## 3FE47582AC-C

Alcatel-Lucent Nokia® 3FE47582AC Compatible TAA GPON OLT SFP B+ Transceiver (1490nmTx/1310nmRx, 2.5Gbps/1.25Gbps, 29.5dBm, SC, Rugged)

**Features:**

- INF-8074 and SFF-8472 Compliance
- Simplex SC Connector
- Single-mode Fiber
- Industrial Temperature -40 to 85 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free

**Applications:**

- GPON
- Access and Enterprise

**Product Description**

This Alcatel-Lucent Nokia® 3FE47582AC compatible SFP transceiver provides 2.4Gbs/1.2Gbs-B+ throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1490nmTx/1310nmRx via a SC connector. 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.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."

## Absolute Maximum Ratings

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Maximum Supply Voltage** | Vcc | -0.5 | | 4.0 | V | 1 |
| **Storage Temperature** | Tsto | -40 | | 85 | °C | 2 |
| **Operating Case Temperature** | Top | -40 | | 85 | °C | |
| **Data Rate** | DR | | 2488/1244 | | Mb/s | 3 |
| **Bit Error Rate** | BER | | | $10^{-10}$ | | |

### Notes:

1. For electrical power interface
2. Ambient temperature
3. Downstream/Upstream

## Electrical Characteristics ($V_{CC}$=3.14V to 3.46V, $T_C$=– 40℃ to 85℃)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Input Voltage** | Vcc | 3.14 | 3.30 | 3.46 | V | |
| **Power Supply Current** | Icc | | | 450 | mA | |
| **Differential data input swing** | Vin,pp | 200 | | 1600 | mV | |
| **Input differential impedance** | Rin | | 100 | | Ω | |
| **Differential data output swing** | Vout, pp | 400 | | 1600 | mV | |
| **Input Signal Level (LVTTL H)** | V | 2.0 | | $V_{CC}$ | V | |
| **Input Signal Level (LVTTL L)** | V | 0 | | 0.8 | | |
| **Output Signal Level (LVTTL H)** | V | 2.4 | | $V_{CC}$ | V | |
| **Output Signal Level (LVTTL L)** | V | 0 | | 0.4 | V | |

**Optical Characteristics** (V$_{CC}$=3.14V to 3.46V, T$_C$=– 40℃ to 85℃)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Transmitter** | | | | | | |
| **Transmitter Type** | 1490nm DFB Laser with Isolator | | | | | 1 |
| **Downstream Signaling Speed** | STX | | 2488 | | Mb/s | |
| **Output Optical Power** | PTX | 1.5 | | 5 | dBm | 2 |
| **Optical Output with TX OFF** | Pout_off | | | -40 | dBm | |
| **Optical Extinction Ratio** | ER | 8.2 | | | dB | |
| **Optical Center Wavelength** | λc | 1480 | | 1500 | nm | |
| **Spectral Width (-20dB)** | 🔲🔲 | | | 1 | nm | |
| **Side Mode Suppression Ratio** | SMSR | 30 | | | dB | |
| **Output Eye** | Compliant with G.984. 2 | | | Data Rate=2488Mb/s | | |
| **Receiver** | | | | | | |
| **Receiver Type** | 1310nm APD/TIA burst-mode Receiver | | | | | |
| **Signaling Speed** | Srx | | 1244 | | MB/s | |
| **Optical Center Wavelength** | λc | 1280 | 1310 | 1360 | Nm | |
| **Average Rx Sensitivity @1244Mb/s** | Rx_sen | | | -28 | dBm | 3 |
| **Burst Sensitivity Receiver Overload** | Pmax | -8 | | | dBm | |
| **Receiver Burst Mode Dynamic Range** | | 15 | | | dB | |
| **LOS Assert** | LOS_A | -45 | | | dBm | |
| **LOS De-Assert** | LOS_D | | | -30 | dBm | |
| **LOS Hysteresis** | LOS_H | 0.5 | | | dB | |

**Notes:**

1. Continuous-mode
2. Class 1 Product
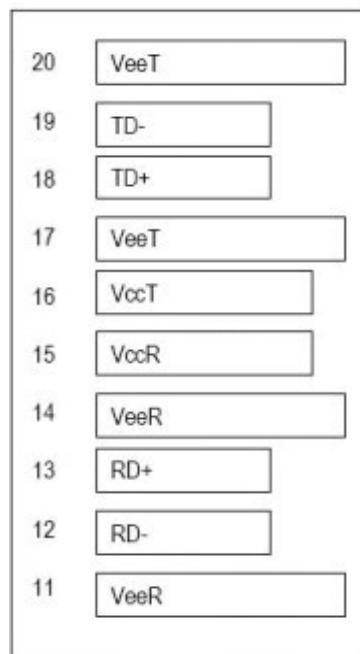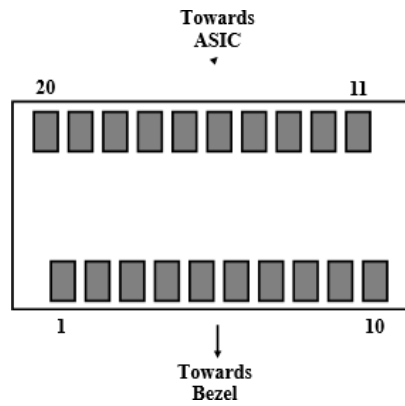3. @BER $10^{-10}$ PRBS $2^{23}$-1

**Pin Descriptions**

| Pin | Symbol | Name/Descriptions | Ref. |
|-----|--------|-------------------|------|
| 1 | VEET | Transmitter ground (common with receiver ground) | 1 |
| 2 | TFAULT | Transmitter Fault. | |
| 3 | TDIS | Transmitter Disable. Laser output disabled on high or open | 2 |
| 4 | MOD_DEF (2) | Module Definition 2. Data line for serial ID | 3 |
| 5 | MOD_DEF (1) | Module Definition 1. Clock line for serial ID | 3 |
| 6 | MOD_DEF (0) | Module Definition 0. Grounded within the module | 3 |
| 7 | RESET | Receiver Reset | 4 |
| 8 | BPD | Burst Packet Detect | 5 |
| 9 | RSSI Trigger | RSSI Trigger Signal From Host | 6 |
| 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 | |
| 13 | RD+ | Receiver Non-inverted DATA out. AC coupled | |
| 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 | |
| 19 | TD− | Transmitter Inverted DATA in. AC coupled | |
| 20 | VEET | Transmitter ground (common with receiver ground) | 1 |

**Notes:**

1. Circuit ground is isolated from chassis ground
2. Disabled: $T_{DIS}$>2V or open, Enabled: $T_{DIS}$<0.8V
3. Should Be pulled up with 4.7k – 10k ohm on host board to a voltage between 2V and 3.6V
4. Reset is a LVTTL input which is used to clear receiver status before receiving the next burst packet
5. BPD is a LVTTL output. High Level indicates that burst packet is detected by the receiver
6. RSSI Trigger is a LVTTL input from host for starting ADC of digital RSSI circuit to sample the analog RSSI signal

**Electrical Pad Layout**

Towards
ASIC

| 20 | | | | | | | | | 11 |

| 1 | | | | | | | | | 10 |

Towards
Bezel

| 20 | VeeT |
| 19 | TD- |
| 18 | TD+ |
| 17 | VeeT |
| 16 | VccT |
| 15 | VccR |
| 14 | VeeR |
| 13 | RD+ |
| 12 | RD- |
| 11 | VeeR |

Top of Board

| 1 | VeeT |
| 2 | TxFault |
| 3 | Tx Disable |
| 4 | MOD-DEF(2) |
| 5 | MOD-DEF(1) |
| 6 | MOD-DEF(0) |
| 7 | Reset |
| 8 | BPD |
| 9 | Trigger |
| 10 | VeeR |
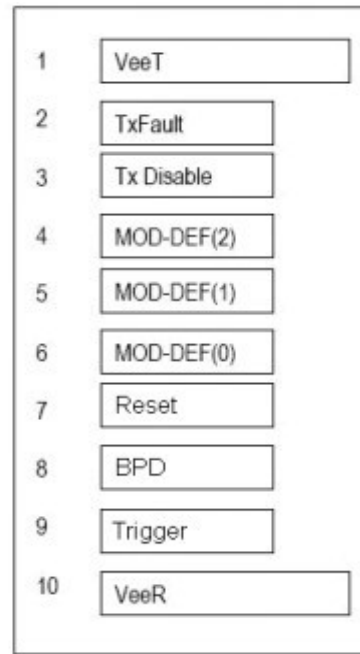
Bottom of Board (as viewed
thru top of board)

**Digital Diagnostic Functions**

This transceiver supports the 2-wire serial communication protocol as defined in the SFP MSA. Digital diagnostic information is accessible over the 2-wire interface at the address 0xA2. Digital diagnostics for this module are internally calibrated by default. A micro controller unit inside the transceiver gathers the monitoring information and reports the status of transceiver.

**Transceiver Temperature**, internally measured, represented as a 16 bit signed twos complement value in increments of 1/256 degrees Celsius, Temperature accuracy is better than ±3 degrees Celsius over specified operating temperature andvoltage.
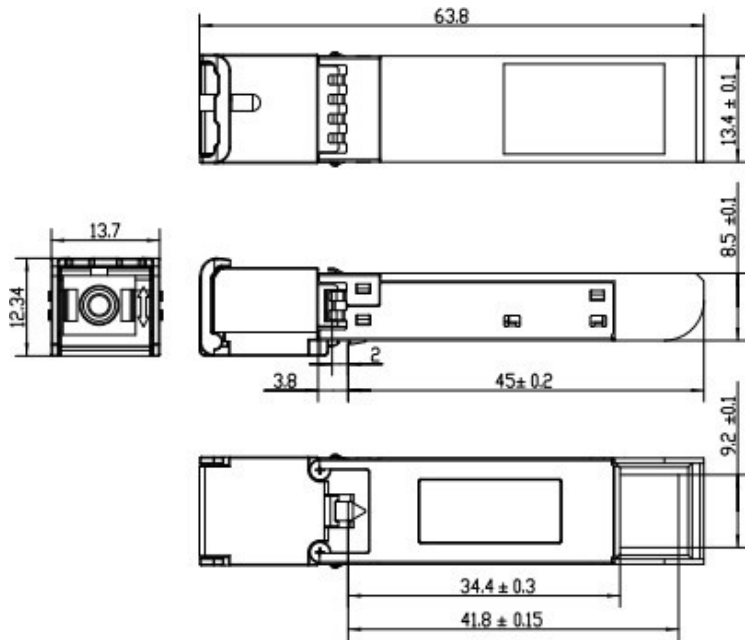
**Transceiver Supply Power,** internally measured, represented as a 16 bit unsigned integer with the voltage defined as the full 16 bit value (0 – 65535) with LSB equal to 100 µVolt, yielding a total range of 0 to +6.55 Volts.

**Transceiver TX bias current,** internally measured, represented as a 16 bit unsigned integer with the current defined as the full 16 bit value (0 – 65535) with LSB equal to 2 µA, yielding a total range of 0 to 131mA. Accuracy is better than ±10% over specified operating temperature and voltage.
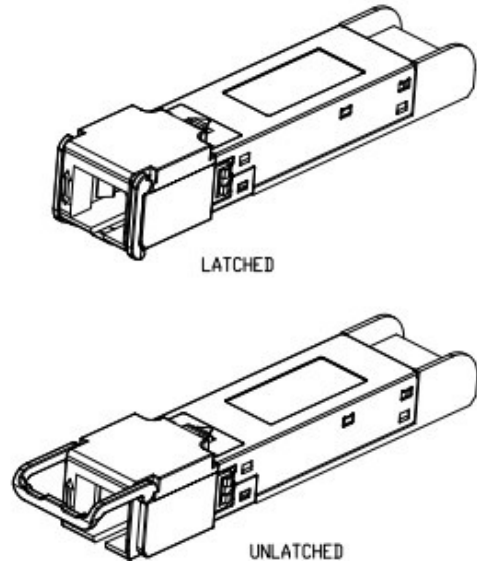
**Transceiver TX output power,** internally measured, represented as a 16 bit unsigned integer with the power defined as the full 16 bit value (0 – 65535) with LSB equal to 0.1 µW. Data is assumed to be based on measurement of laser monitor photodiode current. Accuracy is better than ±3dB over specified temperature and voltage. Data is not valid when the transmitter is disabled.

**Transceiver RX received optical power,** internally measured, represented as a 16 bit unsigned integer with the power defined as the full 16 bit 35 value (0 – 65535) with LSB equal to 0.1 µW. Accuracy is better than ±3dB over specified temperature and voltage.

**Mechanical Specifications**

63.8

13.4 ± 0.1

13.7

12.34

8.5 ±0.1

3.8

2

45± 0.2

9.2 ±0.1

34.4 ± 0.3

41.8 ± 0.15

unit:millimeter

LATCHED

UNLATCHED

**ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE SPECIFIED UNIT: mm**

**About ProLabs**

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

**Complete Portfolio of Network Solutions**

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

**Trusted Partner**

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

**Contact Information**
ProLabs US

Email: sales@prolabs.com
Telephone:    952-852-0252

ProLabs UK

Email: salessupport@prolabs.com
Telephone: +44 1285 719 600