

Technical Datasheet

MFS1S00-V020E

Mellanox® Compatible 200Gb/s, QSFP56, Active Optical Cable, Copper, Passive, 20M

FEATURES

- Hot-pluggable QSFP56 footprint
- Support 212.5Gbps aggregate bit rate
- 4x56Gpbs PAM4 electrical interface
- Available in lengths up to 100m
- Power Dissipation <5.5W per cable end
- Single +3.3V power supply
- Operating Case temperature range 0°C to 70°C
- RoHS-6 compliant
- Compliant with SFF-8679

APPLICATIONS

- 200GBASE-SR4 Ethernet
- Data Center
- Other Optical Links

DESCRIPTION

ATGBICS QSFP56 active optical cables are designed for use in 200G-Ethernet links. They are compliant with SFF-8679, and the mechanical QSFP56 plug is compatible with SFF-8661

Absolute Maximum Ratings

| Parameter | Symbol | Min. | Typical | Max. | Unit | Note |
|----------------------------|--------|------|---------|------|------|----------------|
| Power Supply Voltage | VCC | 0 | | 3.6 | V | |
| Storage Temperature | Ts | -40 | | +85 | °C | |
| Relative Humidity | RH | 5 | | 85 | % | Non-condensing |
| Case Operating Temperature | Tc | 0 | | +70 | °C | |

Technical Datasheet

Electrical Characteristics

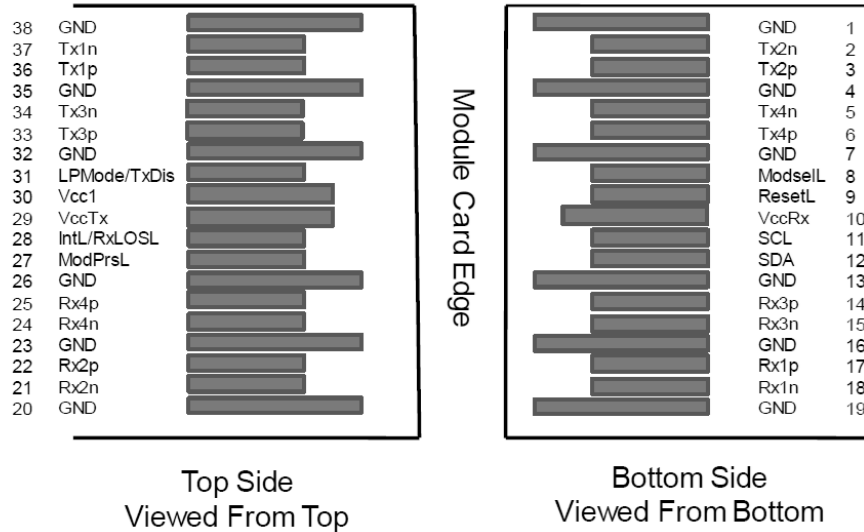
| Parameter | Symbol | Min. | Typical | Max. | Unit | Note |
|--------------------------------|--------|-------|---------|-------|------|------|
| Power Supply Voltage | VCC | 3.135 | 3.3 | 3.465 | V | |
| Power Dissipation | PD | | | 5.5 | W | |
| Power Supply Current | Icc | | | 1.75 | A | |
| Aggregate Data Rate | | | 212.5 | | Gbps | PAM4 |
| Signaling rate per lane | | | 56.125 | | Gbps | PAM4 |
| Clock Rate-I2C | | | | 400 | kHz | |
| Transmitter | | | | | | |
| Input Differential impedance | ZIN | | 100 | | ohm | |
| Differential data input swing | VIN | 180 | | 900 | mV | |
| Single-ended voltage tolerance | | -0.3 | | 3.3 | V | |
| Receiver | | | | | | |
| Output Differential impedance | Zout | | 100 | | ohm | |
| Differential data Output Swing | Vout | 300 | | 850 | mV | |

General Specifications

| Parameter | Symbol | Min. | Typical | Max. | Unit | Note |
|-----------------------------|-------------------|------|---------|--------|------|--------|
| Aggregate Data Rate | | | 212.5 | | Gbps | |
| Signaling rate per lane | | | 56.125 | | Gbps | |
| Bit Error Ratio (pre-FEC) | BER | | | 2.4E-4 | | PRBS31 |
| Maximum Supported Distances | | | | | | |
| Fiber Type | Bandwidth (850nm) | | | | | |
| 50um | 2000MHz*km | | | 70 | m | OM3 |
| 50um | 4700MHz*km | | | 100 | m | OM4 |

Technical Datasheet

Pin Assignment:



Pin Descriptions

| PIN | Symbol | Name / Description | Note |
|-----|---------|-------------------------------------|------|
| 1 | GND | Ground | 1 |
| 2 | Tx2n | Transmitter Inverted Data Input | |
| 3 | Tx2p | Transmitter Non-Inverted Data Input | |
| 4 | GND | Ground | 1 |
| 5 | Tx4n | Transmitter Inverted Data Input | |
| 6 | Tx4p | Transmitter Non-Inverted Data Input | |
| 7 | GND | Ground | 1 |
| 8 | ModSelL | Module Select | 2 |
| 9 | ResetL | Module Reset | |
| 10 | Vcc Rx | 3.3V Power Supply Receiver | |
| 11 | SCL | 2-wire serial interface clock | 3 |
| 12 | SDA | 2-wire serial interface data | 3 |
| 13 | GND | Ground | 1 |
| 14 | Rx3p | Receiver Non-Inverted Data Output | |

Technical Datasheet

| | | | |
|----|---------|-------------------------------------|---|
| 15 | Rx3n | Receiver Inverted Data Output | |
| 16 | GND | Ground | 1 |
| 17 | Rx1p | Receiver Non-Inverted Data Output | |
| 18 | Rx1n | Receiver Inverted Data Output | |
| 19 | GND | Ground | 1 |
| 20 | GND | Ground | 1 |
| 21 | Rx2n | Receiver Inverted Data Output | |
| 22 | Rx2p | Receiver Non-Inverted Data Output | |
| 23 | GND | Ground | 1 |
| 24 | Rx4n | Receiver Inverted Data Output | |
| 25 | Rx4p | Receiver Non-Inverted Data Output | |
| 26 | GND | Ground | 1 |
| 27 | ModPrsL | Module Present | 3 |
| 28 | IntL | Interrupt | 3 |
| 29 | Vcc Tx | 3.3V power supply transmitter | |
| 30 | Vcc1 | 3.3V power supply | |
| 31 | LPMODE | Low Power Mode | |
| 32 | GND | Ground | 1 |
| 33 | Tx3p | Transmitter Non-Inverted Data Input | |
| 34 | Tx3n | Transmitter Inverted Data Input | |
| 35 | GND | Ground | 1 |
| 36 | Tx1p | Transmitter Non-Inverted Data Input | |
| 37 | Tx1n | Transmitter Inverted Data Input | |
| 38 | GND | Ground | 1 |

Note1: Module ground pins GND are isolated from the module case.

Note2: ModSelL is an input signal. When held low by the host, the module responds to two-wire serial communication commands. The ModSelL signal allows the use of multiple modules on a single two-wire interface. When ModSelL is high, the module shall not respond to or acknowledge any two-wire interface communication from the host.

Technical Datasheet

Note3: Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.

Mechanical Dimensions

