

# 155 Mb/s, 1310 nm Multimode, 2 km Distance Dual LC SFP Package

## Description

OptixCom's SFP transceiver offers advanced optical interconnect solution for general data communication links. This multimode transceiver is designed with low cost, high performance 1310 nm LED 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). It operates at 155 Mb/s and reaches 2 km of transmission distance with multimode fibers and >11 dB of power budget. This product is RoHS compliant.



Lead-Free

## SFP-155LX-AT2K



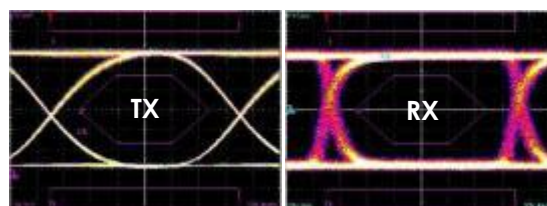
## Key Features

- 1310 nm multimode, 155 Mb/s
- >11 dB power budget, 2 km reach
- Duplex LC connector optical interface
- Z-axis hot pluggable
- SFF-8472 MSA Compliant
- AC coupling LVPECL differential I/O logics
- TTL Signal detect to monitor optical signals
- Single 3.3V power supply
- -40–85 °C operating temperatures available
- RoHS compliant

## Applications

- ✓ FTTH, FTTX, ATM/SONET OC-3, SDH STM-1
- ✓ Fast Ethernet
- ✓ High speed I/O for file server
- ✓ Media converter
- ✓ Data Communication for SAN and LAN
- ✓ Industrial Control Link
- ✓ Central offices routers and switches
- ✓ Mass storage systems interconnect
- ✓ Computer cluster cross-connect

155 Mb/s,  $2^{23}$ -1 NRZ data eye pattern



## Ordering Information

**Part Number:** SFP-155LX-AT2K

### Description:

1310 nm 155 Mb/s, multimode, SFP Fiber Optics Transceiver, 2 km reach, 0-70°C

\* Add "-T" in the Part Number for extended temperature range -40–85 °C, i.e., SFP-155LX-AT2K-T.

## Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
- T Transceivers	-40	25	85	°C
Data Rate	---	155	200	Mb/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	6.0	V
Input Voltage	$V_{IN}$	-0.5	$V_{CC}$	V
Operating Current	$I_{op}$	---	400	mA
Output Current	$I_o$	---	50	mA

### Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage <sup>1</sup>	$\Delta V_i$	0.4	---	1.8	V
Differential Input Impedance <sup>2</sup>	$Z$	---	100	---	ohm
Optical Output Power <sup>3</sup>	$P_o$	-20	---	-14	dBm
Optical Wavelength	$\lambda_o$	1270	1310	1380	nm
Extinction Ratio	$ET$	10	---	---	dB
Spectral Width (RMS)	$\Delta\lambda$	---	---	4	nm
Duty Cycle Distortion	$T_{dc}$	---	---	0.6	ns
Rise/Fall Time (20% - 80%)	$T_r/T_f$	---	---	1.3	ns
Data Dependent Jitter	$T_{DJ}$	---	---	0.6	ns
Random Jitter	$T_{RJ}$	---	---	0.6	ns
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. Module is designed for AC 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 or 62.5/125 μm MMF.
4. Optical eye diagram is compliant with Telcordia GR-253-CORE and ITU-T G-957 standard.

**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	$\lambda_c$	1260	---	1600	nm
Receiver Overload	$P_{max}$	-3	---	---	dBm
Receiver Sensitivity <sup>1</sup>	$P_I$	---	---	-31	dBm
Differential Output Voltage	$\Delta V_o$	0.4	---	1.8	V
Differential Input Impedance <sup>2</sup>	$Z$	---	100	---	Ohm
Optical Return Loss	$OL$	12	---	---	dB
Rise/Fall Time (10% - 90%)	$T_r/T_f$	---	1	2	ns
RX Signal Loss – Asserted	$P_{RL+}$	---	---	-31	dBm
RX Signal Loss – Deasserted	$P_{RL-}$	-45	---	---	dBm
Signal Detect Hysteresis	$P_{RL+} - P_{RL-}$	1	---	---	dB
Serial ID Clock Rate	$f_c$	---	---	100	kHz
RX Signal Loss Output - High	$V_{RL+}$	2.0	---	$V_{cc}$	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	$\mu s$

Notes:

1. Test at 155 Mb/s, 2<sup>23</sup> – 1 PRBS data pattern, and > 1x10<sup>-10</sup> of Bit-Error-Rate (BER).
2. Single ended will be 50 ohm for each signal line.

**Class 1 Laser Product**  
Complies with  
**21 CFR 1040.10 and 1040.11**

