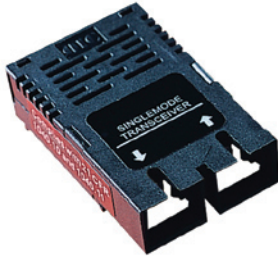


C-13-155(C)-T3-SXX3(5)



Features

- Duplex SC Single Mode Transceiver
- Industry Standard 1x9 Footprint
- Intermediate Reach SONET OC-3 SDH STM-1 Compliant
- Single 3.3V Power Supply
- LVPECL 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
- Temperature Range: 0 to 70°C
- C-13-155(C)-T3-SSC3(5) black case 10.4 mm
- SD LVPECL level C-13-155-T3-SXX3(5)
- SD LVTTTL level C-13-155C-T3-SXX3(5)
- 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	3.6	V	
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
Operating Temperature	T_{opr}	0	-	70	°C
Data Rate		-	155	-	Mbps

Transmitter Specifications, (0< T_{opr} <70°C, 3.1V< V_{CC} <3.5V)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Optical Transmit Power	P_o	-15	-	-8	dBm	C-13-155(C)-T3-SXX3, output power is coupled into a 9/125 μ m single mode fiber
Optical Transmit Power	P_o	-5	-	0	dBm	C-13-155(C)-T3-SXX5, output power is coupled into a 9/125 μ m single mode fiber
Output Center Wavelength	λ	1261	1310	1360	nm	C-13-155(C)-T3-SXX3
Output Center Wavelength	λ	1263	1310	1360	nm	C-13-155(C)-T3-SXX5
Output Spectrum Width	$\Delta\lambda$	-	-	7.7	nm	RMS(σ), C-13-155(C)-T3-SXX3
Output Spectrum Width	$\Delta\lambda$			5	nm	RMS(σ), C-13-155(C)-T3-SXX5
Extinction Ratio	ER	8.2	-	-	dB	C-13-155(C)-T3-SXX3
Extinction Ratio	ER	10	-	-	dB	C-13-155(C)-T3-SXX5
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 ²³ -1 PRBS with 72 ones and 72 zeros.

C-13-155(C)-T3-SXX3(5)

Transmitter Specifications, (0<T_{opr}<70°C, 3.1V<V_{CC}<3.5V)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Electrical						
Power Supply Current	I _{CC}	-	-	160	mA	Maximum current is specified at V _{CC} = Maximum @ maximum temperature
Data Input Current-Low	I _{IL}	-350	-	-	μA	
Data Input Current-High	I _{IH}	-	-	350	μA	
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, (0<T_{opr}<70°C, 3.1V<V_{CC}<3.5V)

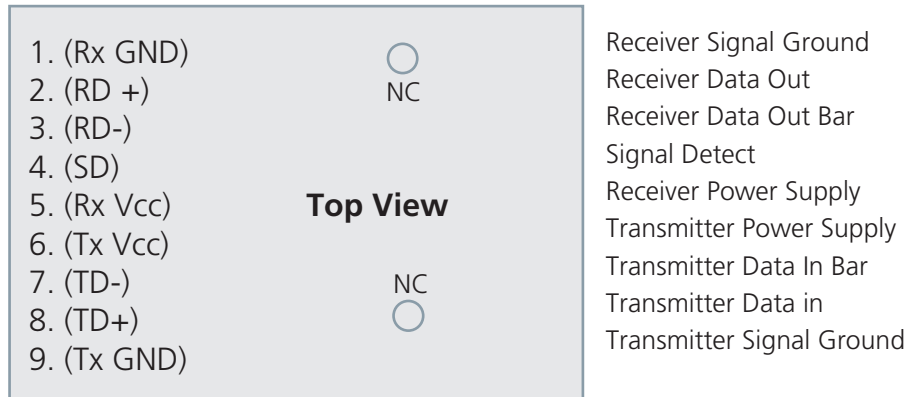
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Sensitivity	-	-	-	-34	dBm	measured with 2 ²³ -1 PRBS with 72 ones and 72 zeros. C-13-155-T3-SXX3
Sensitivity	-	-	-	-35	dBm	measured with 2 ²³ -1 PRBS with 72 ones and 72 zeros. C-13-155(C)-T3-SXX5
Maximum Input Power	P _{in}	-7	-	-	dBm	C-13-155(C)-T3-SXX3
Maximum Input Power	P _{in}	0	-	-	dBm	C-13-155(C)-T3-SXX5
Signal Detect-Asserted	P _a	-	-	-34	dBm	C-13-155(C)-T3-SXX3, Measured on transition: low to high
Signal Detect-Asserted	P _a	-	-	-35	dBm	C-13-155(C)-T3-SXX5, Measured on transition: low to high
Signal Detect-Deasserted	P _d	-47	-	-	dBm	C-13-155-T3-SXX3(5) Measured on transition: high to low
Signal Detect-Hysteresis		1.0	-	4.0	dB	
Wavelength of Operation		1100	-	1600	nm	

Receiver Specifications, (0<T_{opr}<70°C, 3.1V<V_{CC}<3.5V)

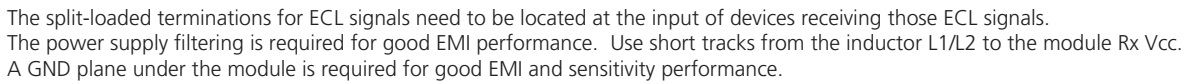
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Electrical						
Power Supply Current	I _{CC}	-	-	100	mA	The current excludes the output load current
Data Output Voltage-Low	V _{OL} -V _{CC}	-2	-	-1.58	V	These outputs are compatible with 10K, 10KH and 100KECL and LVPECL outputs.
Data Output Voltage-High	V _{OH} -V _{CC}	-1.1	-	-0.74	V	
Signal Detect Output Voltage-Low	V _{SDL} -V _{CC}	-2	-	-1.58	V	C-13-155-T3-SXX3(5) LVPECL SD Output
Signal Detect Output Voltage-High	V _{SDH} -V _{CC}	-1.1	-	-0.74	V	
Signal Detect Output Voltage-Low	V _{SDL}	-	-	0.5	V	C-13-155(C)-T3-SXX3(5) LVTTTL SD Output
Signal Detect Output Voltage-High	V _{SDH}	2.0	-	-	V	

C-13-155(C)-T3-SXX3(5)

Connection Diagram



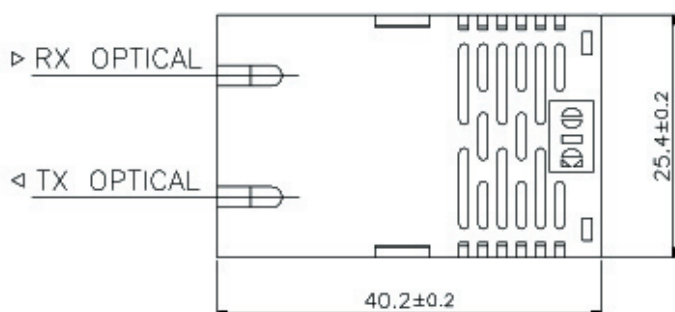
PIN	Symbol	Notes
1	RxGND	Directly connect this pin to the receiver ground plane
2	RD+	See recommended circuit schematic
3	RD-	See recommended circuit schematic
4	SD	Active high on this indicates a received optical signal
5	RxVcc	+3.3V dc power for the receiver section
6	TxVcc	+3.3V dc power for the transmitter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



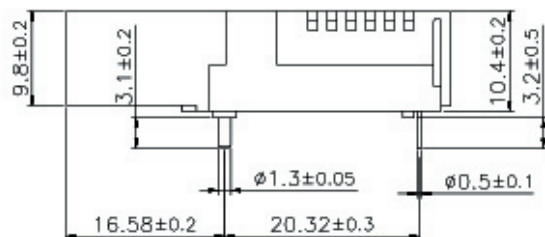
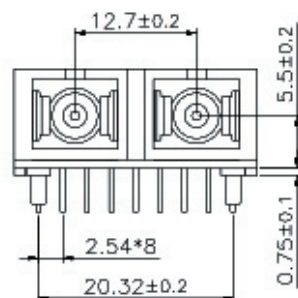
Package Diagram

SC Transceiver Assembly 10.4mm

Top View



Front View



Side View

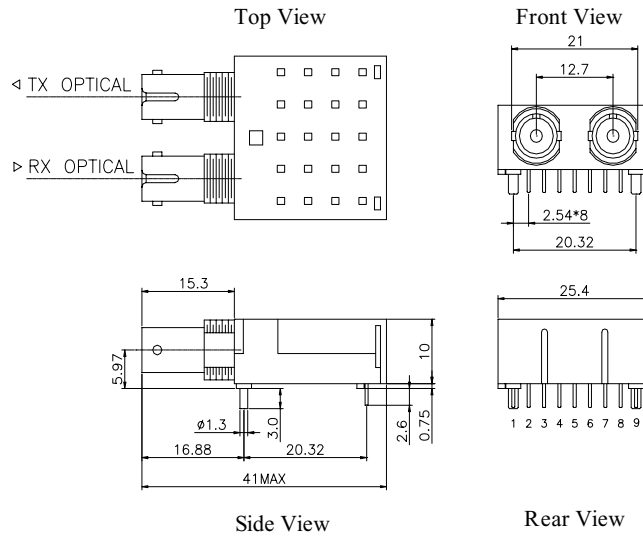


Rear View

C-13-155(C)-T3-SXX3(5)

Package Diagram

ST Transceiver Assembly



Qualification Information

The 155 Mbps SM Transceiver has passed the following qualification tests and meets the intent of Telcordia (Bellcore) GR-468-CORE.

Qualification Test	Condition	Sample Size	Reference
Mechanical Shock	500 g	11	MIL-STD-883
Vibration	20g, 20 Hz-2,000 Hz	11	MIL-STD-883D Method 2007
Solderability	-	11	MIL-STD-883E Method 2003.7
Thermal Shock	25°C	11	MIL-STD-883 Method 1011
Temperature Cycling	500 cycles	11	MIL-STD-883 Method 1010
Damp Heat	40°C, 95% RH, 1344 hrs	11	MIL-STD-202 Method 103
Cyclic Moisture Resistance	10 cycles	11	MIL-STD-883 Method 1004
ESD	± 500V	6	MIL-STD-883D Method 3015.7

C-13-155(C)-T(3)-SXX3(5)

Ordering Information

C - 13 - 155(C) - T(3) - SXX 3(5)

• Wavelength = 1310 nm

• Communication protocol
(155 Mbps)

• +3.3V Transceiver

• Single mode fiber

• Connector options(SC/ST)

• Intermediate Reach

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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