

Multi-Rate 1 Gb/s – 4.25 Gb/s 1310 nm Single mode, 30 km SFP Dual LC Connector

Description

OptixCom's multi-rate fiber optics transceiver is designed for Gigabit Ethernet and 1X/2X/4X Fiber Channel applications with data rate up to 4.25 Gb/s. This single mode module uses high performance 1310 nm DFB laser and is compliant with Small Form Pluggable (SFP) specifications.

The module is compliant with SFP Multi-Source Agreement (MSA). The transceiver reaches 30 km of distance with standard single mode fibers and 18 dB of power budget. The products are RoHS compliant.



Lead-Free

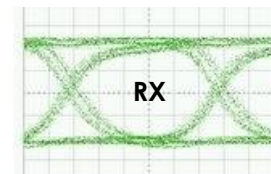
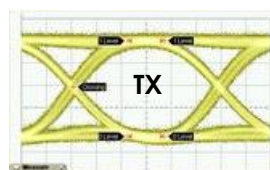
SFP-4250LX-AT30K



Key Features

- FC 1X, 2X, and 4X compliant
- IEEE 802.3 Gigabit Ethernet compliant
- Multi-rate 1.0625 to 4.25Gb/s
- 30 km with 18 dB power budget
- Duplex LC connector optical interface
- Z-axis hot pluggable
- AC coupling LVPECL differential I/O logics
- SFF-8472 MSA Compliant with DDM function
- TTL Signal detect to monitor optical signals
- Single 3.3 V power supply
- RoHS compliant

4.25 Gb/s, $2^{23}-1$ NRZ Data Eye Pattern



Applications

- ✓ Fiber Channel 1X, 2X, and 4X
- ✓ IEEE 802.3z Gigabit Ethernet
- ✓ High speed I/O for file server
- ✓ Video over fiber links
- ✓ Data Communication for SAN and LAN
- ✓ Central offices routers and switches
- ✓ Mass storage systems interconnect

Ordering Information

Part Number: SFP-4250LX-AT30K

Description:

1310 nm 1.0 to 4.25 Gb/s, single mode, SFP fiber optics transceiver, 30 km reach, 0 - 70°C.

Add "-T" in the Part Number for extended temperature range -40–85 °C, i.e., SFP-4250LX-AT30K-T.

Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
Data Rate	1	---	4.25	Gb/s
Supply Voltage	3.1	3.3	3.5	V
Supply Current	---	---	300	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	0	---	+5	dBm
Optical Wavelength	λ_o	1285	1310	1345	nm
Relative Intensity Noise	RIN	---	---	-118	dB/Hz
OMA	OMA	290	---	---	μW
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 9/125 μm SMF.
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	1260	---	1600	nm
Receiver Overload	P_{max}	0	---	---	dBm
Receiver Sensitivity ² (@4.25 Gb/s)	P_I	---	---	-18	dBm
Receiver Sensitivity (@2.125 Gb/s)	P_I	---	---	-21	dBm
Receiver Sensitivity ³ (@1.0625 Gb/s)	P_I	---	---	-22	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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21 CFR 1040.10 and 1040.11**

