

The GigaTech Products **J8177D-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°C to 70°C



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 | °C | 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

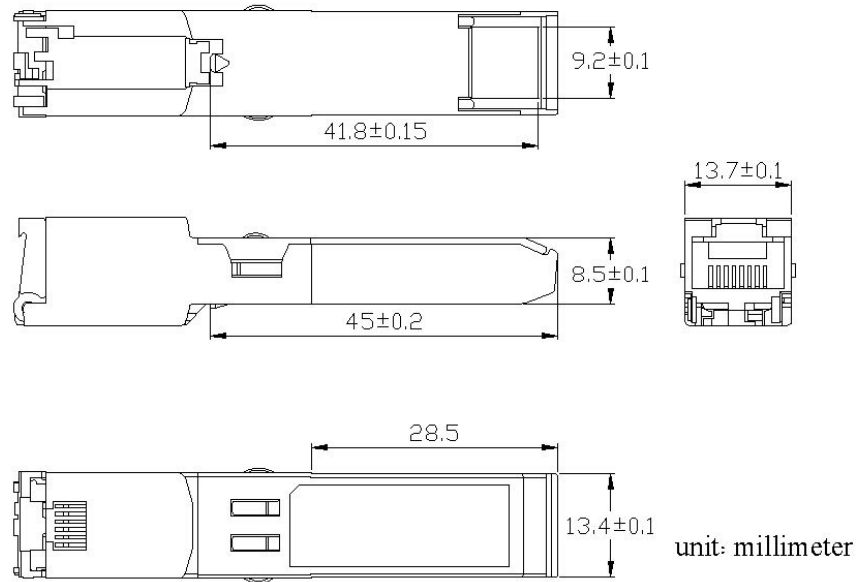
| Parameter | Symbol | Min | Typ | Max | Unit | Remarks |
|---------------------|------------------|-----|-----|-----|------|------------------|
| Line Frequency | F _L | | 125 | | MHz | 5-level encoding |
| Tx Input Impedance | Z _{IN} | | 100 | | Ohm | 1MHz - 125MHz |
| Rx Output Impedance | Z _{OUT} | | 100 | | Ohm | 1MHz - 125MHz |

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

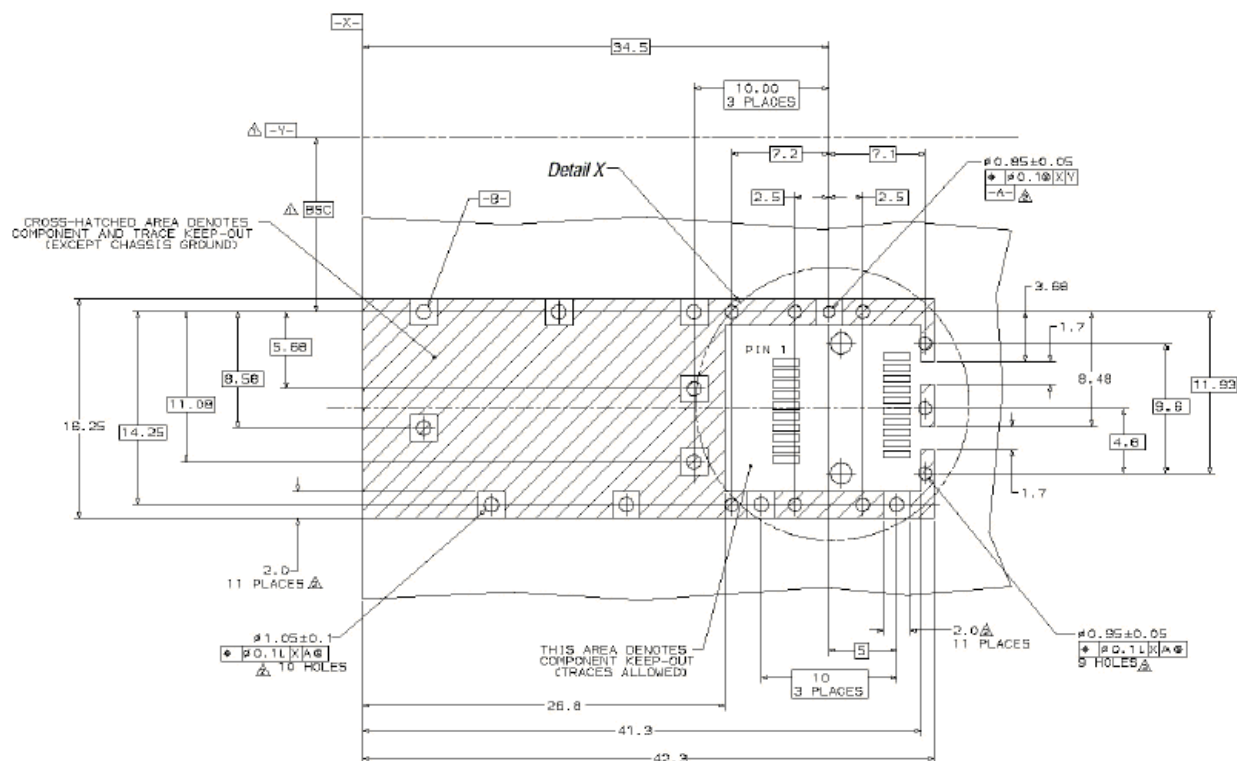
| Parameter | Symbol | Min | Typ | Max | Unit | Remarks |
|-----------------|-----------------|---------------------------|-----|---------------------------|------|---------|
| SFP Output Low | V _{OL} | 0 | | 0.5 | V | Note 1 |
| SFP Output High | V _{OH} | Host_V _{CC} -0.5 | | Host_V _{CC} +0.3 | V | Note 1 |
| SFP Input Low | V _{IL} | 0 | | 0.8 | V | Note 1 |
| SFP Input High | I _{HL} | 2 | | V _{CC} +0.3 | V | Note 1 |

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

Dimensions



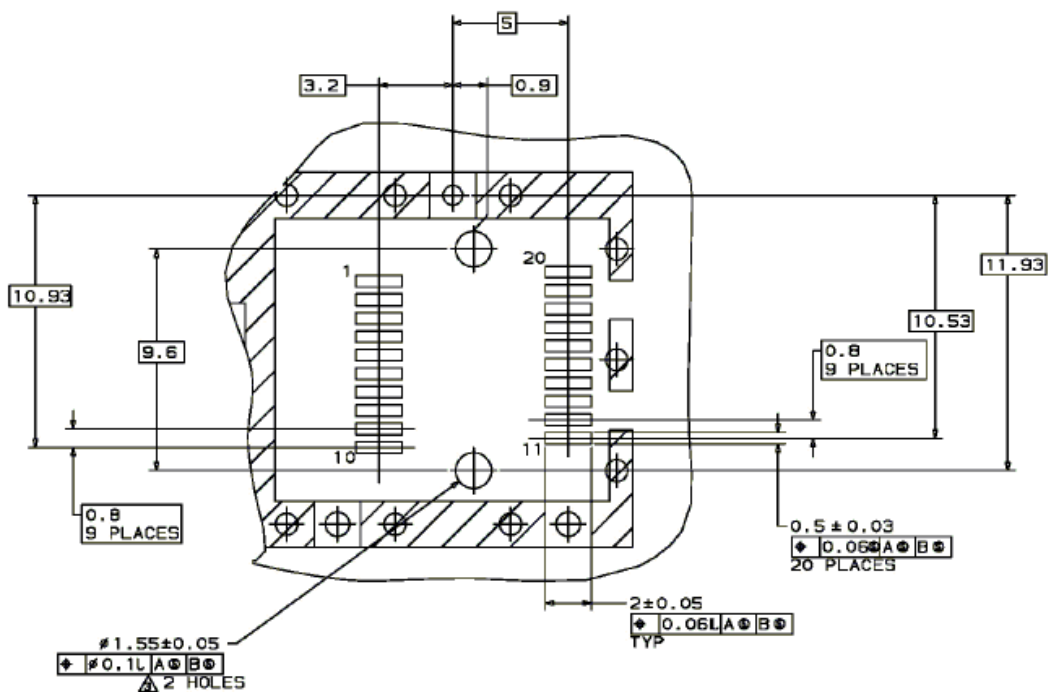
PCB Layout Recommendation



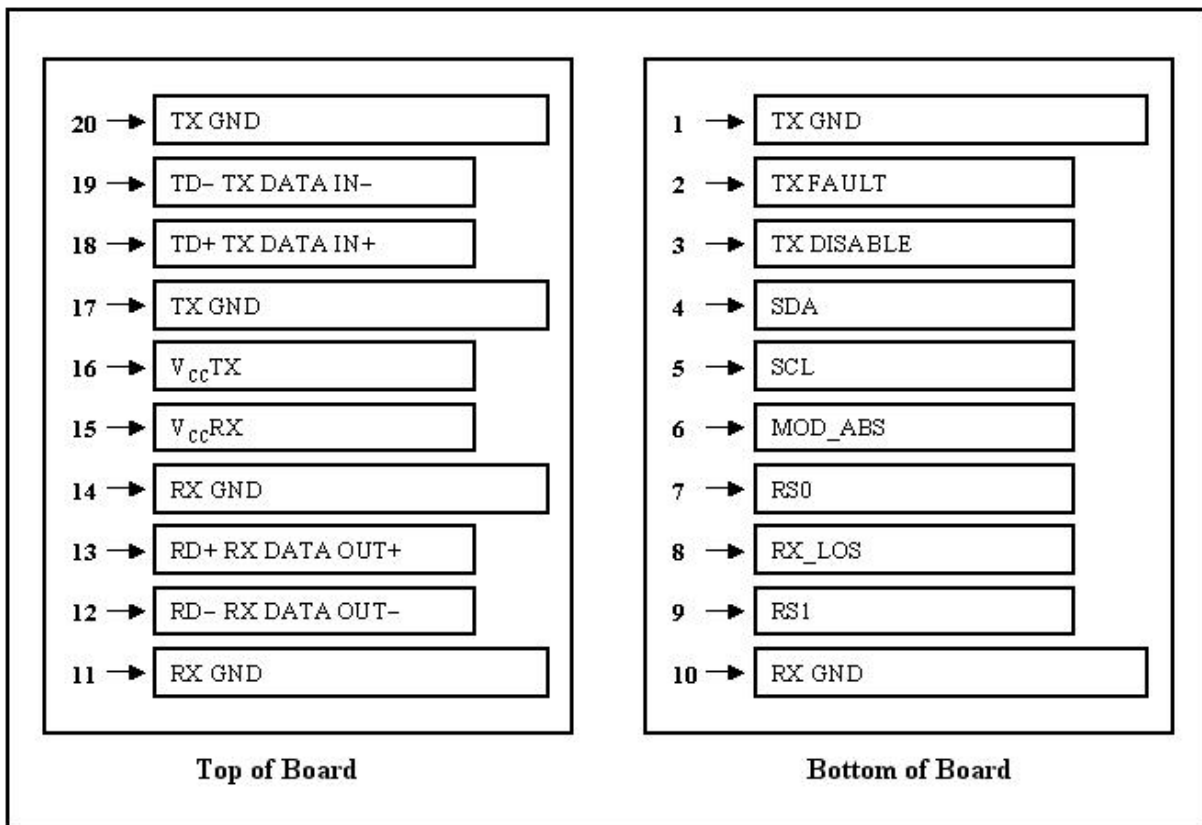
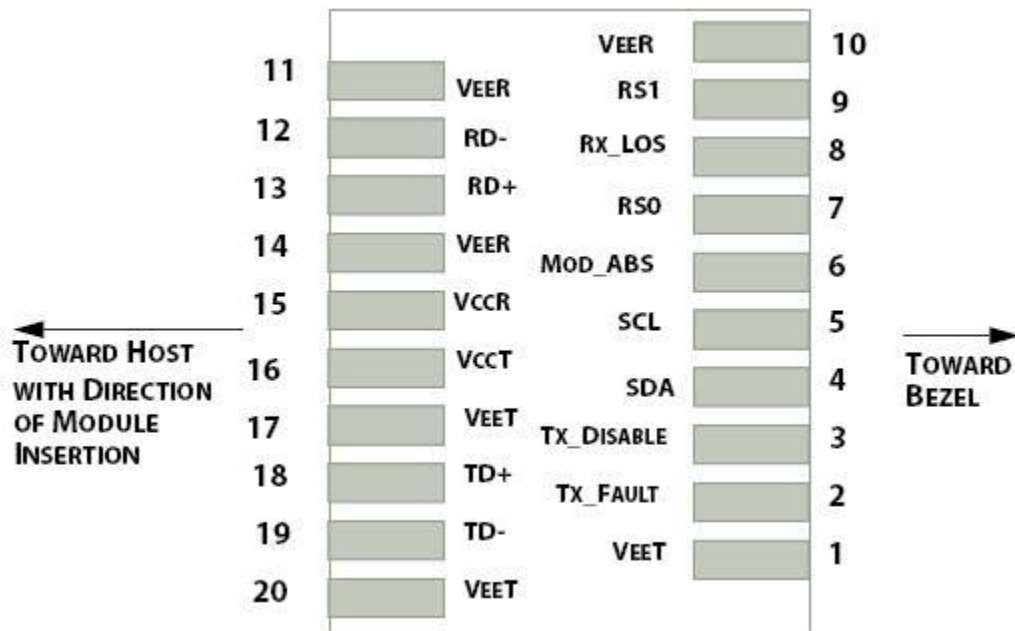
△ Datum and Basic Dimension Established by Customer

△ Pads and Vias are Chassis Ground, 11 Places

△ Through Holes are Unplated



Electrical Pad Layout



Pin Assignment

| <i>PIN #</i> | <i>Symbol</i> | <i>Description</i> | <i>Remarks</i> |
|---------------------|----------------------|---|--|
| 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