

C-1XX-155-TDFB(3)-SSC5(9)



Features

- Duplex SC Single Mode Transceiver
- Industry Standard 1x9 Footprint
- Long reach SONET OC-3 SDH STM-1 Compliant
- Single +3.3V/+5V Power Supply
- LVPECL/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
- ATM 155 Mbps Links application
- SONET/SDH Equipment Interconnect application
- CWDM
- RoHS compliance available

Absolute Maximum Rating

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V_{CC}	0	3.6	V	C-1XX-155-TDFB3-SSC5(9)
Power Supply Voltage	V_{CC}	0	6	V	C-1XX-155-TDFB-SSC5(9)
Output Current	I_{out}	0	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}	3.1	3.3	3.5	V
Power Supply Voltage	V_{CC}	4.75	5	5.25	V
Operating Temperature (Case)	T_{opr}	0	-	70	°C
Data Rate	-	-	155	-	Mbps

Note1: Please refer to ordering information

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Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Optical Transmit Power	P_o	-5	-	0	dBm	C-1XX-155-TDFB(3)-SSC5
Optical Transmit Power	P_o	0	-	+5	dBm	C-1XX-155-TDFB(3)-SSC9
Output center Wavelength	λ	$\lambda_n - 5.5$	λ_n	$\lambda_n + 7.5$	nm	$\lambda_n = 1XX0$ nm
Side Mode Suppression Ratio	Sr	30	35	-	dB	CW, $P_o = 5$ mW
Output Spectrum Width	$\Delta\lambda$	-	-	1	nm	-20 dB width
Extinction Ratio	ER	10	-	-	dB	
Output Pulse Mask		Compliant with FDDI SMR-PMD1				
Output Eye		Compliant with ITU recommendation G.957				
Optical Rise Time	t_r	-	-	2	ns	10% to 90% Values
Optical Fall Time	t_f	-	-	2	ns	10% to 90% Values
Relative Intensity Noise	RIN	-	-	-120	dB/Hz	
Total Jitter	TJ	-	-	1.2	ns	

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	

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Receiver Specifications

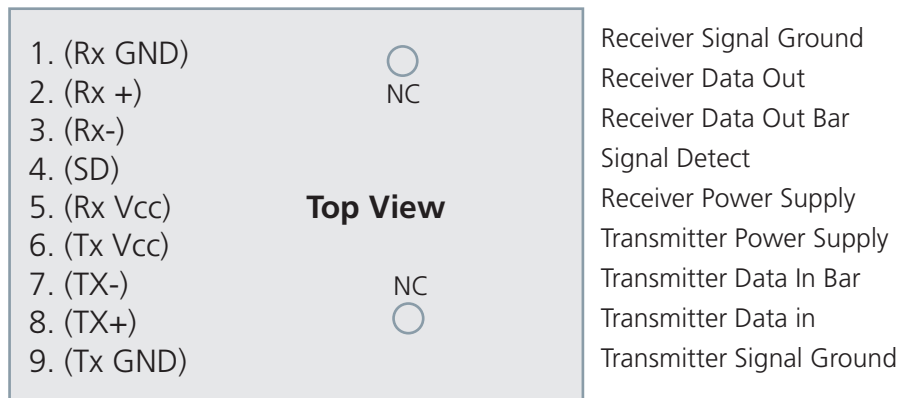
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Sensitivity	-	-	-	-35	dBm	Measured with 223-1 PRBS with 72 ones and 72 zeros, C-1XX-155-TDFB(3)-SSC5
Sensitivity	-	-	-	-37	dBm	Measured with 223-1 PRBS with 72 ones and 72 zeros, C-1XX-155-TDFB(3)-SSC9
Maximum Input Power	P_{in}	0	-	-	dBm	
Signal Detect-Asserted	P_a	-	-	-35	dBm	Measured on transition: low to high, C-1XX-155-TDFB(3)-SSC5
Signal Detect-Asserted	P_a	-	-	-37	dBm	Measured on transition: low to high, C-1XX-155-TDFB(3)-SSC9
Signal Detect-Deasserted	P_d	-47	-	-	dBm	Measured on transition: high to low, C-1XX-155-TDFB(3)-SSC5
Signal Detect-Deasserted	P_d	-48	-	-	dBm	Measured on transition: high to low, C-1XX-155-TDFB(3)-SSC9
Signal Detect-Hysteresis		1.0	-	4.0	dB	
Wavelength of Operation		1100	-	1620	nm	

Receiver Specifications

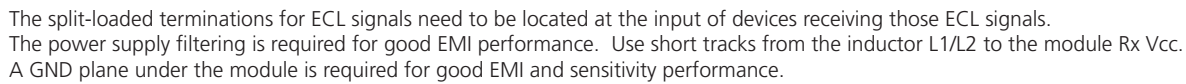
Parameter	Symbol	Min	Typical	Max	Unit	Note
Electrical						
Power Supply Current	I_{CC}	-	-	100	mA	The current excludes the output load current
Data Output Voltage-Low	$V_{OL} - V_{CC}$	-2.0	-	-1.58	V	These outputs are compatible with 10K, 10KH and 100KECL and PECL outputs
Data Output Voltage-High	$V_{OH} - V_{CC}$	-1.1	-	-0.74	V	
Signal Detect Output Voltage-Low	$V_{SDL} - V_{CC}$	-2.0	-	-1.58	V	
Signal Detect Output Voltage-High	$V_{SDH} - V_{CC}$	1.1	-	0.74	V	

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Connection Diagram

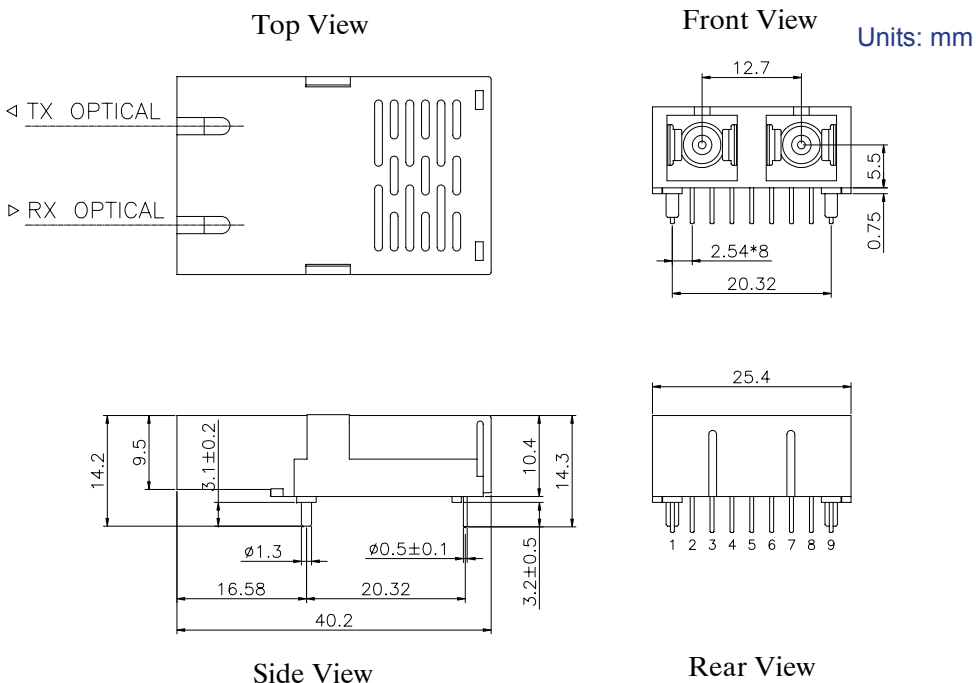


PIN	Symbol	Notes
1	RxGND	Directly connect this pin to the receiver ground plane
2	RD+	See recommended circuit schematic
3	RD-	See recommended circuit schematic
4	SD	Active high on this indicates a received optical signal
5	RxVcc	DC power for the receiver section
6	TxVcc	DC power for the transmitter section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



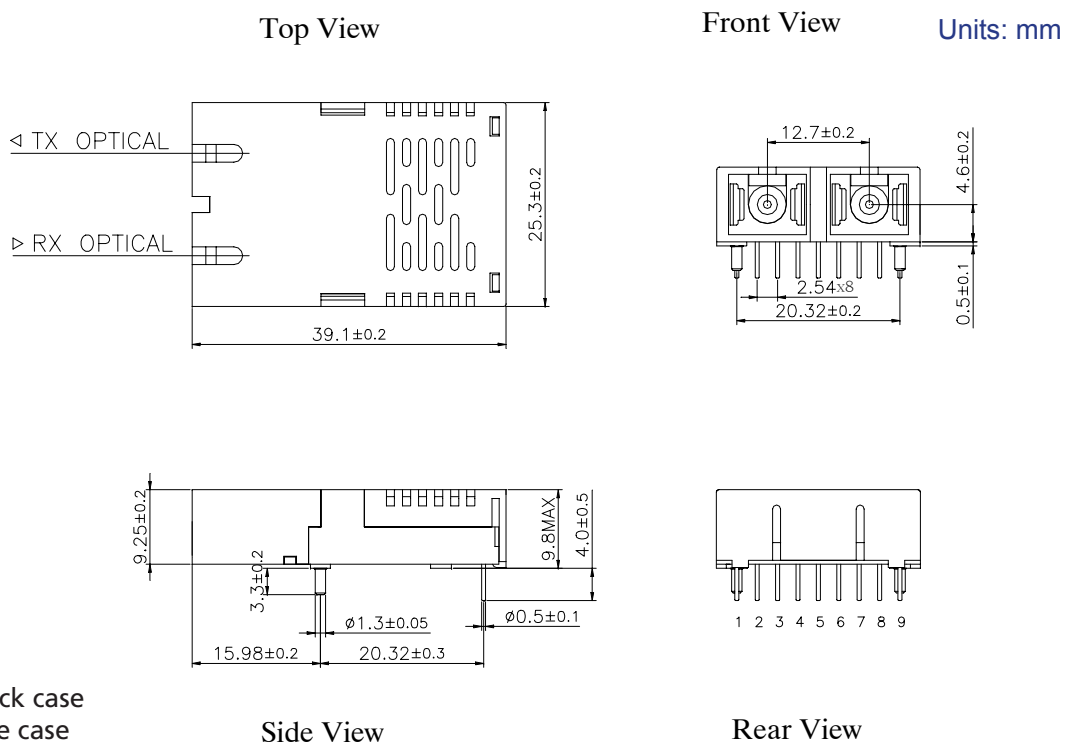
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Package Diagram (10.4 mm SC transceiver assembly)



Blank: Black case

Package Diagram (9.8 mm SC transceiver assembly)


D: Black case
E: Blue case

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Ordering Information

Available Options:

C-127-155-TDFB(3)-SSC5(9)(-G5)	C-127-155-TDFB(3)-SSC5(9)D(-G5)	C-127-155-TDFB(3)-SSC5(9)E(-G5)
C-129-155-TDFB(3)-SSC5(9)(-G5)	C-129-155-TDFB(3)-SSC5(9)D(-G5)	C-129-155-TDFB(3)-SSC5(9)E(-G5)
C-131-155-TDFB(3)-SSC5(9)(-G5)	C-131-155-TDFB(3)-SSC5(9)D(-G5)	C-131-155-TDFB(3)-SSC5(9)E(-G5)
C-133-155-TDFB(3)-SSC5(9)(-G5)	C-133-155-TDFB(3)-SSC5(9)D(-G5)	C-133-155-TDFB(3)-SSC5(9)E(-G5)
C-135-155-TDFB(3)-SSC5(9)(-G5)	C-135-155-TDFB(3)-SSC5(9)D(-G5)	C-135-155-TDFB(3)-SSC5(9)E(-G5)
C-137-155-TDFB(3)-SSC5(9)(-G5)	C-137-155-TDFB(3)-SSC5(9)D(-G5)	C-137-155-TDFB(3)-SSC5(9)E(-G5)
C-139-155-TDFB(3)-SSC5(9)(-G5)	C-139-155-TDFB(3)-SSC5(9)D(-G5)	C-139-155-TDFB(3)-SSC5(9)E(-G5)
C-141-155-TDFB(3)-SSC5(9)(-G5)	C-141-155-TDFB(3)-SSC5(9)D(-G5)	C-141-155-TDFB(3)-SSC5(9)E(-G5)
C-143-155-TDFB(3)-SSC5(9)(-G5)	C-143-155-TDFB(3)-SSC5(9)D(-G5)	C-143-155-TDFB(3)-SSC5(9)E(-G5)
C-145-155-TDFB(3)-SSC5(9)(-G5)	C-145-155-TDFB(3)-SSC5(9)D(-G5)	C-145-155-TDFB(3)-SSC5(9)E(-G5)
C-147-155-TDFB(3)-SSC5(9)(-G5)	C-147-155-TDFB(3)-SSC5(9)D(-G5)	C-147-155-TDFB(3)-SSC5(9)E(-G5)
C-149-155-TDFB(3)-SSC5(9)(-G5)	C-149-155-TDFB(3)-SSC5(9)D(-G5)	C-149-155-TDFB(3)-SSC5(9)E(-G5)
C-151-155-TDFB(3)-SSC5(9)(-G5)	C-151-155-TDFB(3)-SSC5(9)D(-G5)	C-151-155-TDFB(3)-SSC5(9)E(-G5)
C-153-155-TDFB(3)-SSC5(9)(-G5)	C-153-155-TDFB(3)-SSC5(9)D(-G5)	C-153-155-TDFB(3)-SSC5(9)E(-G5)
C-155-155-TDFB(3)-SSC5(9)(-G5)	C-155-155-TDFB(3)-SSC5(9)D(-G5)	C-155-155-TDFB(3)-SSC5(9)E(-G5)
C-157-155-TDFB(3)-SSC5(9)(-G5)	C-157-155-TDFB(3)-SSC5(9)D(-G5)	C-157-155-TDFB(3)-SSC5(9)E(-G5)
C-159-155-TDFB(3)-SSC5(9)(-G5)	C-159-155-TDFB(3)-SSC5(9)D(-G5)	C-159-155-TDFB(3)-SSC5(9)E(-G5)
C-161-155-TDFB(3)-SSC5(9)(-G5)	C-161-155-TDFB(3)-SSC5(9)D(-G5)	C-161-155-TDFB(3)-SSC5(9)E(-G5)

Part numbering Definition:

C	1XX	155	TDFB(3)	S	SC	TxPower	Temperature and Package	RoHS compliance
• Tx Wavelength=1XX0 nm XX= 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61 • Communication protocol (155 Mbps) • DFB laser Transceiver TDFB3= +3.3V TDFB= +5V • Single mode fiber • Connector options • Power range 5 = -5 to 0 dBm 9 = 0 to +5 dBm • Temperature range and package Blank = commercial temperature(0 to 70 °C), 10.4 mm, Black case D = commercial temperature(0 to 70 °C), 9.8 mm, Black case E = commercial temperature(0 to 70 °C), 9.8 mm, Blue case • 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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