

B-15/13-155-FDFB-SSC5



Features

- Diplexer Single Mode Single Fiber 2x5 SFF SC Receptacle connector
- Tx 1550nm/Rx 1310 nm
- 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
- EMI Shielding Finger Optional
- RoHS compliance available

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

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Optical Transmit Power	P_o	-5	-	0	dBm	Output Power is coupled into a 9/125 μ m single mode fiber
Output center Wavelength	λ	1480	1550	1580	nm	
Output Spectrum Width	$\Delta\lambda$	-	-	1	nm	-20dB width
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Extinction Ratio	ER	10	-	-	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
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.

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Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Electrical						
Supply Current	I_{CC}	-	-	140	mA	Maximum current is specified at V_{CC} = Maximum @ maximum temperature
Transmit Enable Voltage	V_{EN}	0		0.8	V	
Transmit Disable Voltage	V_{DIS}	$V_{CC}-1.3$		V_{CC}	V	
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

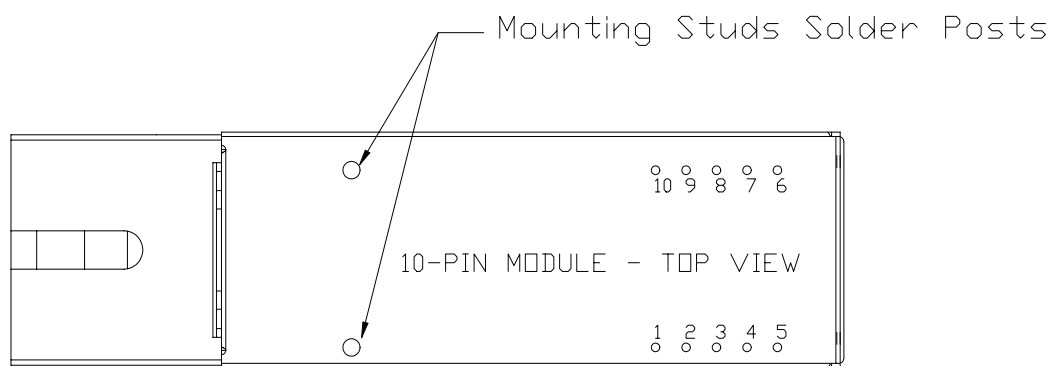
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Sensitivity	-	-	-	-34	dBm	Measured with 2 ²³ -1 PRBS, BER= 10 ⁻¹⁰
Maximum Input Power	P_{in}	-3	-	-	dBm	
Signal Detect-Asserted	P_a	-	-	-34	dBm	Measured on transition: low to high (Note 1)
Signal Detect-Deasserted	P_d	-45	-	-	dBm	Measured on transition: high to low (Note 1)
Signal Detect-Hysteresis	-	1	-	4	dB	
Cross Talk	-	-	-	-33	dB	
Wavelength of Operation		1260	-	1360	nm	

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

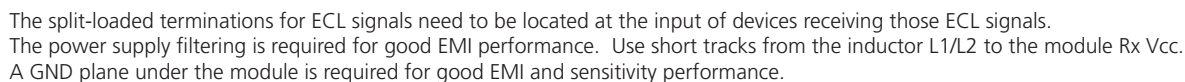
Receiver Specifications

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 PECL 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)



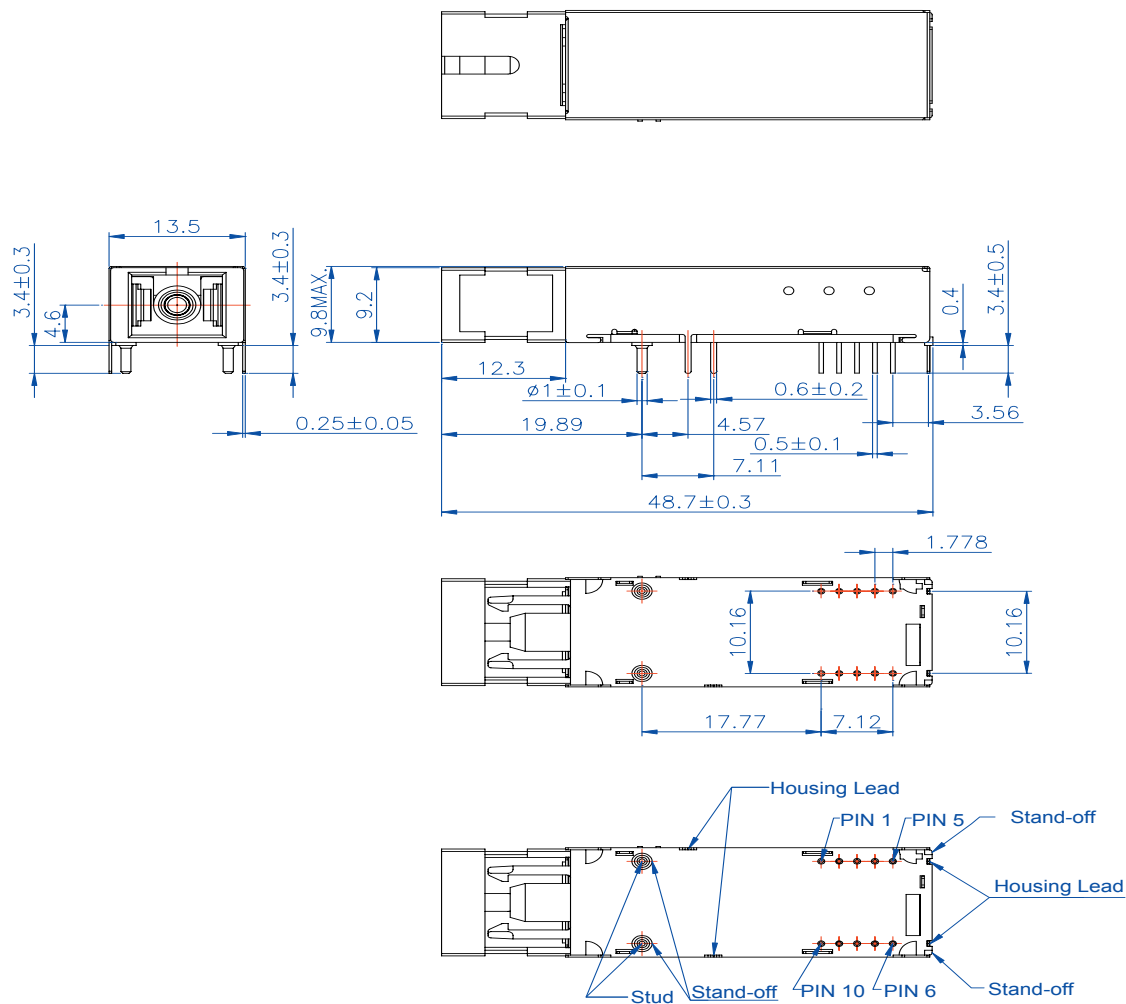


1. THIS FIGURE DESCRIBE THE RECOMMEND CIRCUIT BOARD LAYOUT FOR THE SFF TRANSCEIVER.
2. THE HATCHED AREAS ARE KEEP-OUT AREAS RESERVED FOR HOUSING STANDOFF. NO METAL TRACES OR GROUND CONNECTION IN KEEP-OUT AREAS.
3. THE MOUNTING STUDS SHOULD BE SOLDERED TO CHASSIS GROUND FOR MECHANICAL INTEGRITY.

Package Diagram

B-15/13-155-FDFB-SSC5

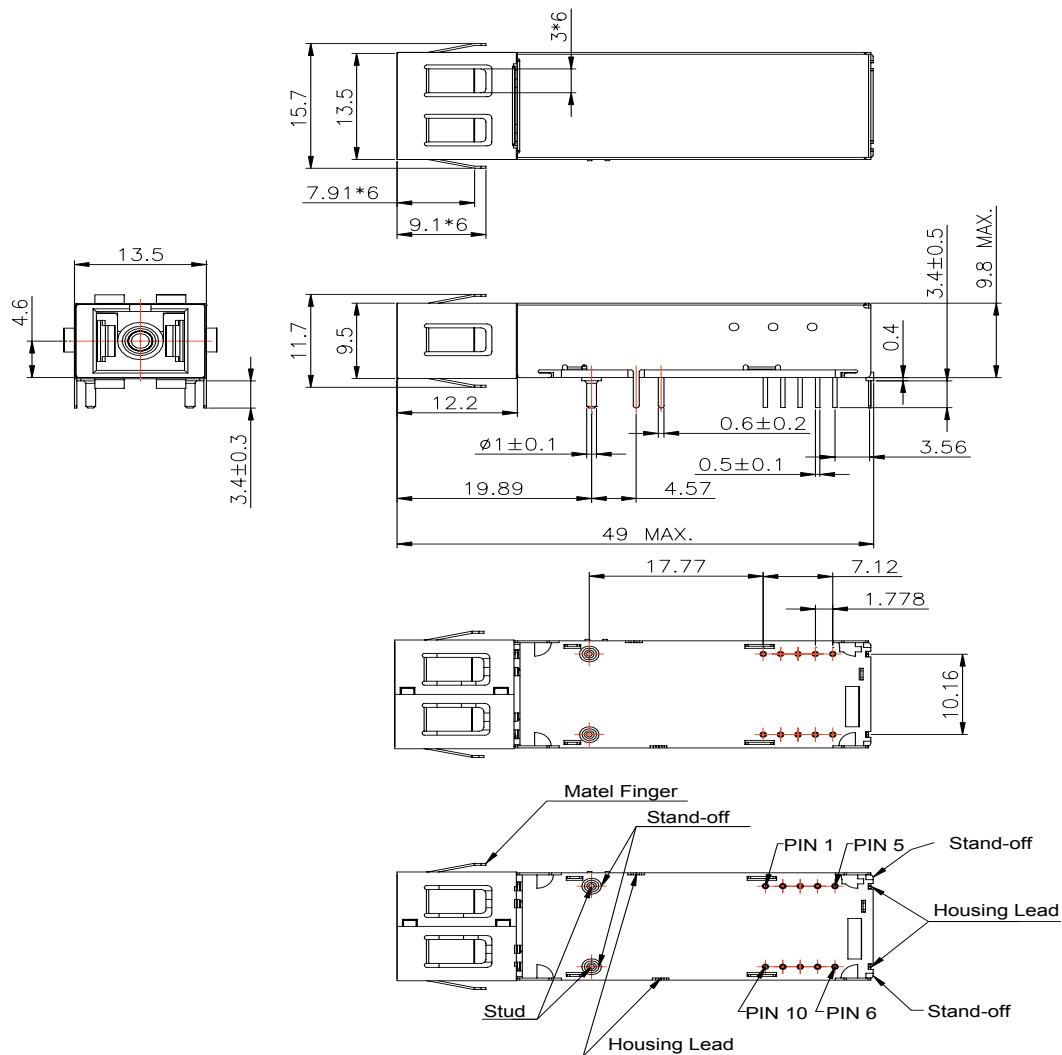
Units: mm



Package Diagram

B-15/13-155-FDFB-SSC5S

Units: mm



Ordering Information

Available Options:

B-15/13-155-FDFB-SSC5
B-15/13-155-FDFB-SSC5-G5
B-15/13-155-FDFB-SSC5S
B-15/13-155-FDFB-SSC5S-G5

Part numbering Definition:

	B	-	15/13	-	155	-	FDFB	-	S	SC	Tx Power	Shielding Finger	-RoHS
• Wavelength													
15/13: Tx Wavelength=1550nm Rx Wavelength=1310nm													
• Communication protocol (155 Mbps)													
• FDFB= SFF Transceiver, DFB													
• Single mode fiber													
• Connector options													
• Tx Output Power 5 = Tx power -5 to 0 dBm													
• Shielding Finger Option Blank = No Shielding Finger S = With Shielding Finger													
• RoHS Blank = RoHS non-compliant product G5 = RoHS 5/6-compliant product (lead 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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