

1.25Gbps 2*5 20km SFF Duplex LC Transceiver

P/N: TSFF-1CxG13A

Product Features

- SFF Single Mode Duplex LC Transceiver
- Industry Standard 2*5 footprint with LC Receptacle
- Compliant with SFF MSA-2000
- Transmitter 1310nm FP Laser and Receiver PIN+TIA
- Single +3.3 Power Supply
- LVPECL Differential Inputs and Outputs
- LVPECL or LVTTL Signal Detection Output is Optional
- Complies with Telcordia (Bellcore) GR-468-CORE
- Typical data rate 1.25Gbps
- Maximal reach 20km with SM fiber

Product Applications

- SONET/SDH, Ethernet
- Routers or Hubs

Absolute Maximum Rating

Parameter	Symbol	Mix	Max	Unit	Note
Storage Temperature	Tst	-40	+85	°C	
Operating Case Temperature	Tc	0	70	°C	
		-40	+85		
Input Voltage	-	GND	Vcc	V	
Power Supply Voltage	Vcc-Vee	-0.5	+3.6	V	

Recommended Operating Conditions

Parameter	Symbol	Mix	Typical	Max	Unit	Note
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Operating Case Temperature	Tc	0	-	70	°C	
		-40	-	85		
Data Rate	DR	-	1.25	-	Gbps	
Total Supply Current	-	-	200	300	mA	
Damage Threshold For Receiver	-	-		4	dBm	

Optical Specification

Transmitter						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Optical Central Wavelength	λ	1270	1310	1355	nm	-
Spectral Width (RMS)	$\Delta\lambda$	-	-	4	nm	-
Average Optical Output Power	Po	-9	-	-3	dBm	
Extinction Ratio	Er	9	-	-	dB	-
Rise/Fall Time	Tr/Tf	-	-	260	ps	-
Average Launched Power of Off	Poff	-	-	-45	dBm	-
Output Eye	Compliant with IEEE 802.3az					
Receiver						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operate Wavelength	-	1260	-	1600	nm	-
Sensitivity	Pr	-	-	-23	dBm	1
Saturation	Ps	-3	-	-	dBm	1
SD De-assert Level	-	-40	-	-	dBm	-
SD Assert Level	-	-	-	-23	dBm	-
SD Hysteresis	-	0.5	-	5	dB	-

Note:

1. The current excludes the output loaded current
2. Minimum Sensitivity and saturation levels for a 2⁷-1 PRBS. BER≤10⁻¹², 1.25GbpsER=9dB

Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Transmitter						
Differential Input Voltage	V_{IN-DIF}	300	-	1600	mV	-
Tx Input Voltage-Low	$V_{IL}-V_{CC}$	-1.81	-	-1.48	V	-
Tx Input Voltage-High	$V_{IH}-V_{CC}$	-1.16	-	-0.88	V	-
Receiver						
Data Output Voltage Differential	$V_{OUT-DIF}$	400	-	1000	V	-
RX Output Voltage - Low	$V_{OL}-V_{CC}$	-1.81	-	-1.48	V	-
RX Output Voltage - High	$V_{OH}-V_{CC}$	-1.16	-	-0.88	V	-
Signal Detect Output Voltage - Low	$V_{SD-L}-V_{CC}$	-1.81		-1.48	V	LVPECL
Signal Detect Output Voltage - High	$V_{SD-H}-V_{CC}$	-1.16		-0.88	V	
Signal Detect Output Voltage - Low	$V_{SD-L}-V_{CC}$	-	-	-0.8	V	LVTTTL
Signal Detect Output Voltage - High	V_{SD-H}	-2.0	-	-	V	

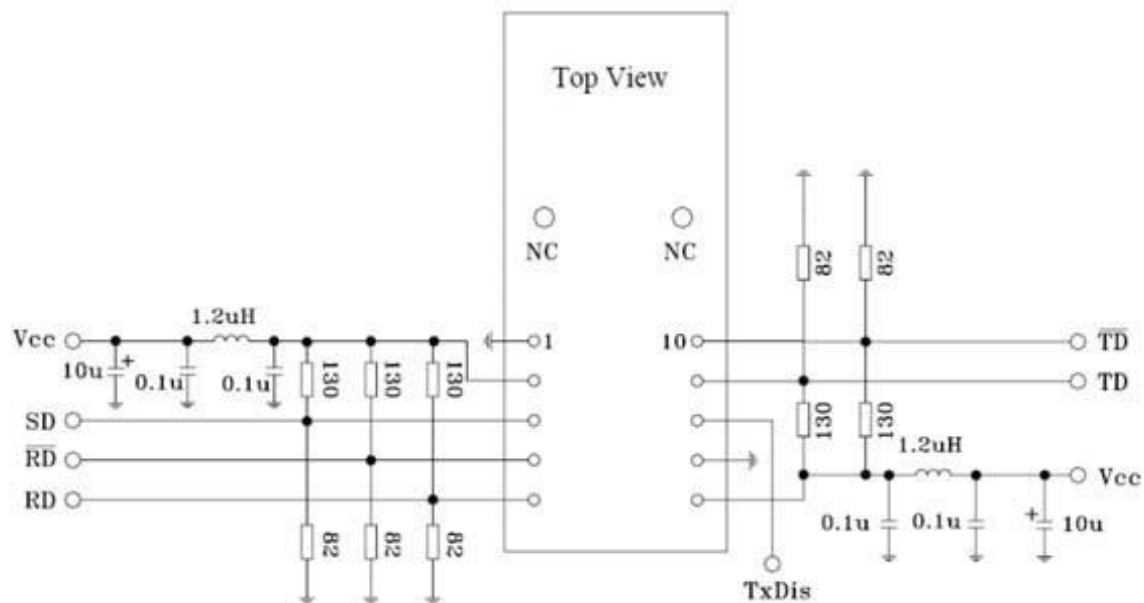
Pin Descriptions



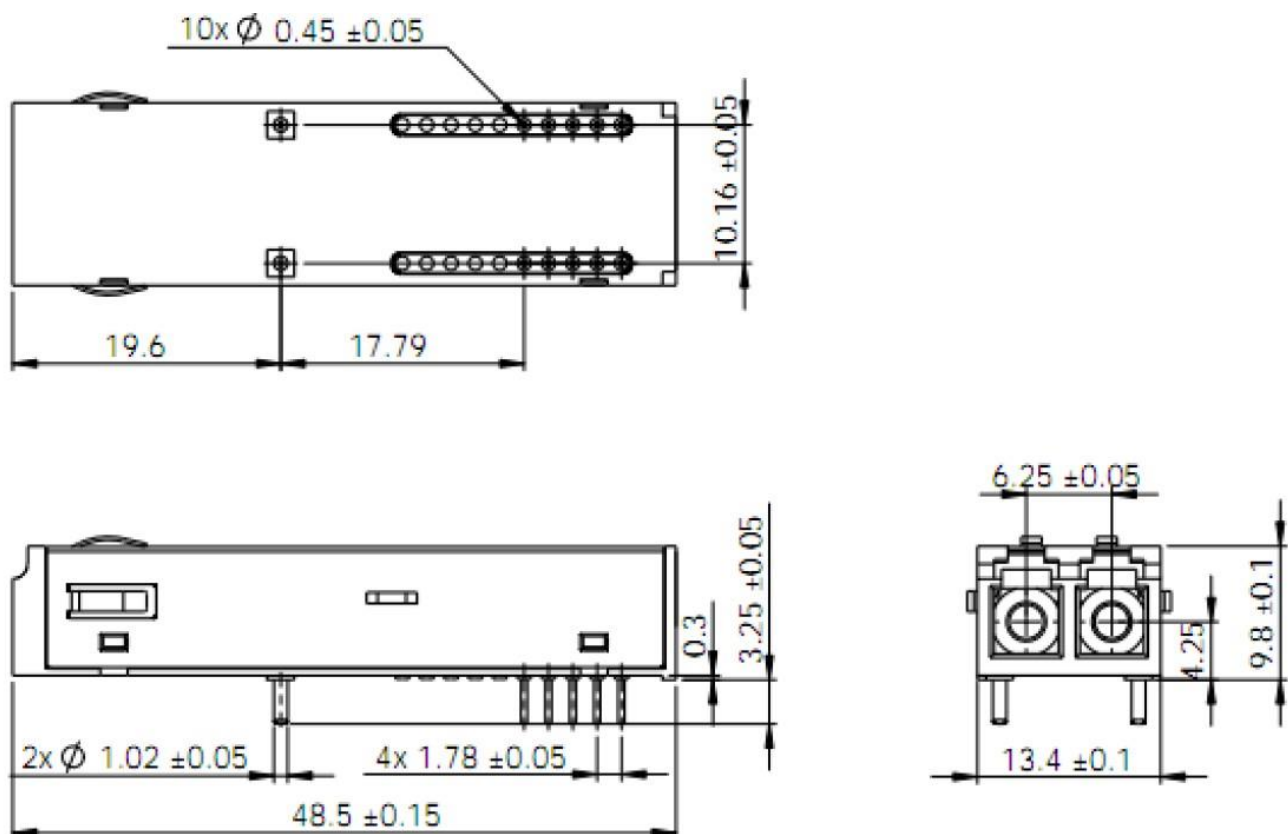
PIN	FUNCTION	PIN	FUNCTION
1	VEER	6	VCCT
2	VCCR	7	VEER
3	SD	8	Tx_Disable
4	Rx_DATA-	9	TX_DATA+
5	Rx_DATA+	10	TX_DATA-

Pin No.	Name	Description
1	VEER	Receiver Ground
2	VCCR	Receiver Power Supply
3	SD	Signal Detect Output. H--Normal Operation; L--Los Of
4	Rx_DATA-	Receiver Data Output Negative
5	Rx_DATA+	Receiver Data Output Positive
6	VCCT	Transmitter Power Supply
7	VEET	Transmitter Ground
8	TX_Disable	Transmitter Enable Control. High Level Transmitter
9	TX_DATA+	Transmitter Data Input Positive
10	TX_DATA-	Transmitter Data Input Negative

Recommended Circuit Diagram



Mechanical Design Diagram



Order Information

Model Name	Module Type
TSFF-1C1G13A	1.25Gbps 2*5 20km SFF Duplex LC 20km 0~70℃
TSFF-1C5G13A	1.25Gbps 2*5 20km SFF Duplex LC 20km -40~85℃