



### **XFP-EPON-OLT-PR30-OPC**

MSA and TAA 10GBase-OLT XFP Transceiver (SMF, 1577nmTx/1270nmRx, 20km, SC, DOM)

#### **Features**

- XFP package with SC receptacle optical interface compliant
- MSA SFF-8077iv4.5 Compliant
- IEEE 802.3av Compliant
- Hot-Pluggable
- 10.3125Gbps & 2.5G & 1.25Gbps downstream and 10.3125Gbps & 1.25Gbps upstream
- +3.3V single power supply
- Operating Temperature: 0C to 70C
- RoHS compliant



#### **Applications:**

- PON
- Broadband Access

#### **Product Description**

This MSA compliant XFP transceiver provides 10GBase-OLT throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1577nmTx/1270nmRx via a SC 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.

OptioConnect's transceivers are RoHS compliant and lead-free.

### Absolute Maximum Ratings

| Parameter                   | Symbol           | Min. | Max. | Unit |
|-----------------------------|------------------|------|------|------|
| Maximum Supply Voltage      | VCC              | 0    | +3.6 | V    |
| Storage Ambient Temperature | T <sub>stg</sub> | -40  | +85  | °C   |
| Operating Case Temperature  | T <sub>c</sub>   | 0    | 70   | °C   |
| Relative Humidity           | RH               | 5    | 95   | %    |

### Electrical Characteristics

| Parameter                             | Symbol          | Min. | Typ. | Max. | Unit | Notes |
|---------------------------------------|-----------------|------|------|------|------|-------|
| Power Supply Voltage                  | V <sub>cc</sub> | 3.13 | 3.3  | 3.47 | V    |       |
| Power Supply Current                  | I <sub>cc</sub> |      |      | 1200 | mA   |       |
| Power Consumption                     | P               |      |      | 4    | W    |       |
| LVPECL Single Ended Data Input Swing  |                 | 100  |      | 1200 | mV   |       |
| LVPECL Single Ended Data Output Swing |                 | 200  |      | 800  | mV   |       |
| CML Single Ended Data Input Swing     |                 | 100  |      | 600  | mV   |       |
| CML Single Ended Data Output Swing    |                 | 300  |      | 500  | mV   |       |
| Differential Data Input Impedance     |                 |      | 100  |      | Ω    |       |
| Signal Level ( LVTTTL )               | VOH             | 2.4  |      | VCC  | V    |       |
|                                       | VOL             | 0    |      | 0.8  | V    |       |

## Optical Characteristics

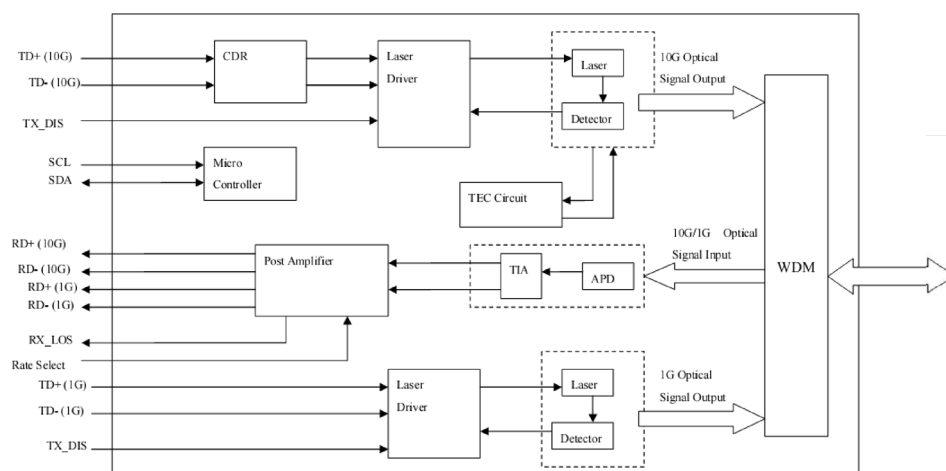
| Parameter                            | Symbol          | Min.                      | Typ.                | Max.   | Unit  | Notes |
|--------------------------------------|-----------------|---------------------------|---------------------|--------|-------|-------|
| <b>Transmitter</b>                   |                 |                           |                     |        |       |       |
| TX 10G Data Rate                     |                 |                           | 10.3125G<br>±100ppm |        | Bit/s |       |
| Launch Optical Power -10G            | Po              | +2                        |                     | +5     | dBm   |       |
| Center Wavelength Range -10G         | $\lambda_c$     | 1575                      | 1577                | 1580   | nm    |       |
| Extinction Ratio -10G                | EX              | 6                         |                     |        | dB    |       |
| Spectral Width(@-20dB) -10G          | $\Delta\lambda$ |                           |                     | 1      | nm    |       |
| Side Mode Suppressing Ratio -10G     | SMSR            | 30                        |                     |        | dB    |       |
| Eye Diagram -10G                     |                 | Complies with IEEE802.3av |                     |        |       |       |
| Dispersion Penalty -10G              |                 |                           |                     | 1.5    | dB    |       |
| RIN15 OMA -10G                       |                 |                           |                     | -128   | dB/Hz |       |
| TX 2.5G Data Rate                    |                 |                           | 2.5G±<br>100ppm     |        |       |       |
| TX 1G Data Rate                      |                 |                           | 1.25G±<br>100ppm    |        | Bit/s |       |
| Launch Optical Power - 1G/2.5G       | Po              | +4.3                      |                     | +9.3   |       |       |
| Center Wavelength Range -1G/2.5G     | $\lambda_c$     | 1480                      | 1490                | 1500   | bit/s |       |
| Extinction Ratio - 2.5G              | EX              | 8.2                       |                     |        | dBm   |       |
| Extinction Ratio - 1G                | EX              | 9                         |                     |        | nm    |       |
| Spectral Width(@-20dB) -1G/2.5G      | $\Delta\lambda$ |                           |                     | 1      | dB    |       |
| Side Mode Suppressing Ratio -1G/2.5G | SMSR            | 30                        |                     |        | dB    |       |
| Eye Diagram                          |                 | Complies with IEEE802.3ah |                     |        |       |       |
| Dispersion Penalty-1G/2.5G           |                 |                           |                     | 1      | dB    |       |
| RIN15 OMA -1G/2.5G                   | RIN             |                           |                     | -115   | dB/Hz |       |
| TX off Optical Power                 | Poff            |                           |                     | -39    | dBm   |       |
| Optical return loss tolerance        |                 |                           |                     | 15     | dB    |       |
| Transmitter reflectance              |                 |                           |                     | -10    | dB    |       |
| <b>Receiver</b>                      |                 |                           |                     |        |       |       |
| Receiver Optical Wavelength          | $\lambda_{in}$  | 1260                      |                     | 1360   | nm    |       |
| Damage Optical Power                 |                 |                           | 10.325G<br>±100ppm  |        | bit/s |       |
| Receiver Sensitivity – 10G           | S               |                           |                     | -28    | dBm   | 1     |
| Overload Input Optical Power -10G    | Pin             | -6                        |                     |        | dBm   | 1     |
| Receiver Settling Time - 10G         |                 |                           |                     | 800    | ns    |       |
| RX 1G Data Rate                      |                 |                           | 1.25G±<br>100ppm    |        |       |       |
| Receiver Sensitivity - 1G            | S               |                           |                     | -29.78 | dBm   | 2     |

|                                   |     |       |  |     |     |   |
|-----------------------------------|-----|-------|--|-----|-----|---|
| Overload Input Optical Power - 1G | Pin | -9.38 |  |     | dBm | 2 |
| Receiver Settling Time - 1G       |     |       |  | 400 | ns  |   |
| LOS Optical Dessert               |     |       |  | -30 | dBm |   |
| LOS Optical Asset                 |     | -45   |  |     | dBm |   |
| LOS Hysteresis                    |     | 0.5   |  | 6   | dB  |   |
| Receiver Reflectance              |     |       |  | -12 | dB  |   |
| Burst Mode Receiver Dynamic Range |     | 15    |  |     | dB  |   |

#### Notes:

1. Measured with a PRBS  $2^{31}-1$  NRZ test pattern, @10.3Gb/s, EX=6dB, BER< $10^{-3}$ ;
2. Measured with a PRBS  $2^7-1$  NRZ test pattern, @1.25Gb/s, EX=9dB, BER< $10^{-12}$ .

#### Principle Diagram



## Pin Descriptions

| Pin | Symbol       | Name/Descriptions                                          | Engagement Order | Notes |
|-----|--------------|------------------------------------------------------------|------------------|-------|
| 1   | GND          | Ground                                                     | 1                |       |
| 2   | TX_1G_P      | 1G Transmitter non-inverted data input                     | 3                | 6     |
| 3   | TX_1G_N      | 1G Transmitter inverted data input                         | 3                | 6     |
| 4   | GND          | Ground                                                     | 1                |       |
| 5   | TX_DIS       | Transmitter Disable; Turns off the laser output            | 3                | 1     |
| 6   | VCC5         | +5V Power Supply (not required)                            | 2                |       |
| 7   | GND          | Ground                                                     | 1                |       |
| 8   | VCC3_TX      | TX +3.3V Power Supply                                      | 2                |       |
| 9   | VCC3_RX      | RX +3.3V Power Supply                                      | 2                |       |
| 10  | SCL          | 2-Wire Serial Interface Clock                              | 3                |       |
| 11  | SDA          | 2-Wire Serial Interface Data                               | 3                |       |
| 12  | MOD_ABS      | Indicates Module is not present. Grounded in the Module    | 3                |       |
| 13  | Rate Select  | RX 10G (high) / 1G (low) Rate Select Input. (not required) | 3                | 2     |
| 14  | RX_LOS       | RX Loss of Signal.                                         | 3                | 3     |
| 15  | GND          | Ground                                                     | 1                |       |
| 16  | GND          | Ground                                                     | 1                |       |
| 17  | RD_10G_N     | 10G Receiver inverted data output.                         | 3                | 4     |
| 18  | RD_10G_P     | 10G Receiver non-inverted data output.                     | 3                | 4     |
| 19  | GND          | Ground                                                     | 1                |       |
| 20  | RD_1G_N      | 1G Receiver inverted data output.                          | 3                | 4     |
| 21  | RD_1G_P      | 1G Receiver non-inverted data output.                      | 3                | 4     |
| 22  | VCC1         | +1.8V Power Supply. (not required)                         | 2                |       |
| 23  | RX_RSSI_TRIG | RX Power Monitor Trigger                                   | 3                | 5     |
| 24  | NC           | Not Connected                                              | 3                |       |
| 25  | NC           | Not Connected                                              | 3                |       |
| 26  | NC           | Not Connected                                              | 3                |       |
| 27  | GND          | Ground                                                     | 1                |       |
| 28  | TX_10G_N     | 10G Transmitter inverted data input                        | 3                | 6     |
| 29  | TX_10G_P     | 10G Transmitter non-inverted data input                    | 3                | 6     |
| 30  | GND          | Ground                                                     | 1                |       |

### Notes:

- TX Disable input is used to shut down both the 10G laser and 1G laser (if module has 1G transmitter) output per the state table below. It is pulled up within the module with a 4.7 – 10K resistor.  
Low (<0.8V): Transmitter on  
High (>2.0 V): Transmitter Disabled  
Open : Transmitter Disabled
- Rate Select is used to select the output of receiver. It is pulled down within the module with a 51K

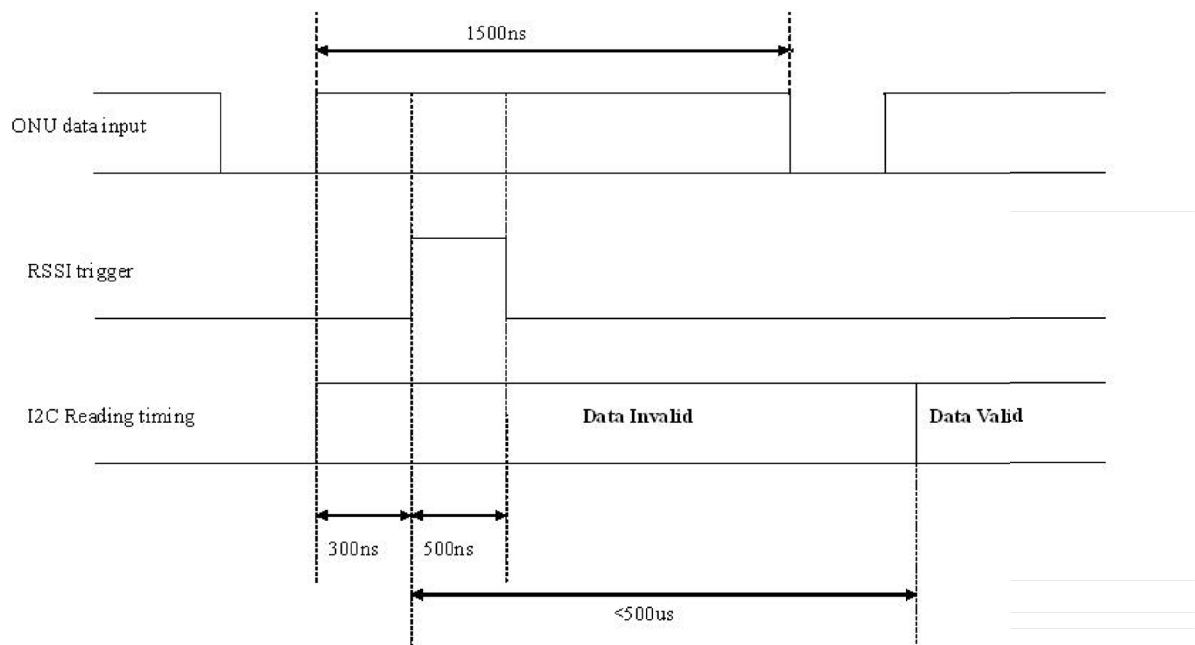
resistor.

Low (<0.8V): 1.25Gbps receiver bandwidth, and shut down 10G receiver

High (>2.0 V): 10.3Gbps receiver bandwidth, and shut down 1G receiver

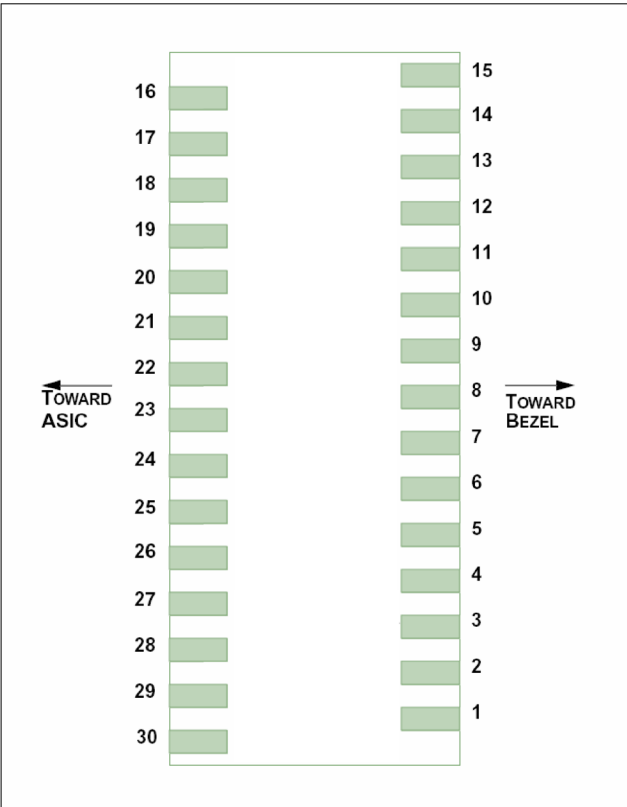
If this function is not used, both 1.25Gbps and 10.3Gbps receiver will not shutdown.

3. LOS (Loss of signal) is an open collector/drain output which should be pulled up externally with a 4.7 – 10K resistor on the host board to supply <VccT+0.3V or VccR+0.3V. When high, this output indicates the received optical power is below the worst case receiver sensitivity (as defined by the standard in use). Low indicates normal operation. In the low state, the output will be pulled to <0.8V.
4. RD-/+ : These are the differential receiver outputs. They are DC coupled in the module.
5. RX\_RSSI\_TRIG is used to start a RX Power Monitoring. It is pulled high to trigger a A/D sample start. The timing is shown as below:

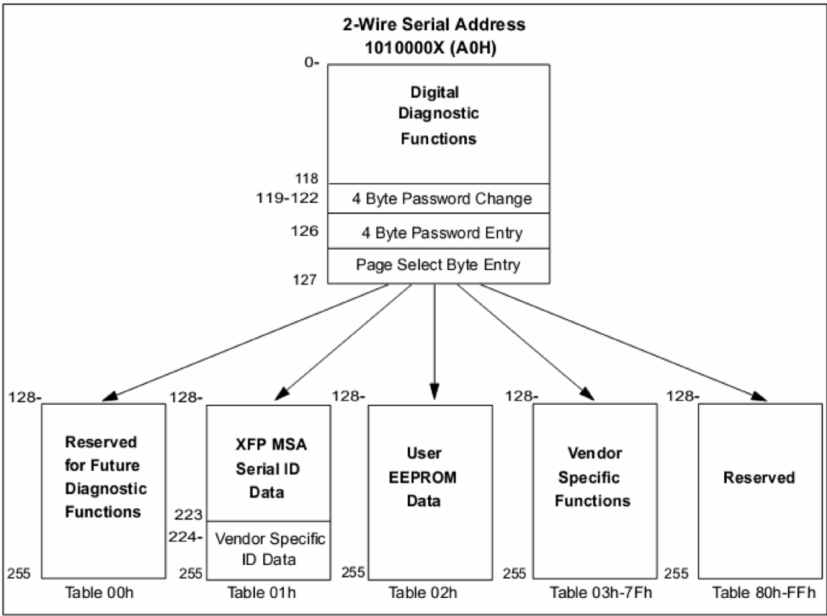


6. TD-/+ : These are the differential transmitter inputs. They are AC coupled in the module.

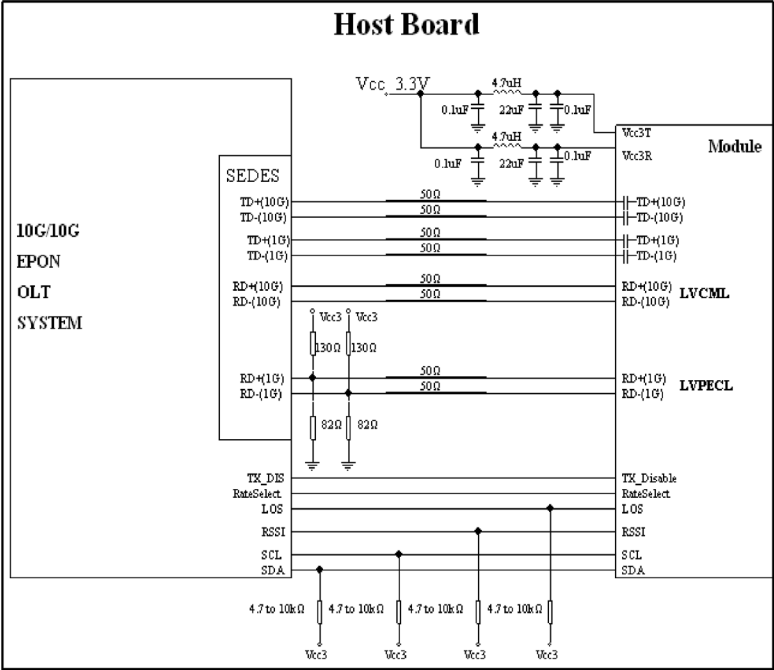
Electrical Ports Definition



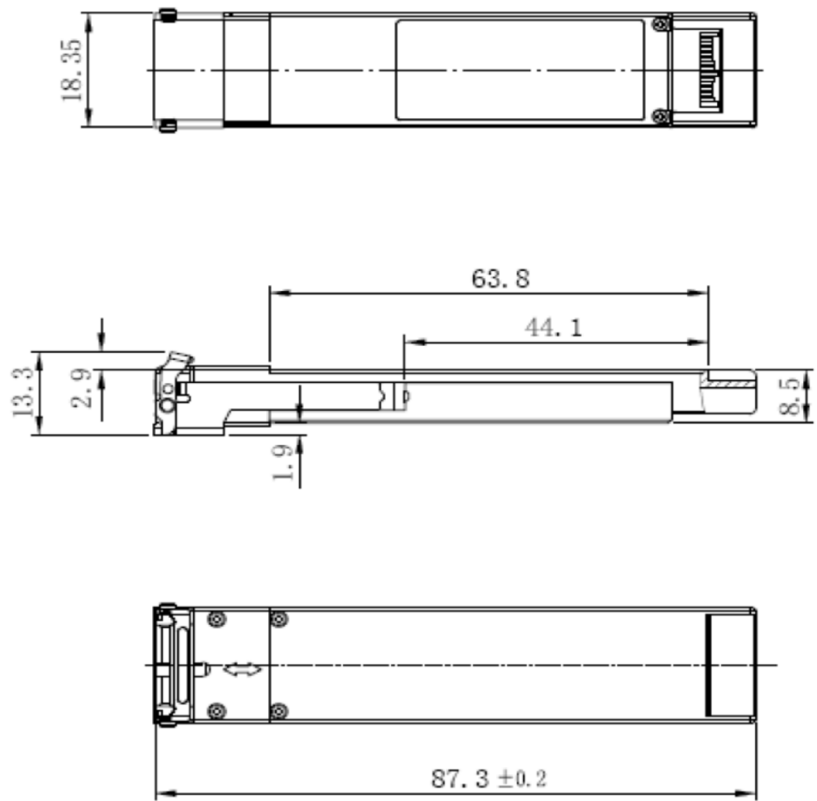
Digital Diagnostic Memory Map



Typical Application Circuit



Mechanical Specifications



Unit: mm  
Unspecified  
Tolerance: ±0.1mm

## **OptioConnect**

### **Innovation for the Future of High-Speed Networking**

#### **Who We Are**

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

#### **What We Do**

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

#### **Smarter Networks by Design**

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

#### **Our Team**

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

#### **Our Mission**

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

#### **Let's Connect**

Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.

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