

XFP-T10G-ZR

10GBase XFP
Tunable DWDM
80km Reach

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Features

- Support 9.95Gb/s to 11.3Gb/s bit rates
- Duplex LC connector
- Hot-pluggable XFP footprint
- 50GHz DWDM tunable laser
- RoHS compliant and Lead Free
- Distance up to 80km on 9/125um SMF
- Metal enclosure for lower EMI
- Power dissipation <2.5W (0~70°C)
- XFP MSA INF-8077I Compliant
- RoHS 2.0 compliant



Applications

- Fully Tunable 50GHz DWDM XFP
- 10GBASE-ZW/ZR 10GEthernet
- 10G Fibre Channel
- SONET OC-192 LR-2
- SDH STM-64 ITU-T G.959.1 P1L1-2D2

Part number

Product description

XFP-T10G-ZR

10GBase SMF XFP DWDM Tunable 80km 0°C to 70°C LC Duplex DDM

PIN Description

| PIN | Symbol | Name - Description | Notes |
|-----|-------------|--|-------|
| 1 | VEET | Transmitter Ground (Common with Receiver Ground) | |
| 2 | TFAULT | Transmitter Fault. Not supported. | 1 |
| 3 | TDIS | Transmitter Disable. Laser output disabled on high or open. | 2 |
| 4 | MOD_DEF(2) | Module Definition 2. Data line for Serial ID. | 1 |
| 5 | MOD_DEF(1) | Module Definition 1. Clock line for Serial ID. | 1 |
| 6 | MOD_DEF(0) | Module Definition 0. Grounded within the module. | 1 |
| 7 | Rate Select | No connection required | |
| 8 | LOS | Loss of Signal indication. Logic 0 indicates normal operation. | 3 |
| 9 | VEER | Receiver Ground (Common with Transmitter 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 | 4 |
| 13 | RD+ | Receiver Non-inverted DATA out. AC Coupled | 4 |
| 14 | VEER | Receiver Ground (Common with Transmitter Ground) | |
| 15 | VCCR | Receiver Power Supply | |
| 16 | VCCT | Transmitter Power Supply | |
| 17 | VEET | Transmitter Ground (Common with Receiver Ground) | |
| 18 | TD+ | Transmitter Non-Inverted DATA in. AC Coupled. | 5 |
| 19 | TD- | Transmitter Inverted DATA in. AC Coupled. | 5 |
| 20 | VEET | Transmitter Ground (Common with Receiver Ground) | |

Notes:

- Open collector/drain output, which should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board if intended for use. Pull up voltage should be between 2.0V to 3.6V. A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.
- Laser output disabled on Tx_Disable >2.0V or open, enabled on Tx_Disable <0.8V.
- LOS is open collector output. Should be pulled up with 4.7kΩ to 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
- RD-/+ : These are the differential receiver outputs. They are internally AC-coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES.
- TD-/+ : These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.



Figure 1. Diagram of host board connector block pin numbers and names

Absolute Maximum Ratings

| Parameter | Min | Typ | Max | Unit | Notes |
|------------------------|------|-----|-----|------|-------|
| Maximum Supply Voltage | -0.3 | - | 3.6 | V | - |
| Storage Temperature | -40 | - | +85 | °C | - |
| Relative Humidity | 5 | - | 95 | % | 1 |

Notes:

1. Non-condensing.

Recommend Operation Conditions

| Parameter | Min | Typ | Max | Unit | Notes |
|-----------------------------------|------|-----|------|------|-------|
| Power Supply Voltage | 3.13 | 3.3 | 3.47 | V | - |
| Power Supply Current (com.) | - | - | 700 | mA | - |
| Power Supply Current (ind.) | - | - | - | mA | - |
| Case Operating Temperature (com.) | 0 | - | +70 | °C | - |
| Case Operating Temperature (ind.) | -40 | - | +85 | °C | - |

Electrical Characteristics

| Parameter | Min | Typ | Max | Unit | Notes |
|--------------------------------|---------|-----|---------|----------|-------|
| Transmitter | | | | | |
| Input differential impedance | - | 100 | - | Ω | 1 |
| Single ended data input swing | 120 | - | 850 | mV | - |
| TX Disable-High | Vcc-0.8 | - | Vcc | V | - |
| TX Disable-Low | Vee | - | Vee+0.8 | V | - |
| TX Fault-High | Vcc-0.8 | - | Vcc | V | - |
| TX Fault-Low | Vee | - | Vee+0.8 | V | - |
| Receiver | | | | | |
| Single ended data output swing | 300 | - | 800 | mV | 2 |
| Data output rise time | 28 | - | - | ps | 3 |
| Data output fall time | 28 | - | - | ps | 3 |
| LOS-High | Vcc-0.8 | - | Vcc | V | - |
| LOS-Low | Vee | - | Vee+0.8 | V | - |

Notes:

1. AC coupled
2. into 100 Ω differential termination
3. 20 - 80%

Wavelength Selection

| 100 GHz Spacing | | 50 GHz Spacing | |
|------------------------|------------------------|------------------------|------------------------|
| Center Frequency (THz) | Center Frequency (THz) | Center Frequency (THz) | Center Wavelength (nm) |
| 191.70 | 1563.86 | 191.75 | 1563.45 |
| 191.80 | 1563.05 | 191.85 | 1562.64 |
| 191.90 | 1562.23 | 191.95 | 1561.83 |
| 192.00 | 1561.42 | 192.05 | 1561.01 |
| 192.10 | 1560.61 | 192.15 | 1560.20 |
| 192.20 | 1559.79 | 192.25 | 1559.39 |
| 192.30 | 1558.98 | 192.35 | 1558.58 |
| 192.40 | 1558.17 | 192.45 | 1557.77 |
| 192.50 | 1557.36 | 192.55 | 1556.96 |
| 192.60 | 1556.55 | 192.65 | 1556.15 |
| 192.70 | 1555.75 | 192.75 | 1555.34 |
| 192.80 | 1554.94 | 192.85 | 1554.54 |
| 192.90 | 1554.13 | 192.95 | 1553.73 |
| 193.00 | 1553.33 | 193.05 | 1552.93 |
| 193.10 | 1552.52 | 193.15 | 1552.12 |
| 193.20 | 1551.72 | 193.25 | 1551.32 |
| 193.30 | 1550.92 | 193.35 | 1550.52 |
| 193.40 | 1550.12 | 193.45 | 1549.72 |
| 193.50 | 1549.32 | 193.55 | 1548.91 |
| 193.60 | 1548.52 | 193.65 | 1548.11 |
| 193.70 | 1547.72 | 193.75 | 1547.32 |
| 193.80 | 1546.92 | 193.85 | 1546.52 |
| 193.90 | 1546.12 | 193.95 | 1545.72 |
| 194.00 | 1545.32 | 194.05 | 1544.92 |
| 194.10 | 1544.53 | 194.15 | 1544.13 |
| 194.20 | 1543.73 | 194.25 | 1543.33 |
| 194.30 | 1542.94 | 194.35 | 1542.54 |
| 194.40 | 1542.14 | 194.45 | 1541.75 |
| 194.50 | 1541.35 | 194.55 | 1540.95 |
| 194.60 | 1540.56 | 194.65 | 1540.16 |
| 194.70 | 1539.77 | 194.75 | 1539.37 |
| 194.80 | 1538.98 | 194.85 | 1538.58 |
| 194.90 | 1538.19 | 194.95 | 1537.79 |
| 195.00 | 1537.40 | 195.05 | 1537.00 |
| 195.10 | 1536.61 | 195.15 | 1536.22 |
| 195.20 | 1535.82 | 195.25 | 1535.43 |
| 195.30 | 1535.04 | 195.35 | 1534.64 |
| 195.40 | 1534.25 | 195.45 | 1533.86 |
| 195.50 | 1533.47 | 195.55 | 1533.07 |
| 195.60 | 1532.68 | 195.65 | 1532.29 |
| 195.70 | 1531.90 | 195.75 | 1531.51 |
| 195.80 | 1531.12 | 195.85 | 1530.72 |
| 195.90 | 1530.33 | 195.95 | 1529.94 |
| 196.00 | 1529.55 | 196.05 | 1529.16 |

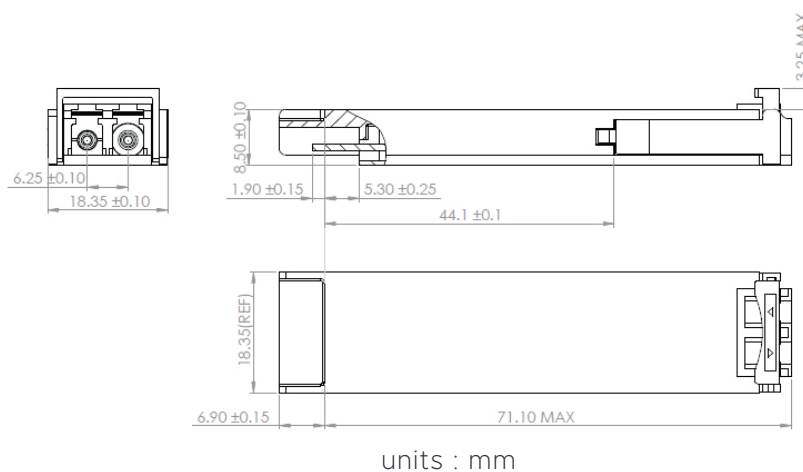
Optical Characteristics

| Parameter | Min | Typ | Max | Unit | Notes |
|-----------------------------|---------|-----------|---------|------|-------|
| Transmitter | | | | | |
| Optical Center Wavelength | ITU min | λ | ITU max | nm | 1 |
| Channel Spacing | - | 50 | - | GHz | - |
| Average Output Power | -1 | - | 4.0 | dBm | - |
| Optical Extinction Ratio | 8.2 | - | - | dB | - |
| RMS Spectral Width (-20dB) | - | - | 0.5 | nm | - |
| Side Mode Suppression Ratio | 35 | - | - | dB | - |
| Data Rate | - | 10.3125 | - | Gb/s | - |
| Receiver | | | | | |
| Optical Center Wavelength | 1528 | - | 1564 | nm | 2,3 |
| Receiver Sensitivity | - | - | -24 | dBm | 2,3 |
| Damage Threshold | 0.5 | - | - | dBm | - |
| LOS Assert | -40 | - | - | dBm | - |
| LOS De-Assert | - | - | -25 | dBm | - |
| LOS Hysteresis | 0.5 | - | - | dB | - |

Notes:

- Center Wavelength : " λ " as per ITU-T 694.1 (50GHz spacing)
- Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
- Measured with PRBS 2³¹-1 at 10⁻¹² BER.

Mechanical Dimensions



Revision history

| Revision | Date | Author | Description |
|----------|------------|--------|------------------|
| V1.1 | 05-03-2020 | JGN | Initial Document |

Note : Nexgen A/S reserves the right to change this document without notice.