

BTR-7700MG / BTR-7700CMG / BTR-7700AMG / BTR-7700ACMG

1550 nm TX / 1310 nm RX , 3.3V / 1.25 Gb/s **RoHS Compliant Single-Fiber MM Transceiver**

FEATURES

- | Single Fiber Bi-Directional MM Transceiver
- | 1550 nm LD Transmitter
- | 1310 nm Receiver
- | Link distance 0 to 500 m
- | Industry Standard 1 x 9 Footprint
- | Single +3.3 V Power Supply
- | RoHS Compliant
- | 0 to 70°C Operating : BTR-7700MG
- | -20 to 85°C Operating : BTR-7700AMG
- | LVPECL Differential Inputs and Outputs
- | LVPECL Signal Detect Output: BTR-7700MG
- | LVTTTL Signal Detect Output: BTR-7700CMG
- | Wave Solderable and Aqueous Washable
- | Class 1 Laser International Safety Standard IEC-60825 Compliant

DESCRIPTION

The BTR-7700MG series is high performance module for multi-mode single fiber communications by using 1550 nm transmitter and 1310 nm receiver. The transmitter section uses a multiple quantum well laser and is a class 1 laser compliant according to International Safety Standard IEC-60825. The receiver section uses an integrated 1310 nm detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC. A PECL logic interface simplifies interface to external circuitry.

LASER SAFETY

This multi-mode mode transceiver is a Class 1 laser product. It complies with IEC-60825 and FDA 21 CFR 1040.10 and 1040.11. The transceiver must be operated within the specified temperature and voltage limits. The optical ports of the module shall be terminated with an optical connector or with a dust plug.

APPLICATIONS

- | WDM 1.25 Gb/s Links
- | SONET/SDH Equipment Interconnect
- | Fiber Channel 1.063 Gb/s Links

ORDER INFORMATION

| P/No. | Bit Rate (Gb/s) | Distance (m) | TX (nm) | RX (nm) | Voltage (V) | Package | Temp (°C) | TX Power (dBm) | RX Sens. (dBm) | RoHS Compliant |
|-------------|-----------------|--------------|---------|---------|-------------|---------|-----------|----------------|----------------|----------------|
| BTR-7700MG | 1.25 | 0 to 500 | 1550 | 1310 | 3.3 | 1X9 SC | 0 to 70 | -4 to -10 | -17 | Yes |
| BTR-7700AMG | 1.25 | 0 to 500 | 1550 | 1310 | 3.3 | 1X9 SC | -20 to 85 | -4 to -10 | -17 | Yes |

Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Units | Notes |
|-----------------------|--------|----------|----------|-------|---------------------------|
| Storage Temperature | Tstg | -40 | 85 | °C | |
| Operating Temperature | Topr | 0 -20 | 70 85 | °C | BTR-7700MG BTR-7700AMG |
| Soldering Temperature | --- | | 260 | °C | 10 seconds on leads only |
| Power Supply Voltage | Vcc | 0 | 4.5 | V | |
| Input Voltage | --- | GND | Vcc | V | |
| Output Current | Iout | 0 | 30 | mA | |

Recommended Operating Conditions

| Parameter | Symbol | Min | Typ | Max | Units |
|-----------------------|--------|----------|------|----------|-------------------------------------|
| Power Supply Voltage | Vcc | 3.13 | 3.3 | 3.47 | V |
| Operating Temperature | Topr | 0 -20 | | 70 85 | °C / BTR-7700MG °C / BTR-7700AMG |
| Data Rate | | | 1250 | 1300 | Mb/s |
| Power Supply Current | Icc | | | 240 | mA |

| Transmitter Specifications (0°C < Topr < 70°C, 3.13V < Vcc < 3.47V) | | | | | | |
|---|-----------------------------------|------|-----|-------|---------|-------------------|
| Parameter | Symbol | Min | Typ | Max | Units | Notes |
| Optical | | | | | | |
| Optical Transmit Power | Po | -10 | --- | -4 | dBm | 1 |
| Output Center Wavelength | λ | 1480 | | 1580 | nm | |
| Output Spectrum Width | $\Delta\lambda$ | --- | --- | 4 | nm | RMS (σ) |
| Extinction Ratio | ER | 9.0 | --- | --- | dB | |
| Output Eye | Compliant with IEEE 802.3z | | | | | |
| Optical Rise Time | t _r | | | 0.26 | ns | 20% to 80% Values |
| Optical Fall Time | t _f | | | 0.26 | ns | 20% to 80% Values |
| Relative Intensity Noise | RIN | | | -120 | dB/Hz | |
| Total Jitter | TJ | | | 0.227 | ns | 2 |
| Electrical | | | | | | |
| Data Input Current – Low | I _{IL} | -350 | | | μ A | |
| Data Input Current – High | I _{IH} | | | 350 | μ A | |
| Differential Input Voltage | V _{IH} - V _{IL} | 300 | | | mV | |
| Data Input Voltage – Low | V _{IL} - V _{CC} | -2.0 | | -1.58 | V | 3 |
| Data Input Voltage -- High | V _{IH} - V _{CC} | -1.1 | | -0.74 | V | 3 |

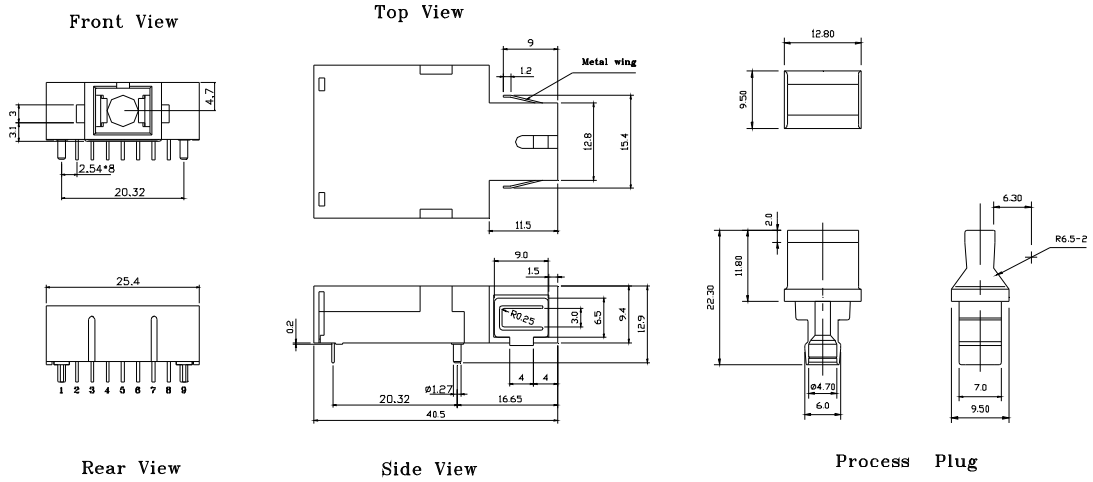
- Notes: 1. Output power is power coupled into a 62.5/125 μ m multi-mode fiber.
 2. Measured with a 2⁷-1 PRBS.
 3. These inputs are compatible with 10K, 10KH and 100K ECL and LVPECL inputs.

| Receiver Specifications (0°C < Topr < 70°C, 3.13 V < Vcc < 3.47V) | | | | | | |
|---|-----------------------------------|------|-----|----------------------|-------|-------------------------|
| Parameter | Symbol | Min | Typ | Max | Units | Notes |
| Optical | | | | | | |
| Sensitivity | --- | --- | --- | -17 | dBm | 1 |
| Maximum Input Power | P _{in} | -3 | | --- | dBm | |
| Signal Detect -- Asserted | P _a | --- | --- | -17 | dBm | Transition: low to high |
| Signal Detect -- Deasserted | P _d | -30 | --- | --- | dBm | Transition: high to low |
| Signal detect -- Hysteresis | | 1.0 | --- | | dB | |
| Wavelength of Operation | | 1260 | | 1360 | nm | 2 |
| Optical Return Loss | ORL | 14 | | | dB | |
| Electrical | | | | | | |
| Data Output Voltage – Low | V _{OL} - V _{CC} | -2.0 | | -1.58 | V | 3 |
| Data Output Voltage – High | V _{OH} - V _{CC} | -1.1 | | -0.74 | V | 3 |
| SD Output Voltage -- Low | V _{OL} - V _{CC} | -2.0 | | -1.58 | V | BTR-7700MG |
| SD Output Voltage -- High | V _{OH} - V _{CC} | -1.1 | | -0.74 | V | |
| SD Output Voltage -- Low | V _{OL} | 0 | | 0.8 | V | BTR-7700CMG |
| SD Output Voltage -- High | V _{OH} | 2.0 | | V _{cc} +0.3 | V | |

- Notes: 1. Minimum sensitivity and saturation levels at BER=1E-12 for a 2⁷-1 PRBS.
 2. At least 30 dB optical isolation for the wavelength 1480 to 1580 nm.
 3. These outputs are compatible with 10K, 10KH and 100K ECL and LVPECL outputs.

PACKAGE DIAGRAM

Units in mm



Note: Specifications subject to change without notice.