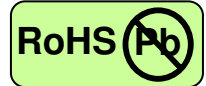


622Mbps ATM-Single Mode Transceiver



2x5 SFF, Duplex LC Connector, 1310nm DFB LD for Single Mode Fiber, RoHS Compliant
Extended Operating Temperature from -40 to $+85$ °C



Features

- 1310nm DFB LD
- Data Rate: 622Mbps, NRZ
- Single +3.3V Power Supply
- RoHS Compliant and Lead-free
- DC/DC Differential Electrical Interface
- Compliant with Multi-Source Agreement (MSA) Small Form Factor (SFF) 2x5 Footprint
- Duplex LC Connector
- Compliance with ATM Standard
- Eye Safety
Designed to meet Laser Class 1 comply with EN60825-1

Applications

- ATM/SONET OC-12/SDH STM-4
- Single mode fiber links
- Optical-Electrical Interface Conversion

Description

The CT-0622TSR-NE6L-A from Coretek Opto Corp. is a high performance and cost-effective module for serial optical data communication applications specified for single mode of 622 Mb/s. It operates with +3.3V power supply. The module is intended for single mode fiber, operates at a nominal wavelength of 1310nm and complies with Multi-Source Agreement (MSA) Small Form Factor (SFF) 2x5 footprint. Each module consists of a transmitter optical subassembly, a receiver optical subassembly and an electrical subassembly. All of them are housed in a plastic package and the combination produces a reliable component.

The module is a dual fiber connector transceiver designed to provide an ATM/SONET OC-12/SDH STM-4 compliant link for 622 Mb/s long reach applications. The characteristics are performed in accordance with Telcordia Specification GR-468-CORE.

EMC

Most equipment utilizing high-speed transceivers will be required to meet the following requirements:

- 1) FCC in the United States
- 2) CENELEC EN55022 (CISPR 22) in Europe

To assist the customer in managing the overall equipment EMC performance, the transceivers have been designed to satisfy FCC class B limits and provide good immunity to radio-frequency electromagnetic fields.

Eye Safety

The transceivers have been designed to meet Class 1 eye safety and comply with EN 60825-1.

622Mbps ATM-Single Mode Transceiver



Product Information

| Model Number | Operating Voltage & SD Output | Distance | LD Type & Wavelength | Output Power | Sensitivity |
|-------------------|-------------------------------|----------|----------------------|--------------|----------------|
| CT-0622TSR-NE6L-A | 3.3V TTL DC/DC | 40 km | 1310 nm DFB | -3 ~ +2 dBm | ≤ -28 dBm |

ABSOLUTE MAX RATINGS

| PARAMETER | SYMBOL | MIN | MAX | UNIT | NOTE |
|---------------------------------|------------|-----|----------|--------------------|----------------|
| Storage Temperature | T_S | -40 | 85 | $^{\circ}\text{C}$ | |
| Supply Voltage | V_{CC} | 0 | 6 | V | |
| Lead Soldering Temperature/Time | T_{SOLD} | | 260 | $^{\circ}\text{C}$ | 10 sec on lead |
| Data Input Voltage | --- | 0 | V_{CC} | V | |

OPERATING CONDITIONS

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | NOTE |
|-------------------------------|----------|------|------|------|--------------------|------|
| Ambient Operating Temperature | T_A | -40 | | 85 | $^{\circ}\text{C}$ | |
| Supply Voltage | V_{CC} | 3.1 | | 3.5 | V | |
| Data Input Voltage Swing | V_{ID} | 400 | | 1660 | mV | |

ELECTRICAL CHARACTERISTICS

| PARAMETER | SYMBOL | MIN | MAX | UNIT | NOTE |
|---|-----------------|--------------|----------|------|------|
| Transmitter | | | | | |
| Transmitter Supply Current | I_{CCT} | | 200 | mA | |
| TTL Transmit Disable Input Voltage - Low | V_{IL} | | 0.8 | V | |
| TTL Transmit Disable Input Voltage - High | V_{IH} | $V_{CC}-1.3$ | V_{CC} | V | |
| Receiver | | | | | |
| Receiver Supply Current | I_{CCR} | | 100 | mA | |
| Receiver Data Output Differential Voltage | V_{OD} | 0.4 | 1.3 | V | |
| TTL Signal Detect Output Voltage – Low | $V_{OL}-V_{CC}$ | | 0.4 | V | |
| TTL Signal Detect Output Voltage – High | $V_{OH}-V_{CC}$ | 2.4 | | V | |

TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNIT | NOTE |
|-----------------------------|------------------|---|------|------|-------|------|
| Optical Output Power | P_o | -3 | | 2 | dBm | 1 |
| Extinction Ratio | ER | 10 | | | dB | |
| Center Wavelength | λ_c | 1290 | 1310 | 1325 | nm | |
| Spectral Width (-20dB) | $\Delta \lambda$ | | | 1 | nm | |
| Side Mode Suppression Ratio | SMSR | 30 | | | dB | |
| RIN | RIN | | | -116 | dB/Hz | |
| Optical Rise time (20%-80%) | t_r | | | 1.2 | ns | 2 |
| Optical Fall time (20%-80%) | t_f | | | 1.2 | ns | 2 |
| Output Eye | | Compliant with ITU recommendation G.957 | | | | |

622Mbps ATM-Single Mode Transceiver



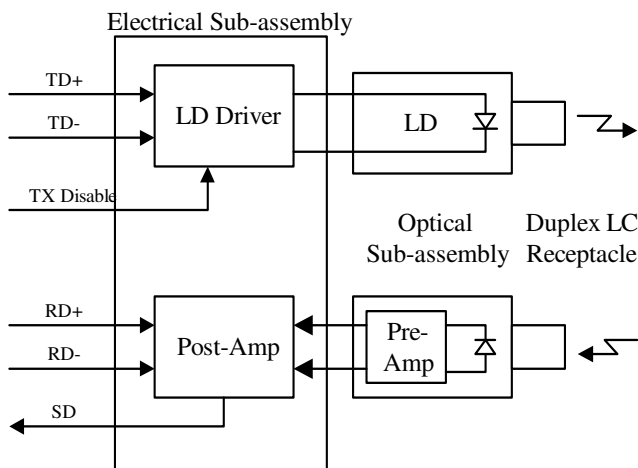
RECEIVER ELECTRO-OPTICAL CHARACTERISTICS

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNIT | NOTE |
|-----------------------------|-----------|------|------|------|------|------|
| Maximum Input Optical Power | P_{max} | -3 | | | dBm | 3 |
| Receiver Sensitivity | P_{min} | | | -28 | dBm | 3 |
| Operating Wavelength | λ | 1100 | | 1600 | nm | |
| Signal Detect - Asserted | P_A | | | -28 | dBm | 4 |
| Signal Detect - Deasserted | P_D | -42 | | | dBm | 5 |

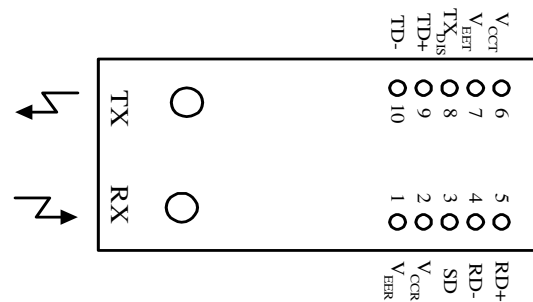
Notes:

1. Measured average power coupled into 9/125 μ m single-mode fiber.
2. These are 20-80% values.
3. Measured with $2^{23}-1$ PRBS at BER< 10^{-10}
4. Measured on transition – low to high
5. Measured on transition – high to low

BLOCK DIAGRAM OF TRANSCEIVER



PIN OUT DIAGRAM OF TRANSCEIVER



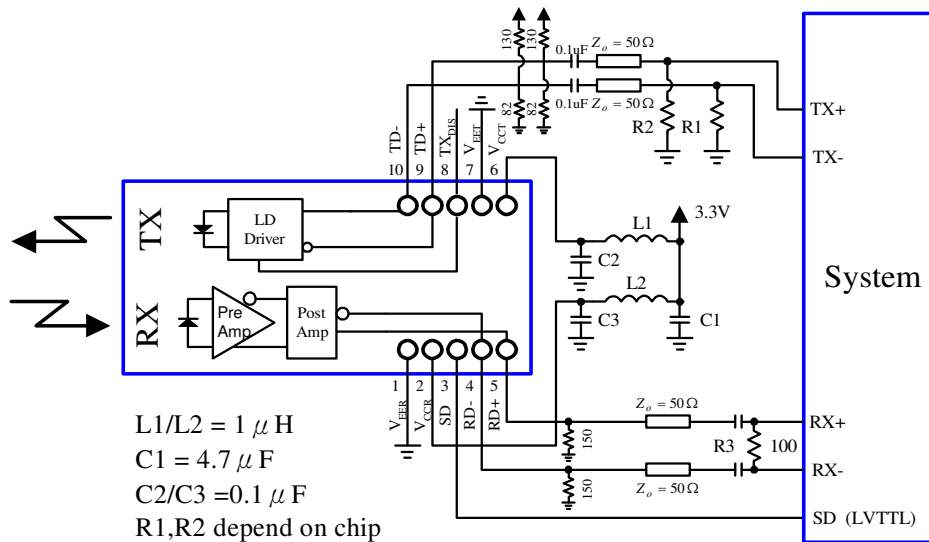
PIN OUT TABLE

| Pin | Symbol | Functional Description |
|--|-------------------|---|
| Mounting Posts | | |
| The mounting posts are provided for transceiver mechanical attachment to the circuit board. They should not be connected to the circuit ground but can be connected to the chassis ground. | | |
| 1 | V _{EER} | Receiver Signal Ground |
| 2 | V _{CCR} | Receiver Power Supply |
| 3 | SD | Signal Detect is a TTL output. A high level indicates a received optical signal |
| 4 | RD- | Receiver Data Inverted Differential Output |
| 5 | RD+ | Receiver Data Non-inverted Differential Output |
| 6 | V _{CC} T | Transmitter Power Supply |
| 7 | V _{EET} | Transmitter Signal Ground |
| 8 | TX _{DIS} | Transmitter Disable |
| 9 | TD+ | Transmitter Data Non-inverted Differential Input |
| 10 | TD- | Transmitter Data Inverted Differential Input |

622Mbps ATM-Single Mode Transceiver

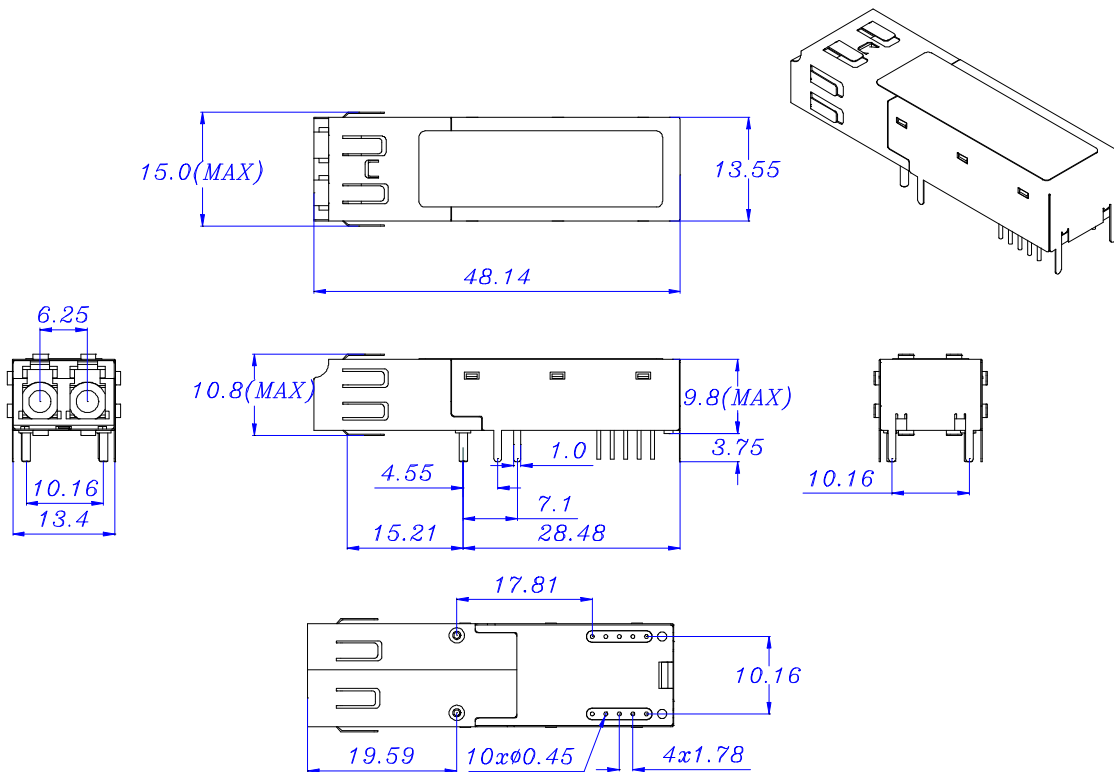


RECOMMENDED CIRCUIT SCHEMATIC



MECHANICAL DIMENSIONS

Units in mm



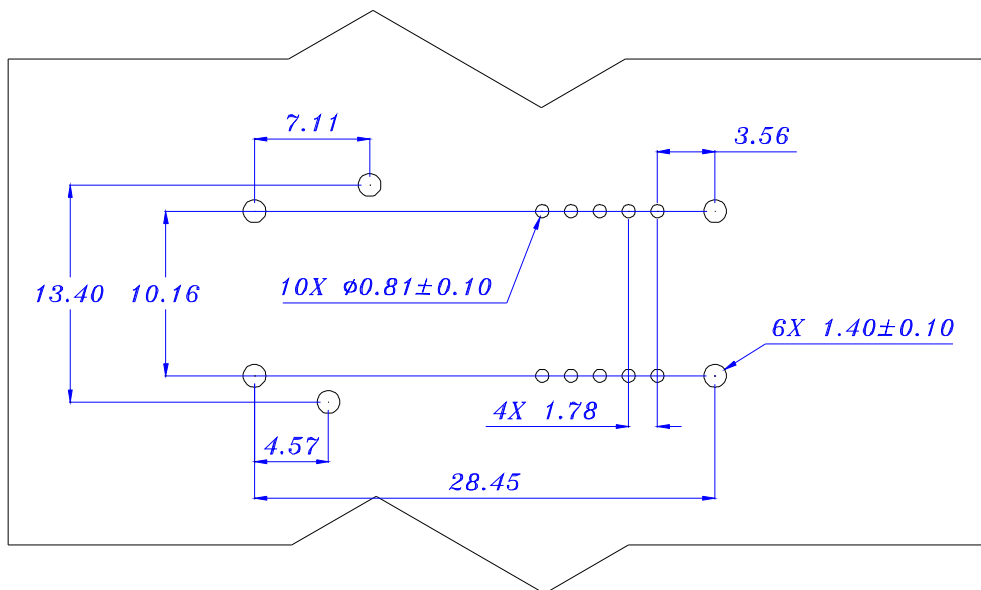
All dimensions are ± 0.2 mm unless otherwise specified.

622Mbps ATM-Single Mode Transceiver



RECOMMENDED SFF HOST BOARD LAYOUT

Units in mm



Claim:

CORETEK Opto Corp. reserves the right to make changes in the specification described hereinafter without prior notice.