

B-1X/1X-622-TDFB(3)-SSCX



Features

- Coaxial Single Mode Single Fiber Package with SC Receptacle Connector
- Tx 1310 nm/Rx 1550 nm [B-13/15-622-TDFB(3)-SSCX]
- Tx 1550 nm/Rx 1310 nm [B-15/13-622-TDFB(3)-SSCX]
- SONET OC-12 SDH STM-4 Compliant
- Single +5V/+3.3V Power Supply
- PECL Differential Inputs and Outputs
- Wave Solderable and Aqueous Washable
- Class 1 Laser Int. Safety Standard IEC 825 Compliant
- Uncooled Laser Diode with MQW Structure
- Complies with Telcordia (Bellcore) GR-468-CORE
- Temperature Range: 0 to 70 °C
- Optical Isolation > 30 dB
- Cross Talk < -33 dB
- Optical Return Loss >14 dB

Absolute Maximum Rating

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V _{cc}	0	3.6	V	B-1X/1X-622-TDFB3-SSCX
Power Supply Voltage	V _{cc}	0	6	V	B-1X/1X-622-TDFB-SSCX
Output Current	I _{out}	0	30	mA	
Soldering Temperature	-	-	260	°C	10 seconds on leads only
Operating Temperature	T _{opr}	0	70	°C	
Storage Temperature	T _{stg}	-40	85	°C	

Recommended Operating Condition

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply Voltage	V _{cc}	3.1	3.3	3.5	V
Power Supply Voltage	V _{cc}	4.75	5	5.25	V
Operating Temperature	T _{opr}	0	-	70	°C
Data Rate		-	622	-	Mbps

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Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Optical Transmit Power	P_o	-15	-	-8	dBm	B-1X/1X-622-TDFB(3)-SSC
Optical Transmit Power	P_o	-3	-	+2	dBm	B-1X/1X-622-TDFB(3)-SSC4
Output Center Wavelength	λ	1260	1310	1360	nm	B-13/15-622-TDFB(3)-SSCX
Output Center Wavelength	λ	1480	1550	1580	nm	B-15/13-622-TDFB(3)-SSCX
Output Spectrum Width	$\Delta\lambda$	-	-	1	nm	-20dB width
Side Mode Supression Ratio	SMSR	30	-	-	dB	
Extinction Ratio	ER	8.2	-	-	dB	B-1X/1X-622-TDFB(3)-SSC
Extinction Ratio	ER	10	-	-	dB	B-1X/1X-622-TDFB(3)-SSC4
Output Eye		Compliant with Bellcore GR-253-CORE and ITU recommendation G957				
Optical Rise Time	t_r	-	-	1.2	ns	10% to 90% Values
Optical Fall Time	t_f	-	-	1.2	ns	10% to 90% Values
Optical Return Loss		14	-	-	dB	
Relative Intensity Noise	RIN	-	-	-120	dB/Hz	
Total Jitter	TJ	-	-	0.55	ns	Measured with 2 ²³ -1 PRBS with 72 ones and 72 zeros.

Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Electrical						
Power Supply Current	I_{CC}	-	-	140	mA	Maximum current is specified at V_{CC} = Maximum @ maximum temperature
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	These inputs are compatible with 10K, 10KH and 100K ECL and PECL inputs
Data Input Voltage-High	$V_{IH}-V_{CC}$	-1.1	-	-0.74	V	

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Receiver Specifications

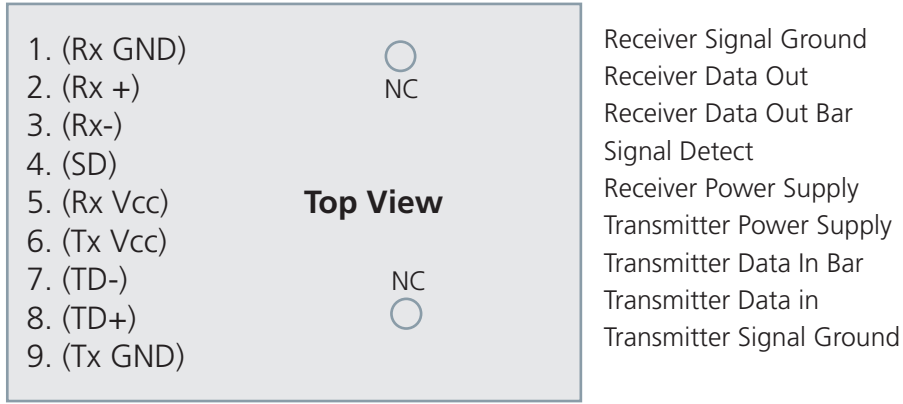
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Sensitivity	-	-	-	-28	dBm	Measured with 2 ²³ -1 PRBS with 72 ones and 72 zeros. (ITU-T recommendation G.958)
Maximum Input Power	P _{in}	-3	-	-	dBm	
Signal Detect-Asserted	P _a	-	-	-28	dBm	Measured on transition: low to high
Signal Detect-Deasserted	P _d	-40	-	-	dBm	Measured on transition: high to low
Signal Detect-Hysteresis		-	3.0	-	dB	
Cross Talk	-	-	-	-33	dB	
Wavelength of Operation		1260	-	1360	nm	B-15/13-622-TDFB(3)-SSCX
Wavelength of Operation		1480	-	1600	nm	B-13/15-622-TDFB(3)-SSCX

Receiver Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Electrical						
Power Supply Current	I _{CC}	-	-	100	mA	The current excludes the output load current
Data Output Voltage-Low	V _{OL} -V _{CC}	-1.9	-	-1.6	V	These outputs are compatible with 10K, 10KH and 100KECL and PECL outputs.
Data Output Voltage-High	V _{OH} -V _{CC}	-1.1	-	-0.8	V	
Signal Detect Output Voltage-Low	V _{SDL} -V _{CC}	-1.9	-	-1.6	V	
Signal Detect Output Voltage-High	V _{SDH} -V _{CC}	-1.1	-	-0.8	V	

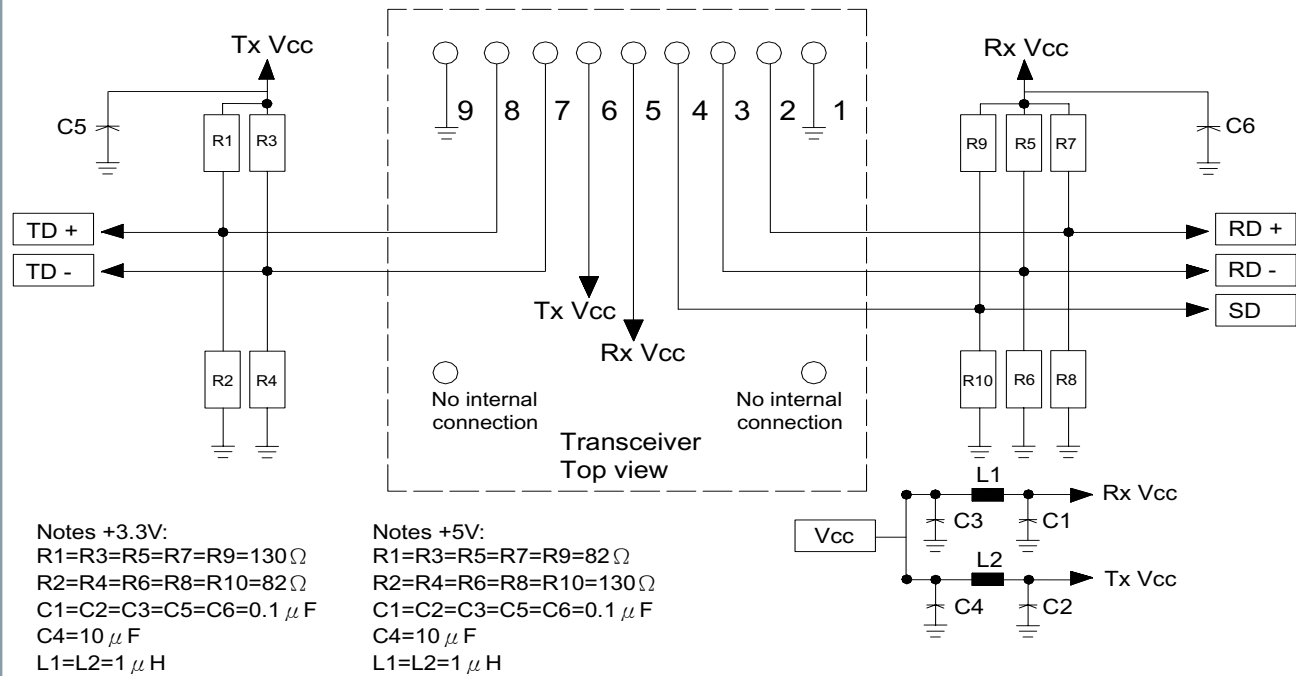
B-1X/1X-622-TDFB(3)-SSCX

Connection Diagram



PIN	Symbol	Notes
1	RxGND	Directly connect this pin to the receiver ground plane
2	RD+	See recommended circuit schematic
3	RD-	See recommended circuit schematic
4	SD	Active high on this indicates a received optical signal
5	RxVcc	+3.3V/+5V dc power for the receiver section
6	TxVcc	+3.3V/+5V dc power for the transmitter section
7	TD-	See recommended circuit schematic
8	TD+	See recommended circuit schematic
9	TxGND	Directly connect this pin to the transmitter ground plane

Recommended Circuit Schematic



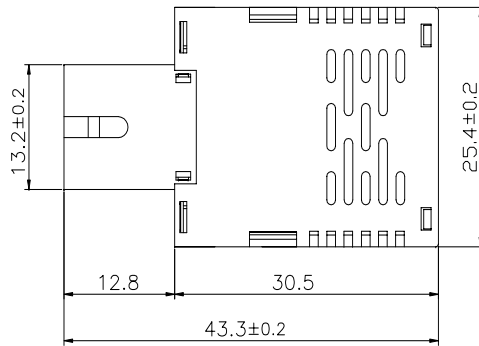
The split-loaded terminations for ECL signals need to be located at the input of devices receiving those ECL signals. The power supply filtering is required for good EMI performance. Use short tracks from the inductor L1/L2 to the module Rx Vcc. A GND plane under the module is required for good EMI and sensitivity performance.

Package Diagram

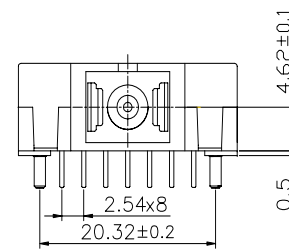
Diplexer Transceiver Assembly (Receptacle Type)

Units: mm

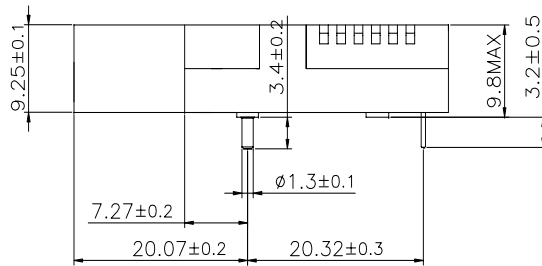
Top View



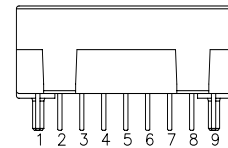
Front View



Side View



Rear View



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Ordering Information

Available Options:

- B-15/13-622-TDFB-SSC
- B-15/13-622-TDFB3-SSC
- B-15/13-622-TDFB-SSC4
- B-15/13-622-TDFB3-SSC4
- B-13/15-622-TDFB-SSC4
- B-13/15-622-TDFB3-SSC4

B - 1X/1X - 622 - TDFB(3) - S SC Tx power

- **Wavelength**
 13/15 = Tx 1310 nm/Rx 1550 nm
 15/13 = Tx 1550 nm/Rx 1310 nm
- **Communication protocol**
 (622 Mbps)
- **TDFB= +5V Transceiver**
 TDFB3= +3.3V Transceiver
- **Single mode fiber**
- **Connector options**
- **Tx power range**
 blank = -15 to -8 dBm
 4 = -3 to +2 dBm

Warnings:

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

Legal Notes:

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