

**155 Mb/s, SFP LC Package
1310 nm Single mode
20 – 60 km Distance**



Small Form Pluggable (SFP) Transceivers

Description

OptixCom's SFP transceiver offers advanced optical interconnect solution for general data communication links. This single mode transceiver is designed with high performance 1310 nm laser. 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 for 20 - 60 km transmission distance with single mode fibers. The products are RoHS compliant.



Lead-Free

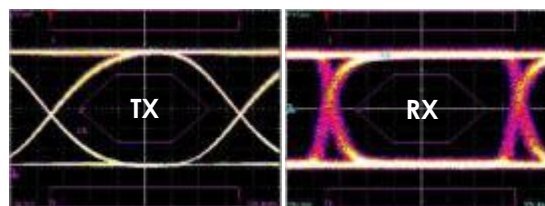
SFP-155LX-ATXXK
(XX = 20, 40, 60)



Key Features

- 1310 nm single mode, 155 Mb/s
- 20 – 60 km reach, 15 – 30 dB power budget
- 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

155 Mb/s, 2²³-1 NRZ Data Eye Pattern



Applications

- ✓ FTTH, FTTX, ATM/SONET OC-3, SDH STM-1
- ✓ Fast 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
- ✓ Computer cluster cross-connect

Ordering Information

Part Number: SFP-155LX-ATXXK

Description:

1310 nm, 155 Mb/s, single mode, SFP Fiber Optics Transceiver, XX km reach, 0-70°C

* Add "-T" in the Part Number for extended temperature range -40–85 °C, i.e., SFP-155LX-AT15K-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 |

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} | --- | 400 | mA |
| Output Current | I_o | --- | 50 | mA |
| Soldering Temperature (10 sec. on leads) | T_{sd} | --- | 260 | °C |

General Transmitter 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 |
| Relative Intensity Noise | RIN | --- | --- | -120 | dB/Hz |
| Rise/Fall Time (10% - 90%) | T_r/T_f | --- | 1 | 2 | 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 LVPECL coupling. See the design guide for proper termination.
2. Single ended will be 50 ohm for each signal line.

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11



General Receiver Characteristics

| Parameter | Symbol | Min. | Typical | Max. | Units |
|---|---------------------|------|---------|----------|---------|
| Differential Output Voltage ¹ | ΔV_o | 0.4 | --- | 1.2 | V |
| Differential Input Impedance ² | Z | --- | 100 | --- | Ohm |
| Optical Return Loss | OL | 14 | --- | --- | dB |
| Rise/Fall Time (10% - 90%) | T_r/T_f | --- | 1 | 2 | ns |
| 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 | μ s |
| RX Signal Loss Deassert Time | T_{RL-} | --- | --- | 100 | μ s |

Notes:

1. Module is designed for AC LVPECL coupling. See the design guide for proper termination.
2. Single ended will be 50 ohm for each signal line.

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Transmitter Electro-Optical Characteristics

| Parameter | Symbol | Min. | Typical | Max. | Units |
|-----------------------------------|-----------------|------|---------|------|-------|
| Optical Output Power ¹ | P_o | -8 | --- | 0 | dBm |
| Optical Wavelength | λ_o | 1260 | 1310 | 1360 | nm |
| Extinction Ratio | ET | 8.2 | --- | --- | dB |
| Spectral Width (rms) | $\Delta\lambda$ | --- | --- | 4 | nm |

Receiver Electro-Optical Characteristics

| Parameter | Symbol | Min. | Typical | Max. | Units |
|-----------------------------------|-------------|------|---------|------|-------|
| Operating Wavelength | λ_c | 1260 | --- | 1610 | nm |
| Receiver Overload | P_{max} | 0 | --- | --- | dBm |
| Receiver Sensitivity ² | P_I | --- | --- | -32 | dBm |
| RX Signal Loss – Asserted | P_{RL+} | --- | --- | -34 | dBm |
| RX Signal Loss – Deasserted | P_{RL-} | -45 | --- | --- | dBm |

Notes:

1. Output of coupling optical power into 9/125 μ m SMF.
2. Test at 155 Mb/s, 2²³ – 1 PRBS data pattern, and > 1x10⁻¹⁰ of Bit-Error-Rate (BER).
3. Optical eye diagram is compliant with Telcordia GR-253-CORE and ITU-T G-957 standard.
4. Maximum supply current for the transceiver from Vcc is 300 mA.

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