

SFP-10GB-DW62-80-I-PRO

MSA and TAA Compliant 10GBase-DWDM 50GHz SFP+ Transceiver (SMF, 1527.99nm, 80km, DOM, -40 to 85C, LC)

Features

- SFF-8432 and SFF-8472 Compliance
- Single-mode Fiber
- Duplex LC Connector
- Hot Pluggable
- Metal with Lower EMI
- Industrial Temperature -40 to 85 Celsius
- RoHS Compliant and Lead Free
- Excellent ESD Protection



Applications:

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

Product Description

This MSA Compliant SFP+ transceiver provides 10GBase-DWDM throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1527.99nm via an LC connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. 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) |
|---------------|-----------------|------------------------|
| 64 | 196.4 | 1526.44 |
| 63 | 196.3 | 1527.22 |
| 62 | 196.2 | 1527.99 |
| 61 | 196.1 | 1528.77 |

Absolute Maximum Ratings

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|----------------------------|--------|------|------|--------------------|------|-------|
| Maximum Supply Voltage | Vcc | -0.5 | | 3.6 | V | |
| Storage Temperature | Tstg | -40 | | 85 | °C | |
| Operating Case Temperature | Tc | -40 | | 85 | °C | |
| Operating Humidity | RH | 0 | | 95 | % | |
| Bit Rate | BR | | | 11.1 | Gbps | 1 |
| Bit Error Ratio | BER | | | 10e ⁻¹² | | 2 |
| Max. Supported Link Length | LMAX | | | 80 | km | 1 |

Notes:

1. 10GBase-ZR, 10GBase-ZW, and 1200-SM-LL-L 10GFC.
2. Tested with a 2³¹-1 PRBS.

Electrical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|------------------------------|---------------------|------|------|------|----------|-------|
| Power Supply Voltage | Vcc | 3.14 | 3.3 | 3.46 | V | |
| Module Power | Icc | | | 2000 | mW | |
| Transmitter | | | | | | |
| Input Differential Impedance | ZIN | 80 | 100 | 120 | Ω | |
| Differential Data Input | VIN | 180 | | 700 | mVp-p | |
| Tx_Fault | Assert | VFA | 2.0 | | Host_Vcc | V |
| | De-Assert | VFDA | Vee | | Vee+0.4 | V |
| Tx_Disable | Transmitter Disable | VIH | 2.0 | | Host_Vcc | V |
| | Transmitter Enable | VIL | Vee | | Vee+0.8 | V |
| Receiver | | | | | | |
| Differential Data Output | VOUT | 350 | | 850 | mVp-p | |
| Output Rise Time | Tr | 25 | | | pS | |
| Output Fall Time | Tf | 25 | | | pS | |
| LOS Fault | LOS | 2.0 | | | Host_Vcc | V |
| LOS Normal | LOS | Vee | | | Vee+0.4 | V |

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|----------------------------------|-------------------|---------|------|---------|-------|-------|
| Transmitter | | | | | | |
| Average Launch Optical Power | POUT | 0 | | 4 | dBm | 1 |
| Center Wavelength Range | λ_C | 1526.44 | | 1563.86 | nm | |
| Center Wavelength Spacing | | | 100 | | GHz | |
| Center Wavelength Tolerance | $\Delta\lambda_C$ | x-100 | x | x-100 | pm | |
| Extinction Ratio | ER | 8.2 | | | dB | |
| Side-Mode Suppression Ratio | SMSR | 30 | | | dB | |
| Relative Intensity Noise | RIN | | | -128 | dB/Hz | |
| Average Launch Power of Off Tx | Poff | | | -30 | dBm | |
| Receiver | | | | | | |
| Optical Center Wavelength | λ_C | 1260 | | 1620 | nm | |
| Receiver Sensitivity | RSENSE | | | -24 | dBm | 2 |
| Receiver Sensitivity @80km Fiber | RSENSE | | | -21 | dBm | 3 |
| Receiver Overload | P _{OL} | -7 | | | dBm | |
| Optical Return Loss | ORL | 27 | | | dB | |
| LOS De-Assert | LOSD | | | -27 | dBm | |
| LOS Assert | LOSA | -37 | | | dBm | |
| LOS Hysteresis | | 0.5 | | | dB | |

Notes:

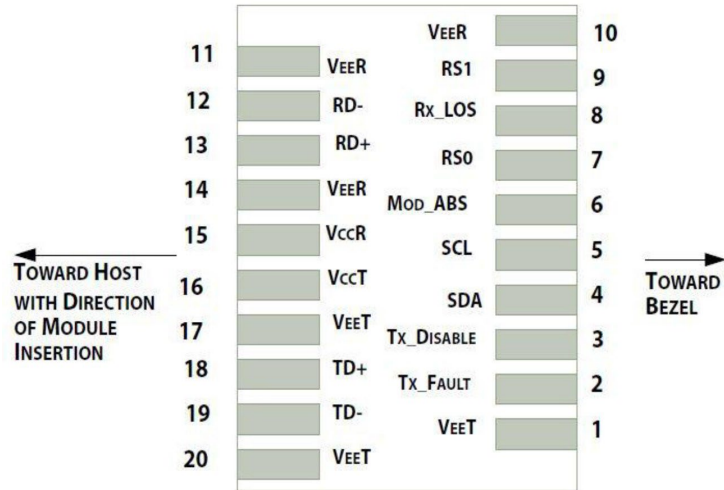
1. The optical power is launched into the SMF.
2. Measured at 1528-1600nm, ER>9dBm, PRBS 2³¹-1, and BER better than or equal to 10E⁻¹².
3. Loopback using 80km fiber (SMF-28).

Pin Descriptions

| Pin | Symbol | Name/Description | Note |
|-----|------------|--|------|
| 1 | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |
| 2 | Tx_Fault | Transmitter Fault. LVTTTL-O. | 2 |
| 3 | Tx_Disable | Transmitter Disable. Laser output disabled on “high” or “open.” LVTTTL-I. | 3 |
| 4 | SDA | 2-Wire Serial Interface Data (Same as MOD-DEF2 in INF-8074i). LVTTTL-I/O. | |
| 5 | SCL | 2-Wire Serial Interface Clock (Same as MOD-DEF2 in INF-8074i). LVTTTL-I. | |
| 6 | MOD_ABS | Module Absent. Connect to the VeeT or VeeR in the module. | 4 |
| 7 | RS0 | Rate Select 0. Not Used. | 5 |
| 8 | LOS | Loss of Signal Indication. “Logic 0” indicates normal operation. LVTTTL-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 |

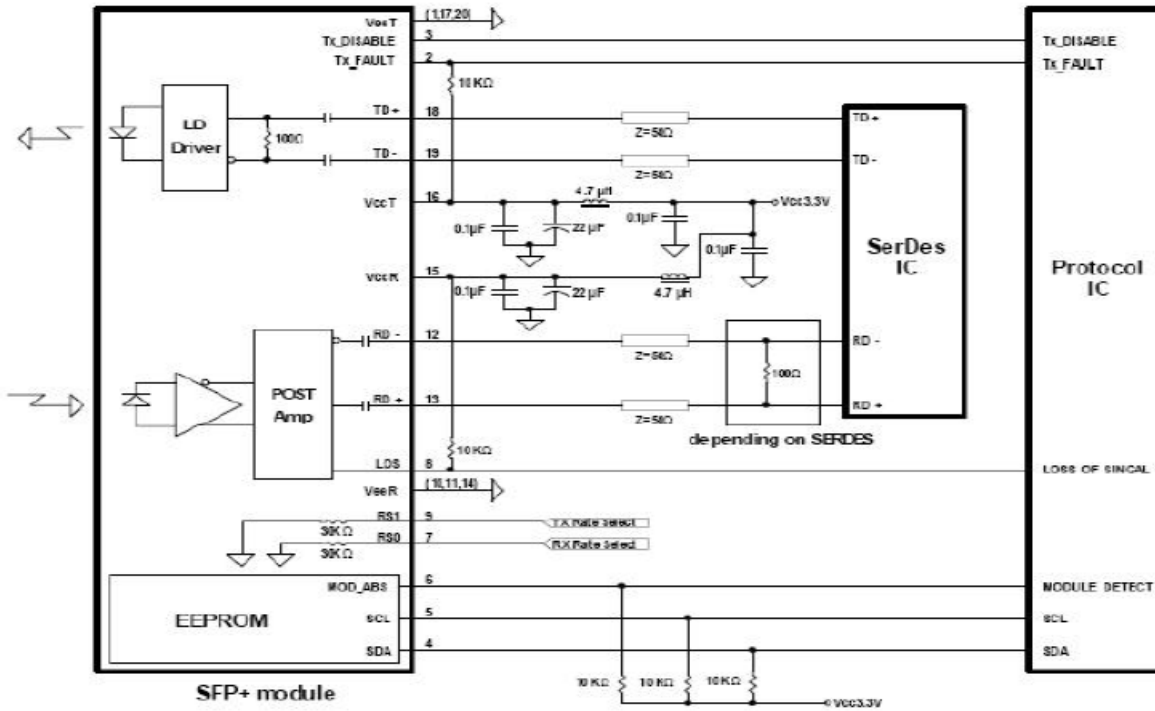
Notes:

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 resistor in the range 4.7kΩ-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+0.5V.
3. Tx_Disable is an input contact with a 4.7kΩ-10kΩ pull-up resistor to the VccT inside the module.
4. MOD_ABS is connected to the VeeT or VeeR in the SFP+ module. The host may pull the contract up to Host_Vcc with a resistor in the range from 4.7kΩ-10kΩ. MOD_ABS is asserted “high” when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431.

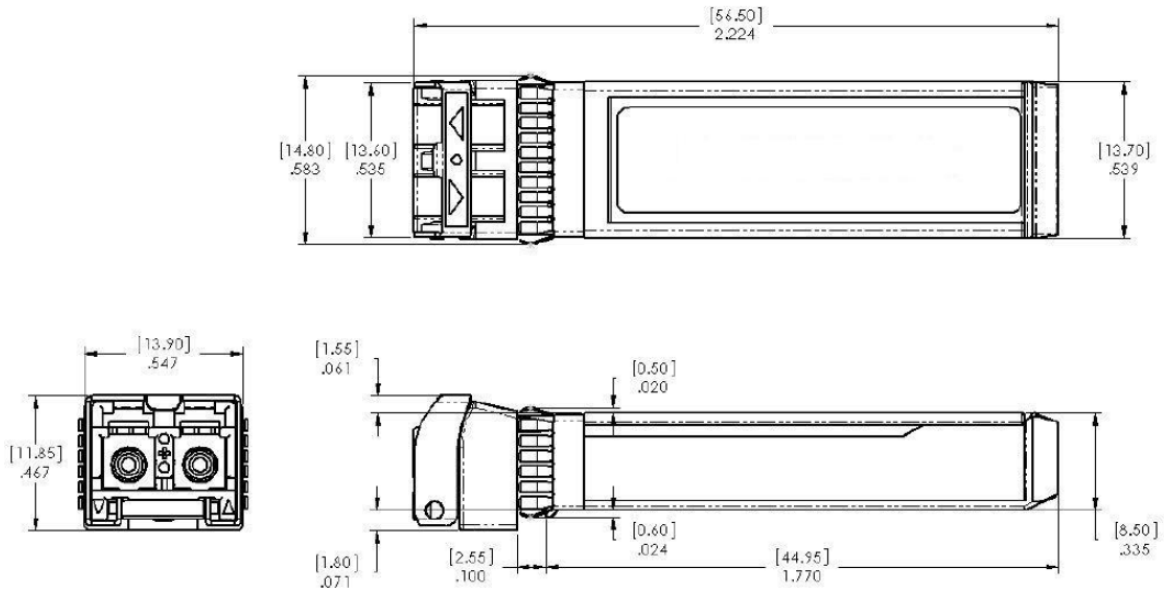


Pin-Out of Connector Block on the Host Board

Recommended Circuit Schematic

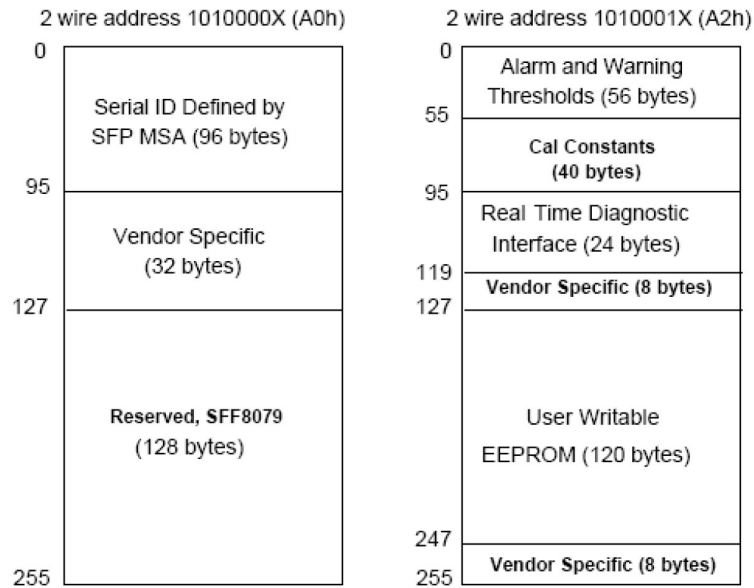


Mechanical Specifications



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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