

SFP-10G-DZ-59.79-100-PRO

Arista Networks® SFP-10G-DZ-59.79-100 Compatible TAA Compliant 10GBase-DWDM 100GHz SFP+ Transceiver (SMF, 1559.79nm, 100km, 0 to 70C, LC)

Features

- SFF-8432 and SFF-8472 Compliance
- Duplex LC 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:

- 10x Gigabit Ethernet over DWDM
- 8x/10x Fibre Channel
- Access, Metro and Enterprise

Product Description

This Arista Networks® SFP-10G-DZ-59.79-100 compatible SFP+ transceiver provides 10GBase-DWDM throughput up to 100km over single-mode fiber (SMF) using a wavelength of 1559.79nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Arista 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.



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

Wavelength Guide (100GHz ITU-T Channel)

| ITU Channel # | Frequency (THZ) | Center Wavelength (nm) |
|---------------|-----------------|------------------------|
| 61 | 196.1 | 1528.77 |
| 60 | 196.0 | 1529.55 |
| 59 | 195.9 | 1530.33 |
| 58 | 195.8 | 1531.12 |
| 57 | 195.7 | 1531.90 |
| 56 | 195.6 | 1532.68 |
| 55 | 195.5 | 1533.47 |
| 54 | 195.4 | 1534.25 |
| 53 | 195.3 | 1535.04 |
| 52 | 195.2 | 1535.82 |
| 51 | 195.1 | 1536.61 |
| 50 | 195.0 | 1537.40 |
| 49 | 194.9 | 1538.19 |
| 48 | 194.8 | 1538.98 |
| 47 | 194.7 | 1539.77 |
| 46 | 194.6 | 1540.56 |
| 45 | 194.5 | 1541.35 |
| 44 | 194.4 | 1542.14 |
| 43 | 194.3 | 1542.94 |
| 42 | 194.2 | 1543.73 |
| 41 | 194.1 | 1544.53 |
| 40 | 194.0 | 1545.32 |
| 39 | 193.9 | 1546.12 |
| 38 | 193.8 | 1546.92 |
| 37 | 193.7 | 1547.72 |
| 36 | 193.6 | 1548.51 |
| 35 | 193.5 | 1549.32 |
| 34 | 193.4 | 1550.12 |
| 33 | 193.3 | 1550.92 |
| 32 | 193.2 | 1551.72 |
| 31 | 193.1 | 1552.52 |
| 30 | 193.0 | 1553.33 |
| 29 | 192.9 | 1554.13 |
| 28 | 192.8 | 1554.94 |
| 27 | 192.7 | 1555.75 |
| 26 | 192.6 | 1556.55 |

| 25 | 192.5 | 1557.36 |
|----|-------|---------|
| 24 | 192.4 | 1558.17 |
| 23 | 192.3 | 1558.98 |
| 22 | 192.2 | 1559.79 |
| 21 | 192.1 | 1560.61 |
| 20 | 192.0 | 1561.42 |
| 19 | 191.9 | 1562.23 |
| 18 | 191.8 | 1563.05 |
| 17 | 191.7 | 1563.86 |

Absolute Maximum Ratings

| Parameter | Symbol | Min. | Max. | Unit |
|----------------------------|------------------|------|------|------|
| Maximum Supply Voltage | Vcc | -0.5 | 4.0 | V |
| Storage Temperature | TS | -40 | +85 | °C |
| Operating Case Temperature | Тс | 0 | 70 | °C |
| Operating Humidity | RH | 5 | 95 | % |
| Receiver Power | R _{MAX} | | -7 | dBm |
| Maximum Bitrate | B _{max} | | 11.3 | Gbps |

Electrical Characteristics

| Parameter | | Symbol | Min. | Тур. | Max. | Unit | Notes |
|--------------------------------|----------------------|---------------------------------|-------|------|---------------------|-------------------|-------|
| Module Supply Current | | Icc | | 300 | 450 | mA | |
| Supply Voltage | 9 | Vcc | 3.135 | 3.3 | 3.465 | V | |
| Power Dissipa | tion | P _D | | 1.0 | 1.5 | W | |
| Transmitter | | | | | | | |
| Input Differen | tial Impedance | Z _{IN} | | 100 | | Ω | |
| Differential Da | ita Input Swing | V _{IN, P-P} | 180 | | 700 | mV _{P-P} | |
| TX_FAULT | Transmitter Fault | V _{OH} | 2.0 | | V _{CCHOST} | V | |
| | Normal Operation | V _{OL} | 0 | | 0.8 | V | |
| TX_DISABLE | Transmitter Disable | V _{IH} | 2.0 | | V _{CCHOST} | V | |
| | Transmitter Enable | V _{IL} | 0 | | 0.8 | V | |
| Receiver | | | | | | | |
| Output Differe | ential Impedance | Zo | | 100 | | Ω | |
| Differential Data Output Swing | | V _{OUT, P-P} | 300 | | 850 | mV _{P-P} | 1 |
| Data Output R | ise Time, Fall Time | t _r , t _f | 28 | | | ps | 2 |
| RX_LOS | Loss of signal (LOS) | V _{OH} | 2.0 | | V _{CCHOST} | V | 3 |
| | Normal Operation | V _{OL} | 0 | | 0.8 | V | 3 |

Notes:

- 1. Internally AC coupled, but requires a external 100Ω differential load termination.
- 2. 20-80%.
- 3. LOS is an open collector output. Should be pulled up with $4.7K\Omega$ on the host board.

Optical Characteristics

| Parameter | Symbol | Minimum | Typical | Maximum | Unit | Notes |
|------------------------------------|------------------|----------------|-------------|------------------|-------|-------|
| Transmitter | | | | | | |
| Launch Optical Power | Po | +1.0 | | +4.0 | dBm | 1 |
| Center Wavelength Range | λς | 1528.77 | | 1550.22 | nm | |
| Center Wavelength Spacing | | | 100 | | GHz | |
| Center Wavelength Tolerance | Δλc | -100 | | 100 | pm | |
| Extinction Ratio | EX | 9.0 | | | dB | 2 |
| Side Mode Suppression Ratio | SMSR | 30 | | | dB | |
| Spectral Width (-20dB) | | | | 1 | nm | |
| Transmitter and Dispersion Penalty | TDP | | | 4.0 | dB | |
| Relative Intensity Noise | RIN | | | -128 | dB/Hz | |
| Optical Return Loss Tolerance | ORLT | | | 21 | dB | |
| Pout @TX-Disable Asserted | P _{off} | | | -30 | dBm | 1 |
| Eye Diagram | IEEE Std 802.3 | -2005 10Gb Eth | ernet 10GBA | SE-ZR compatible | | |
| Receiver | | | | | | |
| Center Wavelength | λς | 1528 | | 1565 | nm | |
| Receiver Sensitivity (Pavg) | S | | | -26 | dBm | 3 |
| Receiver Overload (Pavg) | P _{OL} | -7.0 | | | dBm | 3 |
| Optical Return Loss | ORL | | | -27 | dB | |
| OSNR | | 27 | | | dB | 4 |
| Max OSNR Path Penalty | | | | 4 | dB | 4 |
| Dispersion Limited Distance | | | | 100 | Km | |
| LOS De-Assert | LOS _D | | | -26 | dBm | |
| LOS Assert | LOS _A | -35 | | | dBm | |
| LOS Hysteresis | | 0.5 | | | dB | |

Notes:

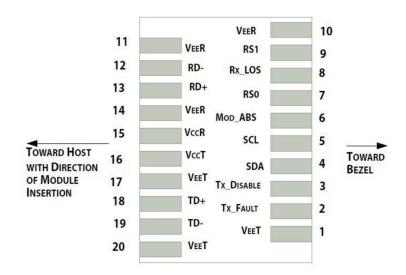
- 1. The optical power is launched into 9/125μm SMF.
- 2. Measured with a PRBS 2³¹-1 test pattern @10.3125Gbps.
- 3. Measured with PRBS 2^{31} -1 test pattern, 10.3125Gb/s, BER< 10^{-12} .
- 4. Receiver power@ -7~-18dBm, 10.3125Gb/s, BER<10⁻¹².

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 $4.7K\Omega$ to $10K\Omega$. 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 $4.7K\Omega$ to $10K\Omega$ 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 $4.7K\Omega$ to $10K\Omega$. Mod_ABS is asserted "High" when the SFP+ module is physically absent from a host slot.
- 5. Internally pulled down per SFF-8431



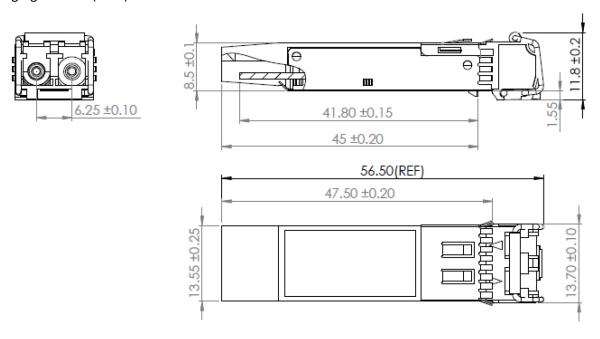
Pin-out of connector Block on Host board

Recommended Circuit Schematic



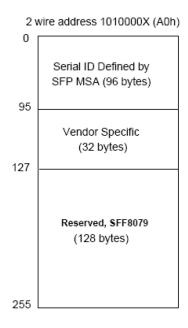
Mechanical Specifications

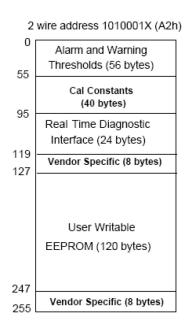
Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).



EEPROM Information

EEPROM memory map specific data field description is as below:





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.



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