**RX-10KM-SFP-C**

Juniper Networks® RX-10KM-SFP Compatible TAA 1000Base-LX SFP Transceiver (SMF, 1310nm, 10km, LC, DOM)

**Features:**

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

**Applications:**

- 1000Base-LX Ethernet
- 1x Fibre Channel
- Access and Enterprise

**Product Description**

This Juniper Networks® RX-10KM-SFP compatible SFP transceiver provides 1000Base-LX throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Juniper Networks® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. 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.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."

TAA COMPLIANT

**Rev. 111323**

**Absolute Maximum Ratings**

| Parameter | Symbol | Min. | Max. | Unit |
|---|---|---|---|---|
| **Maximum Supply Voltage** | Vcc | -0.5 | 4.0 | V |
| **Storage Temperature** | Tstg | -40 | 85 | °C |
| **Operating Case Temperature** | Tc | 0 | 70 | °C |
| **Operating Humidity** | RH | 5 | 85 | % |
| **Receiver Power** | $R_{MAX}$ | | 0 | dBm |
| **Maximum Bitrate** | $B_{max}$ | | 1.25 | Gbps |

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Power Supply Voltage** | Vcc | 3.15 | 3.30 | 3.43 | V | |
| **Power Supply Current** | Icc | | | 303 | mA | |
| **Power Consumption** | | | | 1 | W | |
| **Transmitter** | | | | | | |
| **Differential Data Input Swing** | VIN,pp | 120 | | 850 | mV | |
| **Input Differential Impedance** | ZIN | 80 | 100 | 120 | Ω | |
| **Receiver** | | | | | | |
| **Differential Data Output Swing** | VOUT,pp | 300 | | 850 | mV | |
| **Output Differential Impedance** | ZIN | 80 | 100 | 120 | Ω | |

**Optical Characteristics**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Transmitter** | | | | | | |
| **Optical Power (Average)** | $P_{AVE}$ | -9.5 | | -3 | dBm | 1 |
| **Optical Extinction Ratio** | ER | 9 | | | dB | |
| **Optical Wavelength** | Tλ | 1270 | 1310 | 1355 | nm | |
| **Insertion Loss** | IL | | 0.6 | | | |
| **Receiver** | | | | | | |
| **Receiver Sensitivity (Average)** | $R_{AVE}$ | | | -24 | dBm | 3 |
| **Receiver Overload** | $P_{max}$ | 0 | | | dBm | 4 |
| **Optical Return Loss** | ORL | 12 | | | dB | |
| **Receiver Wavelength** | Rλ | 1260 | | 1565 | nm | |

**Notes:**

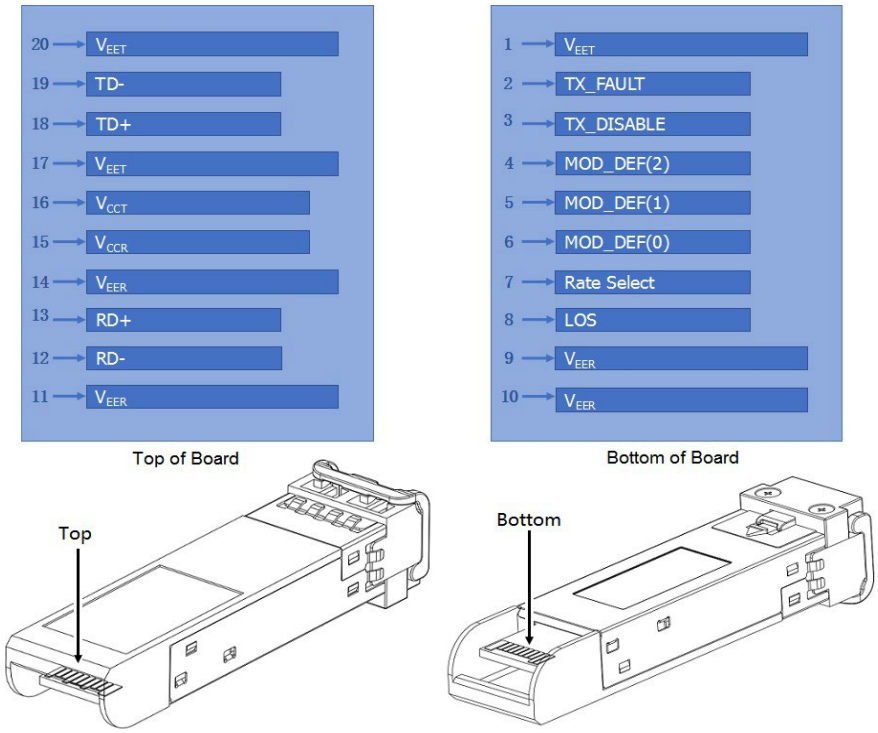
1. Coupled into a single-mode fiber.
2. Per IEEE 802.3ah specification.
3. Average power, back-to-back, @1.25Gbps, BER $1E^{-12}$, and PRBS $2^{31}$-1.
4. Exceeding the Receiver Overload can physically damage the module. Please use appropriate attenuation.

**Pin Descriptions**

| Pin | Symbol | Name/Description | Notes |
|---|---|---|---|
| **1** | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |
| **2** | Tx_Fault | Transmitter Fault. Not Supported. | |
| **3** | Tx_Disable | Transmitter Disable. Laser output disabled on “high” or “open.” | 2 |
| **4** | MOD_DEF (2) | Module Definition 2. Data Line for Serial ID. | 3 |
| **5** | MOD_DEF (1) | Module Definition 1. Clock Line for Serial ID. | 3 |
| **6** | MOD_DEF (0) | Module Definition 0. Grounded within the module. | 3 |
| **7** | Rate Select | No Connection Required. | |
| **8** | LOS | Loss of Signal Indication. “Logic 0” indicates normal operation. | 4 |
| **9** | VeeR | Receiver Ground (Common with Transmitter Ground). | 1 |
| **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. | |
| **13** | RD+ | Receiver Non-Inverted Data Out. AC Coupled. | |
| **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. | |
| **19** | TD- | Transmitter Inverted Data In. AC Coupled. | |
| **20** | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |

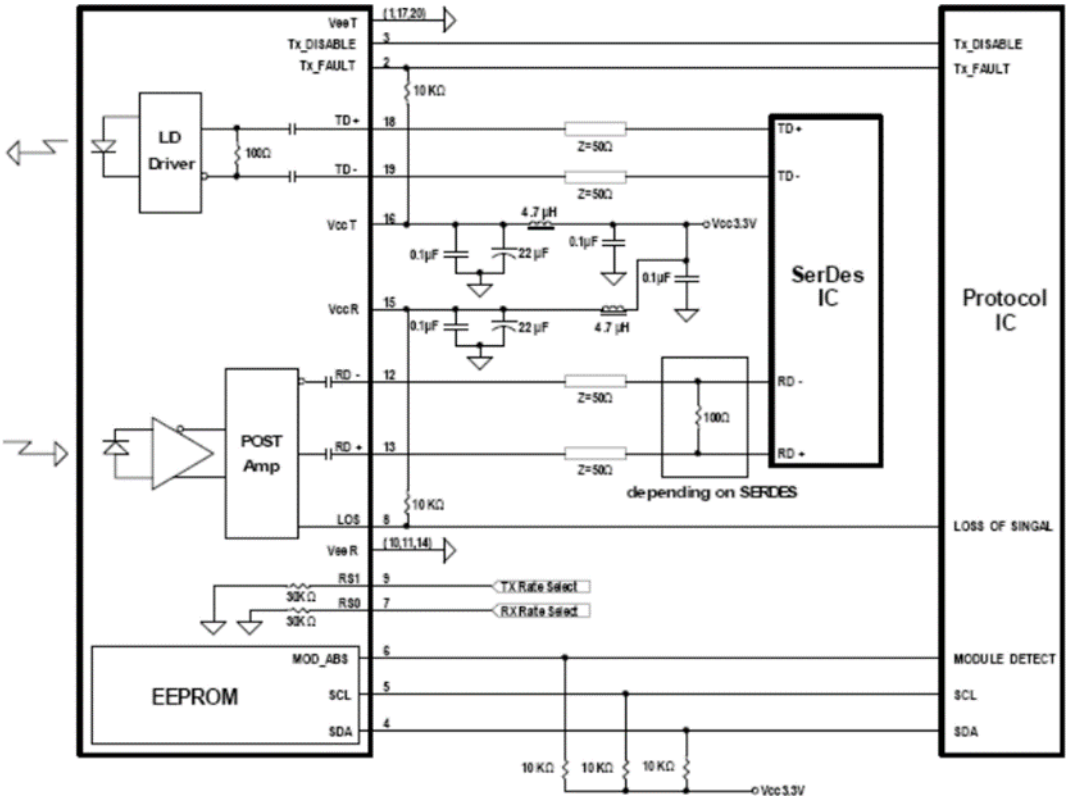
**Notes:**

1. The circuit ground is isolated from the chassis ground.
2. Disabled: $T_{DIS}$>2V or Open, Enabled: $T_{DIS}$<0.8V.
3. Should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 2V and 3.6V.
4. LOS is an open collector output.



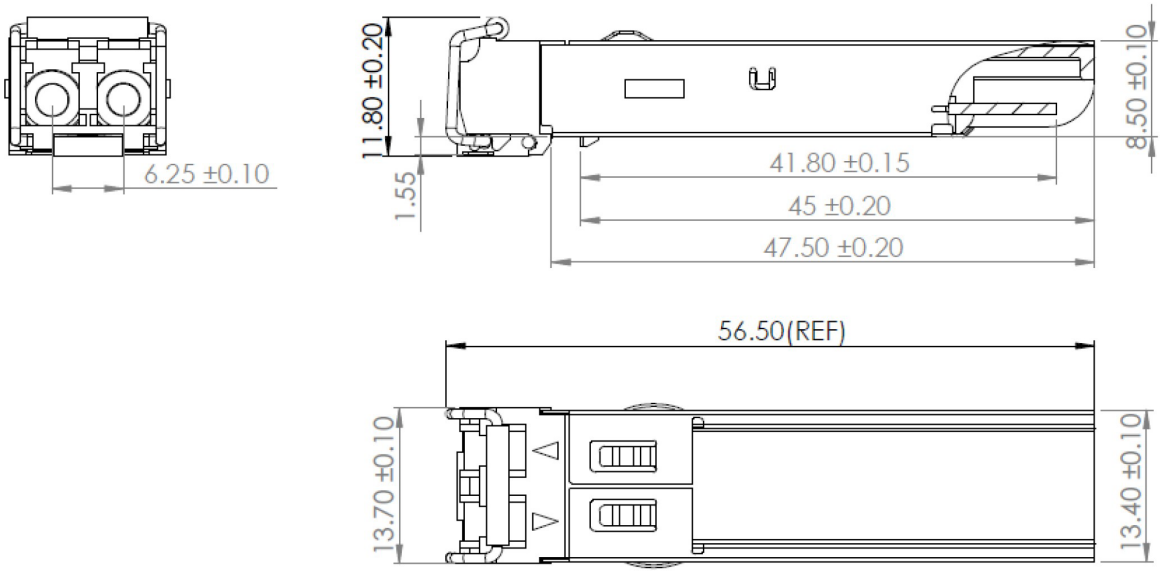

Pin-Out of Connector Block on the Host Board

**Recommended Circuit Schematic**



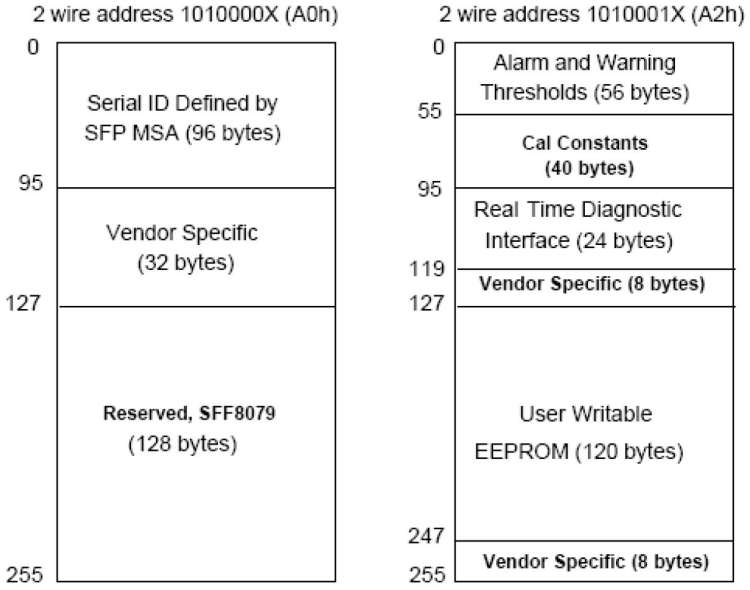
**Mechanical Specifications**

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:



**About ProLabs**

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

**Complete Portfolio of Network Solutions**

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

**Trusted Partner**

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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