

C-13-155-T-SSCxB/C



Features

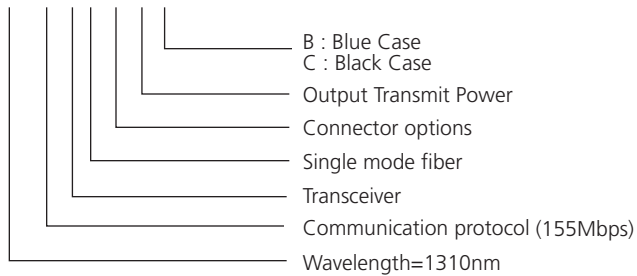
- Duplex SC singlemode transceiver
- Industry Standard 1 x 9 Footprint
- Intermediate SONET OC-3 SDH STM-1(S1.1) Compliant
- Single +5V Power Supply
- PECL Differential Inputs and Outputs
- Wave Solderable and Aqueous Washable
- LED Multisourced 1 x 9 Transceiver Interchangeable
- Class 1 Laser Int. Safety Standard IEC 825 Compliant
- Operating at -40°C to +85°C
- Uncooled laser diode with MQW structure
- Complies with Bellcore TA-NWT-000983
- Low profile of only 9.8 mm

Applications

- ATM 155 Mb/s Links
- SONET/SDH Equipment Interconnect

Ordering Information

C-13-155-T-S SC xB/C



Absolute Maximum Ratings

Parameter	Symbol	Cond	Rating	Unit	Unit
Power Supply Voltage	V_{cc}	0	6	V	
Input Voltage	-	GND	V_{cc}	V	
Output Current	I_{out}	0	30	mA	
Soldering Temperature	-		260	°C	10 seconds on leads only
Case Temperature	T_{opr}	-40	85	°C	
Storage Temperature	T_{stg}	-40	85	°C	

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Power Supply Voltage	V_{cc}	4.75	5	5.25	V
Operating Temperature	T_{opr}	-40	-	85	°C
Data Rate		-	155	-	Mbps

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Transmitter Specifications (-40°C < T _{opr} < 85°C, 4.75V < V _{cc} < 5.25V)						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Optical						
Optical Transmit Power						
C-13-155-T-SSC3B	P _o	-15	-	-7	dBm	Output power is coupled into a 9/125µm single mode fiber
C-13-155-T-SSC5B	P _o	-5	-	0	dBm	Output power is coupled into a 9/125µm single mode fiber
C-13-155-T-SSC7B	P _o	-3	-	3	dBm	Output power is coupled into a 9/125µm single mode fiber
C-13-155-T-SSC9B	P _o	0	-	5	dBm	Output power is coupled into a 9/125µm single mode fiber
Output Center Wavelength						
C-13-155-T-SSC3B	λ	1261	1310	1360	nm	
C-13-155-T-SSC5B	λ	1280	1310	1335	nm	
C-13-155-T-SSC7B	λ	1270	1310	1350	nm	
C-13-155-T-SSC9B	λ	1270	1310	1350	nm	
Output Spectrum Width						
C-13-155-T-SSC3B	Δλ	-	-	7.7	nm	RMS
C-13-155-T-SSC5B	Δλ	-	-	4	nm	RMS
C-13-155-T-SSC7B	Δλ	-	-	4	nm	RMS
C-13-155-T-SSC9B	Δλ	-	-	4	nm	RMS
Extinction Ratio	E _R	8.2	-	-	dB	
Output Pulse Mask	Compliant with FDDI SMF-PMD1					
Output Eye	Compliant with Bellcore TR-NWT-000253 and ITU recommendation G.957					
Optical Rise Time	t _r	-	-	2	ns	10%-90% Values
Optical Fall Time	t _f	-	-	2	ns	10%-90% Values
Relative Intensity Noise	RIN	-	-	-116	dB/Hz	
Relative Intensity Noise	TJ	-	-	1.2	ns	Measured with 2 ²³ -1 PRBS with 72 ones and 72 zeros.
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	-	350	µA	
Data Input Current-High	I _{IH}	-	-	-	µA	
Differential Input Voltage	V _{IH} -V _{IL}	300	-	-1.58	mV	
Data Input Voltage-Low	V _{IL} -V _{CC}	-2	-	-0.74	V	These inputs are compatible with 10K, 10KH and 100K ECL and PECL inputs.
Data Input Voltage-High	V _{IH} -V _{CC}	-1.1	-	-	V	

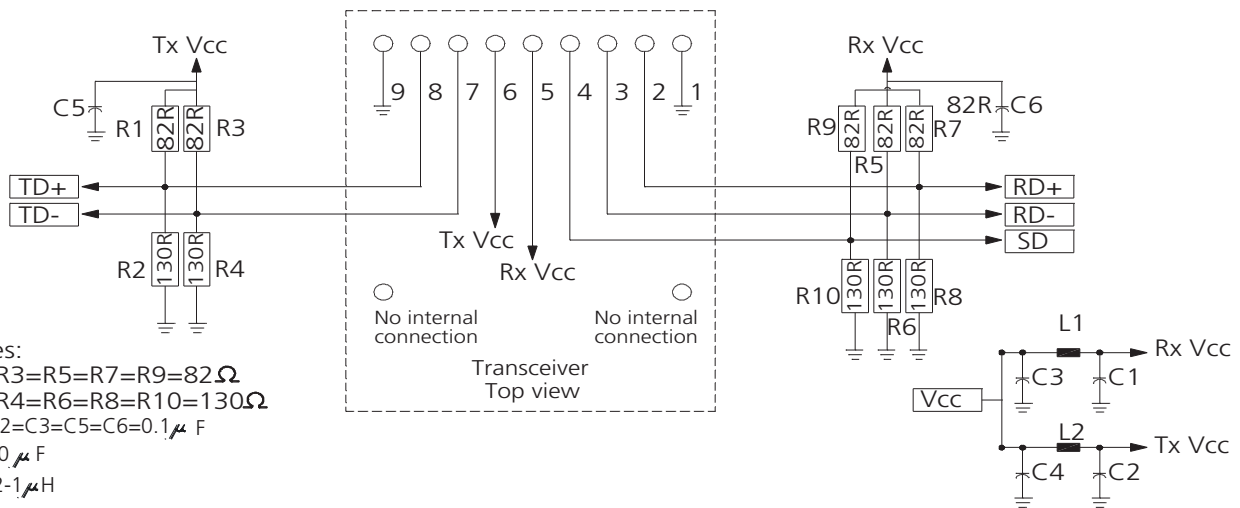
Receiver Specifications (-40°C < T _{opr} < 85°C, 4.75V < V _{cc} < 5.25V)						
Parameter	Symbol	Min	Typ	Max	Unit	Test condition
Optical						
Sensitivity	-	-	-	-34	dBm	Measured with 2 ²³ -1 PRBS with 72 ones and 72 zeros. (ITU-T recommendation G.958)
Maximum Input Power	P _{in}	-7	-	-	dBm	
Signal Detect – Asserted	P _a	-	-	-34	dBm	Measured on transition: low to high
Signal Detect –Deasserted	P _d	-47	-	-	dBm	Measured on transition: low to high
Signal detect –Hysteresis		1.0	-	4.0	dB	
Wavelength of Operation		1100	-	1600	nm	
Electrical						
Power Supply Current	I _{cc}	-	-	100	mA	The current excludes the output load current
Data output Voltage—Low	V _{OL} -V _{CC}	-2	-	-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	-	-1.58	V	
Signal Detect Output Voltage —High	V _{SDH} -V _{CC}	-1.1	-	-0.74	V	

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Pin	Symbol	Unit
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	+5V dc power for the receiver section
6	TxVcc	+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

1. (Rx GND)	○	Receiver Signal Ground
2. (RD+)		Receiver Data Out
3. (RD-)	N/C	Receiver Data Out Bar
4. (SD)		Signal Detect
5. (Rx Vcc)		Receiver Power Supply
6. (Tx Vcc)		Transmitter Power Supply
7. (TD-)	N/C	Transmitter Data In Bar
8. (TD+)		Transmitter Data In
9. (Tx GND)	○	Transmitter Signal Ground

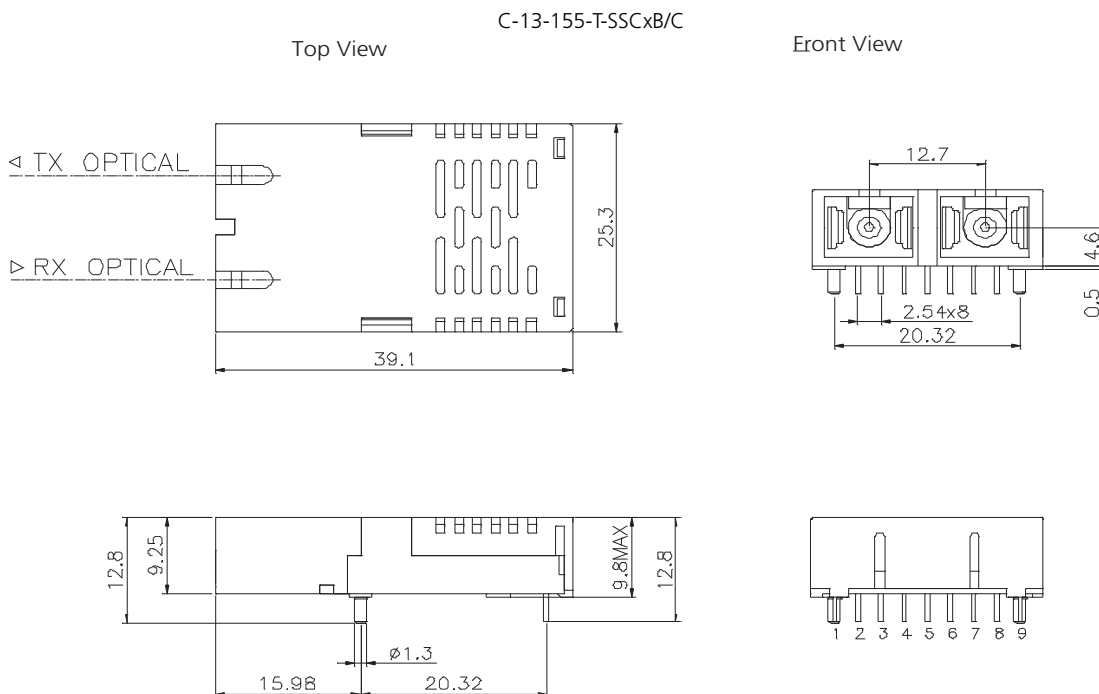
Recommended Circuit Schematic



The split-load 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 V_{cc} and Tx V_{cc}. A GND plane under the module is required for good EMI and sensitivity performance.

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SC Transceiver Assembly 9.8mm



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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