

B-15/13-155-TDFB(3)-SSCx-40



Features

- Diplexer Single Mode Single Fiber 1x9 SC Receptacle Connector
- Wavelength Tx 1550 nm/Rx 1310 nm
- SONET OC-3 SDH STM-1 Compliant
- Single +5V power Supply
- Single +3.3V power Supply
- PECL/LVPECL Differential Inputs and Outputs [B-15/13-155-TDFB(3)-SSCx-40]
- Wave Solderable and Aqueous Washable
- LED Multisourced 1x9 Transceiver Interchangeable
- Class 1 Laser Int. Safety Standard IEC 825 Compliant
- Uncooled Laser diode with MQW structure DFB Laser
- Complies with Telcordia (Bellcore) GR-468-CORE
- RoHS compliant

Absolute Maximum Rating

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V_{CC}	0	6	V	B-15/13-155-TDFB-SSCx-40
Power Supply Voltage	V_{CC}	0	3.6	V	B-15/13-155-TDFB3-SSCx-40
Output Current	I_{out}	-	30	mA	
Soldering Temperature	-	-	260	°C	10 seconds on leads only
Storage Temperature	T_{stg}	-40	85	°C	

Recommended Operating Condition

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply Voltage	V_{CC}	4.75	5	5.25	V
Power Supply Voltage	V_{CC}	3.1	3.3	3.5	V
Operating Temperature (Case)	T_{opr}	0	-	70	°C
Data Rate	-	-	155	-	Mbps

Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Optical Transmit Power	P_o	-5	-	0	dBm	Output power is coupled into a 9/125 μ m single mode fiber, B-15/13-155-TDFB(3)-SSCx-40
Optical Transmit Power	P_o	-3	-	+3	dBm	Output power is coupled into a 9/125 μ m single mode fiber, B-15/13-155-TDFB(3)-SSCx-40
Output center Wavelength	λ	1480	1550	1580	nm	
Output Spectrums Width	$\Delta\lambda$	-	-	1	nm	-20dB width

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Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Electrical						
Power Supply Current	I_{CC}	-	-	200	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	

Receiver Specifications

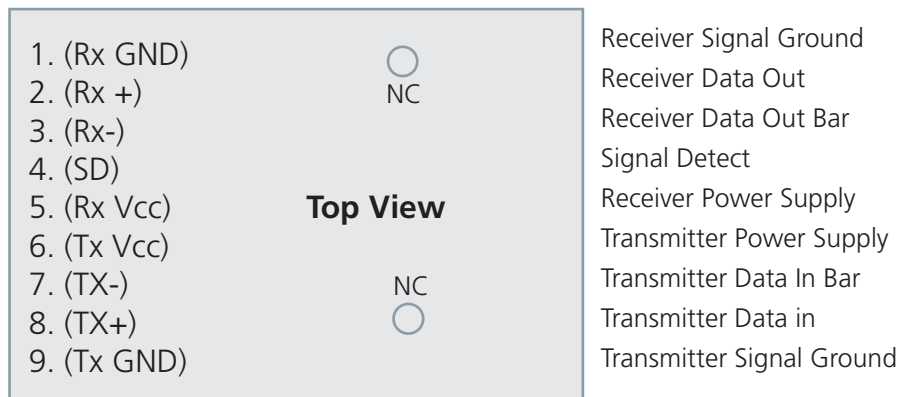
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Sensitivity	-	-	-	-33	dBm	Measured with 2 ²³ -1 PRBS, BER = 10 ⁻¹⁰ , B-15/13-155-TDFB(3)-SSC5-40
Sensitivity	-	-	-	-35	dBm	Measured with 2 ²³ -1 PRBS, BER = 10 ⁻¹⁰ , B-15/13-155-TDFB(3)-SSC7-40
Maximum Input Power	P_{in}	-3	-	-	dBm	
Signal Detect-Asserted (Note 1)	P_a	-	-	-33	dBm	MEasured on transition : low to high, B-15/13-155-TDFB(3)-SSC5-40
Signal Detect-Asserted (Note 1)	P_a	-	-	-35	dBm	MEasured on transition : low to high, B-15/13-155-TDFB(3)-SSC7-40
Signal Detect-Deasserted	P_d	-45	-	-	dBm	Measured on transition: high to low
Signal Detect-Hysteresis		1.0	-	4.0	dB	
Wavelength of Operation		1260	-	1360	nm	

Note 1: Regardless of whether the Tx is on or not, SD should be asserted at less than -33 or -35 dBm of input power level and deasserted at higher than -45 dBm of input power level from the outside Tx.

Receiver Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Note
Electrical						
Power Supply Current	I_{CC}	-	-	100	mA	The current excludes the output load current
Data Output Voltage-Low	$V_{OL}-V_{CC}$					

Connection Diagram

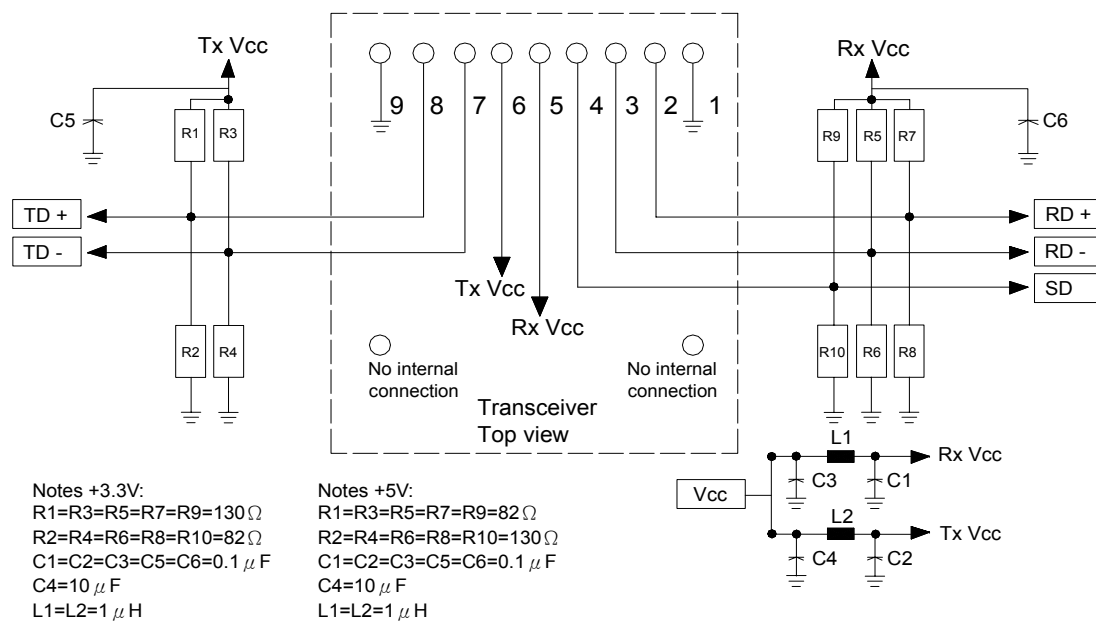


PIN	Symbol	Notes
1	RxGND	Directly connect this pin to the receiver ground plane
2	RD+	See recommended circuit schematic
3	RD-	See recommended circuit schematic
4	SD	Active high on this indicates a received optical signal
5	RxVcc	DC power for the receiver section
6	TxVcc	DC power for the transmitter section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

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Recommended Circuit Schematic (3.3V/5V)

B-15/13-155-TDFB(3)-SSCx-40



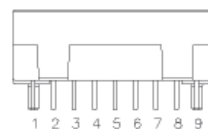
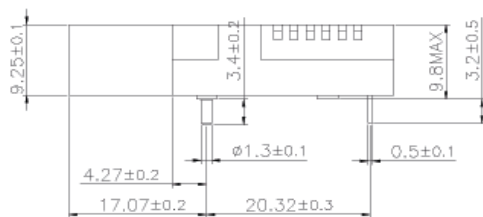
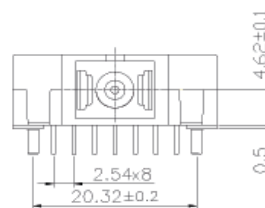
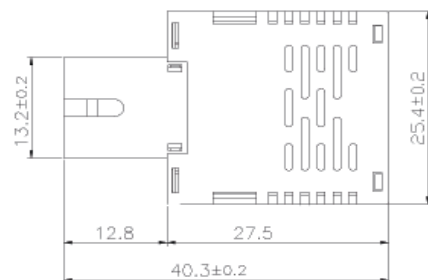
The split-loaded terminations for ECL signals need to be located at the input of devices receiving those ECL signals.

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

B-15/13-155-TDFB(3)-SSCx-40



Units in mm

Side View

Rear View

Ordering Information

Available Options:

B-15/13-155-TDFB-SSC5-40	B-15/13-155-TDFB-SSC7-40
B-15/13-155-TDFB3-SSC5-40	B-15/13-155-TDFB3-SSC7-40
B-15/13-155-TDFB-SSC5-40-G5	B-15/13-155-TDFB-SSC7-40-G5
B-15/13-155-TDFB3-SSC5-40-G5	B-15/13-155-TDFB3-SSC7-40-G5

Part Numbering Definitions:

	B	15/13	155	TDFB(3)	S	SC	Tx Power	-40	-RoHS
• Wavelength Tx Wavelength=1550nm Rx Wavelength=1310nm									
• Communication protocol 155 = LVPECL SD output									
• TDFB = +5V Transceiver • TDFB3 = +3.3V Transceiver									
• Single mode fiber									
• Connector options SC									
• Tx Power 5 = -5 to 0 dBm 7 = -3 to +2 dBm									
• -40 = 40.3mm Package									
• RoHS Blank = RoHS non-compliant product G5 = RoHS 5/6-compliant product (lead exemption)									

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.

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