

XFP-10GB-DW20-100-C

MSA and TAA 10GBase-DWDM 100GHz XFP Transceiver (SMF, 1561.42nm, 100km, LC, DOM)

Features:

- INF-8077i Compliance
- Duplex LC Connector
- Temperature-stabilized EML transmitter and PIN receiver
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



Applications:

- 10x Gigabit Ethernet over DWDM
- 8x/10x Fibre Channel
- Access, Metro and Enterprise

Product Description

This MSA Compliant XFP transceiver provides 10GBase-DWDM throughput up to 100km over single-mode fiber (SMF) using a wavelength of 1561.42nm via an LC connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. 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."



Available Wavelengths

| Channel # | Frequency (THz) | Center Wavelength (nm) |
|-----------|-----------------|------------------------|
| 15 | 191.5 | 1565.50 |
| 16 | 191.6 | 1564.68 |
| 17 | 191.7 | 1563.86 |
| 18 | 191.8 | 1563.05 |
| 19 | 191.9 | 1562.23 |
| 20 | 192.0 | 1561.42 |
| 21 | 192.1 | 1560.61 |
| 22 | 192.2 | 1559.79 |
| 23 | 192.3 | 1558.98 |
| 24 | 192.4 | 1558.17 |
| 25 | 192.5 | 1557.36 |
| 26 | 192.6 | 1556.55 |
| 27 | 192.7 | 1555.75 |
| 28 | 192.8 | 1554.94 |
| 29 | 192.9 | 1554.13 |
| 30 | 193.0 | 1553.33 |
| 31 | 193.1 | 1552.52 |
| 32 | 193.2 | 1551.72 |
| 33 | 193.3 | 1550.92 |
| 34 | 193.4 | 1550.12 |
| 35 | 193.5 | 1549.32 |
| 36 | 193.6 | 1548.51 |
| 37 | 193.7 | 1547.72 |
| 38 | 193.8 | 1546.92 |
| 39 | 193.9 | 1546.12 |
| 40 | 194.0 | 1545.32 |
| 41 | 194.1 | 1544.53 |
| 42 | 194.2 | 1543.73 |
| 43 | 194.3 | 1542.94 |
| 44 | 194.4 | 1542.14 |
| 45 | 194.5 | 1541.35 |
| 46 | 194.6 | 1540.56 |
| 47 | 194.7 | 1539.77 |
| 48 | 194.8 | 1538.98 |

| | | |
|----|-------|---------|
| 49 | 194.9 | 1538.19 |
| 50 | 195.0 | 1537.40 |
| 51 | 195.1 | 1536.61 |
| 52 | 195.2 | 1535.82 |
| 53 | 195.3 | 1535.04 |
| 54 | 195.4 | 1534.25 |
| 55 | 195.5 | 1533.47 |
| 56 | 195.6 | 1532.68 |
| 57 | 195.7 | 1531.90 |
| 58 | 195.8 | 1531.12 |
| 59 | 195.9 | 1530.33 |
| 60 | 196.0 | 1529.55 |
| 61 | 196.1 | 1528.77 |

Absolute Maximum Ratings

| Parameter | Symbol | Min. | Max. | Unit |
|------------------------|------------------|------|------|------|
| Storage Temperature | T _{stg} | -40 | 85 | °C |
| Operating Temperature | T _c | 0 | 70 | °C |
| Operating Humidity | RH | | 95 | % |
| Maximum Supply Voltage | V _{cc} | -0.5 | 3.6 | dBm |
| Maximum Bitrate | B _{max} | | 11.3 | Gbps |

Electrical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|-------------------------------|--------|------|------------------|------|---------|-------|
| Power Budget | | | 25 | | dB | |
| Data Rate | | | 9.953 10.3125 | | Gbps | |
| Transmitter | | | | | | |
| CML Differential Inputs | VIN | 150 | | 1200 | mVp-p | 1 |
| Input AC Common-Mode Voltage | | 0 | | 25 | mV | 2 |
| Input Differential Impedance | ZIN | 85 | 100 | 115 | Ω | 3 |
| Tx_Disable | High | | 2 | | Vcc | V |
| | Low | | 0 | | 0.8 | V |
| Tx_Fault | High | | 2 | | Vcc+0.3 | V |
| | Low | | 0 | | 0.5 | V |
| Receiver | | | | | | |
| CML Differential Outputs | VOUT | 350 | | 700 | mVp-p | 6 |
| Output Differential Impedance | ZOUT | 85 | 100 | 115 | Ω | |
| Rx_LOS | High | | 2 | | Vcc+0.3 | V |
| | Low | | 0 | | 0.8 | V |
| MOD_DEF (0.2) | VOH | | 2.5 | | V | 6 |
| | VOL | | 0 | | 0.5 | V |

Notes:

1. AC coupled inputs.
2. RMS.
3. $R_{in} > 100k\Omega$ @DC.
4. $I_o = 400\mu A$. Host_Vcc.
5. $I_o = -4.0mA$.
6. AC coupled outputs.
7. With serial ID.

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|----------------------------------|-----------------|-----------------|-------------|-----------------|-------|-------|
| Transmitter | | | | | | |
| Operating Wavelength | λ_C | $\lambda_C-0.1$ | λ_C | $\lambda_C+0.1$ | nm | |
| Spectral Width (-20dB) | $\Delta\lambda$ | | | 1 | nm | |
| Average Output Power | POUT | 1 | | 5 | dBm | 1 |
| Extinction Ratio | ER | 8.2 | | | dB | |
| Average Power of Off Transmitter | Poff | | | -30 | dBm | |
| Relative Intensity Noise | RIN | | | -128 | dB/Hz | |
| Side-Mode Suppression Ratio | SMSR | 30 | | | dB | |
| Transmitter Dispersion Penalty | TDP | | | 5 | dB | |
| Tx_Disable Assert Time | T_off | | | 10 | us | |
| Receiver | | | | | | |
| Center Wavelength | λ_C | 1260 | 1550 | 1600 | nm | |
| Receiver Sensitivity | Pmin | | | -24 | dBm | 2 |
| Receiver Overload | Pmax | -7 | | | dBm | |
| LOS De-Assert | LOSD | | | -26 | dBm | |
| LOS Assert | LOSA | -38 | | | dBm | |
| LOS Hysteresis | LOSH | 0.5 | | | dB | |

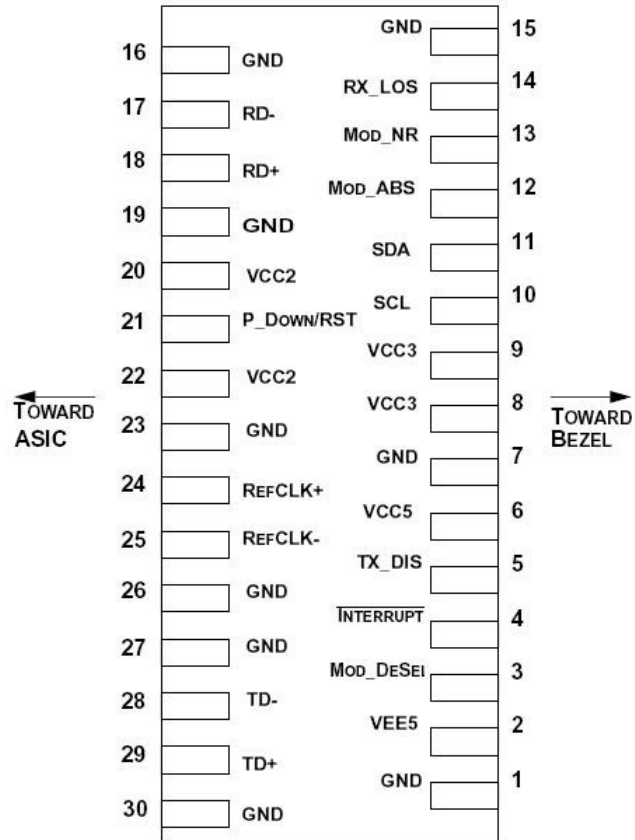
Notes:

1. Output is coupled into a 9/125 μ m SMF.
2. Measured with worst ER: BER < 1E⁻¹² and PRBS 2³¹-1 @ 10.3125Gbps.

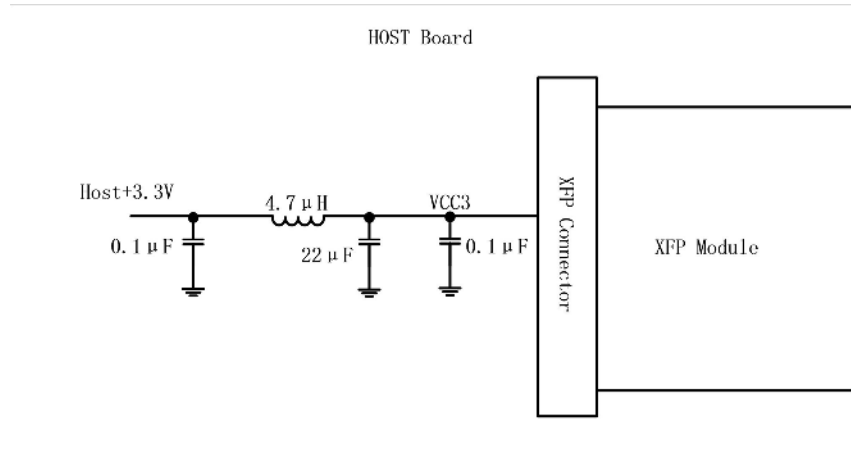
Pin Descriptions

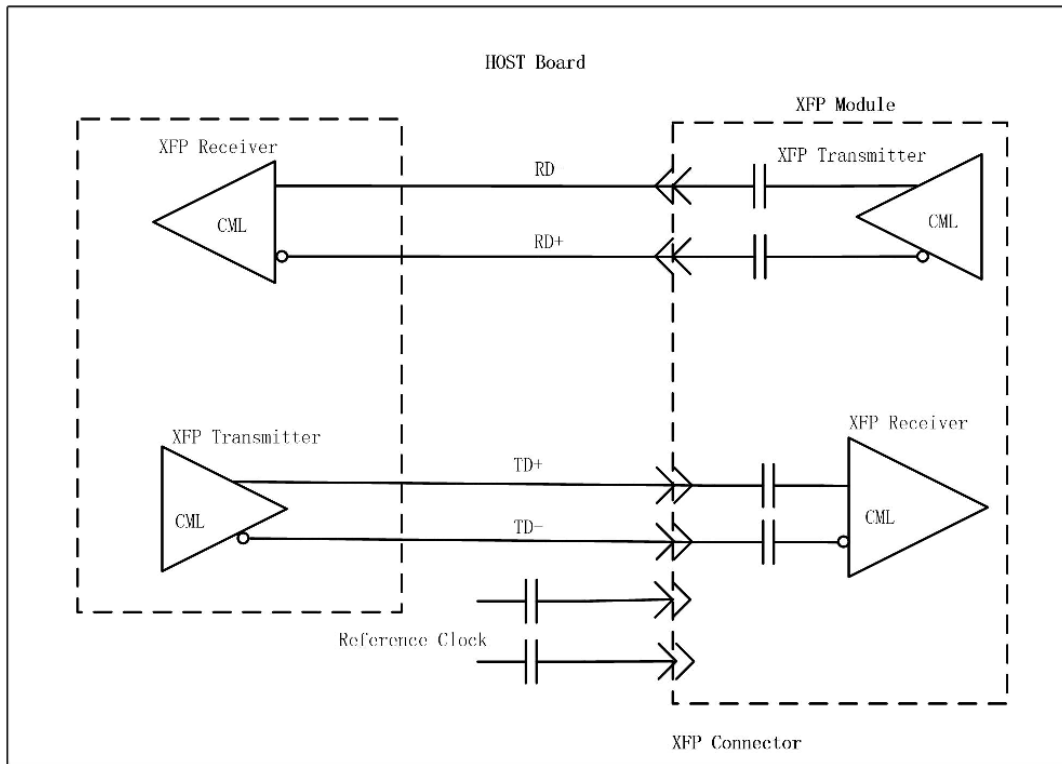
| Pin | Symbol | Name/Description | Note |
|-----|------------|---|------|
| 1 | GND | Module Ground. | |
| 2 | Vee5 | Optional. 5.2 Power Supply. Not Required. | |
| 3 | MOD_DESEL | Module De-Select. When held "low," allows the module to respond to 2-wire serial interface commands. | |
| 4 | Interrupt | Interrupt Output. Indicates the presence of an important condition which can be read over the 2-wire serial interface. | |
| 5 | Tx_Disable | Transmitter Disable. Transmitter laser source is turned off. | |
| 6 | Vcc5 | +5 Power Supply. Not Required. | |
| 7 | GND | Module Ground. | |
| 8 | Vcc3 | +3.3V Power Supply. | |
| 9 | Vcc3 | +3.3V Power Supply. | |
| 10 | SCL | 2-Wire Serial Interface Clock. | |
| 11 | SDA | 2-Wire Serial Interface Data. | |
| 12 | MOD_ABS | Module Absent. Indicates that the module is not present. Grounded in the module. | |
| 13 | MOD_NR | Module is Not Ready. | |
| 14 | Rx_LOS | Receiver Loss of Signal Indicator. | |
| 15 | GND | Module Ground. | |
| 16 | GND | Module Ground. | |
| 17 | RD- | Receiver Inverted Data Output. | |
| 18 | RD+ | Receiver Non-Inverted Data Output. | |
| 19 | GND | Module Ground. | |
| 20 | Vcc2 | +1.8V Power Supply. Not Required. | |
| 21 | P_Down/RST | Power Down. When "high," places the module in the low-power stand-by mode. The falling edge of P_Down initiates a module reset. Reset. The falling edge initiates a complete reset of the module including the 2-wire serial interface equivalent to a power cycle. | |
| 22 | Vcc2 | +1.8V Power Supply. Not Required. | |
| 23 | GND | Module Ground. | |
| 24 | Ref CLK+ | Reference Clock. Non-Inverted Input. AC coupled on the host board. Not Required. | |
| 25 | Ref CLK- | Reference Clock. Inverted Input. AC coupled on the host board. Not Required. | |
| 26 | GND | Module Ground. | |
| 27 | GND | Module Ground. | |
| 28 | TD- | Transmitter Inverted Data Input. | |
| 29 | TD+ | Transmitter Non-Inverted Data Input. | |
| 30 | GND | Module Ground. | |

Electrical Pin-Out Details

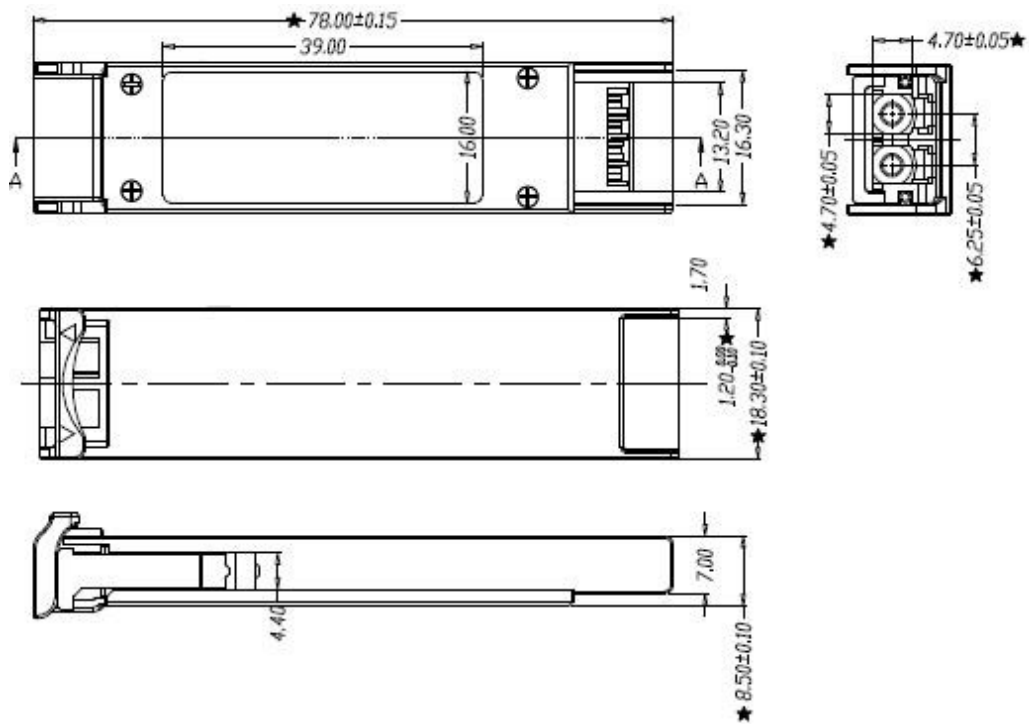


Recommended Circuit Schematic





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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