

## QSFP-40SR4-OPC

Amer Networks® QSFP-40SR4 Compatible TAA 40GBase-SR4 QSFP+ Transceiver (MMF, 850nm, 400m, MPO, DOM)

### Features

- SFF-8436 Compliance
- MPO Connector
- Multi-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



### Applications:

- 40GBase Ethernet
- Access and Enterprise

### Product Description

This Amer Networks® QSFP-40SR4 compatible QSFP+ transceiver provides 40GBase-SR4 throughput up to 400m over multi-mode fiber (MMF) using a wavelength of 850nm via an MPO connector. It is guaranteed to be 100% compatible with the equivalent Amer 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.

## Absolute Maximum Ratings

| Parameter                  | Symbol          | Min. | Typ.    | Max. | Unit |
|----------------------------|-----------------|------|---------|------|------|
| Maximum Supply Voltage     | V <sub>CC</sub> | -0.5 |         | 4.0  | V    |
| Storage Temperature        | T <sub>S</sub>  | -40  |         | 85   | °C   |
| Case Operating Temperature | T <sub>C</sub>  | 0    | 25      | 70   | °C   |
| Humidity (non-condensing)  | RH              | 5    |         | 95   | %    |
| Data Rate per Channel      |                 |      | 10.3125 |      | Gbps |

## Electrical Characteristics (TOP=25°C, V<sub>CC</sub>=3.3Volts)

| Parameter                      | Symbol               | Min.  | Typ. | Max.  | Unit | Notes |
|--------------------------------|----------------------|-------|------|-------|------|-------|
| Power Supply Voltage           | V <sub>CC</sub>      | 3.135 | 3.30 | 3.465 | V    |       |
| Power Supply Current           | I <sub>CC</sub>      |       |      | 430   | mA   |       |
| Power Consumption              | P <sub>DISS</sub>    |       |      | 1.5   | W    |       |
| Transmitter                    |                      |       |      |       |      |       |
| Differential data input swing  | V <sub>in,pp</sub>   | 180   |      | 900   | mV   |       |
| Input differential impedance   | Z <sub>in</sub>      |       | 100  |       | Ω    |       |
| Receiver                       |                      |       |      |       |      |       |
| Differential data output swing | V <sub>out, pp</sub> | 300   |      | 850   | mV   |       |
| Output differential impedance  | Z <sub>in</sub>      |       | 100  |       | Ω    |       |

## Optical Characteristics

| Parameter                          | Symbol           | Min. | Typ. | Max. | Unit | Notes |
|------------------------------------|------------------|------|------|------|------|-------|
| Transmitter                        |                  |      |      |      |      |       |
| Optical Power (average)            | P <sub>AVE</sub> | -7.6 |      | +2.4 | dBm  | 1     |
| Optical Wavelength                 | Tλ               | 830  | 850  | 860  | nm   |       |
| Optical Extinction Ratio           | ER               | 3    |      |      | dB   | 2     |
| Spectral Width (RMS)               | Δλ               |      |      | 0.4  | nm   |       |
| Optical Return Loss Tolerance      | ORLT             |      |      | 12   | dB   |       |
| Transmitter and Dispersion Penalty | TDP              |      |      | 3.2  | dB   |       |
| Receiver                           |                  |      |      |      |      |       |
| Receiver Sensitivity (average)     | R <sub>AVE</sub> |      |      | -9.5 | dBm  | 3     |
| Damage Threshold                   | P <sub>ol</sub>  | 2.5  |      |      | dBm  | 3     |
| Receiver wavelength                | Rλ               | 830  | 850  | 860  | nm   |       |

### Notes:

1. The optical power is launched into OM3 MMF.
2. Measured with a PRBS 2<sup>31</sup>-1 test pattern @10.3125Gbps.
3. Measured with PRBS 2<sup>31</sup>-1 test pattern, 10.3125Gb/s, BER<10<sup>-12</sup>.

## Pin Descriptions

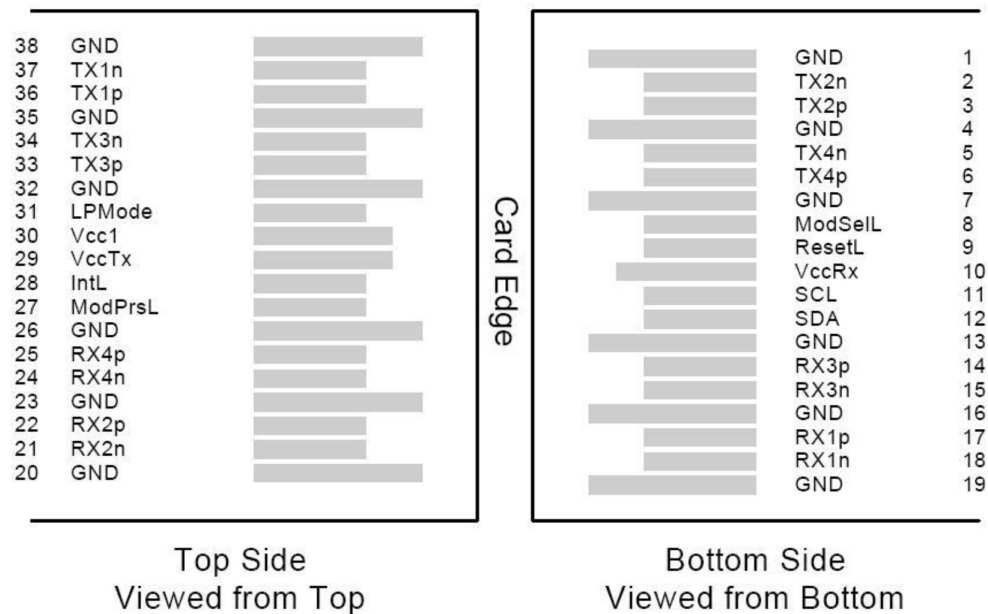
| Pin | Logic       | Symbol              | Name/Descriptions                                   | Ref. |
|-----|-------------|---------------------|-----------------------------------------------------|------|
| 1   |             | GND                 | Module Ground                                       | 1    |
| 2   | CML-I       | Tx2-                | Transmitter inverted data input                     |      |
| 3   | CML-I       | Tx2+                | Transmitter non-inverted data input                 |      |
| 4   |             | GND                 | Module Ground                                       | 1    |
| 5   | CML-I       | Tx4-                | Transmitter inverted data input                     |      |
| 6   | CML-I       | Tx4+                | Transmitter non-inverted data input                 |      |
| 7   |             | GND                 | Module Ground                                       | 1    |
| 8   | LVTTL-I     | MODSEIL             | Module Select                                       | 2    |
| 9   | LVTTL-I     | ResetL              | Module Reset                                        | 2    |
| 10  |             | VCCR <sub>x</sub>   | +3.3v Receiver Power Supply                         |      |
| 11  | LVC MOS-I   | SCL                 | 2-wire Serial interface clock                       | 2    |
| 12  | LVC MOS-I/O | SDA                 | 2-wire Serial interface data                        | 2    |
| 13  |             | GND                 | Module Ground                                       | 1    |
| 14  | CML-O       | RX3+                | Receiver non-inverted data output                   |      |
| 15  | CML-O       | RX3-                | Receiver inverted data output                       |      |
| 16  |             | GND                 | Module Ground                                       | 1    |
| 17  | CML-O       | RX1+                | Receiver non-inverted data output                   |      |
| 18  | CML-O       | RX1-                | Receiver inverted data output                       |      |
| 19  |             | GND                 | Module Ground                                       | 1    |
| 20  |             | GND                 | Module Ground                                       | 1    |
| 21  | CML-O       | RX2-                | Receiver inverted data output                       |      |
| 22  | CML-O       | RX2+                | Receiver non-inverted data output                   |      |
| 23  |             | GND                 | Module Ground                                       | 1    |
| 24  | CML-O       | RX4-                | Receiver inverted data output                       |      |
| 25  | CML-O       | RX4+                | Receiver non-inverted data output                   |      |
| 26  |             | GND                 | Module Ground                                       | 1    |
| 27  | LVTTL-O     | ModPrsL             | Module Present, internal pulled down to GND         |      |
| 28  | LVTTL-O     | IntL                | Interrupt output, should be pulled up on host board | 2    |
| 29  |             | VCCT <sub>x</sub>   | +3.3v Transmitter Power Supply                      |      |
| 30  |             | VCC1                | +3.3v Power Supply                                  |      |
| 31  | LVTTL-I     | LPM <sub>Mode</sub> | Low Power Mode                                      | 2    |
| 32  |             | GND                 | Module Ground                                       | 1    |
| 33  | CML-I       | Tx3+                | Transmitter non-inverted data input                 |      |

|    |       |      |                                     |   |
|----|-------|------|-------------------------------------|---|
| 34 | CML-I | Tx3- | Transmitter inverted data input     |   |
| 35 |       | GND  | Module Ground                       | 1 |
| 36 | CML-I | Tx1+ | Transmitter non-inverted data input |   |
| 37 | CML-I | Tx1- | Transmitter inverted data input     |   |
| 38 |       | GND  | Module Ground                       | 1 |

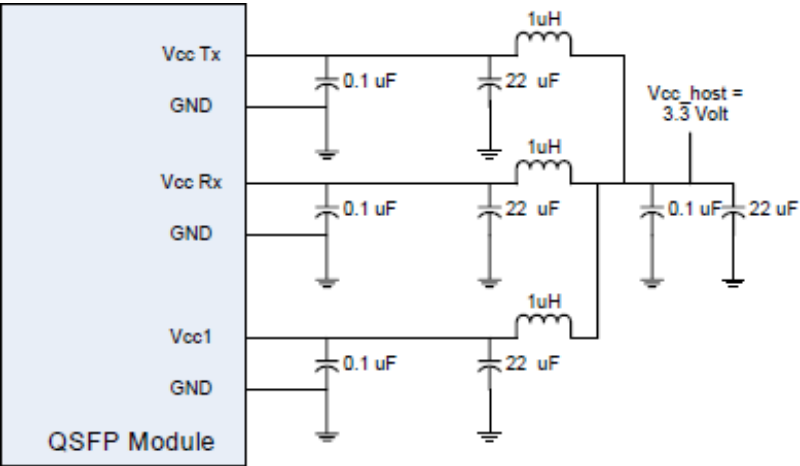
**Notes:**

1. Module circuit ground is isolated from module chassis ground with in the module.
2. Open collector; should be pulled up with 4.7k-10k ohms on host board to a voltage between 3.15V and 3.6V.

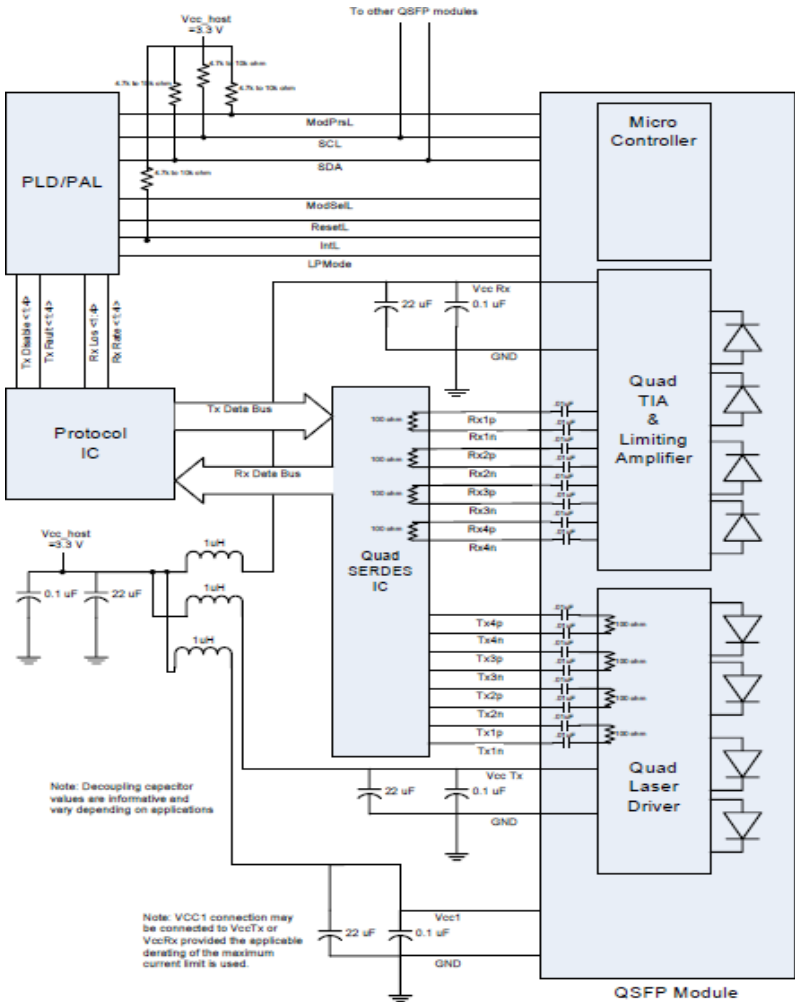
**Electrical Pin-out Details**



Recommended Host Board Power Supply Filter Network



Recommended Application Interface Block Diagram



Mechanical Specifications

