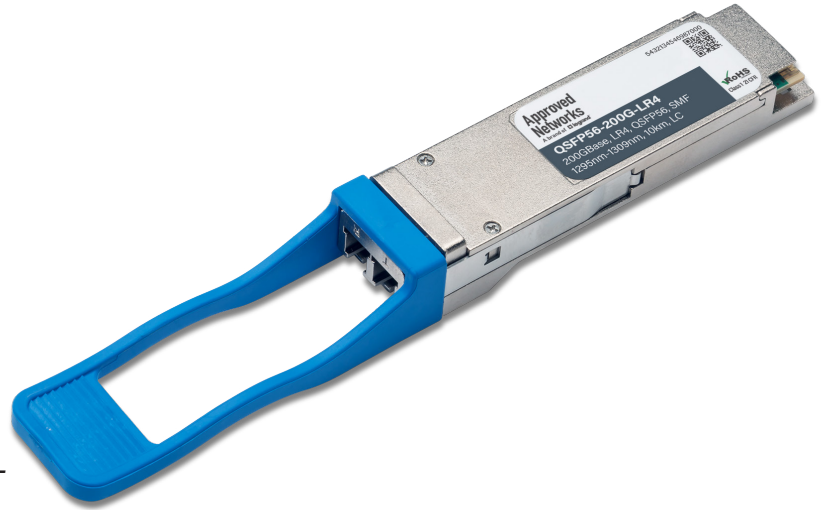


Features

- Compliant with IEEE Std 802.3cn, 200GBASE-LR4
- Compliant with QSFP56 MSA
- I2C Management interface compliant to CMIS V4.0
- 4 channels cooled 53Gb/s LAN-WDM EML Laser
- 4 channels PIN photo detector
- Single +3.3V power supply
- Class 1 laser safety certified
- Power consumption less than 7.0W
- Commercial operating temperature: 0°C to +70°C



- Up to 10km on SMF
- RoHS 6/6 Compliant

Applications

- 200GBASE-LR4 Ethernet links
- Data center

1. Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Units |
|---------------------|--------|------|-----|-------|
| Storage Temperature | TS | -40 | 85 | °C |
| Relative Humidity | RH | 5 | 95 | % |
| Supply Voltage | VCC | -0.5 | 4.0 | V |

2. Recommended Operating Conditions

| Parameter | Symbol | Min | Typ | Max | Units |
|----------------------------|--------|-------|--------|-------|-------|
| Operating Case Temperature | TC | 0 | 25 | 70 | °C |
| Supply Voltage | VCC | 3.135 | 3.3 | 3.465 | V |
| Data Rate Per Channel | - | - | 53.125 | | Gb/s |

3. Electrical Characteristics

| Parameter | Symbol | Min | Typ | Max | Units | Notes |
|----------------------------------|------------------------|------|-----|------|-------|-------|
| Module Supply Current | I _{cc} | - | - | 2.1 | A | - |
| Power Dissipation | PD | - | - | 7 | W | - |
| Transmitter | | | | | | |
| Input Differential Impedance | Z _{IN} | 90 | 100 | 110 | Ω | |
| Differential Data Input Swing | V _{IN} , P-P | - | - | 900 | mVP-P | |
| DC Common-Mode Input Voltage | | -350 | - | 2850 | mV | |
| Receiver | | | | | | |
| Output Differential Impedance | Z _O | 90 | 100 | 110 | Ω | |
| Differential Data Output Swing | V _{OUT} , P-P | - | - | 900 | mVP-P | 1 |
| Data Output Rise Time, Fall Time | tr/tf | 9.5 | - | - | ps | 2 |

Notes:

1. Internally AC coupled, requires an external 100Ω differential load termination.
2. 20 – 80 %.

4. Optical Characteristics

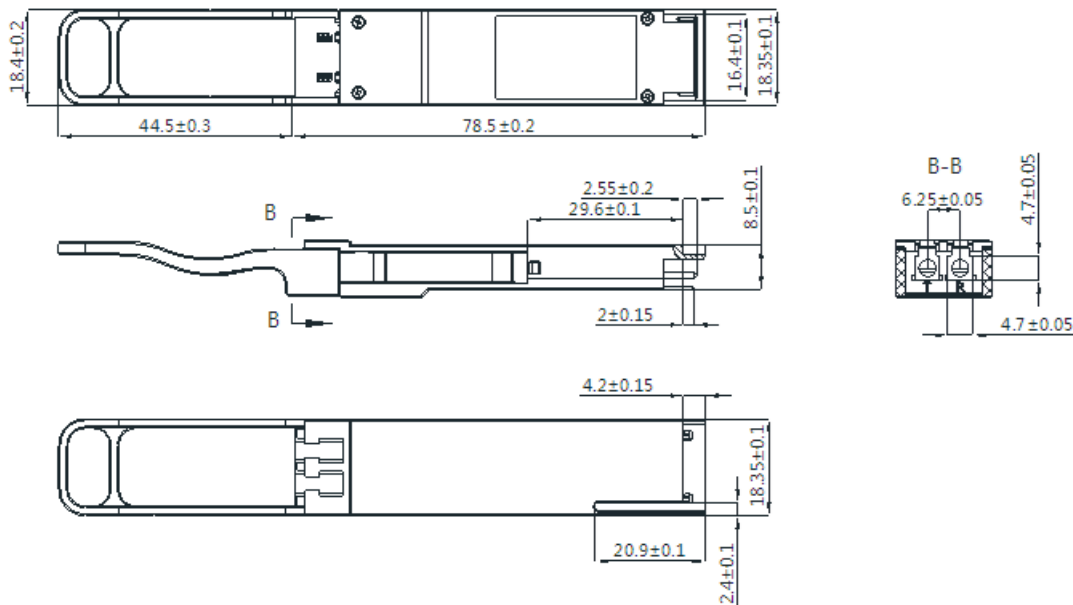
| Parameter | Symbol | Min | Typ | Max | Unit | Notes |
|----------------------------------|-----------------|---------|---------|---------|------|-------|
| Transmitter | | | | | | |
| OMA Optical Power per lane | P _o | -0.4 | - | 5.1 | dBm | 1 |
| RX_avg sensitivity per Channel | - | - | - | -7.05 | dBm | |
| Average Optical Power per lane | P _{av} | -3.4 | - | 5.3 | dBm | 1 |
| Center Wavelength Range | L1 | 1294.53 | 1295.56 | 1296.59 | nm | - |
| | L2 | 1299.02 | 1300.05 | 1301.09 | nm | - |
| | L3 | 1303.54 | 1304.58 | 1305.63 | nm | - |
| | L4 | 1308.09 | 1309.14 | 1310.19 | nm | - |
| Extinction Ratio | EX | 4.0 | - | - | dB | 2 |
| PAM4 TDECQ | | | | 3.2 | dB | 2 |
| OMA _{outer} minus TDECQ | OMA-TDECQ | -1.7 | | | dBm | |
| Spectral width(-20dB) | Δλ | - | - | 1 | nm | - |
| Side Mode Suppression Ratio | SMSR | 30 | - | - | dB | - |
| Optical Return Loss Tolerance | ORLT | - | - | 15.1 | dB | - |

| | | | | | | |
|---------------------------------------|------|---------|---------|---------|-----|---|
| Pout @TX-Disable Asserted | Poff | - | - | -30 | dBm | 1 |
| Receiver | | | | | | |
| Center Wavelength | L1 | 1294.53 | 1295.56 | 1296.59 | nm | - |
| | L2 | 1299.02 | 1300.05 | 1301.09 | nm | - |
| | L3 | 1303.54 | 1304.58 | 1305.63 | nm | - |
| | L4 | 1308.09 | 1309.14 | 1310.19 | nm | - |
| OMA sensitivity per Channel | S | - | - | -7.7 | dBm | 3 |
| Average Receiver Overload per Channel | POL | 5.3 | - | - | dBm | 3 |
| Optical Return Loss | ORL | 26 | - | - | dB | - |
| LOS De-Assert | LOSD | - | - | -10 | dBm | - |
| LOS Assert | LOSA | -30 | - | - | dBm | - |
| LOS Hysteresis | - | 0.5 | - | - | dB | - |

Notes:

1. The optical power is launched into SMF.
2. Measured with a SSPRQ test pattern @53.125Gbps PAM4.
3. Measured with PRBS 2³¹-1 test pattern, 53.125Gbps, BER<2.4x10⁻⁴;

5. Mechanical Diagram



Note: External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

6. Ordering Information

| OEM | Part Number | OEM | Part Number |
|-----|--------------------|-----|-------------|
| MSA | AN-QSFP56-200G-LR4 | | |

7. Contact Information

Tel: 800.590.9535

Web: <http://www.approvednetworks.com>