BTRS-5701MG / BTRS-5701AMG

1550 nm TX / 1310 nm RX , 3.3V / 622 Mbps RoHS Compliant Single-Fiber MM Transceiver

FEATURES

- Single Fiber Bi-Directional MM Transceiver
- 1550 nm Transmitter
- 1310 nm Receiver
- Distance0 to 1000 m
- 0 to 70°C Operating
- Speed up to 650 Mbps
- 2x5 Package with SC Receptacle
- Single +3.3 V Power Supply
- RoHS Compliant
- PECL Differential Inputs and Outputs
- Wave Solderable and Aqueous Washable
- Class 1 Laser International Safety Standard IEC-60825 Compliant

APPLICATIONS

- WDM 622 Mb/s Links
- SONET/SDH Equipment Interconnect
- Fast Ethernet & Fiber Channel Links

DESCRIPTION

The BTRS-5701MG 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 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.

ORDER INFORMATION

P/No.	Bit Rate (Mb/s)	Distance (m)	TX (nm)	RX (nm)	Voltage (V)	Package	Temp (°C)	TX Power (dBm)	RX Sens. (dBm)	RoHS Compliant
BTRS-5701MG	622	0 to 1000	1550	1310	3.3	2X5 SC	0 to 70	-8 to -15	-26	Yes
BTRS-5701AMG	622	0 to 1000	1550	1310	3.3	2X5 SC	-20 to 85	-8 to -15	-26	Yes

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units	Notes
Storage Temperature	Tstg	-40	85	°C	
Operating Temperature	Topr	0 -20	70 85	°C	BTRS-5701MG BTRS-5701AMG
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 / Notes
Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Operating Temperature	Topr	0 -20		70 85	°C / BTRS-5701MG °C / BTRS-5701AMG
Data Rate			622	650	Mb/s
Power Supply Current	Icc			240	mA

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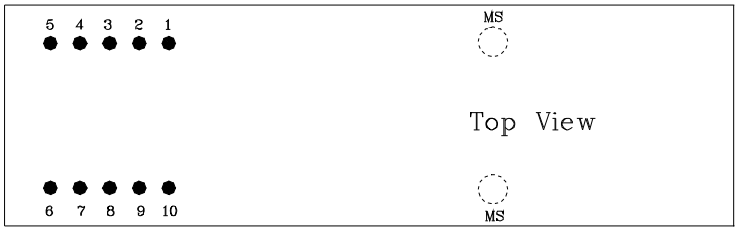
Transmitter Specifications (0^oC < Topr < 70^oC, 3.13V < Vcc < 3. 47V)						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Units**	**Notes**
Optical						
Optical Transmit Power	Po	-15		-8	dBm	1
Output Center Wavelength	λ	1480		1580	nm	
Output Spectrum Width	σ_λ			4	nm	RMS (σ)
Extinction Ratio	E_R	8.2			dB	
Output Eye	Compliant with Bellcore TR-NWT-000253 and ITU recommendation G.957					
Optical Rise Time	t_r			1.2	ns	10% to 90% Values
Optical Fall Time	t_f			1.2	ns	10% to 90% Values
Relative Intensity Noise	RIN			-120	dB/Hz	
Total Jitter	TJ			0.55	ns	2
Electrical						
Data Input Current – Low	I_{IL}	-350			µA	
Data Input Current – High	I_{IH}			350	µA	
Differential Input Voltage	V_{IH} - V_{IL}	300		1600	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
Disable Input Voltage -- Low	$V_{TDIS,L}$	0		0.8	V	TX Output Enabled
Disable Input Voltage -- High	$V_{TDIS,H}$	Vcc – 1.3		Vcc	V	TX Ouput Disabled
Shut Off Time for TxDis	t_{DIS}			1	ms	

Notes: 1. Output power is power coupled into a 62.5/125 µm multi-mode fiber.
2. Measured with a 2^{23}-1 PRBS with 72 ones and 72 zeros.
3. These inputs are compatible with 10K, 10KH and 100K ECL and LVPECL inputs.

Receiver Specifications (0^oC < Topr < 70^oC, 3.13 V < Vcc < 3. 47V)						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Units**	**Notes**
Optical						
Sensitivity	---	---	---	-26	dBm	1
Maximum Input Power	Pin	-8	---	---	dBm	
Signal Detect -- Asserted	Pa	---	---	-26	dBm	Transition: low to high
Signal Detect -- Deasserted	Pd	-40	---	---	dBm	Transition: high to low
Signal detect -- Hysteresis		1.0	---	4.0	dB	
Wavelength of Operation		1260		1360	nm	2
Optical Return Loss	ORL	20			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	3
SD Output Voltage -- High	V_{OH} - V_{CC}	-1.1		-0.74	V	3
Signal Detect Assert Time	AS_{MAX}			100	µs	OFF to ON
Signal Detect Deassert Time	ANS_{MAX}			300	µs	ON to OFF

Notes: 1.Minimum sensitivity and saturation levels at BER 1E-=10 for a 2^{23}-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.

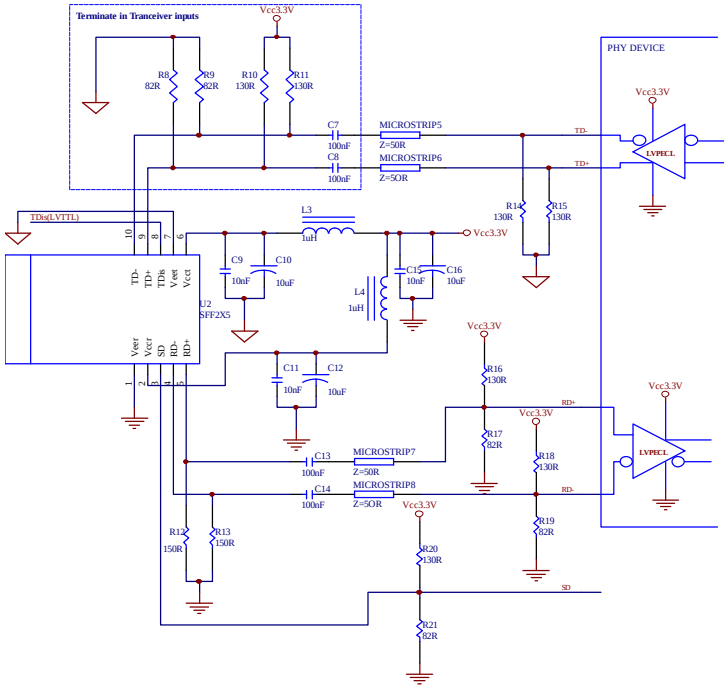
CONNECTION DIAGRAM



PIN	Symbol	Notes
1	V_{EE}r	Directly connect this pin to the receiver ground plane
2	V_{CC} r	+3.3V dc power for the receiver section
3	SD	Active high on this indicates a received optical signal.
4	RD–	Receiver Dataout Bar. See recommended circuit schematic
5	RD+	Receiver Dataout. See recommended circuit schematic
6	V_{CC} t	+3.3V dc power for the transmitter section
7	V_{EE}t	Directly connect this plan to the transmitter ground plane
8	TxDis	Transmitter Disable. Connect this pin to +3.3V TTL logic “1” to disable module To enable module connect to TTL logic low “0”
9	TD+	Transmitter Data In. See recommended circuit schematic
10	TD-	Transmitter Data In Bar. See recommended circuit schematic
MS	MS	Mounting Studs. Connect to Chassis Ground

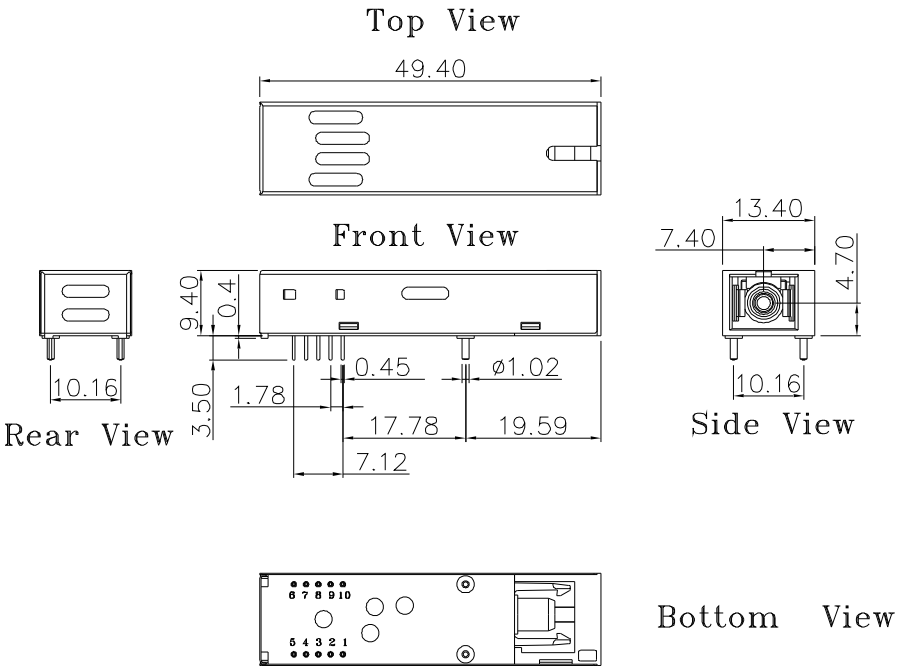
RECOMMENDED CIRCUIT SCHEMATIC

Recommended AC Coupled Interface Circuit



PACKAGE DIAGRAM

Units in mm



Note: Specifications subject to change without notice.