

### JNP-QSFP-100G-PSM4-PRO

Juniper Networks® JNP-QSFP-100G-PSM4 Compatible TAA Compliant 100GBase-PSM4 QSFP28 Transceiver (SMF, 1310nm, 500m, DOM, 0 to 70C, MPO)

#### Features

- SFF-8665 Compliance
- MPO Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



#### Applications:

- 100GBase Ethernet
- Access and Enterprise

#### Product Description

This Juniper Networks® JNP-QSFP-100G-PSM4 compatible QSFP28 transceiver provides 100GBase-PSM4 throughput up to 500m over single-mode fiber (SMF) using a wavelength of 1310nm via an MPO 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.

Proline's 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.



## Absolute Maximum Ratings

| Parameter                  | Symbol | Min. | Typ      | Max. | Unit |
|----------------------------|--------|------|----------|------|------|
| Maximum Supply Voltage     | Vcc    | -0.5 |          | 4.0  | V    |
| Storage Temperature        | TS     | -40  |          | +85  | °C   |
| Operating Case Temperature | Tc     | -5   | 25       | 70   | °C   |
| Relative Humidity          | RH     | 5    |          | 95   | %    |
| Data Rate PER Channel      |        |      | 25.78125 |      | Gb/s |

## Electrical Characteristics

| Parameter                              | Symbol                | Min.  | Typ. | Max.  | Unit              | Notes |
|--|-----------------------|-------|------|-------|-------------------|-------|
| Power Supply Voltage                   | Vcc                   | 3.135 | 3.3  | 3.465 | V                 |       |
| Power Dissipation                      | PD                    |       |      | 3500  | mW                |       |
| Module Supply Current                  | Icc                   |       |      | 1100  | mA                |       |
| <b>Transmitter</b>                     |                       |       |      |       |                   |       |
| Differential Data Input Swing          | V <sub>IN, P-P</sub>  | 190   |      | 700   | mV <sub>p-p</sub> |       |
| Input Differential Impedance           | Z <sub>in</sub>       | 90    | 100  | 110   | Ω                 |       |
| AC Common Mode Input Voltage Tolerance |                       | 15    |      |       | mV                |       |
| <b>Receiver</b>                        |                       |       |      |       |                   |       |
| Output Differential Impedance          | Z <sub>o</sub>        | 90    | 100  | 110   | Ω                 |       |
| Differential Data Output Swing         | V <sub>OUT, P-P</sub> | 300   |      | 850   | mV <sub>p-p</sub> |       |
| AC Common Mode Output Voltage          |                       |       |      | 7.5   | mV                |       |
| Single-ended Output Voltage            |                       | -0.3  |      | 4     | V                 |       |

### Notes:

1. Internally AC Coupled, but requires an external 100Ω differential load termination.

## Optical Characteristics

| Parameter   | Symbol      | Min.                               | Typ. | Max.  | Unit | Notes |
|---|-------------|------------------------------------|------|-------|------|-------|
| <b>Transmitter</b>  |             |                                    |      |       |      |       |
| Launch Optical Power per lane                               | Po          | -9                                 |      | +2    | dBm  | 1     |
| Side Mode Suppression Ratio                                 | SMSR        | 30                                 |      |       | dB   |       |
| Center Wavelength Range                                     | $\Lambda$   | 1295                               | 1310 | 1325  | nm   |       |
| Extinction Ratio  | EX          | 3.5                                |      |       | dB   | 2     |
| Optical Return Loss Tolerance                               | ORLT        |                                    |      | 12    | dB   |       |
| Pout @TX-Disable Asserted                                   | Poff        |                                    |      | -30   | dBm  | 1     |
| Transmitter Eye Mask Definition<br>{X1, X2, X3, Y1, Y2, Y3} |             | {0.31, 0.4, 0.45, 0.34, 0.38, 0.4} |      |       |      |       |
| <b>Receiver</b>   |             |                                    |      |       |      |       |
| Center Wavelength   | $\lambda_c$ | 1295                               |      | 1325  | Nm   |       |
| Receiver Sensitivity  | S           |                                    |      | -12.0 | dBm  | 3     |
| Damage Threshold  | POL         | 3.0                                |      |       | dBm  |       |
| LOS Assert  | LOSA        | -24                                |      |       | dBm  |       |
| LOS De-Assert   | LOSD        |                                    |      | -12.5 | dBm  |       |
| LOS Hysteresis  |             | 0.5                                |      |       | dB   |       |

### Notes:

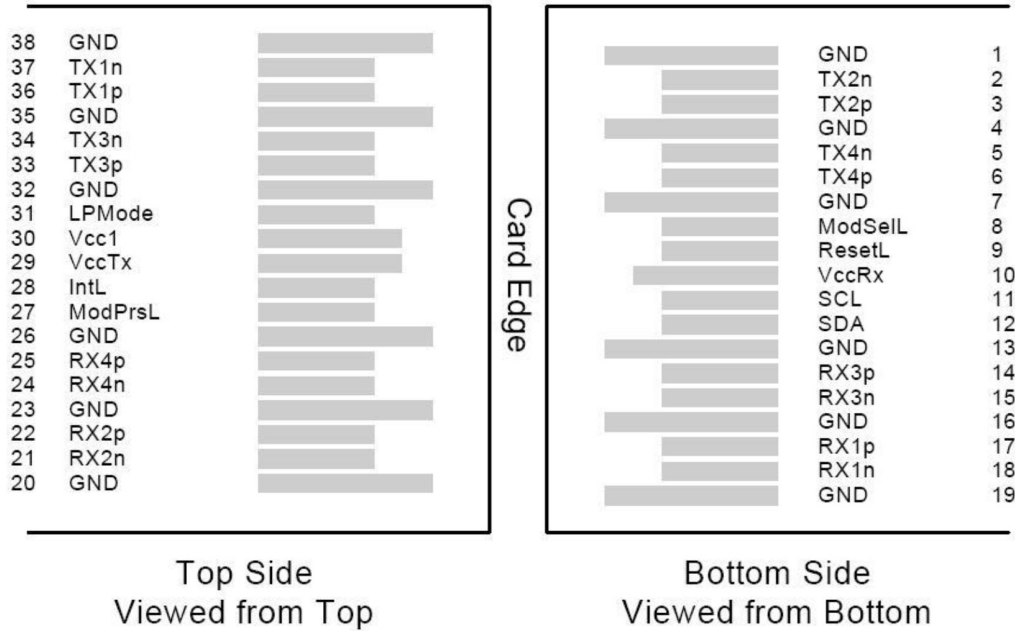
1. The optical power is launched into SMF.
2. Measured with a PRBS  $2^{31}-1$  test pattern @25.78125Gbps
3. Measured with a PRBS  $2^{31}-1$  test pattern, 25.78125Gb/s, BER of  $5 \times 10^{-5}$  (informative)

## Pin Descriptions

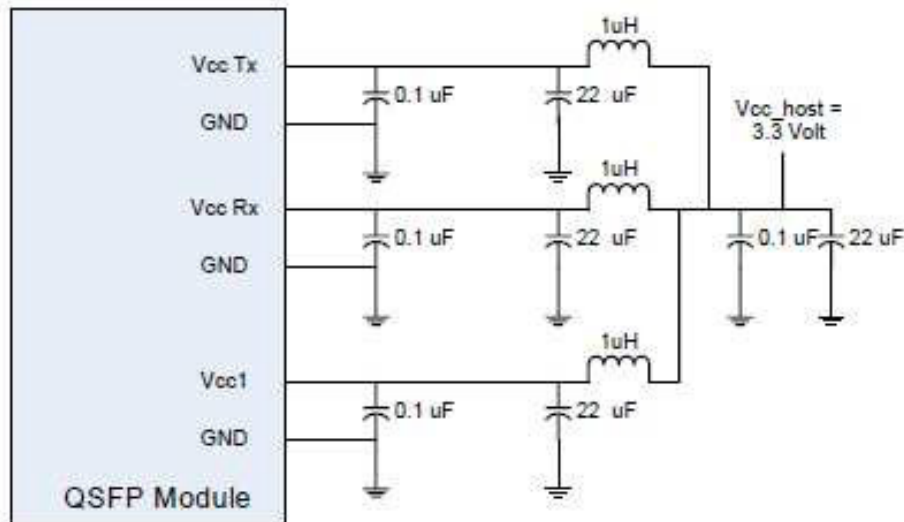
| Pin | Symbol  | Name/Descriptions                                | Ref. |
|-----|---------|--|------|
| 1   | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 2   | Tx2-    | Transmitter Inverted Data Input                  |      |
| 3   | Tx2+    | Transmitter Non-Inverted Data output             |      |
| 4   | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 5   | Tx4-    | Transmitter Inverted Data Input                  |      |
| 6   | Tx4+    | Transmitter Non-Inverted Data output             |      |
| 7   | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 8   | ModSelL | Module Select                                    | 2    |
| 9   | ResetL  | Module Reset                                     | 2    |
| 10  | VccRx   | 3.3V Power Supply Receiver                       |      |
| 11  | SCL     | 2-Wire serial Interface Clock                    | 2    |
| 12  | SDA     | 2-Wire serial Interface Data                     | 2    |
| 13  | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 14  | Rx3+    | Receiver Non-Inverted Data Output                |      |
| 15  | Rx3-    | Receiver Inverted Data Output                    |      |
| 16  | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 17  | Rx1+    | Receiver Non-Inverted Data Output                |      |
| 18  | Rx1-    | Receiver Inverted Data Output                    |      |
| 19  | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 20  | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 21  | Rx2-    | Receiver Inverted Data Output                    |      |
| 22  | Rx2+    | Receiver Non-Inverted Data Output                |      |
| 23  | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 24  | Rx4-    | Receiver Inverted Data Output                    | 1    |
| 25  | Rx4+    | Receiver Non-Inverted Data Output                |      |
| 26  | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 27  | ModPrsl | Module Present                                   |      |
| 28  | IntL    | Interrupt  | 2    |
| 29  | VccTx   | 3.3V power supply transmitter                    |      |
| 30  | Vcc1    | 3.3V power supply                                |      |
| 31  | LPMode  | Low Power Mode                                   | 2    |
| 32  | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 33  | Tx3+    | Transmitter Non-Inverted Data Input              |      |
| 34  | Tx3-    | Transmitter Inverted Data Output                 |      |
| 35  | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |
| 36  | Tx1+    | Transmitter Non-Inverted Data Input              |      |
| 37  | Tx1-    | Transmitter Inverted Data Output                 |      |
| 38  | GND     | Transmitter Ground (Common with Receiver Ground) | 1    |

**Notes:**

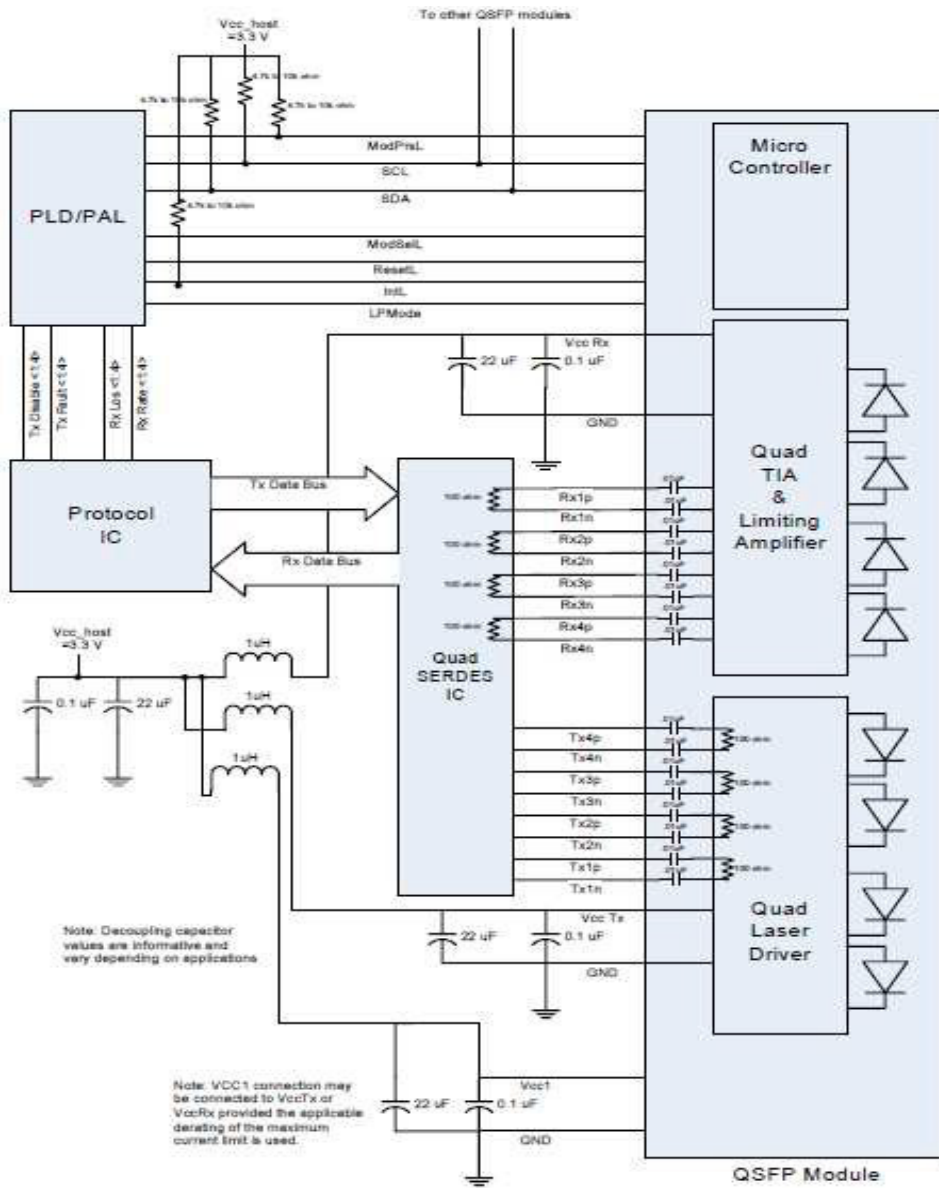
1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.



**Recommended Host Board Power Supply Filter Network**

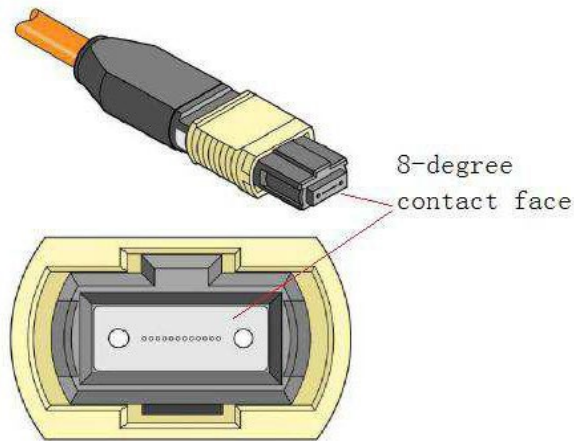
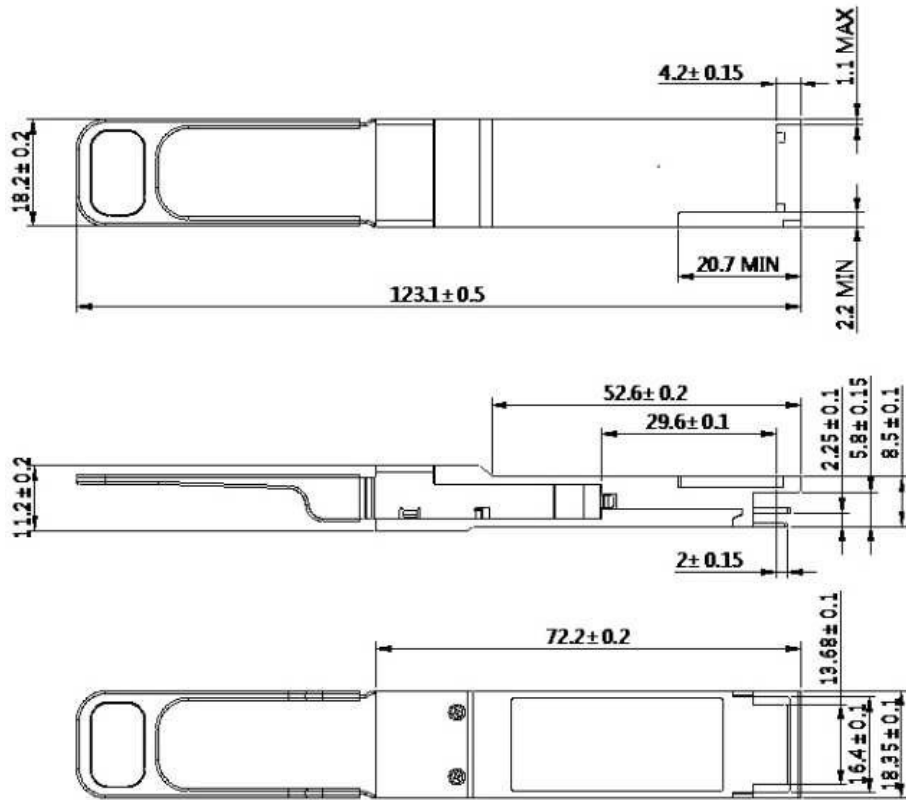


# Recommended Application Interface Block Diagram



# Mechanical Specifications

Measurement unit: mm



**About Us:**

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.



Tel: 855.933.3223

Email: [sales@prolineoptions.com](mailto:sales@prolineoptions.com)

Email: [techsupport@prolineoptions.com](mailto:techsupport@prolineoptions.com)

Web: <https://www.prolineoptions.com>