

C-1X-622(C)-TDFB(3)-SSC4



Features

- SC Duplex Single Mode Transceiver
- Industry Standard 1x9 Footprint
- Complies with SONET OC-12 SDH STM-4
- Single +3.3V/5V power supply
- Operating Temperature Range 0 to 70°C
- PECL Differential Inputs and Outputs
- TTL/LVTTL Signal Detection Output [C-1X-622C-TDFB(3)-SSC4]
- PECL/LVPECL Signal Detection Output [C-1X-622-TDFB(3)-SSC4]
- Wave Solderable and Aqueous Washable
- Uncooled laser diode with MQW structure
- Complies with Bellcore GR-468-CORE
- ATM 622 Mbps Link application
- SONET/SDH Equipment Interconnect application
- RoHS compliance available

Absolute Maximum Rating

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V_{CC}	0	6.0	V	C-1X-622(C)-TDFB-SSC4
Power Supply Voltage	V_{CC}	0	3.6	V	C-1X-622(C)-TDFB3-SSC4
Output Current	I_{out}	0	30	mA	
Soldering Temperature	-	-	240	°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	Note
Power Supply Voltage	V_{CC}	4.75	5	5.25	V	C-1X-622(C)-TDFB-SSC4
Power Supply Voltage	V_{CC}	3.1	3.3	3.5	V	C-1X-622(C)-TDFB3-SSC4
Operating Temperature (Case)	T_{opr}	0	-	70	°C	
Data Rate	-	-	622	-	Mbps	

Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Optical Transmit Power	P_o	-3	-	+2	dBm	
Output center Wavelength	λ	1280	1310	1335	nm	C-13-622(C)-TDFB(3)-SSC4
Output center Wavelength	λ	1480	1550	1580	nm	C-15-622(C)-TDFB(3)-SSC4
Output Spectrum Width	$\Delta\lambda$	-	-	1	nm	-20 dB width
Side Mode Suppression Ratio	S_r	30	35	-	dB	
Extinction Ratio	ER	10	-	-	dB	
Output Eye		Compliant with ITU recommendation G.957				
Optical Rise Time	t_r	-	-	1.2	ns	10% to 90% Values
Optical Fall Time	t_f	-	-	1.2	ns	10% to 90% Values
Relative Intensity Noise	RIN	-	-	-120	dB/Hz	
Total Jitter	TJ	-	-	0.55	ns	Measured with 2 ²³ -1 PRBS with 72 ones and 72 zeros.

C-1X-622(C)-TDFB(3)-SSC4

Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Electrical						
Power Supply Current	I_{CC}	-	-	150	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

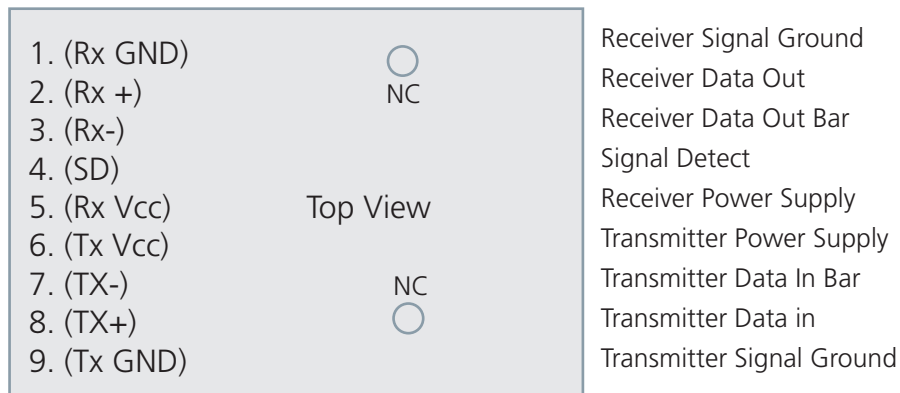
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Sensitivity	-	-	-	-28	dBm	Measured with 2 ²³ -1 PRBS, BER= 10 ⁻¹⁰
Maximum Input Power	P_{in}	-3	-	-	dBm	
Signal Detect-Asserted	P_a	-	-	-28	dBm	Measured on transition: low to high
Signal Detect-Deasserted	P_d	-40	-	-	dBm	Measured on transition: high to low
Signal Detect-Hysteresis		-	3	-	dB	
Wavelength of Operation		1100	-	1600	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}	-	-	0.5	V	C-1X-622C-TDFB(3)-SSC4
Signal Detect Output Voltage-High	V_{SDH}	2.0	-	-	V	
Signal Detect Output Voltage-Low	$V_{SDL}-V_{CC}$	-2.0	-	-1.58	V	C-1X-622-TDFB(3)-SSC4
Signal Detect Output Voltage-High	$V_{SDH}-V_{CC}$	-1.1	-	-0.74	V	

C-1X-622(C)-TDFB(3)-SSC4

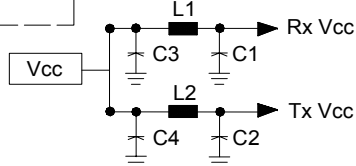
Connection Diagram



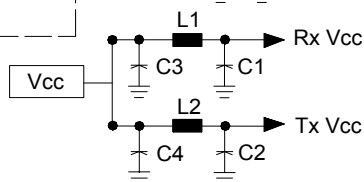
PIN	Symbol	Notes
1	RxGND	Directly connect this pin to the receiver ground plane
2	RD+	See recommended circuit schematic
3	RD-	See recommended circuit schematic
4	SD	Active high on this indicates a received optical signal
5	RxVcc	+3.3V/5V dc power for the receiver section
6	TxVcc	+3.3V/5V dc power for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

[illegible]

Notes +5V:
 $R_1=R_3=R_5=R_7=R_9=82\ \Omega$
 $R_2=R_4=R_6=R_8=R_{10}=130\ \Omega$
 $C_1=C_2=C_3=C_5=C_6=0.1\ \mu F$
 $C_4=10\ \mu F$
 $L_1=L_2=1\ \mu H$



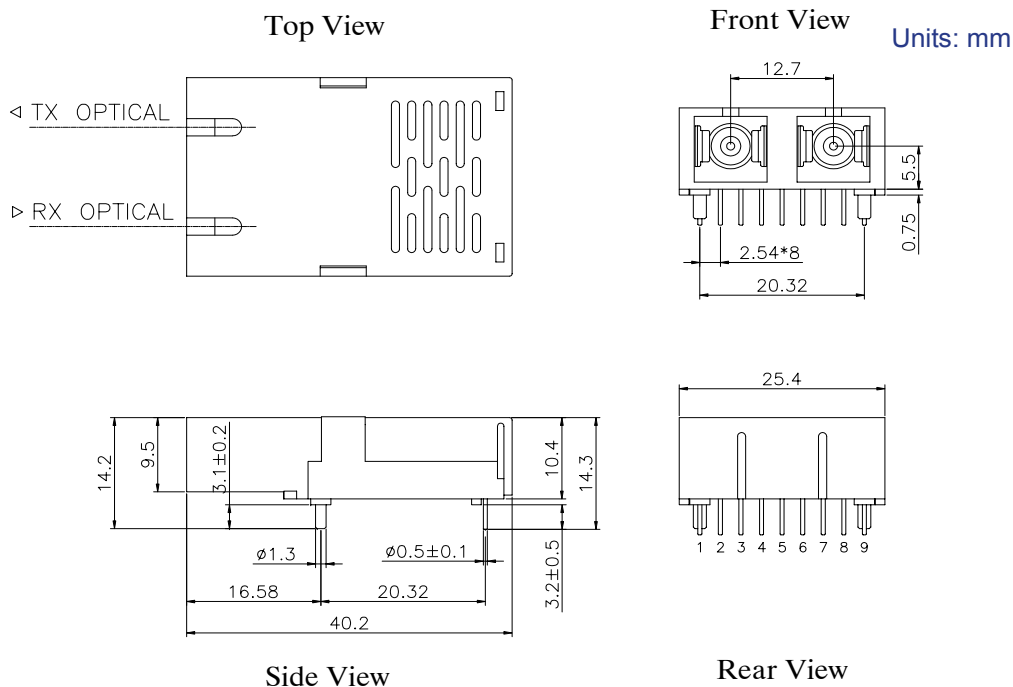
Notes +5V:
 $R1=R3=R5=R7=82\Omega$
 $R2=R4=R6=R8=130\Omega$
 $C1=C2=C3=C5=C6=0.1\mu F$
 $C4=10\mu F$
 $L1=L2=1\mu H$



4

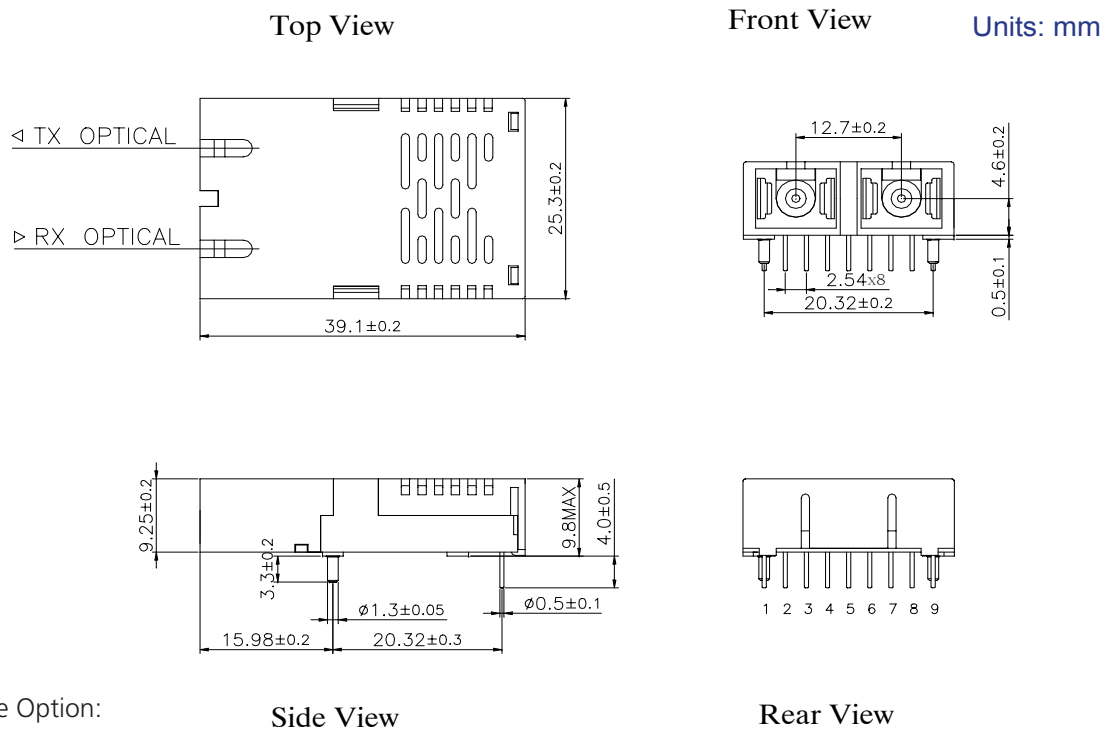
C-1X-622(C)-TDFB(3)-SSC4

Package Diagram (10.4 mm SC transceiver assembly)



Package Option:
Blank / A = Black Case

Package Diagram (9.8 mm SC transceiver assembly)



Package Option:
B / E : Blue case
C / D : Black case

C-1X-622(C)-TDFB(3)-SSC4

Ordering Information

Available Options:

C-13-622-TDFB(3)-SSC4	C-13-622C-TDFB(3)-SSC4	C-13-622-TDFB(3)-SSC4-G5	C-13-622C-TDFB(3)-SSC4-G5
C-13-622-TDFB(3)-SSC4A	C-13-622C-TDFB(3)-SSC4A	C-13-622-TDFB(3)-SSC4A-G5	C-13-622C-TDFB(3)-SSC4A-G5
C-13-622-TDFB(3)-SSC4B	C-13-622C-TDFB(3)-SSC4B	C-13-622-TDFB(3)-SSC4B-G5	C-13-622C-TDFB(3)-SSC4B-G5
C-13-622-TDFB(3)-SSC4C	C-13-622C-TDFB(3)-SSC4C	C-13-622-TDFB(3)-SSC4C-G5	C-13-622C-TDFB(3)-SSC4C-G5
C-13-622-TDFB(3)-SSC4D	C-13-622C-TDFB(3)-SSC4D	C-13-622-TDFB(3)-SSC4D-G5	C-13-622C-TDFB(3)-SSC4D-G5
C-13-622-TDFB(3)-SSC4E	C-13-622C-TDFB(3)-SSC4E	C-13-622-TDFB(3)-SSC4E-G5	C-13-622C-TDFB(3)-SSC4E-G5
C-15-622-TDFB(3)-SSC4	C-15-622C-TDFB(3)-SSC4	C-15-622-TDFB(3)-SSC4-G5	C-15-622C-TDFB(3)-SSC4-G5
C-15-622-TDFB(3)-SSC4A	C-15-622C-TDFB(3)-SSC4A	C-15-622-TDFB(3)-SSC4A-G5	C-15-622C-TDFB(3)-SSC4A-G5
C-15-622-TDFB(3)-SSC4B	C-15-622C-TDFB(3)-SSC4B	C-15-622-TDFB(3)-SSC4B-G5	C-15-622C-TDFB(3)-SSC4B-G5
C-15-622-TDFB(3)-SSC4C	C-15-622C-TDFB(3)-SSC4C	C-15-622-TDFB(3)-SSC4C-G5	C-15-622C-TDFB(3)-SSC4C-G5
C-15-622-TDFB(3)-SSC4D	C-15-622C-TDFB(3)-SSC4D	C-15-622-TDFB(3)-SSC4D-G5	C-15-622C-TDFB(3)-SSC4D-G5
C-15-622-TDFB(3)-SSC4E	C-15-622C-TDFB(3)-SSC4E	C-15-622-TDFB(3)-SSC4E-G5	C-15-622C-TDFB(3)-SSC4E-G5

Part numbering Definition:

	C	1X	622(C)	TDFB(3)	S	SC	TxPower	Temperature and Package	-RoHS
• Wavelength									
13 = Wavelength 1310nm									
15 = Wavelength 1550nm									
• Communication protocol									
(622 Mbps)									
622 = PECL/VLPECL signal detection output									
622C = TTL/LVTTL signal detection output									
• TDFB= +5V DFB Transceiver									
TDFB3= +3.3V DFB Transceiver									
• Single mode fiber									
• Connector options									
SC									
• Tx Power range									
4 = -3 to +2 dBm									
• Temperature range and package									
Blank / A = Black case 10.4 mm									
B / E = Blue case 9.8 mm									
C / D = Black case 9.8 mm									
• Ordering Information									
Blank = RoHS non-compliant product									
G5 = RoHS 5/6-compliant product (lead exemption)									
GR = Full RoHS compliant product (no 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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