

Multi-Rate 1.0625 – 4.25 Gb/s 850 nm Multimode, 500 m SFP Dual LC Connector

Description

OptixCom's multi-rate fiber optics transceiver is designed for 1X, 2X, 4X FC, GbE, and OC48 applications with data rate up to 4.25 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 (SFP) specifications.

The module is compliant with SFP Multi-Source Agreement (MSA). The transceiver reaches more than 500 meters of transmission distance with high-grade multimode fibers and >6 dB of power budget. The products are RoHS compliant.



Lead-Free

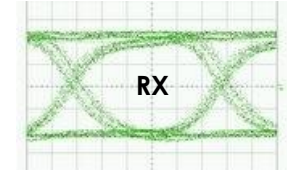
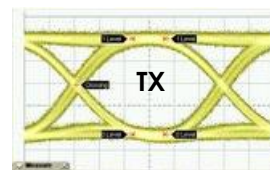
SFP-4250SX-AT500M



Key Features

- 850 nm multimode,
- Multi-rate from 1.0625 to 4.25 Gb/s
- > 6 dB power budget, 500 m reach
- Duplex LC connector optical interface
- Z-axis hot pluggable
- SFF-8472 MSA
- AC coupling LVPECL differential I/O logics
- Single 3.3 V power supply
- TTL or PECL signal detect to monitor optical signals
- -40–85 °C operating temperatures available
- RoHS compliant

4.25 Gb/s, 2⁷-1 NRZ Data Eye Pattern



Applications

- ✓ Fiber Channel, 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

Ordering Information

Part Number: SFP-4250SX-AT500M

Description:

850 nm 1.0625 to 4.25 Gb/s, multimode, SFP fiber optics transceiver, 500 m reach, 0-70°C

* Add "-T" in the Part Number for extended temperature range -40–85 °C, i.e., SFP-4250SX-AT500M-T.

Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
- T Transceivers	-40	25	85	°C
Data Rate	---	---	4.25	Gb/s
Supply Voltage	3.1	3.3	3.5	V
Supply Current	---	150	200	mA

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	T_{st}	-40	85	°C
Supply Voltage	V_{CC}	-0.5	6.0	V
Input Voltage	V_{IN}	-0.5	V_{CC}	V
Operating Current	I_{op}	---	400	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	---	1.8	V
Differential Input Impedance ²	Z	---	100	---	ohm
Optical Output Power ³	P_o	-9	---	-3	dBm
Optical Wavelength	λ_o	830	850	860	nm
Relative Intensity Noise	RIN	---	---	-118	dB/Hz
Spectral Width (rms)	$\Delta\lambda$	---	---	0.85	nm
TX Disable Voltage – High	V_{DH}	2.0	---	V_{CC}	V
TX Disable Voltage - Low	V_{DL}	0	---	0.8	V
TX Fault Output - High	V_{FH}	2.0	---	V_{CC}	V
TX Fault Output - Low	V_{FL}	0	---	0.8	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 50/125 μm MMF.
4. Optical eye diagram is compliant with IEEE 802.3z and 1x/2x/4X 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	0.4	---	1.8	V
Operating Wavelength	λ_c	770	---	860	nm
Receiver Overload	P_{max}	0	---	---	dBm
Receiver Sensitivity ² (@4.25 Gb/s)	P_I	---	---	-15	dBm
Receiver Sensitivity ² (@2.125 Gb/s)	P_I	---	---	-18	dBm
Receiver Sensitivity ³ (1.0625 Gb/s)	P_I	---	---	-20	dBm
Optical Return Loss	OL	12	---	---	dB
RX Signal Loss – Deasserted	P_{RL-}	-30	---	---	dBm
RX Signal Loss – Asserted	P_{RL+}	---	---	-20	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+}	2.0	---	V_{CC}	V
RX Signal Loss Output - Low	V_{RL-}	0	---	0.8	V

Notes:

1. Applied to AC LVPECL I/O coupling. See the design guide for proper termination.
2. Test at 4.25 Gb/s, 2⁷ – 1 PRBS data pattern, and > 1x10⁻¹² of Bit-Error-Rate (BER)
3. Test at 1.25 Gb/s, 2⁷ – 1 PRBS data pattern, and > 1x10⁻¹² of Bit-Error-Rate (BER)

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