**SFP-2H-OPC**

Rad® SFP-2H Compatible TAA 100Base-LX SFP Transceiver (SMF, 1310nm, 10km, LC, DOM)

**Features**

- INF-8074 and SFF-8472 Compliance
- Duplex LC Connector
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free

**Applications:**

- 100Base Ethernet
- Access and Enterprise

**Product Description**

This Rad® SFP-2H compatible SFP transceiver provides 100Base-LX throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Rad®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide 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.

**Regulatory Compliance**

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

**Absolute Maximum Ratings**

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| **Maximum Supply Voltage** | Vcc | -0.5 | | 3.6 | V |
| **Storage Temperature** | TS | -40 | | +85 | °C |
| **Operating Case Temperature** | Tc | 0 | | 70 | °C |
| **Operating Humidity** | RH | 5 | | 95 | % |
| **Receiver Power** | $R_{MAX}$ | | | -8 | dBm |
| **Data Rate** | | | 100/155 | | Mbps |

**Electrical Characteristics** (TOP=25°C, Vcc=3.3Volts)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Power Supply Voltage** | Vcc | 3.15 | 3.30 | 3.45 | V | |
| **Power Supply Current** | Icc | | | 300 | mA | |
| **Power Consumption** | $P_{DISS}$ | | | 800 | mW | |
| **Transmitter** | | | | | | |
| **Single ended data input swing** | Vin,pp | 400 | | 2000 | mVpp | 1 |
| **Input differential impedance** | Zin | 85 | 100 | 120 | Ω | 2 |
| **Receiver** | | | | | | |
| **Single ended data output swing** | Vout, pp | 400 | | 2000 | mVpp | 1 |
| **Output differential impedance** | Zin | 85 | 100 | 120 | Ω | |

**Notes:**

1. AC coupled.
2. Rin > 100 kohms @ DC

**Optical Characteristics**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **9µm Core Diameter SMF** | L | | 10 | | km | |
| **Data Rate** | | | 100/155 | | Mbps | |
| **Transmitter** | | | | | | |
| **Average Output Power** | Pout | -15 | | -8 | dBm | 1 |
| **Optical Extinction Ratio** | ER | 9 | | | dB | 2 |
| **Optical Wavelength** | Tλ | 1260 | 1310 | 1360 | nm | |
| **Spectral Width (RMS)** | Δλ | | | 4 | nm | |
| **Pout @TX Disable Asserted** | Pout | | | -45 | dBm | |
| **Rise/Fall Time (20%~80%)** | tr/tf | | | 2 | ns | |
| **Receiver** | | | | | | |
| **Receiver Sensitivity** | Pmin | | | -30 | dBm | 3 |
| **Receiver Overload** | Pmax | -2 | | | dBm | |
| **Optical Center Wavelength** | λC | 1260 | | 1600 | nm | |

**Notes:**

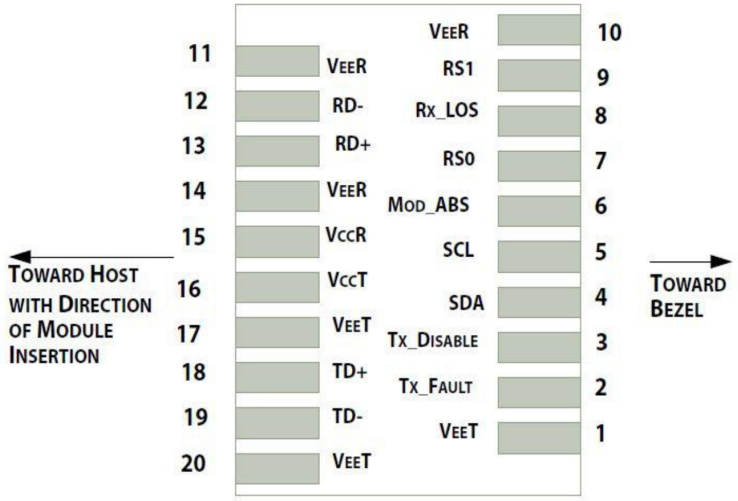
1. Coupled into a Single-mode fibre
2. Filtered, measured with a PRBS $2^{23}$ -1 test pattern @155Mbps.
3. Minimum average optical power is measured at BER less than 1E-12, with $2^{23}$ -1 PRBS and ER=9 dB

**Pin Descriptions**

| Pin | Symbol | Name/Descriptions | Ref. |
|---|---|---|---|
| **1** | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |
| **2** | TX Fault | Transmitter Fault. LVTTL-O | 2 |
| **3** | TX Disable | Transmitter Disable. Laser output disabled on high or open. LVTT-I. | 3 |
| **4** | SDA | 2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O. | |
| **5** | SCL | 2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I. | |
| **6** | MOD_ABS | Module Absent, Connect to VeeT or VeeR in Module. | 4 |
| **7** | RS0 | Rate Select 0. Not used | 5 |
| **8** | LOS | Loss of Signal indication. Logic 0 indicates normal operation. LVTTL-O. | 2 |
| **9** | RS1 | Rate Select 1. Not used | 5 |
| **10** | VeeR | Receiver Ground (Common with Transmitter Ground). | 1 |
| **11** | VeeR | Receiver Ground (Common with Transmitter Ground). | 1 |
| **12** | RD- | Receiver Inverted DATA out. AC Coupled. CML-O. | |
| **13** | RD+ | Receiver Non-inverted DATA out. AC Coupled. CML-O. | |
| **14** | VeeR | Receiver Ground (Common with Transmitter Ground). | 1 |
| **15** | VccR | Receiver Power Supply. | |
| **16** | VccT | Transmitter Power Supply. | |
| **17** | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |
| **18** | TD+ | Transmitter Non-Inverted DATA in. AC Coupled. CML-I. | |
| **19** | TD- | Transmitter Inverted DATA in. AC Coupled. CML-O. | |
| **20** | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |

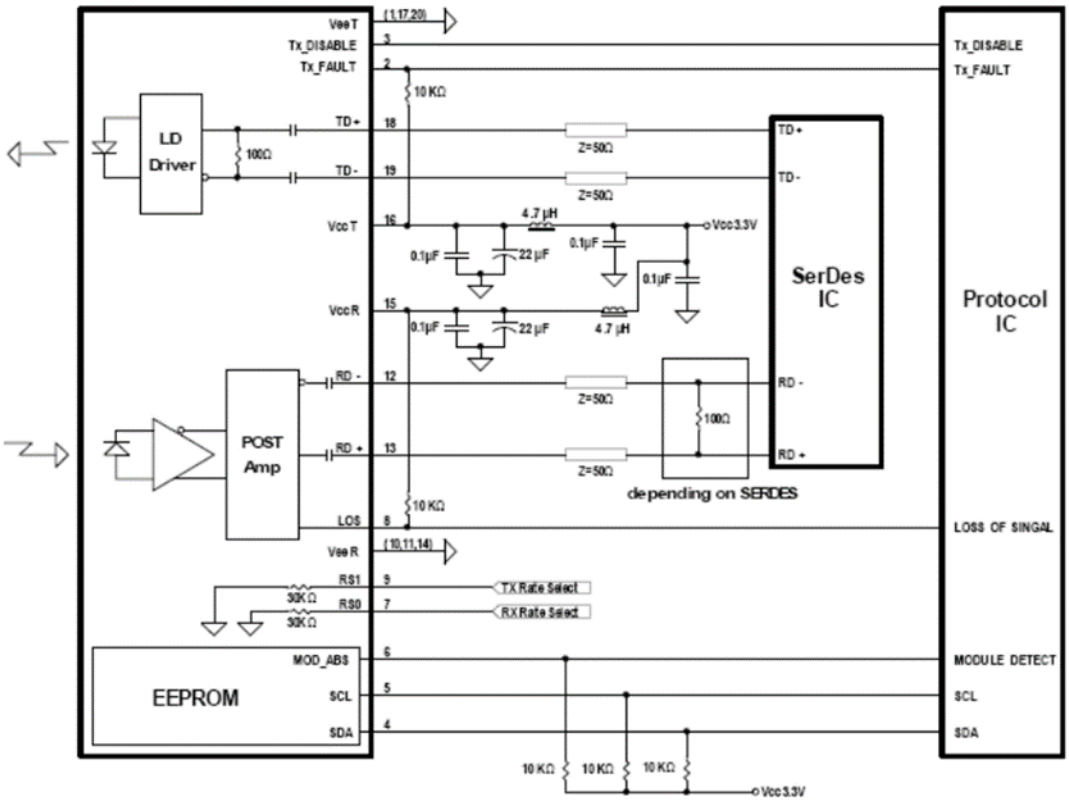
**Notes:**

1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Vcc_Host with resister in the range 4.7KΩ to 10KΩ. Pull ups can be connected to one or several power supplies, however the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5.V.
3. Tx_Disable is an input contact with a 4.7KΩ to 10KΩ pull-up resistor to VccT inside module.
4. Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to Vcc_Host with a resistor in the range from 4.7KΩ to 10KΩ. Mod_ABS is asserted “High” when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431



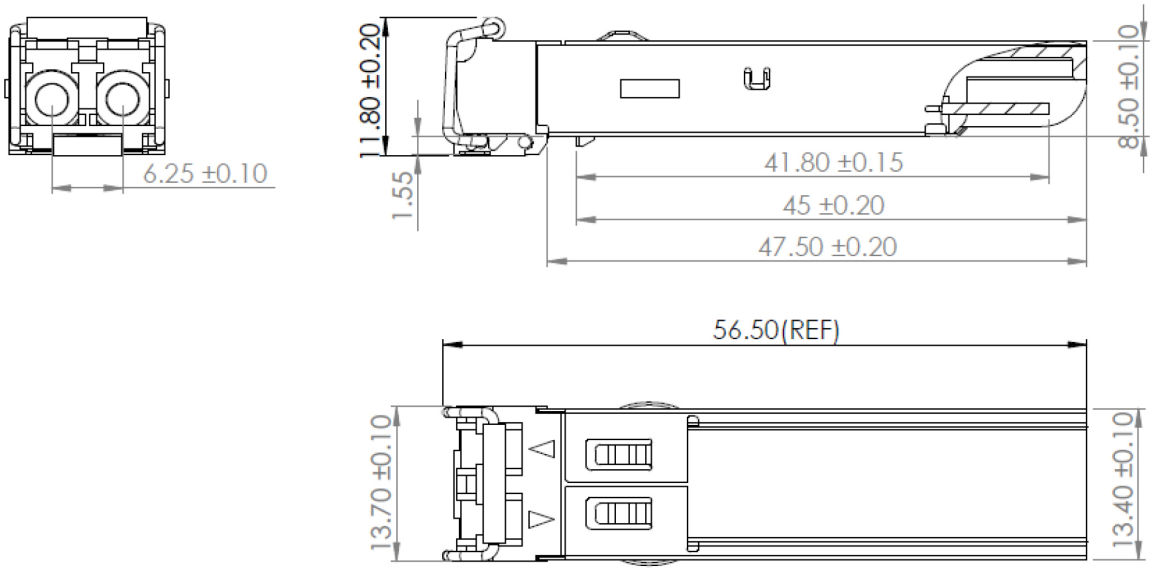

Pin-out of connector Block on Host board

**Recommended Circuit Schematic**



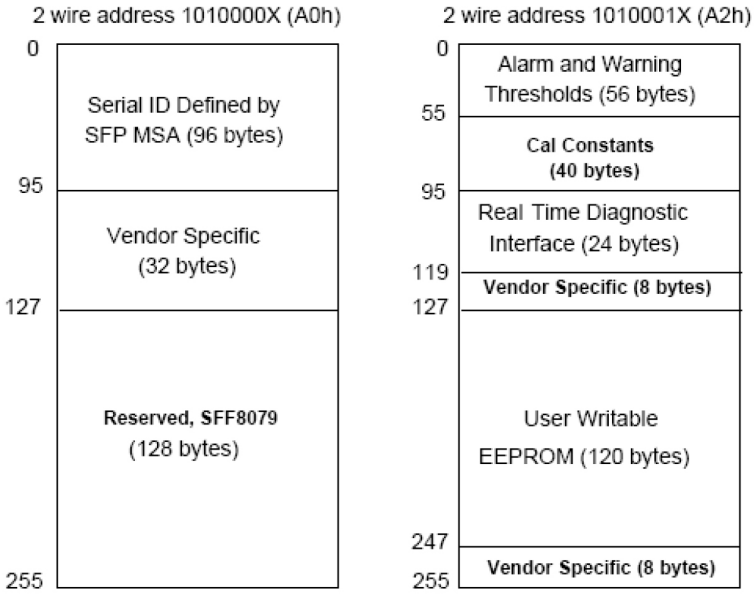
**Mechanical Specifications**

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).




**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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