



### **SFPP-XGS-ONU-OPC**

MSA and TAA 10GBase-XGS PON ONU SFP+ Transceiver (SMF, 1270nmTx/1577nmRx, 20km, SC, DOM, 0 to 70C)

#### **Features**

- 2x10 SFP+ Die Cast Housing
- SC Optical Receptacle
- One single-mode fiber
- Commercial Temperature 0 to 70 Celsius



#### **Applications:**

- XGS PON ONU
- Access and Enterprise

#### **Product Description**

This MSA compliant SFP+ transceiver provides 10GBase-XGS throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1270nmTx/1577nmRx via an SC connector. It can operate at temperatures between 0 and 70C. All of our transceivers are built to comply with Multi-Source Agreement (MSA) standards and are uniquely serialized and tested for data-traffic and application to ensure seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows 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. | Typ. | Max. | Unit |
|-----------------------------|-------------------|------|------|------|------|
| Maximum Supply Voltage      | V <sub>CC</sub>   | 0    |      | 3.6  | V    |
| Storage Ambient Temperature | T <sub>stg</sub>  | -40  |      | 85   | °C   |
| Operating Case Temperature  | T <sub>c</sub>    | 0    | 25   | 70   | °C   |
| Relative Humidity Storage   | RH <sub>Stg</sub> | 0    |      | 95   | %    |
| Relative Humidity Operating | RH <sub>Op</sub>  | 0    |      | 85   | %    |

### Note:

- Exceeding the Absolute Maximum Ratings may cause irreversible damage to the device. The device is not intended to be operated under the condition of simultaneous Absolute Maximum Ratings, a condition which may cause irreversible damage to the device.

## Absolute Maximum Ratings - Control Function Logic Levels

| Parameter                           | Symbol               | Min. | Max.                 | Unit | Notes |
|-------------------------------------|----------------------|------|----------------------|------|-------|
| Receiver Loss of Signal Logic State | Rx_LOS               | 0    | V <sub>CC</sub> +0.5 | V    | LVTTL |
| Transmit Burst_Enable Logic State   | BM <sub>ENABLE</sub> | 0    | V <sub>CC</sub> +0.5 | V    | LVTTL |

## Electrical Characteristics

| Parameter                              | Symbol           | Min.  | Typ. | Max.                 | Unit | Notes |
|----------------------------------------|------------------|-------|------|----------------------|------|-------|
| Module Supply Voltage                  | V <sub>CC</sub>  | 3.135 | 3.30 | 3.465                | V    |       |
| Module Supply Current                  | I <sub>IN</sub>  | 150   | 230  | 400                  | mA   |       |
| <b>Transmitter</b>                     |                  |       |      |                      |      |       |
| Tx_Data Differential Input Voltage     | V <sub>IN</sub>  | 190   |      | 700                  | mV   |       |
| Tx_DIS=High (Transmitter Off/Disabled) | V <sub>IH</sub>  | 2.0   |      | V <sub>CC</sub> +0.3 | V    | 1     |
| Tx_DIS=Low (Transmitter On/Enabled)    | V <sub>IL</sub>  | 0     |      | 0.8                  | V    | 1     |
| <b>Receiver</b>                        |                  |       |      |                      |      |       |
| Rx_Data Differential Output Voltage    | V <sub>OUT</sub> | 300   |      | 850                  | mV   | 2     |
| Rx_LOS=High (Receiver Off)             | V <sub>OH</sub>  | 2.4   |      | 3.3                  | V    | LVTTL |
| Rx_LOS=Low (Receiver On)               | V <sub>OL</sub>  | 0     |      | 0.8                  | V    | LVTTL |

### Notes:

- LVTTL Burst Mode.
- CML Rx\_DATA Electrical Output (AC coupled internally).

## Optical Characteristics

| Parameter                  | Symbol                 | Min.       | Typ. | Max.  | Unit | Notes |
|----------------------------|------------------------|------------|------|-------|------|-------|
| <b>Transmitter</b>         |                        |            |      |       |      |       |
| Laser Type                 |                        | DFB Laser  |      |       |      |       |
| Transmitter Signal Rate    |                        | 9.95328    |      |       | Gbps |       |
| Average Output Power       | P <sub>out</sub>       | +4         |      | +9    | dBm  |       |
| Optical Center Wavelength  | $\lambda$              | 1260       | 1270 | 1280  | nm   |       |
| Spectral Width             | $\Delta\lambda$        |            |      | 1     | nm   |       |
| Side-Mode Suppression Mode | SMSR                   | 30         |      |       | dB   |       |
| Extinction Ratio           | ER                     | 6          |      |       | dB   |       |
| Burst-On Time              | T <sub>Burst_On</sub>  |            |      | 128.6 | ns   |       |
| Burst-Off Time             | T <sub>Burst_Off</sub> |            |      | 128.6 | ns   |       |
| <b>Receiver</b>            |                        |            |      |       |      |       |
| Receiver Type              |                        | CW APD/TIA |      |       |      |       |
| Receiver Signal Rate       |                        | 9.95328    |      |       | Gbps |       |
| Optical Center Wavelength  | $\lambda$              |            | 1577 |       | nm   |       |
| Receiver Sensitivity       | S                      |            |      | -28   | dBm  | 1     |
| Received Optical Overload  | P <sub>IN(SAT)</sub>   | -8         |      |       | dBm  | 1     |
| Rx_LOS Assert              | P <sub>A</sub>         | -42        |      |       | dBm  |       |
| Rx_LOS De-Assert           | P <sub>D</sub>         |            |      | -29   | dBm  |       |
| Rx_LOS Hysteresis          | PHy                    | 0.5        |      | 5     | dB   |       |

### Notes:

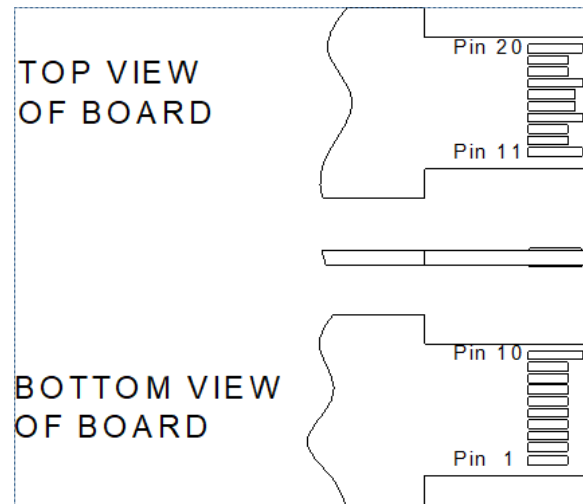
1. BER $\leq 10^{-3}$ , PRBS 2<sup>31</sup>-1, and ER=8dB.

## Pin Descriptions

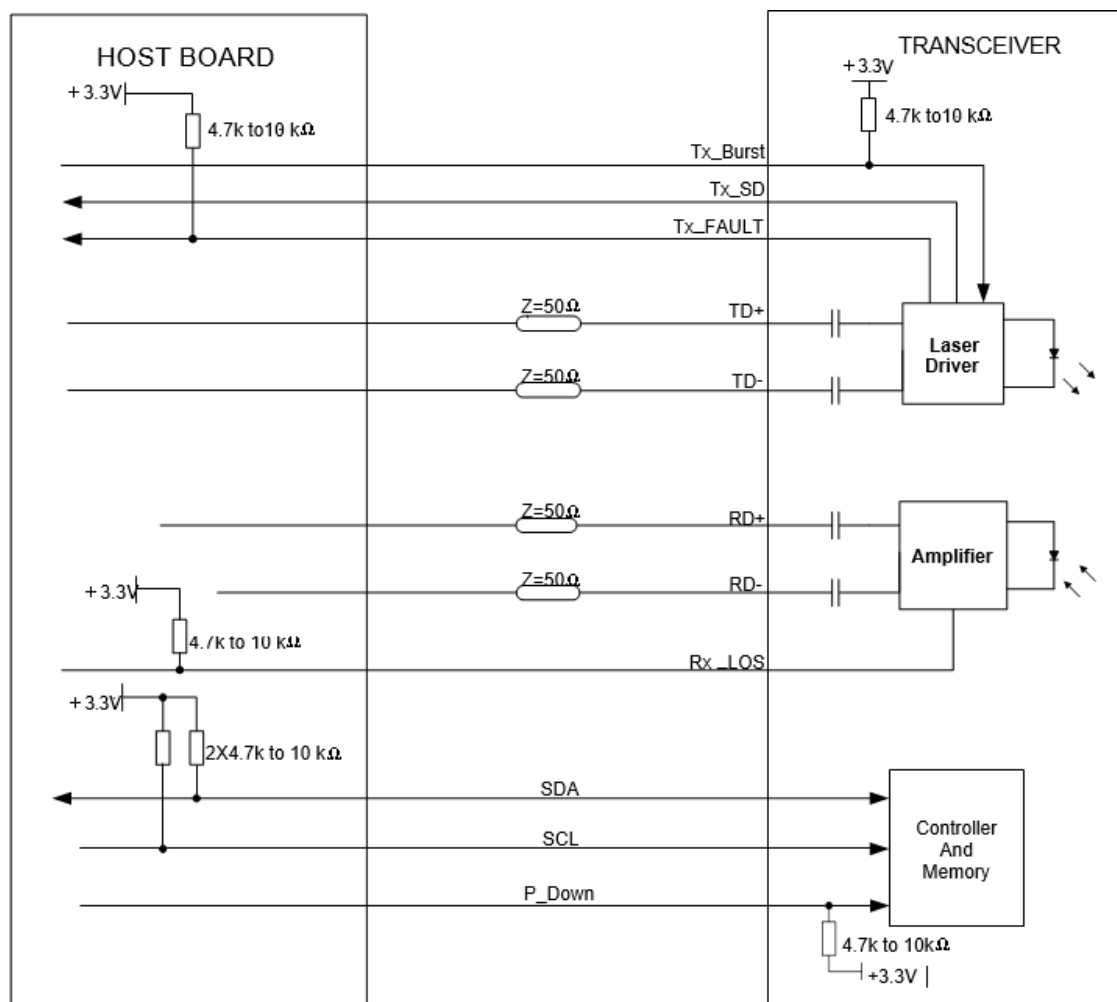
| Pin | Symbol       | Name/Descriptions                                                             | Ref. |
|-----|--------------|-------------------------------------------------------------------------------|------|
| 1   | GND          | Module Ground.                                                                |      |
| 2   | Tx_Fault     | Transmitter Fault.                                                            | 1    |
| 3   | Burst_Enable | Burst Enable Input. When asserted high, transmitter output is turned off.     |      |
| 4   | SDA          | 2-Wire Serial Interface Data Line (MOD-DEF2).                                 |      |
| 5   | SCL          | 2-Wire Serial Interface Clock (MOD-DEF1).                                     |      |
| 6   | MOD_ABS      | Module Absent - connected to VeeT.                                            | 1    |
| 7   | Tx_SD        | Transmitter State Indication, Tx_Indication Assert High, when transmitter on. |      |
| 8   | Rx_LOS       | Loss of Signal indication. Logic 0 indicates normal operation.                | 1    |
| 9   | P_Down       | Power Down High=Normal Operation, Low=Power Down (only power down Tx).        | 2    |
| 10  | GND          | Module Ground.                                                                |      |
| 11  | GND          | Module Ground.                                                                |      |
| 12  | RD-          | Receiver Inverted DATA out. AC Coupled.                                       |      |
| 13  | RD+          | Receiver Non-Inverted DATA out. AC Coupled.                                   |      |
| 14  | GND          | Module Ground.                                                                |      |
| 15  | VccR         | Receiver Power Supply.                                                        |      |
| 16  | VccT         | Transmitter Power Supply.                                                     |      |
| 17  | GND          | Module Ground.                                                                |      |
| 18  | TD+          | Transmitter Non-Inverted DATA in. AC Coupled.                                 |      |
| 19  | TD-          | Transmitter Inverted DATA in. AC Coupled.                                     |      |
| 20  | GND          | Module Ground.                                                                |      |

## Notes:

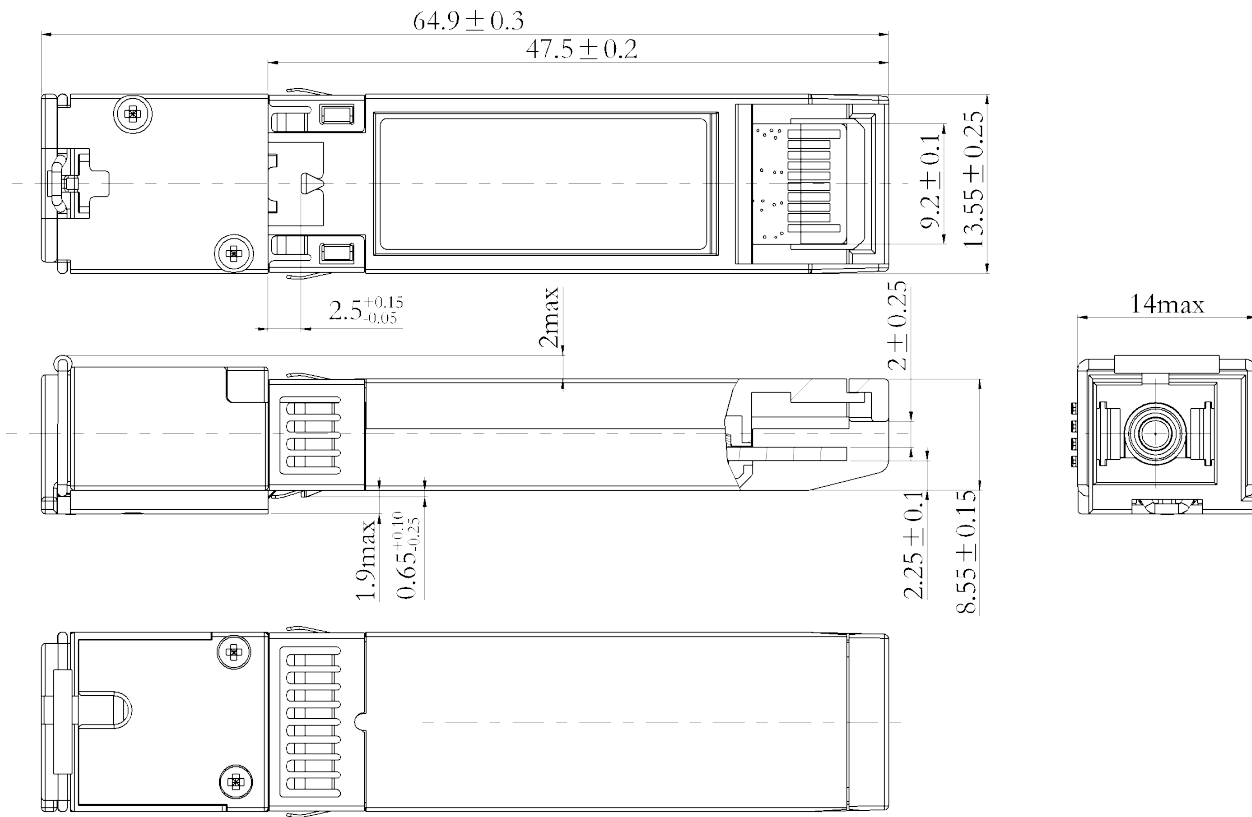
1. Shall be pulled up with 4.7k $\Omega$ -10k $\Omega$  to a voltage between 3.15V and 3.6V on the host board.
2. 4.7k $\Omega$ -10k $\Omega$  pull-up resistor within the module.



## Electrical Interface



## Mechanical Specifications

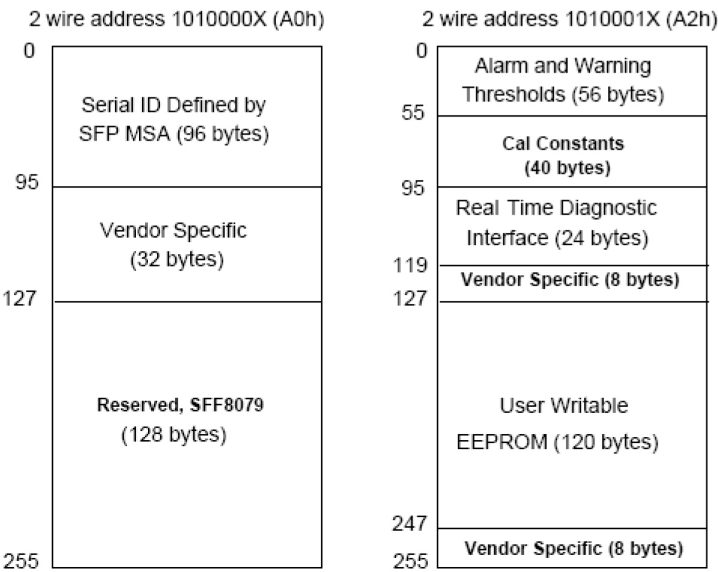


NOTES:

- 1.TOLERANCE:  $\pm 0.1\text{MM}$ .
- 2.OTHERS ACCORDING WITH SFF-8074/SFF-8432 OR CUSTOMER SPEC.
- 3.LIGHT PORT ACCORDING WITH FIBER CONNECTOR SPEC.

**EEPROM Information**

EEPROM memory map specific data field description is as below:



## **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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