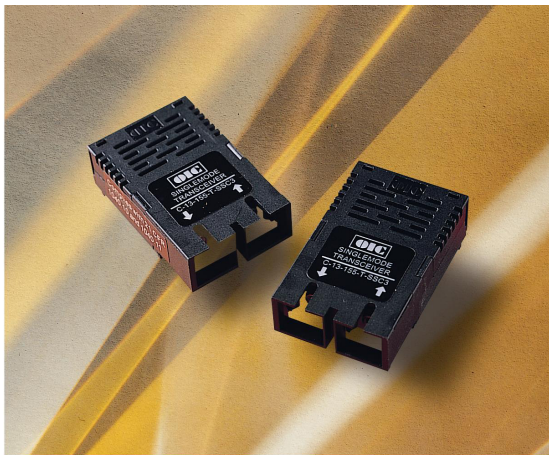


1550 nm
Singlemode

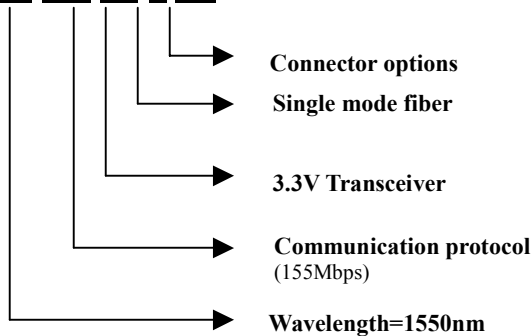
C-15-155-T3-SSC

155 Mbps Single Mode Transceiver



Ordering information

C-15-155-T3-S SC



Description

The C-15-155-T3-SSC single mode transceiver is a high performance module for bi-directional serial optical data communications and operates at a nominal wavelength of 1550nm. The transmission distance is at least 20km in single mode fiber system. This module can be cooperated with 1310nm single mode transceiver module to form a 2-wavelength optical data system. The transmitter section uses a multiple quantum well laser and is a class 1 laser compliant according to International Safety Standard IEC-825. The receiver section uses a planar InGaAs PIN photodiode for low dark current and excellent responsivity. A LVPECL logic interface simplifies interface to external circuitry.

Features

- SC Duplex Single Mode Transceiver
- Industry Standard 1 x 9 Footprint
- Laser wavelength 1550nm
- 30km Transmission from Dispersion Shift Fiber System
- Single+3.3V Power Supply
- LVPECL Differential Inputs and Outputs
- Wave Solderable and Aqueous Washable
- LED Multisourced 1 x 9 Transceiver Interchangeable
- Uncooled laser diode with MQW structure
- Complies with Bellcore TA-NWT-000983

Applications

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

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	Vcc	0	3.6	V	
Input Voltage	---	GND	Vcc	V	
Output Current	Iout	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 Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply Voltage	Vcc	3.1	3.3	3.5	V
Operating Temperature	T _{opr}	0		70	°C
Data Rate			155		Mbit/s

1550 nm Singlemode	C-15-155-T3-SSC	155 Mbps Single Mode Transceiver
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Transmitter Specifications (0°C < T_{opr} < 70°C, 3.1V < V_{cc} < 3.5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Optical						
Optical Transmit Power	P _o	-15	---	-7	dBm	Output power is coupled into a 9/125 μm single mode fiber
Output Center Wavelength	λ	1510	1550	1590	nm	
Output Spectrum Width	Δ λ	---	---	7.7	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			-120	dB/Hz	
Total Jitter	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			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 LVPECL inputs.
Data Input Voltage-High	V _{IH} -V _{CC}	-1.1		-0.74	V	

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

Parameter	Symbol	Min.	Typ..	Max	Unit	Notes
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}	-5		---	dBm	
Signal Detect – Asserted	P _a	---		-34	dBm	Measured on transition: low to high
Signal Detect –Deasserted	P _d	-47		---	dBm	Measured on transition: high to low
Signal detect –Hysteresis		1.0		4.0	dB	
Wavelength of Operation		1100		1600	nm	

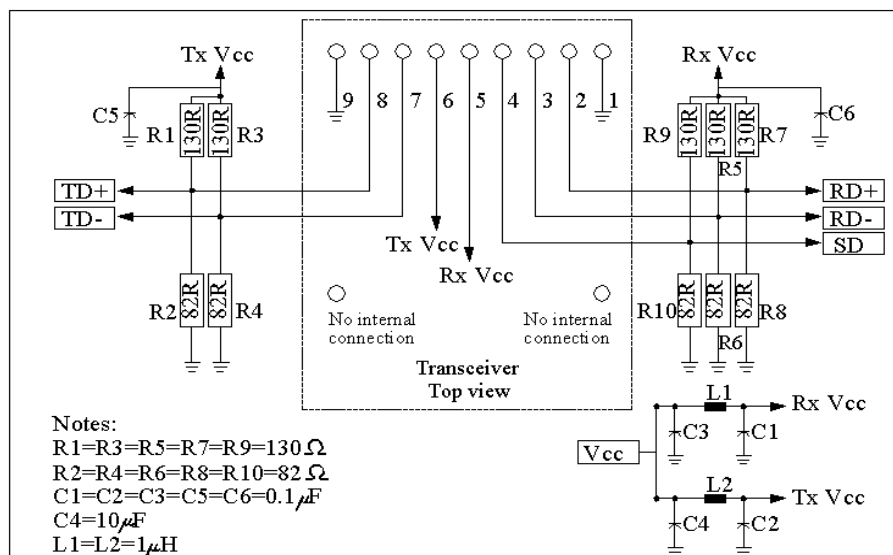
Electrical						
Power Supply Current	I _{cc}			100	mA	The current excludes the output load current
Data output Voltage—Low	V _{OL} -V _{CC}	-2		-1.58	V	These outputs are compatible with 10K , 10KH and 100KECL and LVPECL outputs.
Data output Voltage—High	V _{OH} -V _{CC}	-1.1		-0.74	V	
Signal Detect Output Voltage—Low	V _{SDL} -V _{CC}	-2		-1.58	V	
Signal Detect Output Voltage—High	V _{SDH} -V _{CC}	-1.1		-0.74	V	

CONNECTION DIAGRAM

Receiver Signal Ground
Receiver Data Out
Receiver Data Out Bar
Signal Detect
Receiver Power Supply
Transmitter Power Supply
Transmitter Data In Bar
Transmitter Data In
Transmitter Signal Ground

1. (Rx GND)	
2. (RD+)	N/C
3. (RD-)	
4. (SD)	
5. (Rx Vcc)	TOP VIEW
6. (Tx Vcc)	
7. (TD-)	
8. (TD+)	N/C
9. (Tx GND)	

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 plan to the transmitter ground plane

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 Vcc and Tx Vcc. A GND plane under the module is required for good EMI and sensitivity performance.

1550 nm
Singlemode

C-15-155-T3-SSC

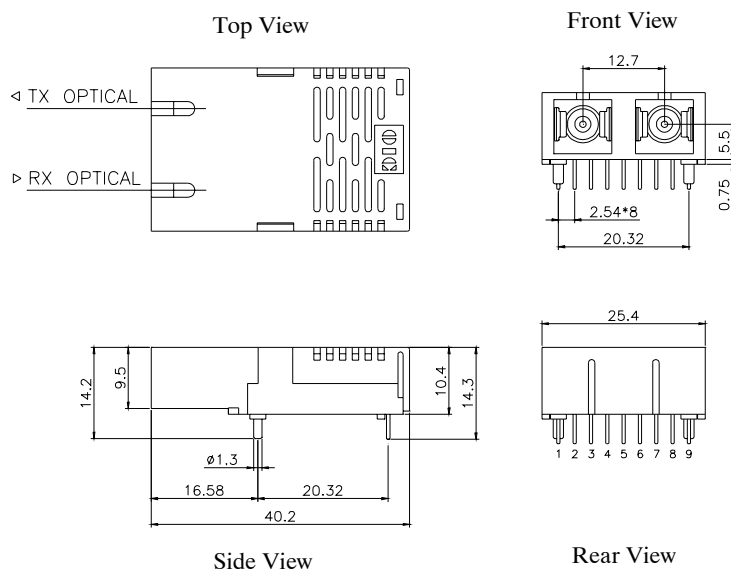
155 Mbps Single Mode Transceiver

PACKAGE DIAGRAM

Units in mm

C-15-155-T3-SSC

SC Transceiver Assembly 10.4mm



LASER SAFETY

This single mode transceiver is a Class1 laser product. It complies with IEC 825 and FDA 21 CFR 1040.10 and 1040.11. The transceiver must be operated within the specified temperature and voltage limits. The optical ports of the module shall terminate with an optical connector or with a dust plug.