

Features

- Up to 3.1875 Gbps data throughput
- 1310 nm DFB laser transmitter
- Wide dynamic range PIN-PD receiver (1264 – 1617 nm)
- Transmit/receive at distances up to 40 km
- Pluggable SFP MSA footprint
- Duplex LC connector
- Very low jitter
- Metal enclosure for lower EMI
- 3.3 V power supply with low power dissipation
- Extended operating temperature range

3.2 Gbps Optical Transceiver Module (1310 nm Tx for Links up to 40 km)



The TSA1310-TL40 Optical Transceiver Module is ideally suited for the high-speed communications required for many of Aurora Networks' digital networking products. Conforming to the Small Form Factor Pluggable (SFP) Multisource Agreement, this state-of-the-art plug-in component is designed for applications that require rates of up to 3.1875 Gbps, with the laser transmission portion of the device operating at a nominal center wavelength of 1310 nm. The modules are supplied with a duplex LC connector.

The TSA1310-TL40 module features a very low jitter contribution, resulting in extremely clean, high-quality eye patterns. And the module's metal enclosure not only makes it sturdier, but also improves its FCC test margins. This emission and ESD control is particularly important in applications with sensitive multiport hubs and switches. The module operates at extended voltage and temperature ranges, and dissipates less than 1.75 W. The Class 1 laser transmitter complies with applicable safety standards (IEC 60825-1 and 21 CFR 1040.10 and 1040.11).

Physical:

- Dimensions:
2.2" L x 0.4" H x 0.5" W (5.6 cm x 1.0 cm x 1.3 cm)
- Weight: 0.1 lbs (0.05 kg)

Environmental:

- Operating temperature: -40° to $+80^{\circ}\text{C}$ (-40° to 176°F)
- Storage temperature: -40° to $+85^{\circ}\text{C}$ (-40° to 185°F)
- Humidity: 5% to 95% non-condensing

Optical Interface:

- Optical connectors: Duplex LC

Power Requirements:

- Input voltage: $3.3 V_{\text{DC}}$
- Power consumption: 1.75 W max

General:

- Link budget: 40 km on SMF-28 or equivalent
- Data rate: 3.1875 Gbps
- Hot plug-in/out

Optical Interface:**Transmitter:**

- Type: DFB
- Center wavelength, nominal: 1310 nm (min, max: 1270, 1360)
- Output power: -1 dBm min
- Link loss budget: 18 dB
- Extinction ratio (ER): 8.2 dB min
- Dispersion penalty (at 40 km): 1 dB max
(measured with a PRBS of 2^7-1 at 3.18 Gbps and 1×10^{-12} BER)

Receiver:

- Optical wavelength: 1263.5 nm to 1617.5 nm
- Sensitivity: -19 dBm max
- Reflectance: -12 dB
- Input power: -3 dBm max
- Loss of Signal assert level: -34 dBm

Regulatory:

Class 1 devices per FDA 21 CFR 1040.10 and 1040.11, and IEC 60825-1 laser safety regulations

Ordering Information

T S A 1 3 1 0 - T L 4 0

3.2 Gbps 1310 nm Optical Transceiver Module

Extended Op Temp Range, with
Duplex LC Connector, for 40 km Link Length

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