

C-13-155-T-SSC5-06



**Features**

- Duplex SC Single Mode Transceiver
- Industry Standard 1x9 Footprint
- Intermediate Reach SONET OC-3 SDH STM-1 Compliant
- Single 5V or Power Supply
- PECL Differential Inputs and Outputs
- 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
- Complies with Telcordia (Bellcore) GR-468-CORE
- Black case 10.4 mm
- SD PECL level
- ATM 155 Mbps Links Application
- SONET/SDH Equipment Interconnect Application

**Absolute Maximum Rating**

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	$V_{CC}$	0	6.0	V	
Output Current	$I_{out}$	0	30	mA	
Soldering Temperature	-	-	260	°C	10 seconds on leads only
Operating Temperature	$T_{opr}$	-25	70	°C	
Storage Temperature	$T_{stg}$	-40	85	°C	

**Recommended Operating Condition**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply Voltage	$V_{CC}$	4.75	5.0	5.25	V
Operating Temperature (Case)	$T_{opr}$	-25	-	70	°C
Data Rate		-	155	-	Mbps

**Transmitter Specifications, (-25< $T_{opr}$ <70°C, 4.75V< $V_{CC}$ <5.25V)**

Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Optical</b>						
Optical Transmit Power	$P_o$	-5	-	0	dBm	output power is coupled into a 9/125 $\mu$ m single mode fiber
Output Center Wavelength	$\lambda$	1263	1310	1360	nm	
Output Spectrum Width	$\Delta\lambda$			3	nm	RMS( $\sigma$ )
Extinction Ratio	ER	10	-	-	dB	
Output Pulse Mask		Compliant with FDDI SMF-PMD1				
Output Eye		Compliant with ITU-T 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	-	-	-116	dB/Hz	
Total Jitter	TJt	-	-	1.2	ns	Measured with 2 <sup>23</sup> -1 PRBS with 72 ones and 72 zeros.

## C-13-155-T-SSC5-06

Transmitter Specifications, (-25<T<sub>opr</sub><70°C, 4.75V<V<sub>CC</sub><5.25V)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Electrical</b>						
Power Supply Current	I <sub>CC</sub>	-	-	150	mA	Maximum current is specified at V <sub>CC</sub> =Maximum @ maximum temperature
Data Input Current-Low	I <sub>IL</sub>	-350	-	-	μA	
Data Input Current-High	I <sub>IH</sub>	-	-	350	μA	
Differential Input Voltage	V <sub>IH</sub> -V <sub>IL</sub>	300	-	-	mV	
Data Input Voltage-Low	V <sub>IL</sub> -V <sub>CC</sub>	-2.0	-	-1.58	V	These inputs are compatible with 10K, 10KH and 100K ECL and PECL inputs
Data Input Voltage-High	V <sub>IH</sub> -V <sub>CC</sub>	-1.1	-	-0.74	V	

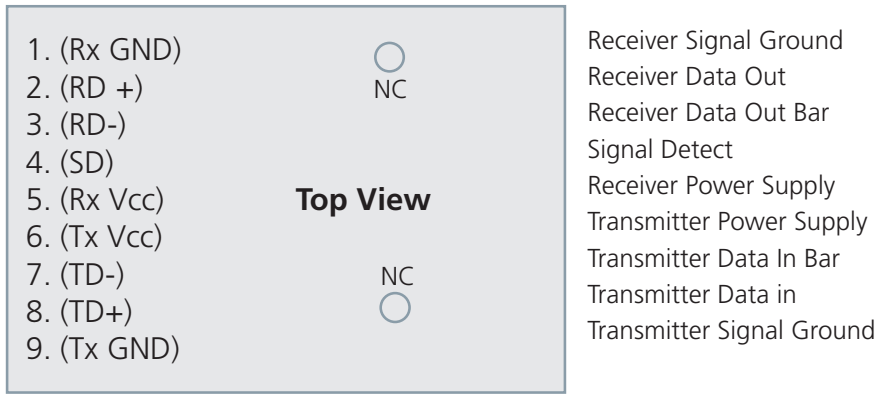
Receiver Specifications, (-25<T<sub>opr</sub><70°C, 4.75V<V<sub>CC</sub><5.25V)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Optical</b>						
Sensitivity	-	-	-	-35	dBm	measured with 2 <sup>23</sup> -1 PRBS with 72 ones and 72 zeros.
Maximum Input Power	P <sub>in</sub>	0	-	-	dBm	
Signal Detect-Asserted	P <sub>a</sub>	-	-	-35	dBm	Measured on transition: low to high
Signal Detect-Deasserted	P <sub>d</sub>	-47	-	-	dBm	Measured on transition: high to low
Signal Detect-Hysteresis		1.0	-	4.0	dB	
Wavelength of Operation		1100	-	1600	nm	

Receiver Specifications, (-25<T<sub>opr</sub><70°C, 4.75V<V<sub>CC</sub><5.25V)

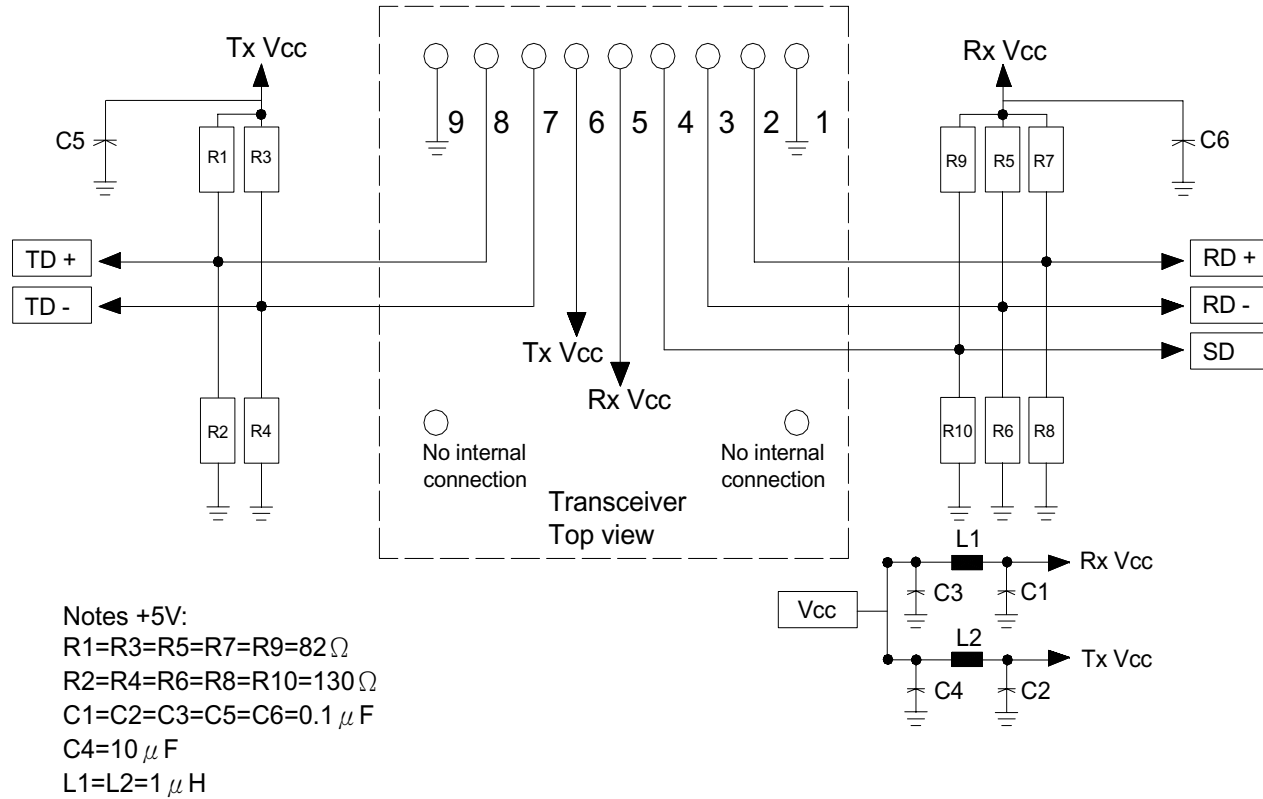
Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Electrical</b>						
Power Supply Current	I <sub>CC</sub>	-	-	100	mA	The current excludes the output load current
Data Output Voltage-Low	V <sub>OL</sub> -V <sub>CC</sub>	-2	-	-1.58	V	These outputs are compatible with 10K, 10KH and 100KECL and LVPECL outputs.
Data Output Voltage-High	V <sub>OH</sub> -V <sub>CC</sub>	-1.1	-	-0.74	V	
Signal Detect Output Voltage-Low	V <sub>SDL</sub> -V <sub>CC</sub>	-2	-	-1.58	V	PECL SD Output
Signal Detect Output Voltage-High	V <sub>SDH</sub> -V <sub>CC</sub>	-1.1	-	-0.74	V	

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	+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

Recommended Circuit Schematic

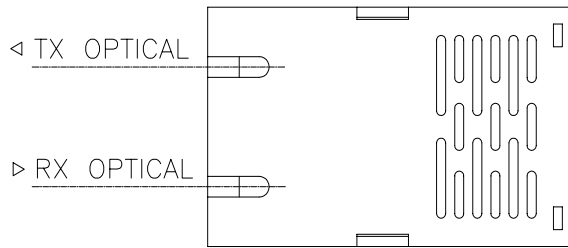


The split-loaded terminations for ECL signals need to be located at the input of devices receiving those ECL signals.  
 The power supply filtering is required for good EMI performance. Use short tracks from the inductor L1/L2 to the module Rx Vcc.  
 A GND plane under the module is required for good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

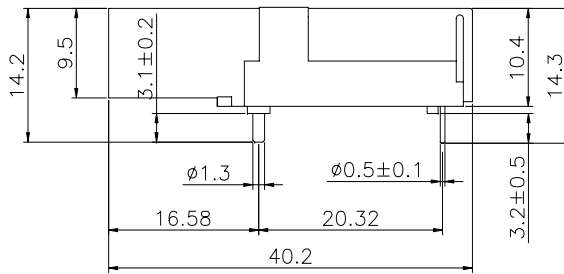
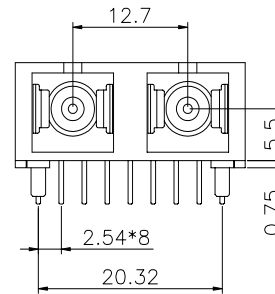
Package Diagram

### SC Transceiver Assembly 10.4mm

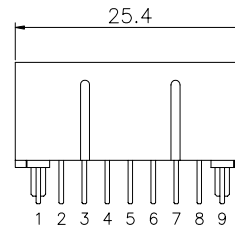
Top View



Front View



Side View



Rear View

## Ordering Information

C - 13 - 155 - T - S SC 5 -06

- Wavelength = 1310 nm
- Communication protocol (155 Mbps)
- T = 5V Transceiver , FP
- Single mode fiber
- Connector options(SC)
- Long Reach
- Temperature range and package  
-06 = -25 to 70°C

**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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