

SFP-25GB-BX-D-20-I-CN2-C

Ciena® Compatible TAA 25GBase-BX SFP28 Transceiver (SMF, 1330nmTx/1270nmRx, 20km, LC, DOM, -40 to 85C)

Features:

- SFF-8402 and SFF-8472 Compliance
- Simplex LC Connector
- Single-mode Fiber
- Industrial Temperature -40 to 85 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



Applications:

- 25GBase Ethernet
- Access and Enterprise

Product Description

This Ciena® SFP28 transceiver provides 25GBase-BX throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1330nmTx/1270nmRx via an LC connector. It is guaranteed to be 100% compatible with the equivalent Ciena® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."



Absolute Maximum Ratings

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|----------------------------|------------------|------|-------|------|------|-------|
| Maximum Supply Voltage | V _{CC} | -0.3 | | 4.0 | V | |
| Storage Temperature | T _{stg} | -40 | | 85 | °C | |
| Operating Case Temperature | T _c | -40 | 25 | 85 | °C | |
| Relative Humidity | RH | 5 | | 95 | % | |
| Data Rate | DR | | 24.33 | | Gbps | |
| | | | 25.78 | | Gbps | |

Electrical Characteristics

| Parameter | | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--------------------------------|----------------------|---------------------|-------|------|----------|-------|-------|
| Power Supply Voltage | | V _{CC} | 3.135 | 3.3 | 3.465 | V | |
| Power Supply Current | | I _{CC} | | | 450 | mA | |
| Power Dissipation | | P _{DISS} | | | 1500 | mW | |
| Transmitter | | | | | | | |
| Input Differential Impedance | | Z _{IN} | | 100 | | Ω | |
| Differential Data Input Swing | | V _{IN,pp} | 180 | | 700 | mVp-p | |
| Tx_Fault | Transmitter Fault | VOH | 2.0 | | Host_Vcc | V | |
| | Normal Operation | VOL | 0 | | 0.8 | V | |
| Tx_Disable | Transmitter Disable | VIH | 2.0 | | Host_Vcc | V | |
| | Transmitter Enable | VIL | 0 | | 0.8 | V | |
| Receiver | | | | | | | |
| Output Differential Impedance | | Z _{OUT} | | 100 | | Ω | |
| Differential Data Output Swing | | V _{OUT,pp} | 300 | | 850 | mVp-p | 1 |
| Data Output Rise/Fall Time | | Tr/Tf | | | 15 | ps | 2 |
| Rx_LOS | Loss of Signal (LOS) | VOH | 2.0 | | Host_Vcc | V | 3 |
| | Normal Operation | VOL | 0 | | 0.8 | V | 3 |

Notes:

1. Internally AC coupled but requires an external 100Ω differential load termination.
2. 20-80%.
3. LOS is an open collector output and should be pulled up with 4.7kΩ on the host board.

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|-----------------------------------|-----------------|------|------|------|------|-------|
| Transmitter | | | | | | |
| Launch Optical Power | Po | 0 | | 5 | dBm | 1 |
| Center Wavelength Range | λ_C | 1320 | 1330 | 1340 | nm | |
| Extinction Ratio | ER | 3.5 | | | dB | 2 |
| Spectral Width (-20dB) | $\Delta\lambda$ | | | 1 | nm | |
| Side-Mode Suppression Ratio | SMSR | 30 | | | dB | |
| Optical Rise/Fall Time @25.78Gbps | Tr/Tf | 15 | | | ps | 3 |
| Optical Return Loss Tolerance | ORLT | | | 12 | dB | |
| POUT @Tx_Disable Asserted | Poff | | | -30 | dBm | 1 |
| Receiver | | | | | | |
| Center Wavelength | λ_C | 1260 | 1270 | 1280 | nm | |
| Receiver OMA Sensitivity | RxSENS1 | | | -18 | dBm | 4 |
| Receiver OMA Sensitivity | RxSENS2 | | | -14 | dBm | 5 |
| Receiver Overload (Pavg) | POL | -3 | | | dBm | |
| Optical Return Loss | ORL | 26 | | | dB | |
| LOS De-Assert | LOSD | | | -19 | dBm | |
| LOS Assert | LOSA | -35 | | | dBm | |
| LOS Hysteresis | | 0.5 | | | dB | |

Notes:

1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. 20dB spectral width.
3. Unfiltered, 20-80%.
4. Measured with PRBS $2^{31}-1$ at 5×10^{-5} BER.
5. Measured with PRBS $2^{31}-1$ at 1×10^{-12} BER.

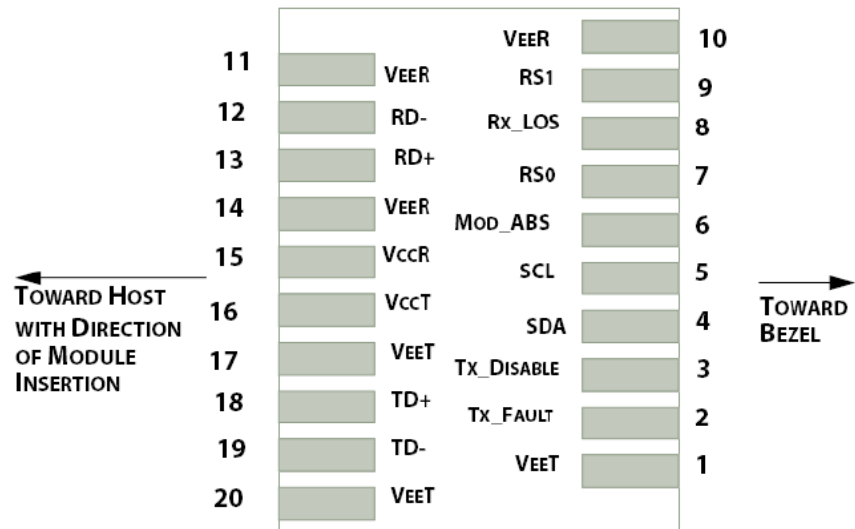
Pin Descriptions

| Pin | Symbol | Name/Description | Notes |
|-----|------------|---|-------|
| 1 | VeeT | Transmitter Ground. | 1 |
| 2 | Tx_Fault | Transmitter Fault. LVTTTL-O. “High” indicates a fault condition. | 2 |
| 3 | Tx_Disable | Transmitter Disable. LVTTTL-I. “High” or “open” disables the transmitter. | 3 |
| 4 | SDA | 2-Wire Serial Interface Data. LVCMOS-I/O. MOD-DEF2. | 4 |
| 5 | SCL | 2-Wire Serial Interface Clock. LVCMOS-I/O. MOD-DEF1. | 4 |
| 6 | MOD_ABS | Module Absent (Output). Connected to the VeeT or VeeR in the module. | 5 |
| 7 | RS0 | N/A. | 6 |
| 8 | Rx_LOS | Receiver Loss of Signal. LVTTTL-O. | 2 |
| 9 | RS1 | N/A. | 6 |
| 10 | VeeR | Receiver Ground. | 1 |
| 11 | VeeR | Receiver Ground. | 1 |
| 12 | RD- | Receiver Inverted Data Out. CML-O. | |
| 13 | RD+ | Receiver Data Out. CML-O. | |
| 14 | VeeR | Receiver Ground. | |
| 15 | VccR | +3.3V Receiver Power Supply. | |
| 16 | VccT | +3.3V Transmitter Power Supply. | |
| 17 | VeeT | Transmitter Ground. | 1 |
| 18 | TD+ | Transmitter Data In. CML-I. | |
| 19 | TD- | Transmitter Inverted Data In. CML-I. | |
| 20 | VeeT | Transmitter Ground. | 1 |

Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that, on the host board, requires a 4.7k Ω to 10k Ω pull-up resistor to the Host_Vcc.
3. This input is internally biased “high” with a 4.7k Ω to 10k Ω pull-up resistor to the VccT.
4. 2-Wire Serial Interface Clock and Data lines require an external pull-up resistor dependent on the capacitance load.
5. This is a ground return that, on the host board, requires a 4.7k Ω to 10k Ω pull-up resistor to the Host_Vcc.
6. Rate Select can also be set through the 2-wire bus in accordance with SFF-8472 v.12.1m. Rx Rate Select is set at Bit 3, Byte 110, and Address A2h. Tx Rate Select is set at Bit 3, Byte 118, and Address A2h.

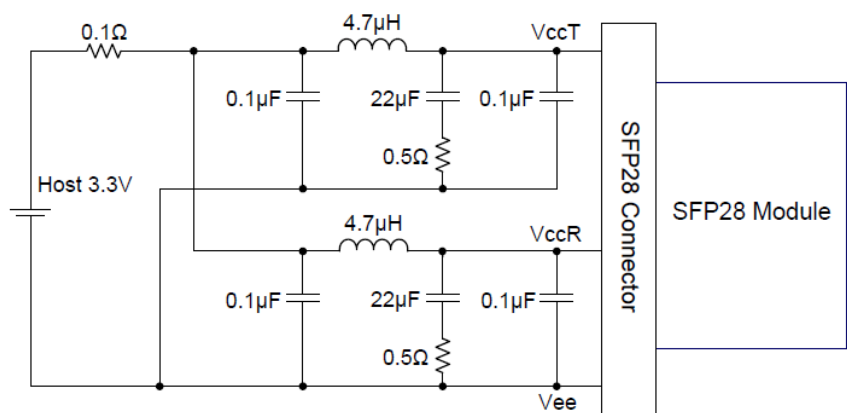
Pin Assignments



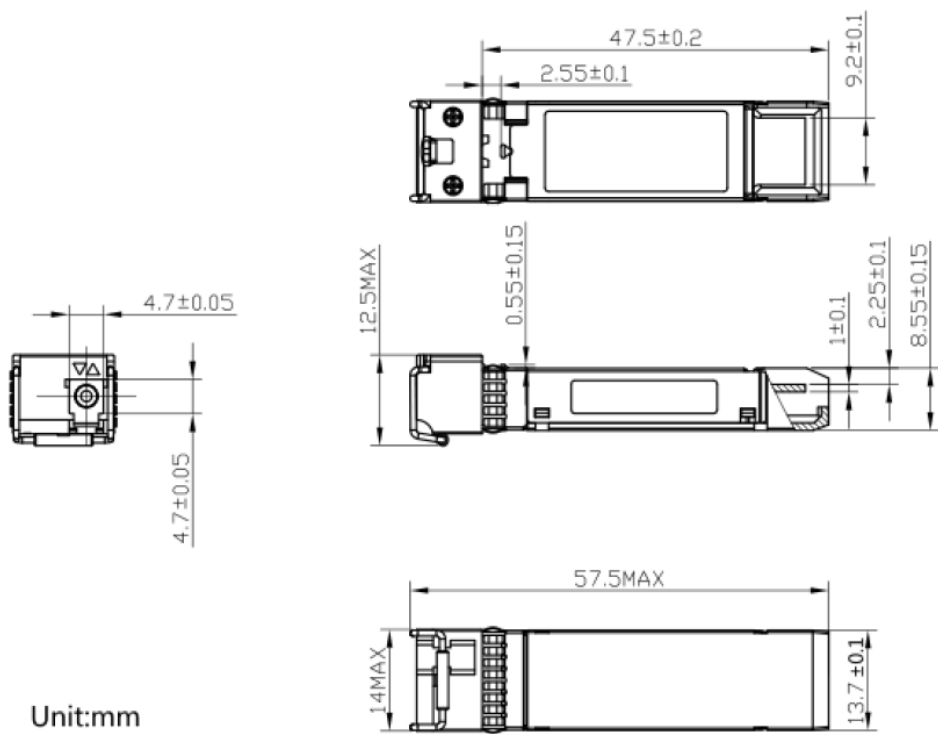
Block Diagram of Transceiver



Power Supply Filter Network



Mechanical Specifications



About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



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