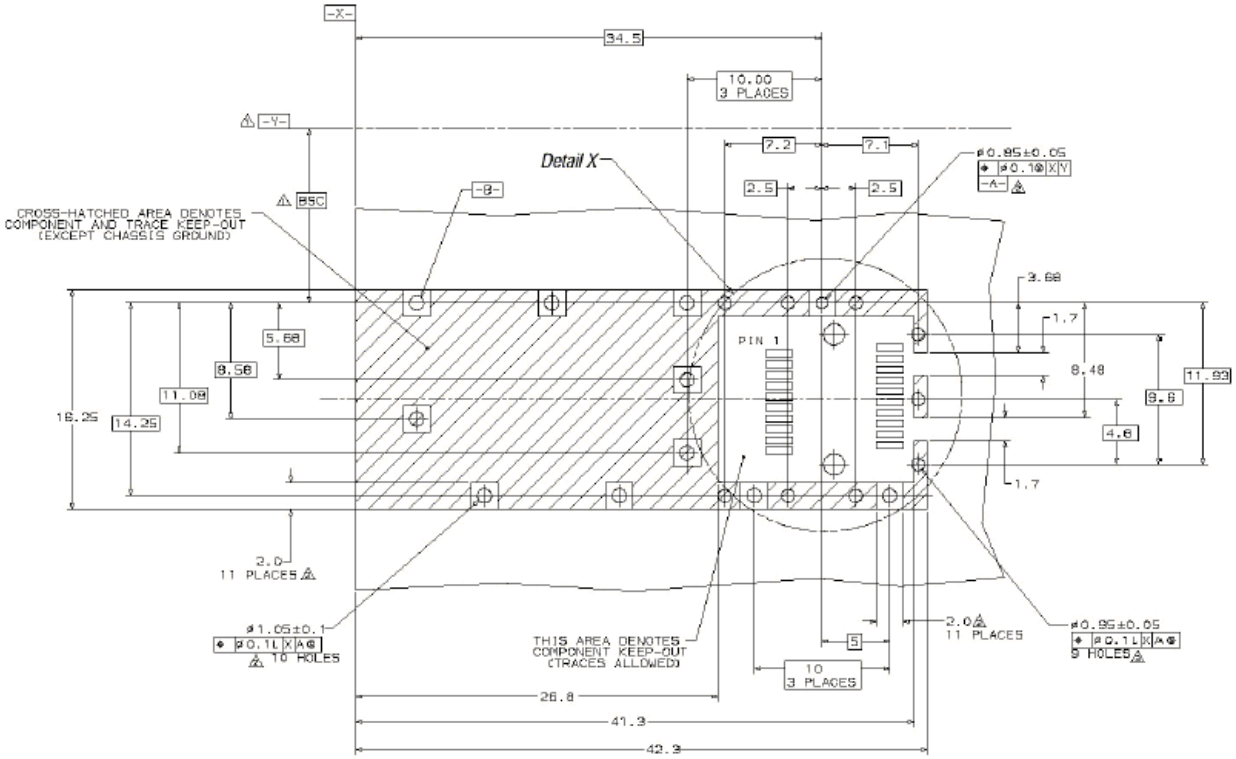
Parameter	*Symbol*	*Min*	*Typ*	*Max*	*Unit*	*Remarks*
SFP Output Low	V_{OL}	0		0.5	V	Note 1
SFP Output High	V_{OH}	Host_V_{CC} -0.5		Host_V_{CC} +0.3	V	Note 1
SFP Input Low	V_{IL}	0		0.8	V	Note 1
SFP Input High	IH_L	2		V_{CC} +0.3	V	Note 1

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

Dimensions



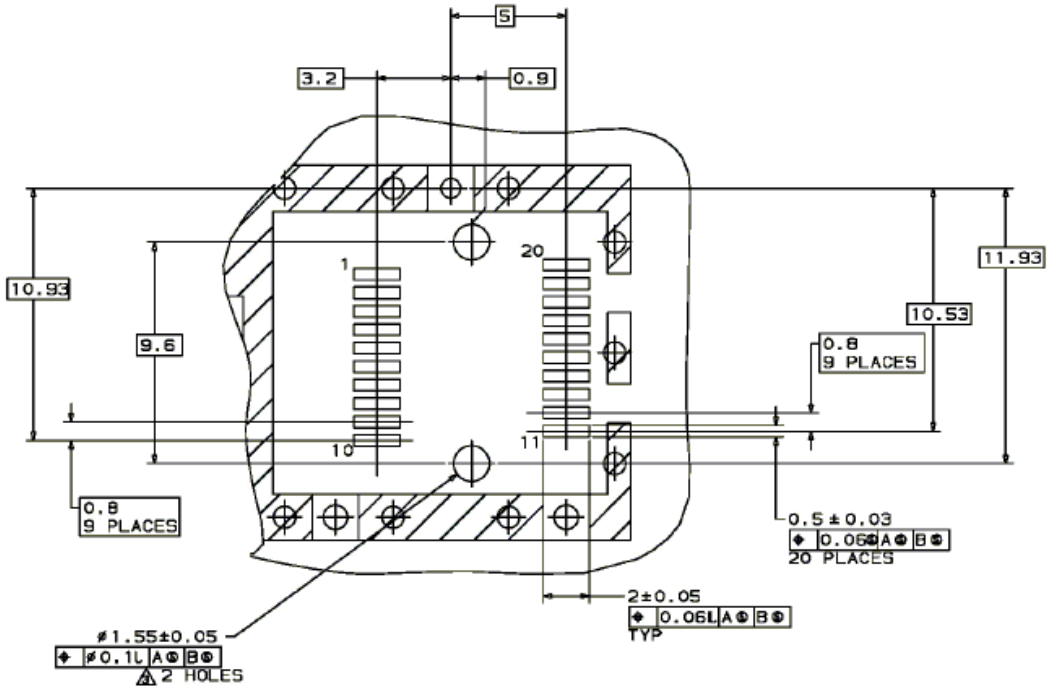
PCB Layout Recommendation



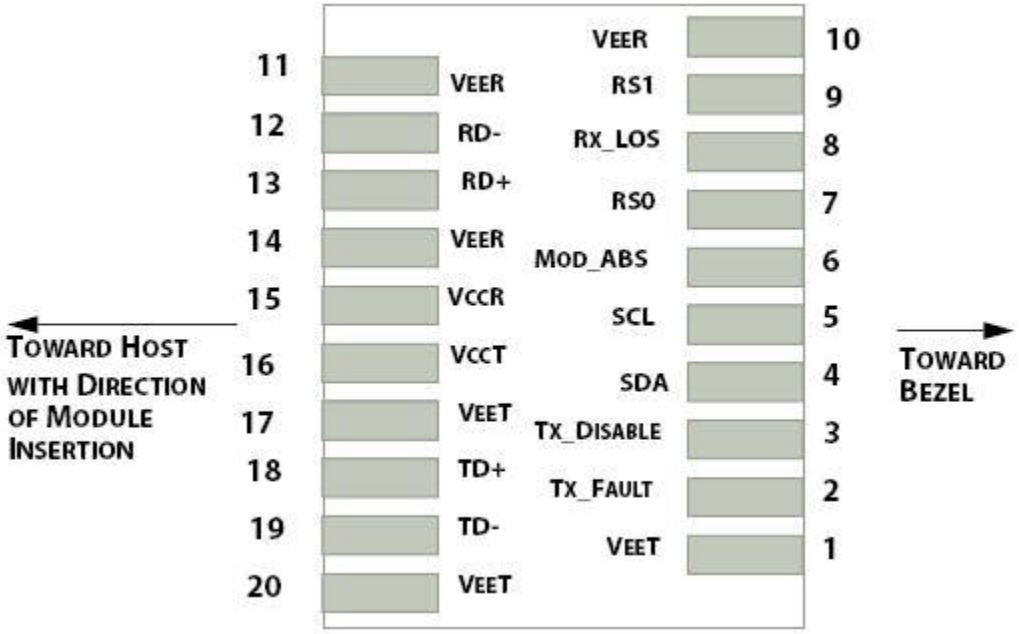
Datum and Basic Dimension Established by Customer

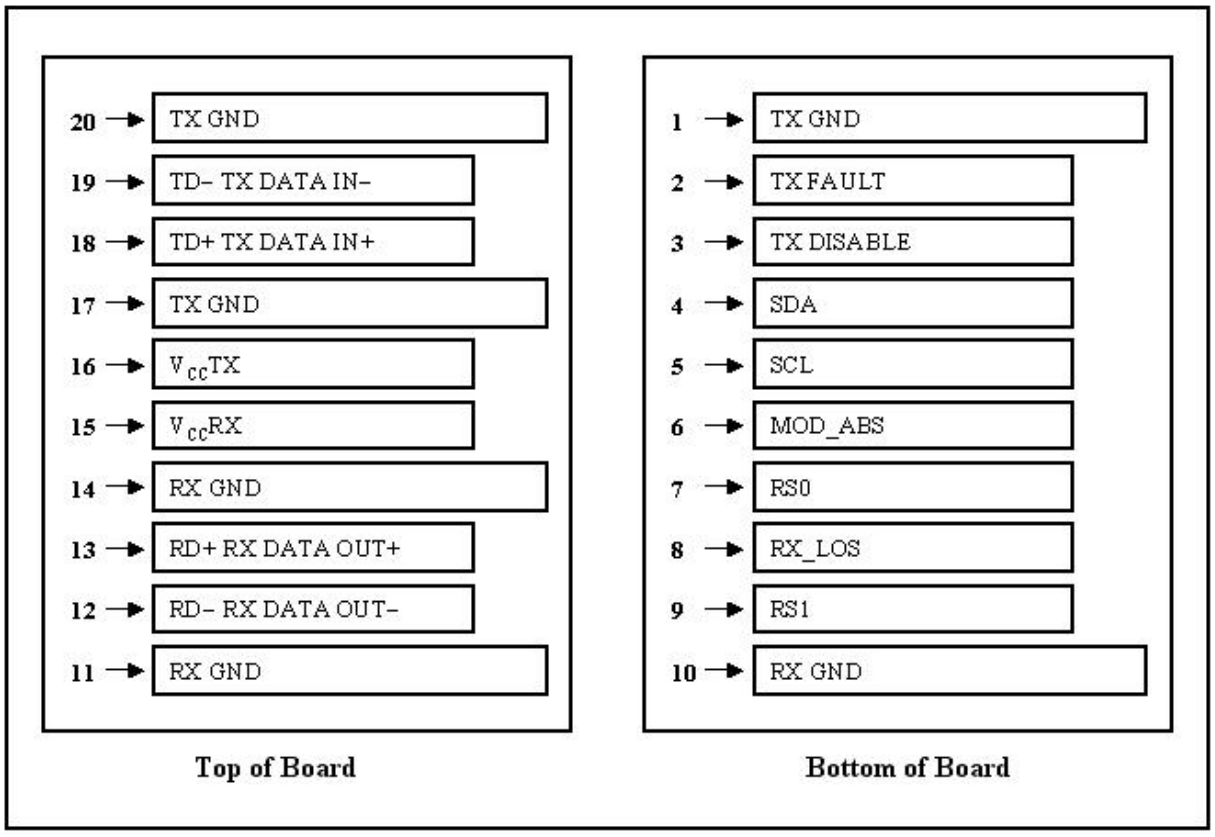
Pads and Vias are Chassis Ground, 11 Places

Through Holes are Unplated



Electrical Pad Layout





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, 2002.
2. Small Form Factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA), September 2000.
3. Marvell Corporation – Alaska Ultra 88E1111 Integrated 10/100/1000 Gigabit Ethernet Transceiver