

1.25 Gb/s, 1310 nm Single Mode, 10 – 50 km 1x9 Dual SC Package



Description

OptixCom's 1x9 DSC transceiver provides a low cost and compact solution for general data communication links. This single mode transceiver is designed with high performance 1310 nm laser. Dual SC connectors are used as the standard interface.

The transceiver modules use industry standard 1x9 pluggable package. This product can be used at 1.0625 Gb/s for Fiber Channel or 1.25 Gb/s for Gigabit Ethernet applications with 10 - 50 km transmission distance with single mode fibers. The products are RoHS compliant.



Lead-Free

DSC-1250LX-ATXXK
(XX = 10, 40, 50)



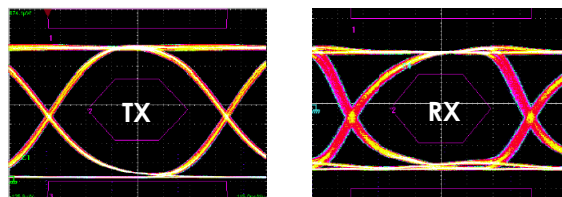
Key Features

- 1310 nm single mode, 1.0625/1.25 Gb/s data rates
- 10 – 50 km reach, 11 – 24 dB power budget
- Duplex SC connector optical interface
- Industry standard 1x9 pluggable package
- AC coupling LVPECL differential I/O logics
- Single 3.3/5 V power supply
- TTL signal detect to monitor optical signals
- IEEE 802.3z Gigabit Ethernet standard compliant
- 1X Fiber Channel standard compliant
- -40–85 °C operating temperatures available
- RoHS compliant

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
- ✓ Computer cluster cross-connect

1.25 Gb/s, 2⁷-1 NRZ Data Eye Pattern



Ordering Information

Part Number: DSC-1250LX-ATXXK

Description:

1310 nm 1.0625/1.25 Gb/s, single mode, 1x9 DSC Fiber Optics Transceiver, XX km reach, 0-70°C

* Add "-T" in the Part Number for extended temperature range -40–85 °C, i.e., DSC-1250LX-AT10K-T.

Operating Conditions

| Parameter | Min. | Typical | Max. | Units |
|---------------------|------|---------|------|-------|
| Operate Temperature | 0 | 25 | 70 | °C |
| - T Transceivers | -40 | 25 | 85 | °C |
| Data Rate | --- | 1.25 | 1.3 | Gb/s |
| Supply Voltage | 3.1 | 3.3 | 5.25 | 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} | --- | 500 | 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 | 0.3 | --- | 1.6 | V |
| Differential Input Impedance ² | Z | --- | 100 | --- | ohm |
| Relative Intensity Noise | RIN | --- | --- | -120 | dB/Hz |
| Rise/Fall Time (20% - 80%) | T_r/T_f | --- | --- | 260 | ps |
| Data Input Current - High | I_{IH} | --- | --- | 350 | μA |
| Data Input Current - Low | I_{IL} | -350 | --- | --- | μA |
| Side Mode Suppression Ratio | $SMSR$ | 30 | --- | --- | dB |
| Total Jitter | T_j | --- | --- | 227 | ps |

General Receiver Characteristics

| Parameter | Symbol | Min. | Typical | Max. | Units |
|---|--------------------|------|---------|----------|-------|
| Differential Output Voltage ¹ | ΔV_o | 0.3 | --- | 1.6 | V |
| Differential Input Impedance ² | Z | --- | 100 | --- | Ohm |
| Optical Return Loss | OL | 12 | --- | --- | dB |
| Rise/Fall Time (20% - 80%) | T_r/T_f | --- | --- | 350 | ps |
| Signal Detect Hysteresis | $P_{SD+} - P_{SD}$ | 1 | --- | --- | dB |
| Signal Detect Output - Low | V_{SD-} | 0 | --- | 0.5 | V |
| Signal Detect Output - High | V_{SD+} | 2.4 | --- | V_{cc} | V |

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.

Transmitter Electro-Optical Characteristics

| Parameter | Symbol | Min. | Typical | Max. | Units |
|-----------------------------------|-----------------|------|---------|------|-------|
| Optical Output Power ¹ | P_o | -4 | --- | +3 | dBm |
| Optical Wavelength | λ_o | 1280 | 1310 | 1340 | nm |
| Extinction Ratio | ET | 7 | --- | --- | dB |
| Spectral Width (-20 dB) | $\Delta\lambda$ | --- | --- | 1 | nm |

Receiver Electro-Optical Characteristics

| Parameter | Symbol | Min. | Typical | Max. | Units |
|-----------------------------------|-------------|------|---------|------|-------|
| Operating Wavelength | λ_c | 1260 | --- | 1610 | nm |
| Receiver Overload | P_{max} | -3 | --- | --- | dBm |
| Receiver Sensitivity ² | P_I | --- | --- | -24 | dBm |
| Signal Detect– Asserted | P_{SD+} | --- | --- | -24 | dBm |
| Signal Detect– Deasserted | P_{SD-} | -35 | --- | --- | dBm |

Notes:

1. Output of coupling optical power into 9/125 μ m SMF.
2. Test at 1.25 Gb/s, 2⁷ – 1 PRBS data pattern, and > 1x10⁻¹² of Bit-Error-Rate (BER).
3. Optical eye diagram is compliant with IEEE 802.3z standard.
4. Maximum supply current for the transceiver from Vcc is 300 mA for 3.3V and 400 mA for 5V.

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11

