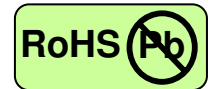


622Mbps ATM-Single Mode Transceiver



1×9, Duplex SC Connector, 1310nm FP LD for Single Mode Fiber, RoHS Compliant



Features

- 1310nm FP LD
- Data Rate: 622Mbps, NRZ
- Single +3.3V or +5V Power Supply
- RoHS Compliant and Lead-free
- DC/DC Differential Electrical Interface for SD PECL
- DC/DC Differential Electrical Interface for SD TTL
- Industry Standard 1×9 Output Footprint
- Duplex SC 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-0622TTR-Mx5C series from Coretek Opto Corp. are the high performance and cost-effective modules for serial optical data communication applications specified for single mode of 622 Mb/s. It operates with +5V or +3.3V power supply. The module is intended for single mode fiber, operates at a nominal wavelength of 1310nm and complies with the industry standard 1x9 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 duplex SC connector transceiver designed to provide an ATM/SONET OC-12/SDH STM-4 compliant link for 622 Mb/s intermediate 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.

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Product Information

| Model Number | Operating Voltage & SD Output | Connector | Distance | LD Type & Wavelength | Output Power | Sensitivity |
|-----------------|-------------------------------|-----------|----------|----------------------|--------------|-------------|
| CT-0622TTR-M15C | 5V PECL DC/DC | SC | 15 km | 1310 nm FP | -15 ~ -8 dBm | ≤-28 dBm |
| CT-0622TTR-M25C | 3.3V PECL DC/DC | | | | | |
| CT-0622TTR-MA5C | 5V TTL DC/DC | | | | | |
| CT-0622TTR-ME5C | 3.3V TTL DC/DC | | | | | |

ABSOLUTE MAX RATINGS

| PARAMETER | SYMBOL | MIN | MAX | UNIT | NOTE |
|---------------------------------|-------------------|-----|-----------------|------|----------------|
| Storage Temperature | T _S | -40 | 85 | °C | |
| Supply Voltage | V _{CC} | 0 | 6 | V | |
| Lead Soldering Temperature/Time | T _{SOLD} | | 260 | °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 | 0 | | 70 | °C | |
| Supply Voltage (for 3.3V) | V _{CC} | 3.10 | | 3.50 | V | |
| Supply Voltage (for 5.0V) | V _{CC} | 4.75 | | 5.25 | V | |
| Data Input Voltage Swing | V _{ID} | 400 | | 1660 | mV | |

ELECTRICAL CHARACTERISTICS

| PARAMETER | SYMBOL | MIN | MAX | UNIT | NOTE |
|------------------------------------------------|----------------------------------|-------|------|------|------|
| Transmitter | | | | | |
| Transmitter Supply Current | I _{CCR} | | 200 | mA | |
| Transmitter Data Input Current – Low | I _{IL} | -350 | | μA | |
| Transmitter Data Input Current – High | I _{IH} | | 350 | μA | |
| Transmitter Data Input Voltage – Low | V _{IL} -V _{CC} | -1.84 | -1.6 | V | |
| Transmitter Data Input Voltage – High | V _{IH} -V _{CC} | -1.1 | -0.9 | V | |
| Receiver | | | | | |
| Receiver Supply Current | I _{CCR} | | 100 | mA | |
| Receiver Data Output Voltage – Low | V _{OL} -V _{CC} | -1.84 | -1.6 | V | 1 |
| Receiver Data Output Voltage – High | V _{OH} -V _{CC} | -1.1 | -0.9 | V | 1 |
| Signal Detect Output Voltage – Low (for PECL) | V _{OL} -V _{CC} | -1.84 | -1.6 | V | 1 |
| Signal Detect Output Voltage – High (for PECL) | V _{OH} -V _{CC} | -1.1 | -0.9 | V | 1 |
| Signal Detect Output Voltage – Low (for TTL) | V _{OL} | | 0.8 | V | |
| Signal Detect Output Voltage – High (for TTL) | V _{OH} | 2.0 | | V | |

TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNIT | NOTE |
|-------------------------------|----------------|------|------|------|-------|-----------------------------------------|
| Optical Output Power | P _O | -15 | | -8 | dBm | 2 |
| Extinction Ratio | ER | 8.2 | | | dB | |
| Center Wavelength | λ _c | 1275 | 1310 | 1355 | nm | |
| Spectral Width (RMS) | Δλ | | | 2.5 | nm | |
| RIN | RIN | | | -116 | dB/Hz | |
| Optical Rise time (20%-80%) | t _r | | | 1.2 | ns | 3 |
| Optical Fall time (20%-80%) | t _f | | | 1.2 | ns | 3 |
| Output Eye | | | | | | Compliant with ITU recommendation G.957 |

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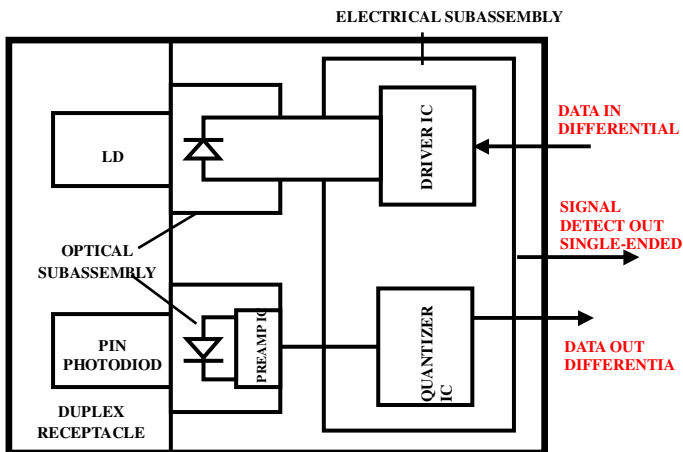
RECEIVER ELECTRO-OPTICAL CHARACTERISTICS

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNIT | NOTE |
|-----------------------------|-----------|------|------|------|------|------|
| Maximum Input Optical Power | P_{max} | -3 | | | dBm | 4 |
| Receiver Sensitivity | P_{min} | | | -28 | dBm | 4 |
| Operating Wavelength | λ | 1100 | | 1600 | nm | |
| Signal Detect - Asserted | P_A | | | -28 | dBm | 5 |
| Signal Detect - Deasserted | P_D | -42 | | | dBm | 6 |

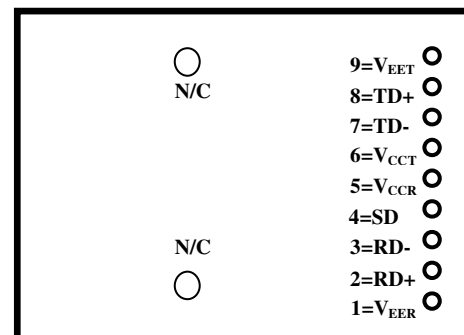
Notes:

1. These outputs are compatible with 10K, 10KH, 100K ECL and PECL inputs.
2. Measured average power coupled into 9/125 μ m single-mode fiber.
3. These are 20-80% values.
4. Measured with $2^{23}-1$ PRBS at BER < 10^{-10}
5. Measured on transition – low to high
6. Measured on transition – high to low

BLOCK DIAGRAM OF TRANSCEIVER



PIN OUT DIAGRAM OF TRANSCEIVER



PIN OUT TABLE

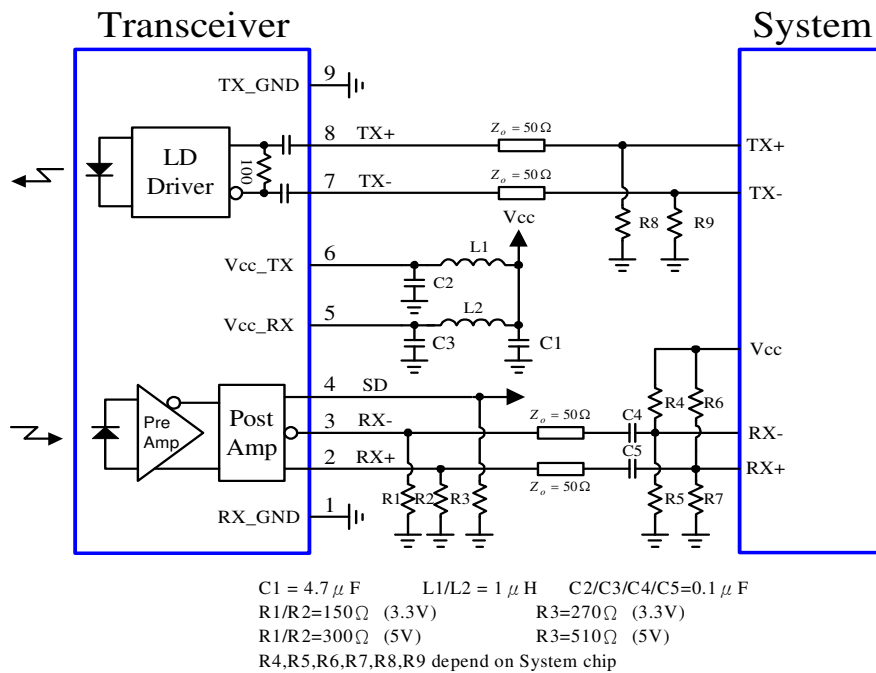
| Pin | Symbol | Functional Description |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------|
| 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 | RD+ | Receiver Data Non-inverted Differential Output |
| 3 | RD- | Receiver Data Inverted Differential Output |
| 4 | SD | Signal Detect is a PECL or TTL output. A high level indicates a received optical signal |
| 5 | V_{CCR} | Receiver Power Supply |
| 6 | V_{CCT} | Transmitter Power Supply |
| 7 | TD- | Transmitter Data Inverted Differential Input |
| 8 | TD+ | Transmitter Data Non-inverted Differential Input |
| 9 | V_{EET} | Transmitter Signal Ground |

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RECOMMENDED CIRCUIT SCHEMATIC

1) SD PECL DC/DC Module



2) SD TTL DC/DC Module

