

155Mb/s SFP FE-100LX Optical Transceiver

TRx-1310nm

Product Features:

- * Up to 155Mb/s bi-directional data links
- * Duplex LC connect
- * 1310nm FP laser transmitter
- * Up to 20km on 9/125µm SMF
- * Hot-Pluggable Capability
- * Single +3.3V Power Supply
- * Compliant with ITU-T G.957,G.958
- * Operating Case Temperature: 0°C to 70°C

Applications:

- * Fast Ethernet
- * SONET OC-3
- * SDH STM-1

Specification:

Electrical and Optical Characteristics: (Condition: Tc = 0°C to 70°C, Vcc = 3.15V to 3.45V)

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter Differential Input Volt	+/-TX_DAT	200		2400	mV p-p
Supply Current	ICC		200	250	mA
Tx_Disable Input Voltage – Low	VIL	0		0.8	V
Tx_Disable Input Voltage – High	VIH	2.0		Vcc	V
Tx_Fault Output Voltage – Low	VOL	0		0.8	V
Tx_Fault Output Voltage – High	VOH	2.0		Vcc	V
Receiver Differential Output Volt	+/-RX_DAT	600		1400	mV p-p
Rx_LOS Output Voltage- Low	VOL	0		0.8	V
Rx_LOS Output Voltage- High	VOH	2.0		Vcc	V

Transmitter

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate	B	-	155	-	Mb/s
Output Center Wavelength	λC	1260	1310	1360	nm
Output Spectral Width	Δλ	-	-	7.7	nm
Average Output Power	Po	-15	-	-8	dBm
Extinction Ratio	E.R.	8.5	-	-	dB
Data Input Voltage-High	VIHS	Vcc-1.16	-	Vcc-0.89	V
Data Input Voltage -Low	VILS	Vcc-1.82	-	Vcc-1.48	V
Supply Current	ICC	-	90	110	mA
Output Optical Eye	Compliant with ITU-T G.957				

Receiver

Parameter	Symbol	Min.	Typical	Max.	Unit
Receive Sensitivity	Pmin	-	-	-28	dBm
Maximum Input Power	PMAX	-3	-	-	dBm
Threshold-Assertion:	SDHIGH	-	-	-30	dBm
Signal Detect Threshold-Deassertion:	SDLOW	-45	-	-	dBm
Hysteresis	-	0.5	-	-	dBm
Output High Voltage	VOH	V _{cc} -1.03	-	V _{cc} -0.89	V
Output Low Voltage	VOL	V _{cc} -1.82	-	V _{cc} -1.63	V
Operating Wavelength	λ c	1260	-	1600	nm
Supply Current	ICC	-	80	110	mA

Absolute Maximum Ratings:(TC=25°C)

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	TST	-40	+85	°C
Operating Temperature	TIP	0	+70	°C
Input Voltage	TCC	0	+5	V

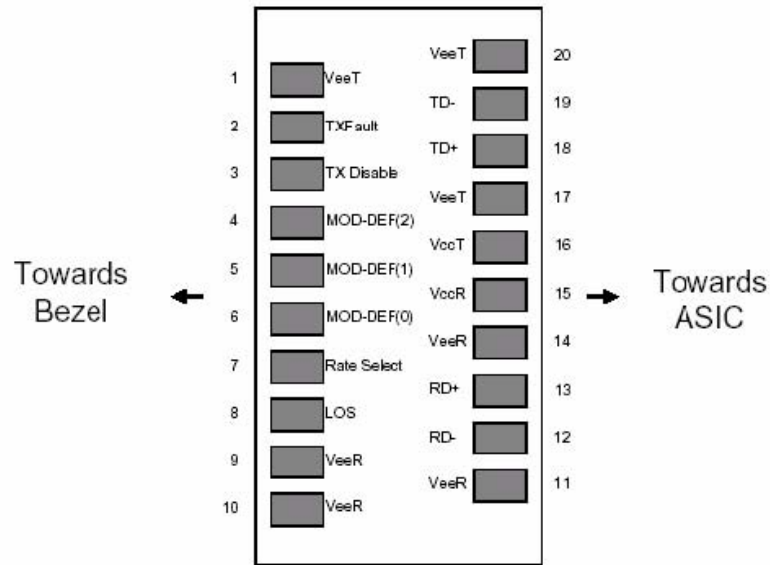
Recommended Operating Environment:

Parameter	Symbol	Min.	Typical	Max.	Unit
Supply Voltage	VCC	+3.15	+3.3	+3.45	V
Operating Temperature	TOP	0	-	+70	°C

Timing Characteristics:

Parameter	Symbol	Min.	Typical	Max.	Unit
TX_DISABLE Assert Time	t _{off}		3	10	usec
TX_DISABLE Negate Time	t _{on}		0.5	1	msec
Time to initialize include reset of TX_FAULT	t _{int}		30	300	msec
TX_FAULT from fault to assertion	t _{fault}		20	100	usec
TX_DISABLE time to start reset	t _{reset}	10			usec
Receiver Loss of Signal Assert Time (off to On)	TA,RX_LOS			100	usec
Receiver Loss of Signal Assert Time (on to off)	Td,RX_LOS			100	usec

Pin Assignment:



Pin out of Connector Block on Host Board

Pin Description:

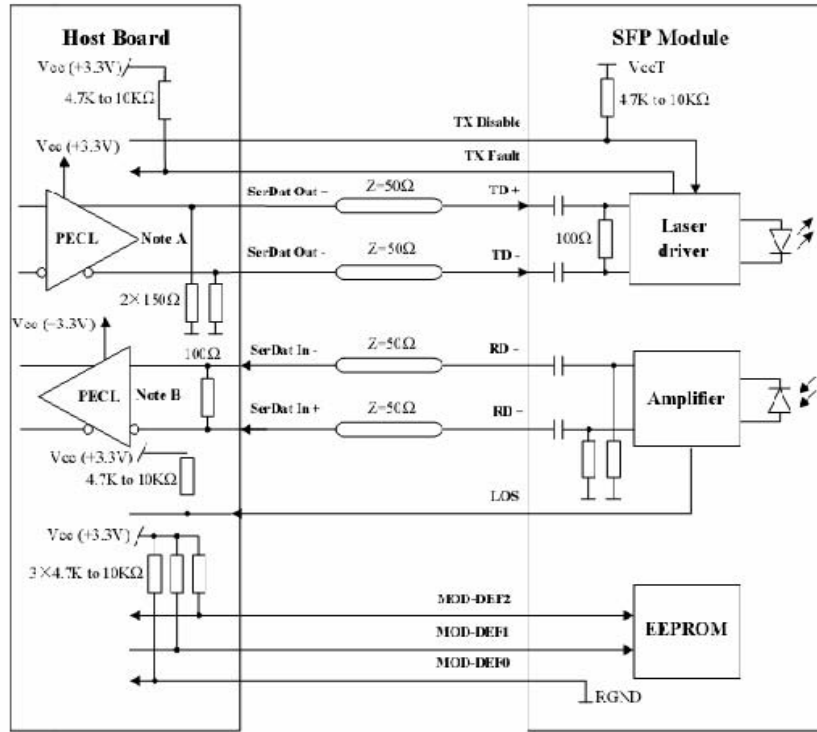
Pin	Symbol	Name/Description	Ref.
1	V _{EET}	Transmitter Ground (Common with Receiver Ground)	1
2	T _{FAULT}	Transmitter Fault. Low normal operation, High Fault indication	
3	T _{DIS}	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD DEF(2)	Module Definition 2. Data line for Serial ID.	3
5	MOD DEF(1)	Module Definition 1. Clock line for Serial ID.	3
6	MOD DEF(0)	Module Definition 0. Grounded within the module.	3
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	4
9	V _{EER}	Receiver Ground (Common with Transmitter Ground)	1
10	V _{EER}	Receiver Ground (Common with Transmitter Ground)	1
11	V _{EER}	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	V _{EER}	Receiver Ground (Common with Transmitter Ground)	1
15	V _{CCR}	Receiver Power Supply	
16	V _{CCT}	Transmitter Power Supply	
17	V _{EET}	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	V _{EET}	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
3. Should be pulled up with 4.7k – 10kohms on host board to a voltage between 2.0V and 3.6V. MOD_DEF(0) pulls line low to indicate module is plugged in.
4. LOS is open collector output. Should be pulled up with 4.7k – 10kohms on host board to a voltage

between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

Recommended Circuit:



Note A: Circuit assumes open emitter output

Note B: Circuit assumes high impedance internal bias @Vcc-1.3V

Mechanical Dimensions:

