

10 Gb/s, 850 nm Multimode, 300 m XFP Dual LC Package



10G Small Form Pluggable (XFP) Transceivers

Description

OptixCom's 10 Gb/s XFP fiber optics transceiver is designed with advanced 850 nm VCSEL 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. 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 up to 10 dB of power budget and reaches up to 300 meters of transmission distance with OM3 multimode fibers. The product is RoHS compliant. Total power consumption is < 1.5W.



Lead-Free

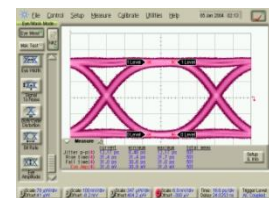
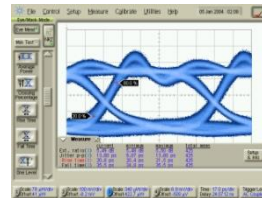
XFP-10000SX-AT300M



10 Gb/s, 2³¹-1 NRZ data eye pattern

TX

RX



Key Features

- 850 nm multimode, 300 m, 10 Gb/s data rate
- >4 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-SW/SR
- Compliant with 10G FC Fiber Channel Standard
- -10–85 °C operating temperatures available
- Single 3.3V power supply
- RoHS compliant

Applications

- ✓ 10G Fiber Channel,
- ✓ 10 Gigabit Ethernet
- ✓ 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

Ordering Information

Part Number: XFP-10000SX-AT300M

Description:

850 nm 10 Gb/s, multimode, XFP fiber optics transceiver, 300 m reach, 0-70°C

* Add "-T" in the Part Number for extended temperature range -10–85 °C, i.e., XFP-10000SX-AT300M -T.

Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
- T Transceivers	-10	25	85	°C
Data Rate	9.95	---	11.3	Gb/s
Supply Voltage	3.1	3.3	3.5	V
Supply Current	---	300	400	mA

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Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	T_{st}	-40	85	°C
Supply Voltage	V_{cc}	-0.5	4.0	V
Input Voltage	V_{IN}	-0.5	V_{cc}	V
Operating Current	I_{op}	---	500	mA
Output Current	I_o	---	50	mA

Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage ¹	ΔV_i	0.2	---	0.8	V
Differential Input Impedance ²	Z	---	100	---	ohm
Optical Output Power ³	P_o	-7	---	-1	dBm
Optical Modulation Amplitude (OMA)	P_o	-2.8	---	---	dBm
Transmitter & Dispersion Penalty	TDP	---	---	3.9	dB
Optical Wavelength	λ_o	840	850	860	nm
Extinction Ratio	ET	3	---	---	dB
Spectral Width (rms)	$\Delta\lambda$	---	---	0.45	nm
Relative Intensity Noise	RIN	---	---	-128	dB/Hz
TX Disable Asserted	P_{OFF}	---	---	-30	dBm
TX Disable Voltage – High	V_{DH}	2.4	---	V_{cc}	V
TX Disable Voltage - Low	V_{DL}	0	---	0.5	V
TX Disable Assert Time	T_{ass}	---	---	10	μs
TX Disable Deassert Time	T_{disass}	---	---	2	ms
Time to Initialize	T_{ini}	---	---	300	ms
TX Fault from Fault to Assertion	T_{fault}	---	---	100	μs
TX Disable Time to Start Reset	T_{reset}	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.
3. Output of coupling optical power into 50/125 μm MMF.
4. Refer to OptixCom "XFP Design Reference Guide" or IEEE 802.3ae for more design details.

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11



Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	λ_c	840	---	860	nm
Receiver Overload	P_{max}	-1	---	---	dBm
Receiver Sensitivity ¹	P_I	---	---	-9.9	dBm
Receiver Sensitivity in OMA	P_{IOMA}	---	---	-11.1	dBm
Stressed Receiver Sensitivity in OMA	P_{IS}	---	---	-7.5	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+}	---	---	-12	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	---	0.8	V
RX Signal Loss Assert Time	T_{RL+}	---	---	100	μ s
RX Signal Loss Deassert Time	T_{RL-}	---	---	100	μ s
Serial ID Clock Rate	f_c	---	---	400	kHz

Notes:

1. Test at 10 Gb/s, $2^{31} - 1$ PRBS data pattern, and $> 1 \times 10^{-12}$ 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.

Typical Transmission Distance for Multimode Fibers @ 850 nm

Data Rate	Fiber Type	Distance (m)	Data Rate	Fiber Type	Distance (m)
1.25 Gb/s	50 μ m, 500 MHz*km	550	10 Gb/s	50 μ m, 2000 MHz*km	300
	50 μ m, 400 MHz*km	500		50 μ m, 500 MHz*km	82
	62.5 μ m, 200 MHz*km	275		62.5 μ m, 200 MHz*km	33
	62.5 μ m, 160 MHz*km	220		62.5 μ m, 160 MHz*km	26

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