

TEG-MGBSX-PRO

TRENDnet® TEG-MGBSX Compatible TAA Compliant 1000Base-SX SFP Transceiver (MMF, 850nm, 550m, DOM, 0 to 70C, LC)

Features

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



Applications:

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

Product Description

This TRENDnet® TEG-MGBSX compatible SFP transceiver provides 1000Base-SX throughput up to 550m over multi-mode fiber (MMF) using a wavelength of 850nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent TRENDnet® 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 |
|------------------------------|--------|------|-------|------|------|
| Supply Voltage | Vcc | -0.5 | | 4.0 | V |
| Storage Temperature | TS | -40 | | 85 | °C |
| Case Operating Temperature | Tc | 0 | | 70 | °C |
| Operating Humidity | RH | 5 | | 95 | % |
| Data Rate (Gigabit Ethernet) | | | 1.25 | | Gbps |
| Data Rate (Fibre Channel) | | | 1.063 | | Gbps |
| 50/125µm MMF | L | | | 550 | m |

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--------------------------------|----------|---------|------|---------|------|-------|
| Power Supply Voltage | Vcc | 3.13 | 3.30 | 3.47 | V | |
| Power Supply Current | Icc | | | 250 | mA | |
| Transmitter | | | | | | |
| Input differential impedance | Rin | | 100 | | Ω | 1 |
| Single ended data input swing | Vin, pp | 250 | | 1200 | mV | |
| TX Disable-High | | Vcc-1.3 | | Vcc | V | |
| TX Disable-Low | | Vee | | Vee+0.8 | V | |
| TX Fault-High | | Vcc-0.5 | | Vcc | V | |
| TX Fault-Low | | Vee | | Vee+0.5 | V | |
| Receiver | | | | | | |
| Single ended data output swing | Vout, pp | 300 | 400 | 800 | mV | 2 |
| Data output rise time | tr | | | 175 | ps | 3 |
| Data output fall time | tf | | | 175 | ps | 3 |
| LOS-High | | Vcc-0.5 | | Vcc | V | |
| LOS-Low | | Vee | | Vee+0.5 | V | |

Notes:

1. AC coupled.
2. Into 100 ohm differential termination.
3. 20% - 80%

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--------------------------|-------------------|------|------|------|------|-------|
| Transmitter | | | | | | |
| Average Output Power | PO | -9 | | -4 | dBm | 1 |
| Optical Wavelength | λ | 830 | 850 | 860 | nm | |
| Spectral Width | σ | | | 0.85 | nm | |
| Optical Rise/Fall Time | tr/ta | | | 260 | ps | 2 |
| Total Jitter | TJ | | | 200 | ps | |
| Optical Extinction Ratio | ER | 9 | | | dB | |
| Receiver | | | | | | |
| Receiver Sensitivity | RSENS | | | -18 | dBm | 3,4 |
| Maximum Received Power | RX _{MAX} | 0 | | | dBm | |
| Centre Wavelength | λ_C | 770 | | 860 | nm | |
| LOS De-Assert | LOSD | | | -26 | dBm | |
| LOS Assert | LOSA | -40 | | | dBm | |
| LOS Hysteresis | | 0.5 | | 5 | dB | |

Notes:

1. Class 1 Laser Safety.
2. Unfiltered, 20%-80%. Complies with GE and 1x FC eye masks when filtered.
3. Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
4. Measured with PRBS 2⁷-1 at 10⁻¹⁰ BER.

Pin Descriptions

| Pin | Symbol | Name/Descriptions | Ref. |
|-----|-------------|--|------|
| 1 | VeeT | Transmitter Ground (Common with Receiver Ground) | 1 |
| 2 | TX Fault | Transmitter Fault. | |
| 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. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on TX Disable >2.0V or open, enabled on TX Disable <0.8V.
3. Should be pulled up with 4.7k-10kohms on host board to a voltage between 2.0V and 3.6V. MOD_DEF (0) pulls line low to indicate module is plugged in.
4. LOS is open collector output. Should be pulled up with 4.7k-10kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.



Pin-out of connector Block on Host board

Recommend 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.



Tel: 855.933.3223

Email: sales@prolineoptions.com

Email: techsupport@prolineoptions.com

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