



155M SFP Bidi Transceiver(T1310/R1550,15KM)

Features	Applications
Compliant with ITU-T G.957,G.958 Single Mode Bi-directional Transmission Single +3.3V Power Supply Hot-Pluggable	SDH/SONET Fast Ethernet WDM Application

Specifications**Electrical and Optical Characteristics(Condition: T_a=T_{op})**

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter Differential Input Voltage	+/-TX_DAT	200	--	1600	mV p-p
Supply Current	I _{CC}	--	130	180	mA
Tx_Disable Input Voltage – Low	V _{IL}	0	--	0.8	V
Tx_Disable Input Voltage – High	V _{IH}	2.0	--	V _{CC}	V
Tx_Fault Output Voltage – Low	V _{OL}	0	--	0.8	V
Tx_Fault Output Voltage – High	V _{OH}	2.0	--	V _{CC}	V
Receiver Differential Output Voltage	+/-RX_DAT	600	--	1400	mV p-p
Rx_LOS Output Voltage- Low	V _{OL}	0	--	0.8	V
Rx_LOS Output Voltage- High	V _{OH}	2.0	--	V _{CC}	V

**Transmitter**

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate	B	--	155	--	Mb/s
Center Wavelength	λ_c	1270	1310	1355	nm
Output Spectral Width	$\Delta \lambda$	--	--	4	nm
Average Output Power	P ₀	-13	--	-6	dBm
Extinction Ratio	E.R.	10	--	--	dB
Supply Current	I _{CC}	--	90	150	mA
Operating Voltage	V _{CC}	+3.0	--	+3.6	V
Input Voltage-Low	V _{IL}	-1.82	--	-1.48	V
Input Voltage-High	V _{IH}	-1.16	--	-0.89	V
Output Optical Eye		Compliant with ITU-T G.957			

**Receiver**

Parameter	Symbol	Min.	Typical	Max.	Unit
Receive Sensitivity	P _{min}	--	--	-33	dBm
Maximum Input Power	P _{MAX}	-3	--	--	dBm
Signal Detect Threshold-De-Assert	S _D	--	--	-34	dBm
Signal Detect Threshold-Assert	S _A	-44	--	--	dBm
Hysteresis	--	--	3.0	--	dBm
Output High Voltage	V _{OH}	V _{CC} -1.03	--	V _{CC} -0.89	V
Output Low Voltage	V _{OL}	V _{CC} -1.82	--	V _{CC} -1.63	V
Operating Wavelength	λ _c	1480	1550	1580	nm
Supply Current	I _{CC}	---	80	110	mA

Absolute Maximum Ratings(TC=25°C)

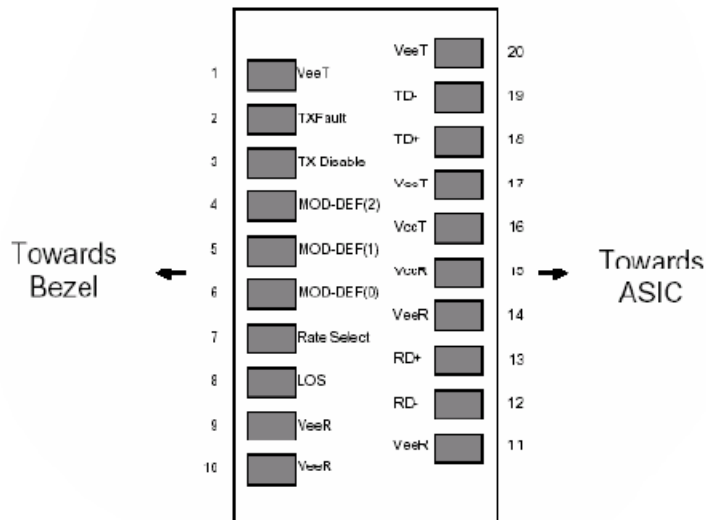
Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T _{ST}	-40	+85	°C
Operating Temperature	T _{IP} (Commercial grade)	0	+70	°C
	T _{IP} (Industrial grade)	-40	+85	°C
Input Voltage	T _{CC}	0	+5	V

Recommended Operating Environment

Parameter	Symbol	Min.	Typical	Max.	Unit
Supply Voltage	V _{CC}	+3.0	+3.3	+3.6	V
Operating Temperature	T _{OP} (Commercial grade)	0	--	+70	°C
	T _{OP} (Industrial grade)	-40	--	+85	°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_DISBEL Time to Start Reset	t _{reset}	10			usec
Receiver Loss of Signal Assert Time (Off to On)	T _A ,RX_LOS			100	usec
Receiver Loss of Signal Assert Time (On to Off)	T _d ,RX_LOS			100	usec

**Pin Description**

Pin	Symbol	Description
1	VEET	Transmitter Ground(Common with Receiver Ground)
2	T _{FAULT}	Transmitter Fault. Not supported
3	T _{DIS}	Transmitter Disable.Laser output disabled on high or open
4	MOD_DEF(2)	Module Definition 2.Data line for Serial ID
5	MOD_DEF(1)	Module Definition 1.Data line for Serial ID
6	MOD_DEF(0)	Module Definition 0.Grounded within the moudle
7	Rate Select	No connection required
8	LOS	Loss of Signal indication.Logic 0 indicates normal operation.
9	VEER	Receiver Ground(Common with Transmitter Ground)
10	VEER	Receiver Ground(Common with Transmitter Ground)
11	VEER	Receiver Ground(Common with Transmitter Ground)
12	RD-	Receiver Inverted DATA out.AC Coupled
13	RD+	Receiver Non-inverted DATA out.AC Coupled
14	VEER	Receiver Ground(Common with Transmitter Ground)
15	VCCR	Receiver Power Supply
16	VCCT	Transmitter Power Supply
17	VEET	Transmitter Ground(Common with Receiver Ground)
18	TD+	Transmitter Non-inverted DATA in.AC Coupled
19	TD-	Transmitter Inverted DATA in.AC Coupled
20	VEET	Transmitter Ground(Common with Receiver Ground)

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.



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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.

Ordering Information

TRAN	Packaging	Data Rate	Distance	Wavelength	LD/PD Type	Operation Temperature	Fiber Type	DDMI
TRAN	BidiSFP	155M	2KM	T1310/	1:FP-LD/PIN-TIA	1=0~+70 C	S:SM	1:Without
		622M	15KM	R1550.	2:DFB-LD/PIN-TIA	2=-4 ~+85 C	M:MM	DDMI
		1.25G	40KM	T1550/	3:VCSEL/PIN-TIA			2:With
		2.5G	80KM	R1310	5:DFB-LD/APD			DDMI
			100KM		6:DFB-LD with Isolator/PIN-TIA 7:DFB-LD with Isolator/APD			