10 Gb/s, 1310 nm Single Mode, 10 km XFP Dual LC Package

OptixCom Connect with Light

10G Small Form Pluggable (XFP) Transceivers

Description

OptixCom's 10 Gb/s XFP fiber optics transceiver is designed with advanced 1310 nm DFB laser and high speed electronics to achieve the optimum performance for optical interconnect applications. It is compliant with 10G Ethernet and Fiber Channel for datacom applications and SONET/SDH for telecom applications. It is compliant with XFP Multi-Source Agreement (MSA) INF-8077i.

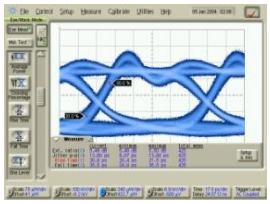
The transceiver uses duplex LC connector for the optical interface. It is hot pluggable in the z-axis with a 30-pin connector. The transceiver has > 8 dB power budget and reaches up to 10 km of transmission distance with standard single mode fibers. The product is RoHS compliant. Total power consumption is < 2.5W.

Lead-Free

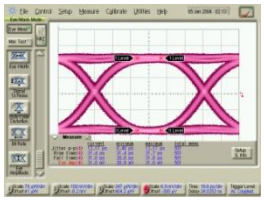
XFP-10000LX-AT10K

10 Gb/s, 2^{23}-1 NRZ data eye pattern

TX



RX



Key Features

- 1310 nm single mode, 10 km, 10 Gb/s data rate
- > 8 dB power budget
- Duplex LC connector optical interface
- 30-pin Z-axis hot pluggable connector
- AC coupling CML differential I/O logics
- Compliant with XFP MSA standard
- Compliant with IEEE 802.3ae, 10GBASE-LW/LR
- Compliant with 10G FC Fiber Channel Standard
- -25 – 85 °C operating temperatures available
- Single 3.3V power supply
- RoHS compliant

Ordering Information

Part Number: XFP-10000LX-AT10K

Description:

1310 nm 10 Gb/s, single mode, XFP fiber optics transceiver, 10 km reach, 0-70°C

* Add "-T" in the Part Number for extended temperature range -25 – 85 °C, i.e., XFP-10000LX-AT10K-T.

Applications

- ✓ 10G Fiber Channel, 10 Gigabit Ethernet
- ✓ SONET OC-192/SDH STM-64
- ✓ High speed I/O for file server
- ✓ Data Communication for SAN and LAN
- ✓ Central offices routers and switches
- ✓ Mass storage systems interconnect
- ✓ Computer cluster cross-connect

Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
- T Transceivers	-25	25	85	°C
Data Rate	9.95	---	11.3	Gb/s
Supply Voltage	3.1	3.3	3.5	V
Supply Current	---	500	600	mA

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Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	*Tst*	-40	85	°C
Supply Voltage	*Vcc*	-0.5	4.0	V
Input Voltage	*VIN*	-0.5	*Vcc*	V
Operating Current	*Iop*	---	600	mA
Output Current	*Io*	---	50	mA

Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage [1]	*ΔVi*	0.2	---	0.8	V
Differential Input Impedance [2]	*Z*	---	100	---	ohm
Optical Output Power [3]	*Po*	-6.5	---	+0.5	dBm
Optical Modulation Amplitude (OMA)	*Po*	-5.2	---	---	dBm
Transmitter & Dispersion Penalty	*TDP*	---	---	3.2	dB
Optical Wavelength	*λo*	1290	1310	1330	nm
Extinction Ratio	*ET*	6	---	---	dB
Side Mode Suppression Ratio	*SMSR*	30	---	---	dB
Relative Intensity Noise	*RIN*	---	---	-128	dB/Hz
TX Disable Asserted	*POFF*	---	---	-30	dBm
TX Disable Voltage – High	*VDH*	2.4	---	*Vcc*	V
TX Disable Voltage - Low	*VDL*	0	---	0.5	V
TX Disable Assert Time	*Tass*	---	---	10	µs
TX Disable Deassert Time	*Tdisass*	---	---	2	ms
Time to Initialize	*Tini*	---	---	300	ms
TX Fault from Fault to Assertion	*Tfault*	---	---	100	µs
TX Disable Time to Start Reset	*Treset*	10	---	---	µs

Notes:

1. Module is designed for AC coupling. DC voltage will be filtered by internal capacitors.
2. Single ended will be 50 ohm for each signal line.

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11

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Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	λ_C	1260	1310	1355	nm
Receiver Overload	P_{max}	0.5	---	---	dBm
Receiver Sensitivity [1]	P_I	---	---	-14.4	dBm
Receiver Sensitivity in OMA	P_{IOMA}	---	---	-12.6	dBm
Stressed Receiver Sensitivity in OMA	P_{IS}	---	---	-10.3	dBm
Differential Output Voltage	ΔV_O	0.4	---	0.8	V
Differential Input Impedance [2]	Z	---	100	---	Ohm
Optical Return Loss	OL	12	---	---	dB
Rise/Fall Time (20% - 80%)	T_r/T_f	---	---	40	ps
RX Signal Loss – Asserted	P_{SD+}	---	---	-18	dBm
RX Signal Loss – Deasserted	P_{SD-}	-30	---	---	dBm
RX Signal Loss Output - High	V_{RL+}	2.4	---	V_{CC}	V
RX Signal Loss Output - Low	V_{RL-}	0	---	0.5	V
RX Signal Loss Assert Time	T_{RL+}	---	---	100	µs
RX Signal Loss Deassert Time	T_{RL-}	---	---	100	µs
Serial ID Clock Rate	f_C	1/64 of operating data rate			kHz

Notes:

1. Test at 10 Gb/s, 2^{31} – 1 PRBS data pattern, and > $1x10^{-12}$ of Bit-Error-Rate (BER).
2. Single ended will be 50 ohm for each signal line.
3. Refer to OptixCom "XFP Design Reference Guide" or IEEE 802.3ae for more design details.

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