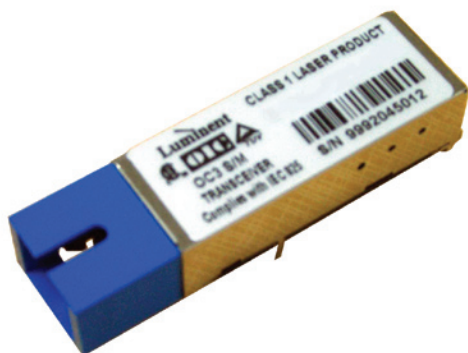


B-1x/1x-155-F-SSC3(S)



Features

- Diplexer Single Mode Single Fiber 2x5 SFF SC Receptacle connector
- Wavelength Tx 1310nm/Rx 1530 nm (B-13/15-155-F-SSC3x)
- Wavelength tx 1530nm/Rx 1310 nm(B-15/13-155-F-SSC3x)
- SONET OC-3 SDH STM-1 Compliant
- Single +3.3V Power Supply
- LVPECL Differential Inputs and Outputs
- Wave Solderable and Aqueous Washable
- 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
- Optical Isolation > 30 db
- Cross Talk < -33 db
- EMI Shielding Finger Optional

Absolute Maximum Rating

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V _{cc}	0	3.6	V	
Input Voltage	-	0	V _{cc}	V	
Output Current	I _{out}	-	30	mA	
Soldering Temperature	-	-	260	°C	10 seconds on leads only
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°C<T_{opr}<70°C, 3.1V < V_{cc} < 3.5V)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Optical Transmit Power	P _o	-14	-	-8	dBm	Output Power is coupled into a 9/125 μm single mode fiber
Output center Wavelength	λ	1260	1310	1360	nm	B-13/15-155-F-SSC3X
Output center Wavelength	λ	1480	1530	1580	nm	B-15/13-155-F-SSC3X
Output Spectrum Width	Δλ	-	-	3	nm	RMS(σ)
Extinction Ratio	ER	8.2	-	-	dB	
Output Eye		Compliant with ITU recommendation G.957/STM-1				
Optical Rise Time	t _r	-	-	2	ns	10% to 90% Values
Optical Fall Time	t _f	-	-	2	ns	10% to 90% Values
Optical Isolation		30	-	-	dB	Tx: 1310nm / Rx: 1550 nm
Relative Intensity Noise	RIN	-	-	-116	dB/Hz	
Total Jitter	TJ	-	-	1.0	ns	Measured with 2 ²³ -1 PRBS with 72 ones and 72 zeros.

B-1x/1x-155-F-SSC3(S)

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

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Electrical						
Supply Current	I _{CC}	-	-	140	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°C<T_{opr}<70°C, 3.1V < V_{CC} < 3.5V)

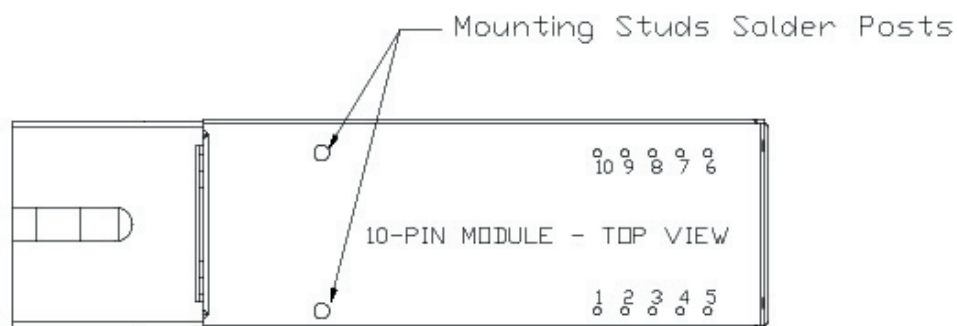
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Sensitivity	-	-	-	-33	dBm	Measured with 2 ²³ -1 PRBS, BER= 10 ⁻¹⁰
Maximum Input Power	P _{in}	-3	-	-	dBm	
Signal Detect-Asserted	Pa	-	-	-33	dBm	Measured on transition: low to high (Note 1)
Signal Detect-Deasserted	Pd	-41	-	-	dBm	Measured on transition: high to low (Note 1)
Signal Detect-Hysteresis	-	1	-	4	dB	
Cross Talk	-	-	-	-33	dB	
Wavelength of Operation	-	1480	-	1600	nm	B-13/15-155-F-SSC3x
Wavelength of Operation	-	1260	-	1360	nm	B-15/13-155-F-SSC3x

Note 1: The SD level should be deasserted when fiber disconnected

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

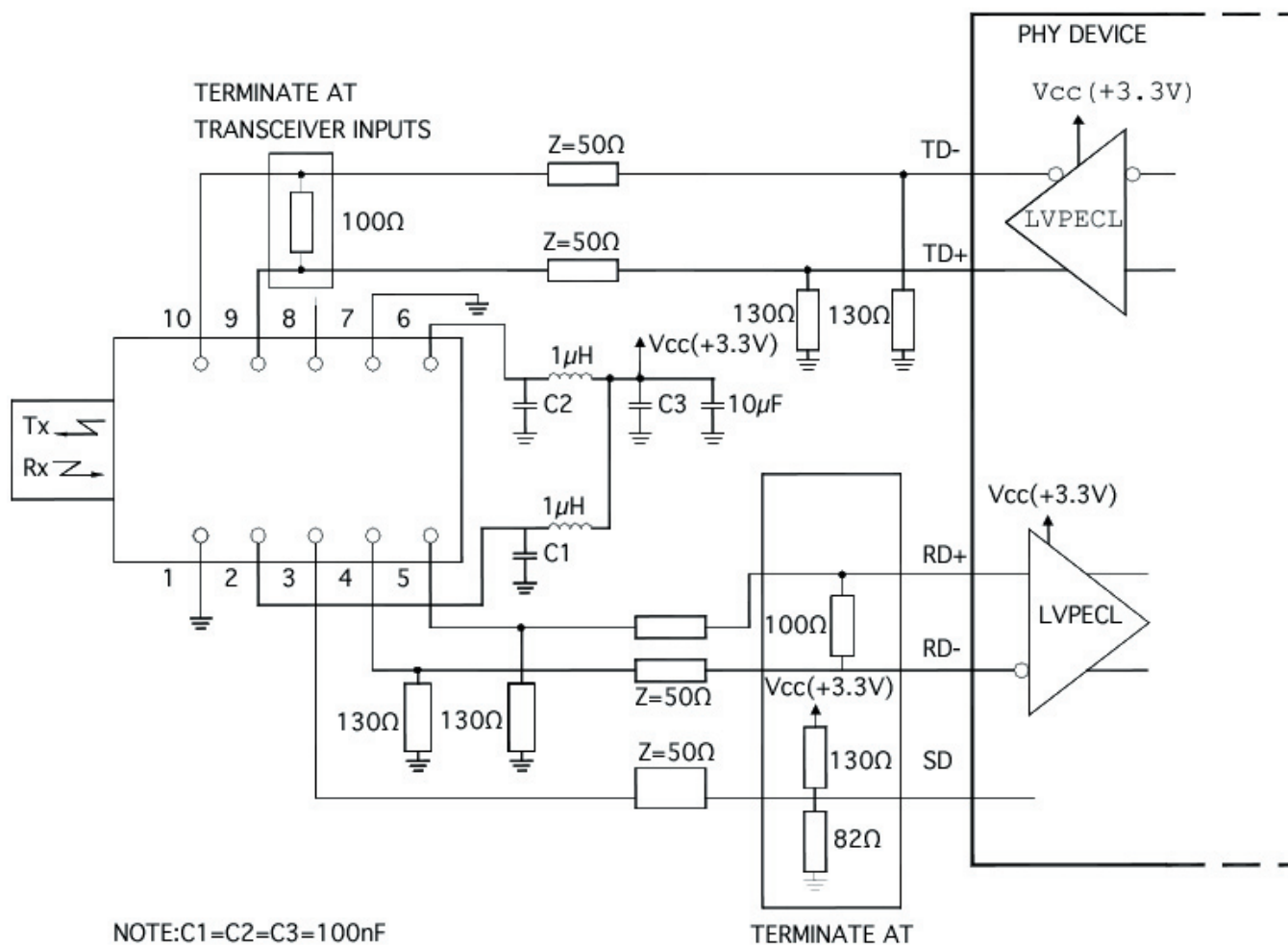
Parameter	Symbol	Min	Typical	Max	Unit	Note
Electrical						
Supply Current	I _{CC}	-	-	100	mA	The current excludes the output load current
Data Output Voltage-Low	V _{OL} -V _{CC}	-2.0	-	-1.58	V	These outputs are compatible with 10K, 10KH and 100KECL and LVPECL outputs
Data Output Voltage-High	V _{OH} -V _{CC}	-1.1	-	-0.74	V	
Signal Detect Output Voltage-Low	V _{SDL} -V _{CC}	-2.0	-	-1.58	V	
Signal Detect Output Voltage-High	V _{SDH} -V _{CC}	-1.1	-	-0.74	V	

Connection Diagram



PIN	Symbol	Notes
1	RxGND	Directly connect this pin to the receiver ground plane
2	RxVcc	+3.3V dc power for the receiver section
3	SD	Active high on this indicates a received optical signal(LVPECL)
4	RD-	Receiver Data Out Bar(LVPECL)
5	RD+	Receiver Data Out (LVPECL)
6	TxVcc	+3.3V dc power for the transmitter section
7	TxGND	Directly connect this pin to the transmitter ground plane
8	TxDIS	Transmitter disable(LVTTL)
9	TD+	Transmitter Data In (LVPECL)
10	TD-	Transmitter Data In Bar (LVPECL)

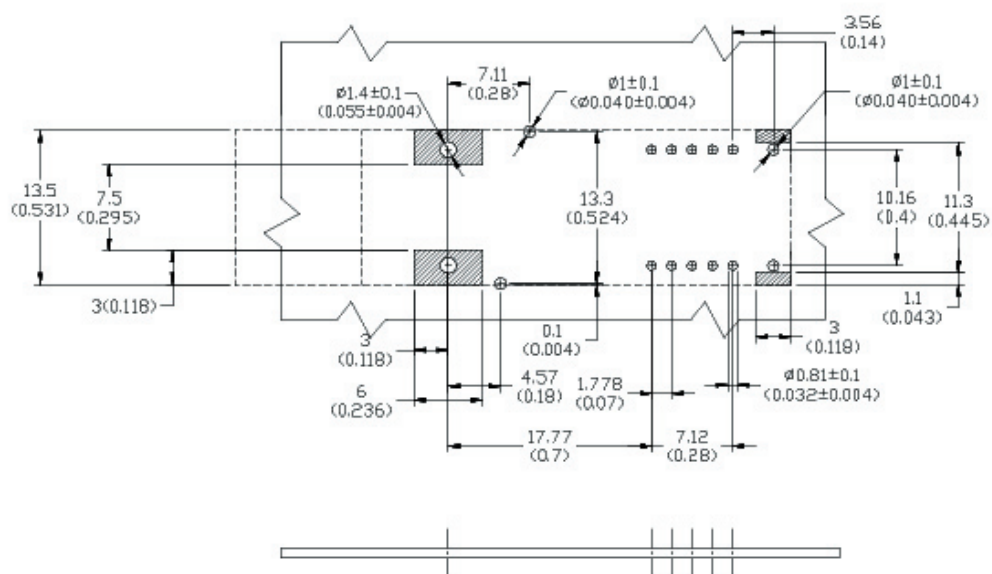
Recommended Circuit Schematic



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.

B-1x/1x-155-F-SSC3(S)

Recommended Circuit Board Layout



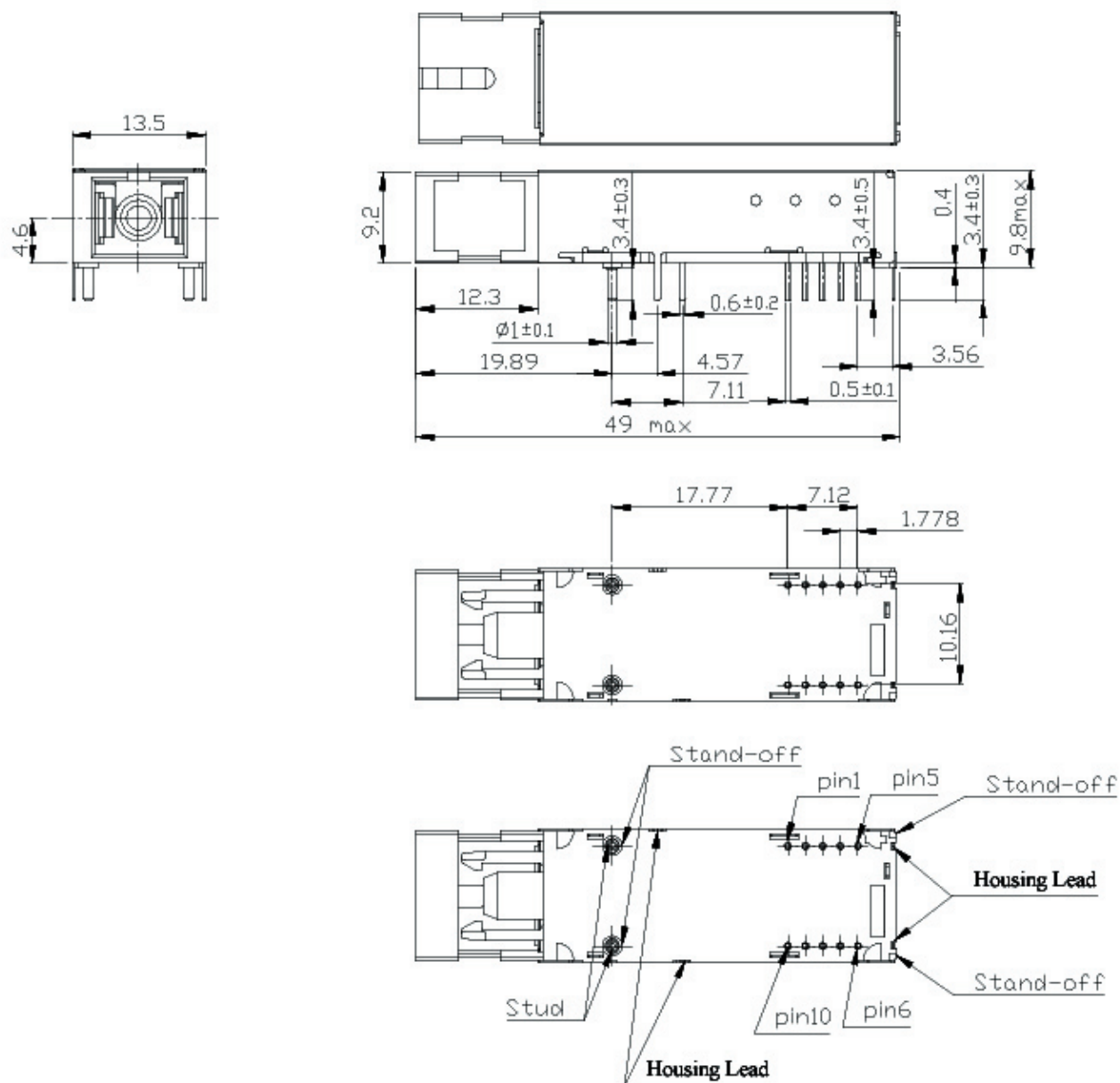
DIMENSION IN MILLIMETER (INCHES)

NOTES:

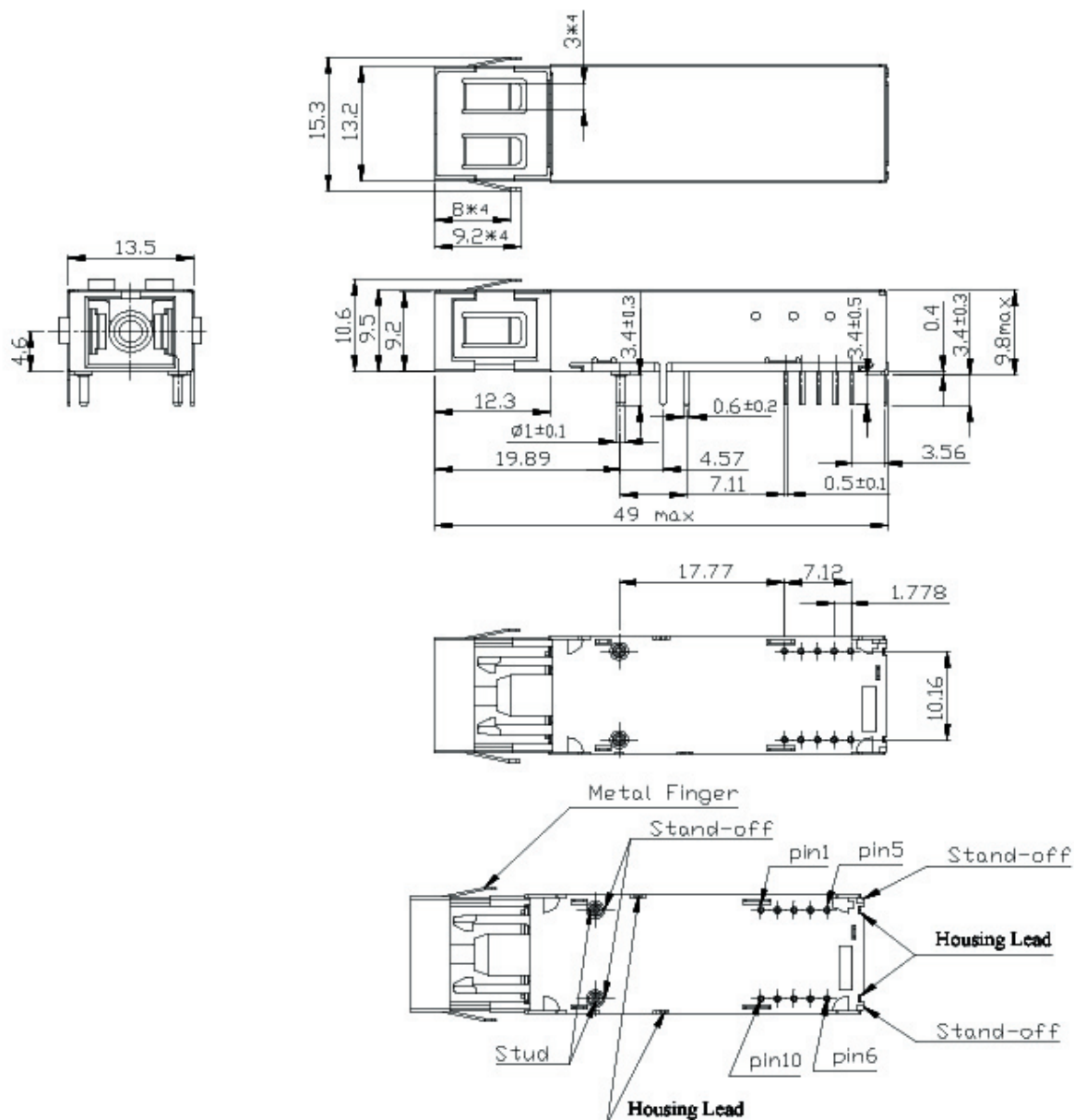
1. THIS FIGURE DESCRIBE THE RECOMMENDED CIRCUIT BOARD LAYOUT FOR THE SFF TRANSCEIVER.
2. THE HATCHED AREAS ARE KEEP-OUT AREAS RESERVED FOR HOUSING STANDOFF. NO METAL TRACES OR GROUND CONNECTION IN KEEP-OUT AREAS.
3. HOLES FOR HOUSING LEADS MUST BE TIED TO SIGNAL GROUND.

B-1x/1x-155-F-SSC3(S)

Package Diagram



Package Diagram



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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