

# 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

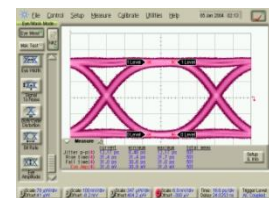
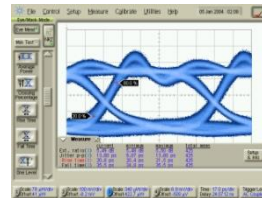
## XFP-10000SX-AT300M



10 Gb/s, 2<sup>31</sup>-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 <sup>1</sup>	$\Delta V_i$	0.2	---	0.8	V
Differential Input Impedance <sup>2</sup>	$Z$	---	100	---	ohm
Optical Output Power <sup>3</sup>	$P_o$	-7	---	-1	dBm
Optical Modulation Amplitude (OMA)	$P_o$	-2.8	---	---	dBm
Transmitter & Dispersion Penalty	$TDP$	---	---	3.9	dB
Optical Wavelength	$\lambda_o$	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	$\mu s$
TX Disable Deassert Time	$T_{disass}$	---	---	2	ms
Time to Initialize	$T_{ini}$	---	---	300	ms
TX Fault from Fault to Assertion	$T_{fault}$	---	---	100	$\mu s$
TX Disable Time to Start Reset	$T_{reset}$	10	---	---	$\mu s$

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  $\mu m$  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	$\lambda_c$	840	---	860	nm
Receiver Overload	$P_{max}$	-1	---	---	dBm
Receiver Sensitivity <sup>1</sup>	$P_I$	---	---	-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	$\Delta V_o$	0.4	---	0.8	V
Differential Input Impedance <sup>2</sup>	$Z$	---	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	$\mu$ s
RX Signal Loss Deassert Time	$T_{RL-}$	---	---	100	$\mu$ s
Serial ID Clock Rate	$f_c$	---	---	400	kHz

Notes:

1. Test at 10 Gb/s, 2<sup>31</sup> – 1 PRBS data pattern, and > 1x10<sup>-12</sup> 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 $\mu$ m, 500 MHz*km	550	10 Gb/s	50 $\mu$ m, 2000 MHz*km	300
	50 $\mu$ m, 400 MHz*km	500		50 $\mu$ m, 500 MHz*km	82
	62.5 $\mu$ m, 200 MHz*km	275		62.5 $\mu$ m, 200 MHz*km	33
	62.5 $\mu$ m, 160 MHz*km	220		62.5 $\mu$ m, 160 MHz*km	26

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