

Multi-Rate 1.0625 – 10 Gb/s 850 nm Multimode, 300 m SFP+ Dual LC Connector



Description

OptixCom's multi-rate fiber optics transceiver is designed for 1X, 2X, 4X, 8X, 10X FC, 10 GbE, and OC48 applications with data rate up to 10 Gb/s. This multimode fiber optics transceiver is designed with high performance 850 nm VCSEL light source. Dual LC connectors are used as standard interface and the package is compliant with Small Form Pluggable Plus (SFP+) specifications. The optical connector interface is dual LC.

The module is compliant with SFP+ Multi-Source Agreement (MSA). The transceiver reaches more than 300 meters of transmission distance with high-grade multimode fibers and >5 dB of power budget. The products are RoHS compliant.



SFP-10000SX-AT300M



Key Features

- 850 nm multimode,
- Multi-rate from 1.0625 to 10 Gb/s
- > 5 dB power budget, 300 m reach
- Duplex LC connector optical interface
- Z-axis hot pluggable
- SFF-8431 MSA Compliant
- AC coupling LVPECL differential I/O logics
- Single 3.3 V power supply
- TTL or PECL signal detect to monitor optical signals
- RoHS compliant

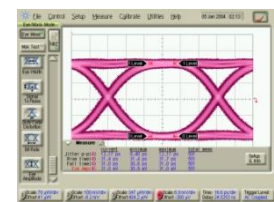
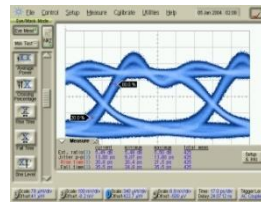
Applications

- ✓ 10G Fiber Channel, 10 Gigabit Ethernet
- ✓ High speed I/O for file server
- ✓ Video over fiber links
- ✓ Media converter
- ✓ Data Communication for SAN and LAN
- ✓ Industrial Control Link
- ✓ Central offices routers and switches
- ✓ Mass storage systems interconnect

10 Gb/s, 2²³-1 NRZ data eye pattern

TX

RX



Ordering Information

Part Number: SFP-10000SX-AT300M

Description:

850 nm, 1 to 10 Gb/s, multimode, SFP+ fiber optics transceiver, 300 m reach, 0-70°C

Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
Data Rate	1	---	10	Gb/s
Supply Voltage	3.1	3.3	3.5	V
Supply Current	---	200	250	mA

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}	---	300	mA
Output Current	I_o	---	50	mA
Soldering Temperature (10 sec. on leads)	T_{sd}	---	260	°C

Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage ¹	ΔV_i	0.4	---	1.2	V
Differential Input Impedance ²	Z	---	100	---	ohm
Optical Output Power ³	P_o	-6.5	---	-1	dBm
Optical Wavelength	λ_o	840	850	860	nm
Relative Intensity Noise	RIN	---	---	-128	dB/Hz
Extinction Ratio	ET	4	---	---	dB
TX Disable Power	P_{TD}	---	---	-30	dBm
Spectral Width (-20dB)	$\Delta\lambda$	---	---	0.45	nm
TX Disable Voltage – High	V_{DH}	2.4	---	V_{CC}	V
TX Disable Voltage - Low	V_{DL}	0	---	0.5	V
TX Fault Output - High	V_{FH}	2.4	---	V_{CC}	V
TX Fault Output - Low	V_{FL}	0	---	0.5	V
TX Disable Assert Time	T_{ass}	---	---	10	μs
TX Disable Deassert Time	T_{disass}	---	---	1.0	ms
Time to Initialize	T_{as}	---	---	300	ms
TX Fault from Fault to Assertion	T_{fault}	---	---	100	μs
TX Disable Time to Start Reset	T_{reset}	10	---	---	μs

Notes:

1. Applied to AC LVPECL I/O coupling. See the design guide for proper termination.
2. Single ended will be 50 ohm for each signal line.
3. Output of coupling optical power into OM2 50/125 μm MMF.
4. Optical eye diagram is compliant with IEEE 802.3z and 1x/2x/4X/10X FC standards.

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11



Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Impedance	Z	---	100	---	Ohm
Differential Output Voltage ¹	ΔV_o	0.3	---	0.9	V
Operating Wavelength	λ_c	840	---	860	nm
Receiver Overload	P_{max}	-1	---	---	dBm
Receiver Sensitivity ²	P_I	---	---	-11.1	dBm
Receiver Sensitivity (OMA) ²	P_I	---	---	-7.5	dBm
Optical Return Loss	OL	12	---	---	dB
RX Signal Loss – Deasserted	P_{RL-}	-30	---	---	dBm
RX Signal Loss – Asserted	P_{RL+}	---	---	-12	dBm
Signal Detect Hysteresis	$P_{RL+} - P_{RL-}$	1.0	---	---	dB
RX Signal Loss Assert Time	T_{RL+}	---	---	100	μ s
RX Signal Loss Deassert Time	T_{RL-}	---	---	100	μ s
RX Signal Loss Output - High	V_{RL+}	2.4	---	V_{cc}	V
RX Signal Loss Output - Low	V_{RL-}	0	---	0.5	V

Notes:

1. Applied to AC LVPECL I/O coupling. See the design guide for proper termination.
2. Test at 10 Gb/s, 2²³ – 1 PRBS data pattern, and > 1x10⁻¹² of Bit-Error-Rate (BER)

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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