

XFP-10G-ER

10GBase XFP
1550nm
40km Reach

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Features

- Supports 8.0Gb/s to 11.1Gb/s bit rates
- Hot-pluggable XFP footprint, Built-in digital diagnostics
- Maximum link length of 40km with SMF
- 1550nm Cooled EML laser and PIN photodiode
- XFP MSA package with duplex LC connector
- No reference clock required
- Single +3.3V power supply
- Power dissipation <3.5W (0~70°C)
- XFP MSA INF-80771 Compliant



Applications

- SONET OC-192 SDH & STM-64 at 9.953Gbps
- 10GBASE-ZR/ZW 10G Ethernet
- 10G Fiber Channel

Part number

Product description

XFP-10G-ER

10GBase SMF XFP 1550nm 40km 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:

1. 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.
2. Laser output disabled on Tx_Disable >2.0V or open, enabled on Tx_Disable <0.8V.
3. 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.
4. 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.
5. TD-/+ : These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

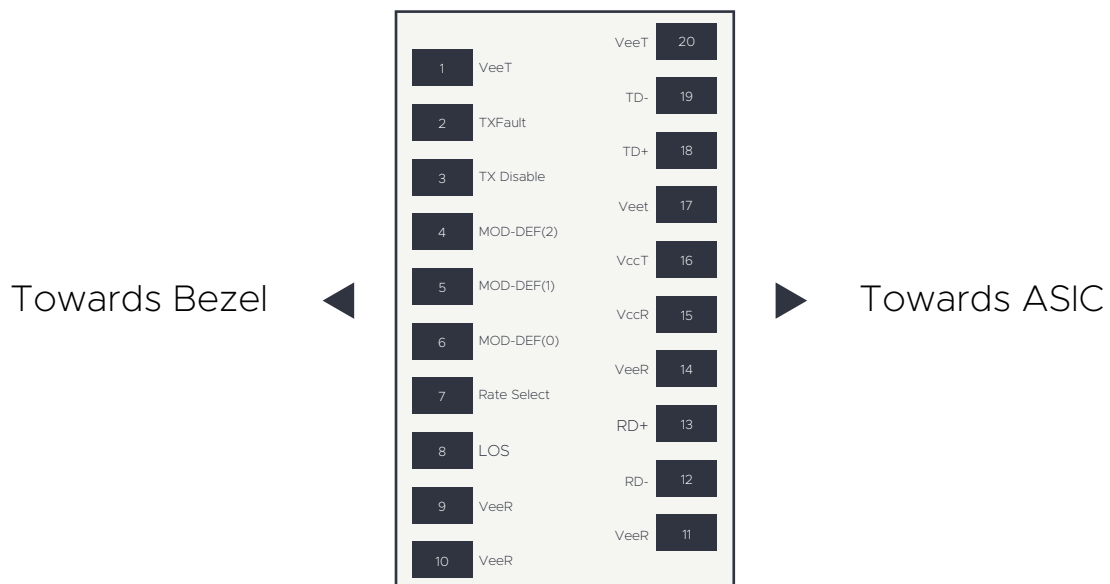


Figure 1. Diagram of host board connector block pin numbers and names

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.) | - | - | 1000 | 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 | - | 850 | mV | 2 |
| Data output rise time | 30 | - | - | ps | 3 |
| Data output fall time | 30 | - | - | 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%

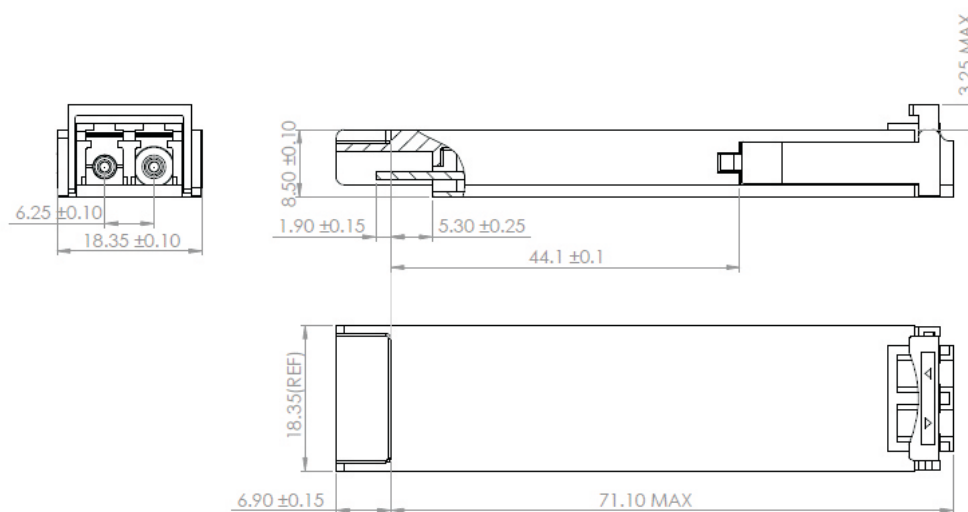
Optical Characteristics

| Parameter | Min | Typ | Max | Unit | Notes |
|-----------------------------|------|---------|------|------|-------|
| Transmitter | | | | | |
| Optical Center Wavelength | 1530 | 1550 | 1565 | nm | - |
| Average Output Power | -1.0 | - | 2.0 | dBm | - |
| Optical Extinction Ratio | 8.2 | - | - | dB | - |
| RMS Spectral Width (-20dB) | - | - | 1.0 | nm | - |
| Side-Mode Suppression Ratio | 30 | - | - | dB | - |
| Data Rate | - | 10.3125 | - | Gb/s | - |
| Receiver | | | | | |
| Optical Center Wavelength | 1260 | - | 1600 | nm | - |
| Receiver Sensitivity | - | - | -16 | dBm | 1,2 |
| Damage Threshold | 0.5 | - | - | dBm | - |
| LOS Assert | -26 | - | - | dBm | - |
| LOS De-Assert | - | - | -17 | dBm | - |
| LOS Hysteresis | 0.5 | - | - | dB | - |

Notes:

1. Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
2. Measured with PRBS 2³¹-1 at 10⁻¹² BER.

Mechanical Dimensions



units : mm

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.