

3FE29194AA-OPC

Alcatel-Lucent Nokia® 3FE29194AA Compatible TAA 100Base-BX SFP Transceiver (SMF, 1550nmTx/1310nmRx, 20km, LC)

Features

- INF-8074 and SFF-8472 Compliance
- Simplex LC Connector
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



Applications:

- 100Base Ethernet
- Access and Enterprise

Product Description

This Alcatel-Lucent Nokia® 3FE29194AA compatible SFP transceiver provides 100Base-BX throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1550nmTx/1310nmRx via an LC connector. This bidirectional unit must be used with another transceiver or network appliance of complementing wavelengths. It is guaranteed to be 100% compatible with the equivalent Alcatel-Lucent Nokia® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. It is built to meet or exceed the specifications of Alcatel-Lucent® Nokia®, as well as to comply with MSA (Multi-Source Agreement) standards to ensure seamless network integration. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

Absolute Maximum Ratings

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|----------------------------|------------------|------|------|------|------|
| Maximum Supply Voltage | V _{CC} | -0.5 | | 3.6 | V |
| Storage Temperature | T _S | -40 | | +85 | °C |
| Operating Case Temperature | T _C | 0 | | +70 | °C |
| Operating Humidity | RH | 5 | | 85 | % |
| Receiver Power | R _{MAX} | | | -8 | dBm |
| Data Rate | | | 155 | | Mbps |

Electrical Characteristics (TOP=25°C, V_{CC}=3.3Volts)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|-------------------------------|------------------|------|------|------|------------------|-------|
| Power Supply Voltage | V _{CC} | 3.15 | 3.30 | 3.45 | V | |
| Power Supply Current | I _{CC} | | | 300 | mA | |
| Transmitter | | | | | | |
| LVPECL Inputs (Differential) | V _{in} | 400 | | 2000 | mV _{pp} | 1 |
| Input differential impedance | Z _{in} | 85 | 100 | 115 | Ω | 2 |
| Receiver | | | | | | |
| LVPECL Outputs (Differential) | V _{out} | 400 | | 2000 | mV _{pp} | 1 |
| Output differential impedance | Z _{out} | 85 | 100 | 115 | Ω | |

Notes:

1. LVPECL logic, internally AC coupled
2. R_{in} > 100 kohms @ DC

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--------------------------------|-----------------------|------|------|------|------|-------|
| Transmitter | | | | | | |
| Optical Power (average) | P _{AVE} | -15 | | -8 | dBm | 1 |
| Optical Extinction Ratio | ER | 8.2 | | | dB | 2 |
| Optical Wavelength | Tλ | 1530 | 1550 | 1570 | nm | |
| Spectral Width (RMS) | Δλ | | | 4 | nm | |
| Rise/Fall Time (20% ~ 80%) | tr/tf | | | 2 | ns | |
| Total Jitter | TJ | | | 1.5 | ns | |
| Pout@TX Disable Asserted | Pout | | | -45 | dBm | |
| Output Optical Eye | IUT-T G.957 Compliant | | | | | |
| Receiver | | | | | | |
| Receiver Sensitivity (average) | R _{AVE} | | | -34 | dBm | 3 |
| Receiver overload | P _{max} | -8 | | | dBm | 4 |
| Receiver wavelength | Rλ | 1260 | | 1360 | nm | |

Notes:

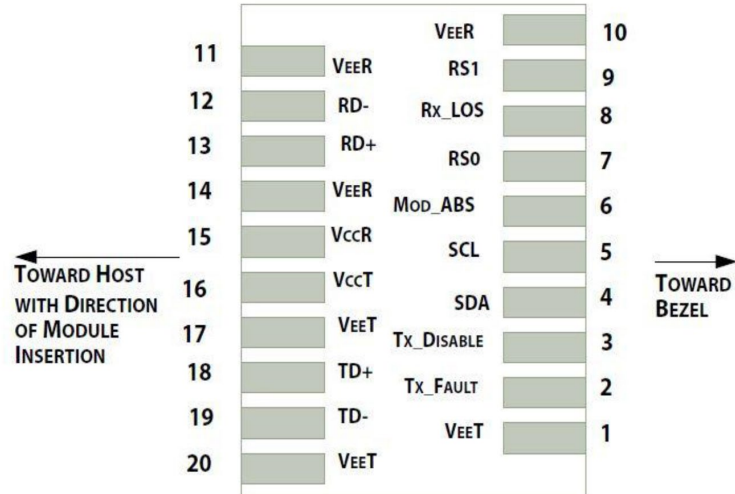
1. Output power is measured by coupling into a 9/125 mm single-mode fiber.
2. Filtered, measured with a PRBS $2^{23}-1$ test pattern @155Mbps.
3. Minimum average optical power is measured at BER less than $1E-12$ and PRBS $2^{23}-1$ test pattern.
4. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

Pin Descriptions

| Pin | Symbol | Name/Descriptions | Ref. |
|-----|------------|--|------|
| 1 | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |
| 2 | TX Fault | Transmitter Fault. LVTTTL-O | 2 |
| 3 | TX Disable | Transmitter Disable. Laser output disabled on high or open. LVTT-I. | 3 |
| 4 | SDA | 2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTTL-I/O. | |
| 5 | SCL | 2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTTL-I. | |
| 6 | MOD_ABS | Module Absent, Connect to VeeT or VeeR in Module. | 4 |
| 7 | RS0 | Rate Select 0. Not used | 5 |
| 8 | LOS | Loss of Signal indication. Logic 0 indicates normal operation. LVTTTL-O. | 2 |
| 9 | RS1 | Rate Select 1. Not used | 5 |
| 10 | VeeR | Receiver Ground (Common with Transmitter Ground). | 1 |
| 11 | VeeR | Receiver Ground (Common with Transmitter Ground). | 1 |
| 12 | RD- | Receiver Inverted DATA out. AC Coupled. CML-O. | |
| 13 | RD+ | Receiver Non-inverted DATA out. AC Coupled. CML-O. | |
| 14 | VeeR | Receiver Ground (Common with Transmitter Ground). | 1 |
| 15 | VccR | Receiver Power Supply. | |
| 16 | VccT | Transmitter Power Supply. | |
| 17 | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |
| 18 | TD+ | Transmitter Non-Inverted DATA in. AC Coupled. CML-I. | |
| 19 | TD- | Transmitter Inverted DATA in. AC Coupled. CML-O. | |
| 20 | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |

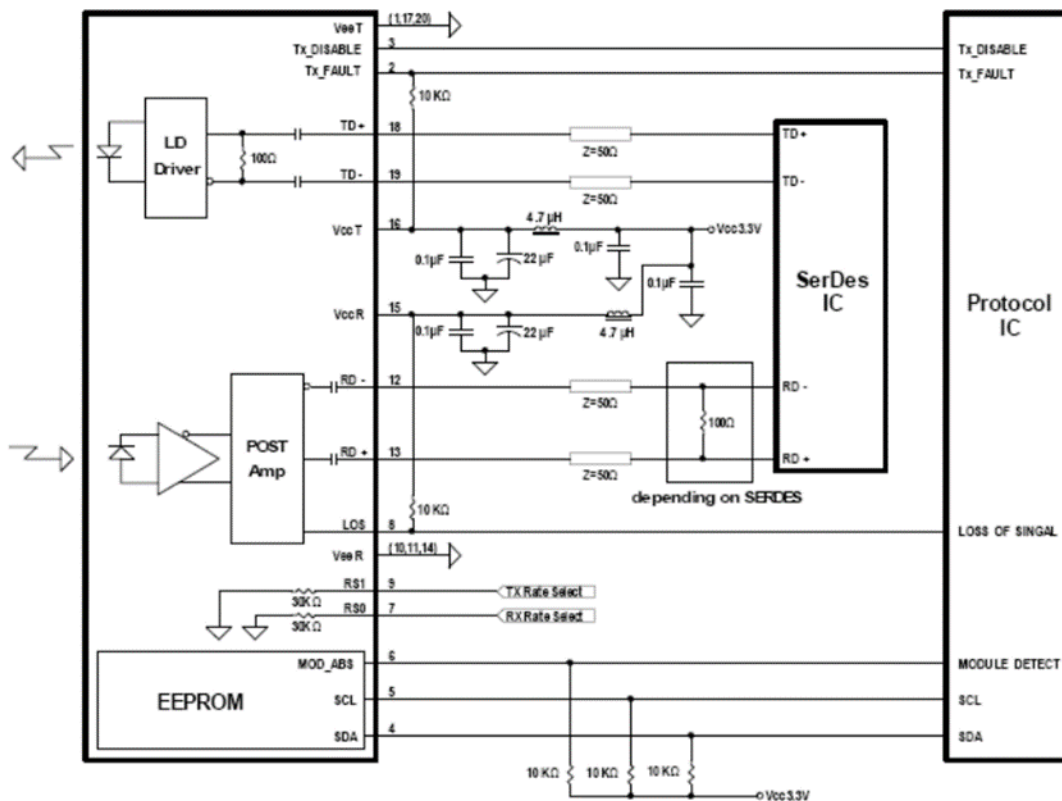
Notes:

1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Vcc_Host with resistor in the range 4.7KΩ to 10KΩ. Pull ups can be connected to one or several power supplies, however the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5.V.
3. Tx_Disable is an input contact with a 4.7KΩ to 10KΩ pull-up resistor to VccT inside module.
4. Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to Vcc_Host with a resistor in the range from 4.7KΩ to 10KΩ. Mod_ABS is asserted “High” when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431



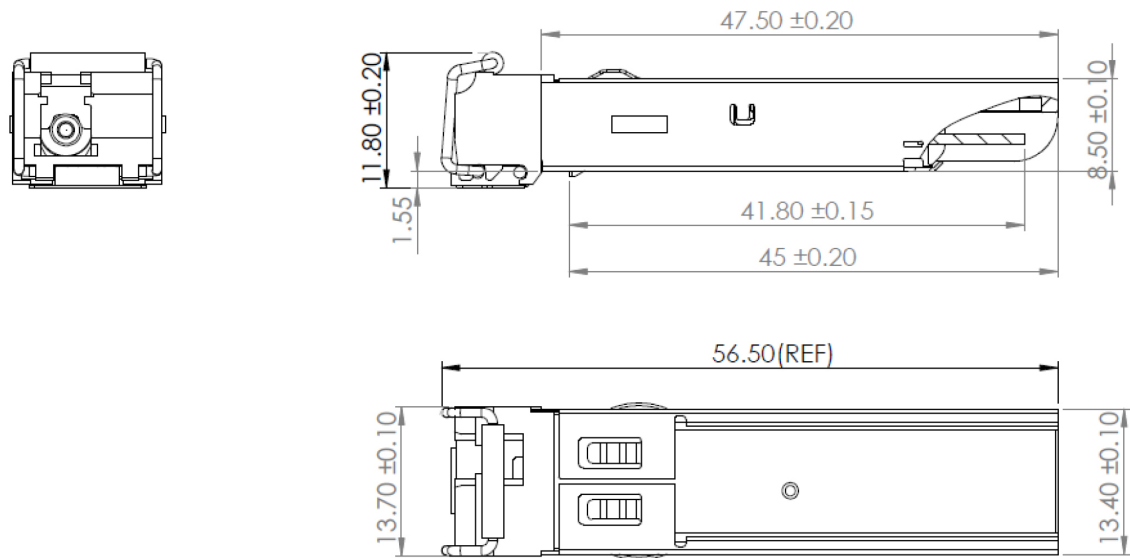
Pin-out of connector Block on Host board

Recommended Circuit Schematic



Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).



EEPROM Information

EEPROM memory map specific data field description is as below:

| 2 wire address 1010000X (A0h) | 2 wire address 1010001X (A2h) |
|---|---|
| 0 | 0 |
| Serial ID Defined by SFP MSA (96 bytes) | Alarm and Warning Thresholds (56 bytes) |
| 95 | 55 |
| Vendor Specific (32 bytes) | Cal Constants (40 bytes) |
| 127 | 95 |
| Reserved, SFF8079 (128 bytes) | Real Time Diagnostic Interface (24 bytes) |
| | 119 |
| | Vendor Specific (8 bytes) |
| | 127 |
| | User Writable EEPROM (120 bytes) |
| | 247 |
| | Vendor Specific (8 bytes) |
| 255 | 255 |