
BTRS-7720CG / BTRS-7720C-SPG / BTRS-7720ACG / BTRS-7720AC-SPG**1550 nm TX / 1310 nm RX , 3.3V / 1250 Mbps RoHS Compliant Single-Fiber Transceiver**
*******FEATURES**

- | Single Fiber Bi-Directional Transceiver
- | 1550 nm DFB LD Transmitter
- | 1310 nm Receiver
- | 14 dB Link Power Budget At Least
- | Distance Up to 20 km
- | Single +3.3 V Power Supply
- | RoHS Compliant
- | 0 to 70°C Operating: BTRS-7720CG
- | -20 to 85°C Operating: BTRS-7720ACG
- | Speed up to 1300 Mbps
- | LVTTTL Signal Detect Output
- | PECL Differential Inputs and Outputs
- | Wave Solderable and Aqueous Washable
- | Class 1 Laser International Safety Standard IEC-60825 Compliant

APPLICATIONS

- | WDM Gigabit Ethernet Links
- | SONET/SDH Equipment Interconnect
- | Fibre Channel Links

ORDER INFORMATION

P/No.	Bit Rate (Gb/s)	Distance (km)	TX (nm)	RX (nm)	Voltage (V)	Package	Temp (°C)	TX Power (dBm)	RX Sens. (dBm)	RoHS Compliant
BTRS-7720CG	1.25	20	1550 DFB	1310	3.3	SC, 2X5	0 to 70	-3 to -8	-22	Yes
BTRS-7720ACG	1.25	20	1550 DFB	1310	3.3	SC, 2X5	-20 to 85	-3 to -8	-22	Yes

Note: 1. BTRS-XXXXXG is SFF SC receptacle type package.

2. BTRS-XXXXX-APBBBG is SFF pigtail type package with different connector, A=S is SC connector, A=F is FC connector, A=T is ST connector, A=L is LC connector, A=M is MU connector; BBB is the length of fiber in cm.

Absolute Maximum Ratings					
Parameter	Symbol	Min	Max	Units	Notes
Storage Temperature	Tstg	-40	85	°C	
Operating Temperature	Topr	0 -20	70 85	°C	BTRS-7720CG/ air flow 1m/sec BTRS-7720ACG/air flow 1m/sec
Soldering Temperature	---		260	°C	10 seconds on leads only
Power Supply Voltage	Vcc	0	3.6	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-7720CG °C / BTRS-7720ACG
Data Rate			1250	1300	Mb/s
Power Supply Current	Icc			280	mA

Transmitter Specifications (0°C < Topr < 70°C, 3.13V < Vcc < 3.47V)						
Parameter	Symbol	Min	Typ	Max	Units	Notes
Optical						
Optical Transmit Power	P _o	-8		-3	dBm	1
Output Center Wavelength	λ	1480		1580	nm	
Output Spectrum Width	σ_{λ}			1	nm	-20 dB Width
Extinction Ratio	E _R	9			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			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}	V _{CC} - 1.3		V _{CC}	V	TX Output Disabled
Shut Off Time for TxDis	t _{DIS}			1	ms	

Notes: 1. Output power is power coupled into a 9/125 μm single mode fiber.

2. Measured with a 2⁷-1 PRBS.

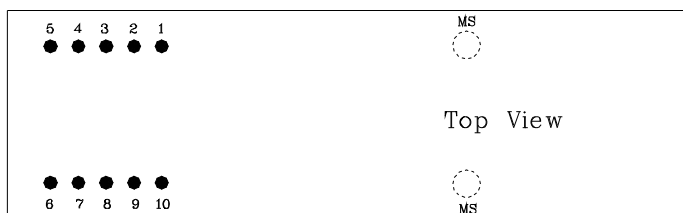
3. These inputs are compatible with 10K, 10KH and 100K ECL and LVPECL inputs.

Receiver Specifications (0°C < Topr < 70°C, 3.13 V < Vcc < 3.47V)						
Parameter	Symbol	Min	Typ	Max	Units	Notes
Optical						
Sensitivity	---	---	---	-22	dBm	1
Maximum Input Power	P _{in}	-3	---	---	dBm	
Signal Detect -- Asserted	P _a	---	---	-22	dBm	Transition: low to high
Signal Detect -- Deasserted	P _d	-31	---	---	dBm	Transition: high to low
Signal detect -- Hysteresis		1.0	---		dB	
Wavelength of Operation		1260		1360	nm	2
Optical Return Loss	ORL	20			dB	
Electrical						
Data Output Voltage Swing	V _{OH} - V _{OL}	0.575		0.930	V	
SD Output Voltage -- Low	V _{OL}	0		0.8	V	
SD Output Voltage -- High	V _{OH}	2.0		V _{CC} +0.3	V	
Signal Detect Assert Time	A _S MAX			100	μs	OFF to ON
Signal Detect Deassert Time	A _N S _{MAX}			300	μs	ON to OFF

Notes: 1. Minimum sensitivity and saturation levels at BER 1E-12 for a 2⁷-1 PRBS.

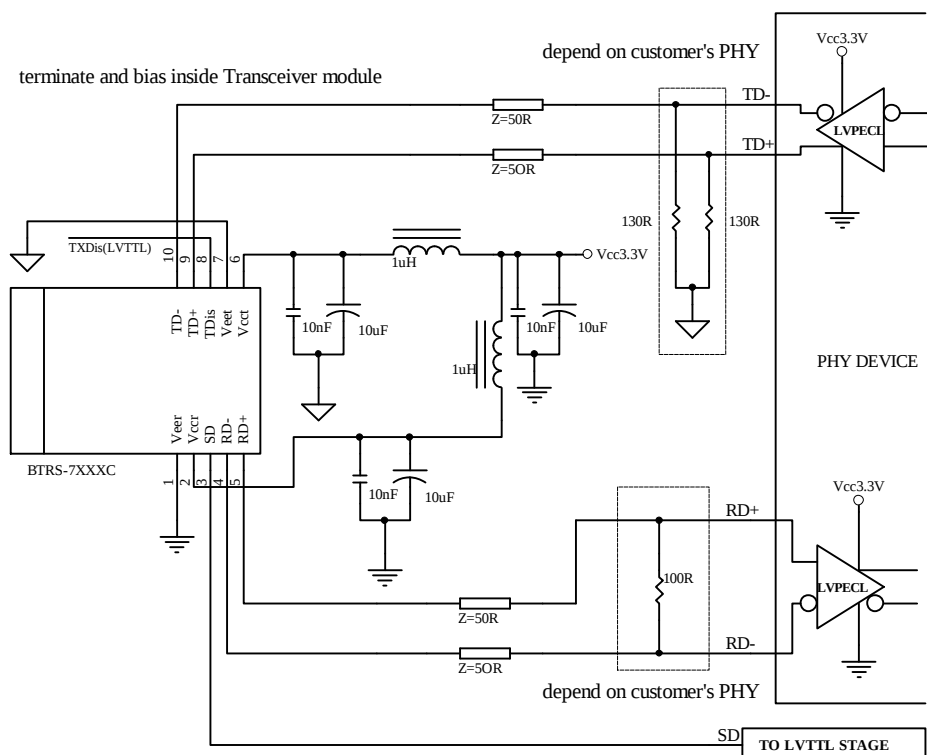
2. At least 30 dB optical isolation for the wavelength 1480 to 1580 nm.

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

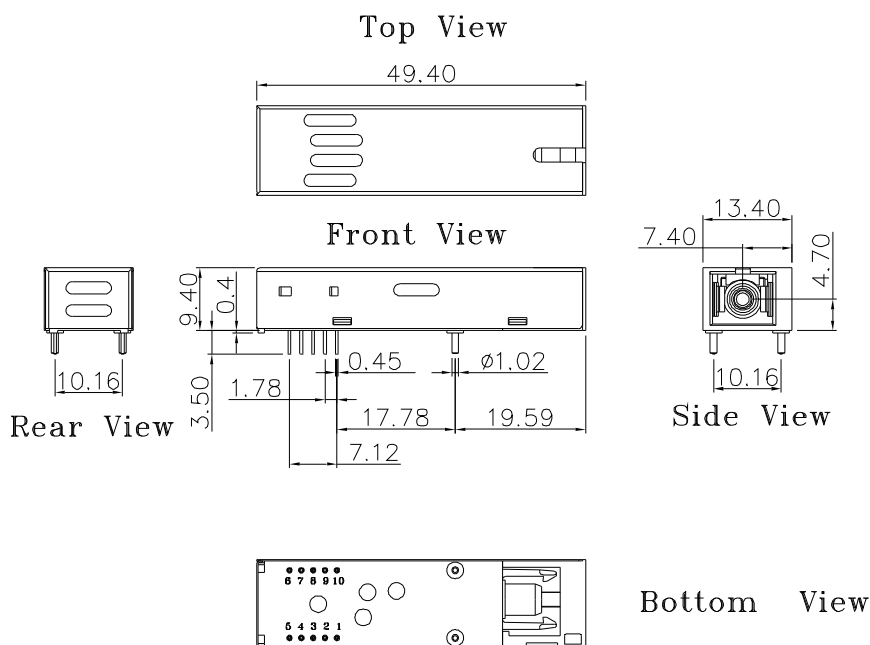


PACKAGE DIAGRAM

Units in mm

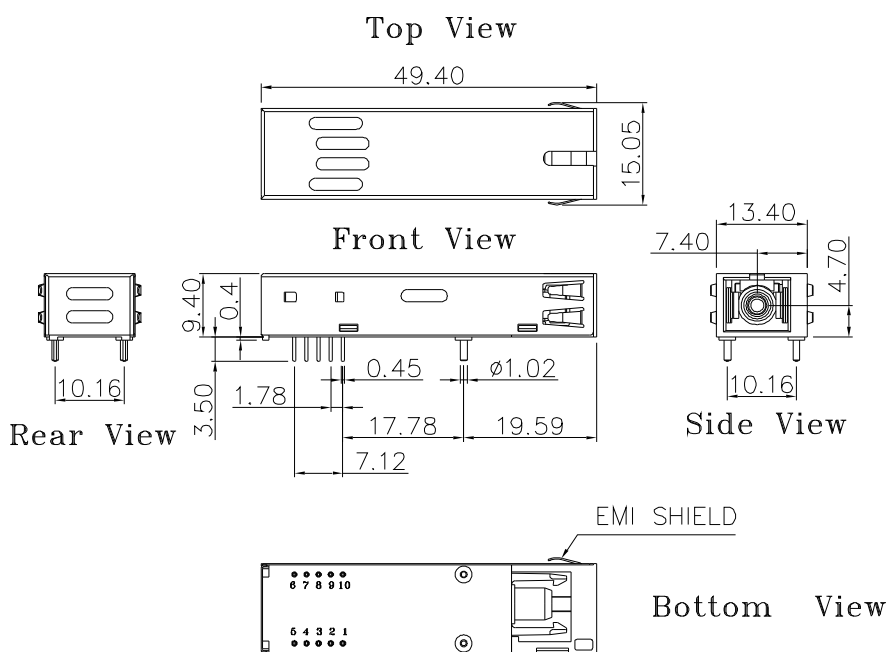
1) SC Receptacle

A) Standard Case



BTRS-7720CG / BTRS-7720ACG

B) Extended Case



BTRS-7720CEG / BTRS-7720ACEG

Top View

Dimensions: 49.40 (length), 13.40 (width), 9.80 (height), 0.40 (thickness), 0.9 (hole diameter), L (total length), SC Connector, PC (SR=20).

Front View

Dimensions: 10.16 (width), 0.40 (thickness), 1.78 (pin pitch), 0.45 (pin width), 0.102 (pin diameter), 7.12 (pin offset), 17.78 (pin offset), 19.59 (pin offset), 0.40 (thickness), 3.48 (height).

Rear View

Dimensions: 10.16 (width), 0.40 (thickness), 1.78 (pin pitch), 0.45 (pin width), 0.102 (pin diameter), 7.12 (pin offset), 17.78 (pin offset), 19.59 (pin offset), 0.40 (thickness), 3.48 (height).

Bottom View

Dimensions: 10.16 (width), 0.40 (thickness), 1.78 (pin pitch), 0.45 (pin width), 0.102 (pin diameter), 7.12 (pin offset), 17.78 (pin offset), 19.59 (pin offset), 0.40 (thickness), 3.48 (height).

Note: Length L is 50 ± 3 cm. Other pigtail's length is available upon request.

Note: Specifications subject to change without notice.