**3FE47582JC-C**

Alcatel-Lucent Nokia® 3FE47582JC Compatible TAA Compliant GPON OLT SFP C++ Transceiver (1490nmTx/1310nmRx, 2.5Gbps/1.25Gbps, 39dBm, SC, Rugged)

**Features:**

- Support ITU-T G.984.2 GPON OLT C++ application
- Single fiber bi-directional data links with symmetric 2.488Gbps Tx and 1.244Gbps Rx
- 1490nm continuous-mode transmitter with DFB LD
- 1310nm burst-mode receiver with APD-TIA
- 2-wire interface for integrated digital diagnostic Monitoring
- Receiver RESET, Signal Detect, RSSI function indication (RESET, RX_SD, RSSI)
- SFP package with SC/UPC receptacle optical interface
- Single +3.3V power supply
- Operating case temperature: -40~85°C
- RoHS6 compliance

**Product Description**

This Alcatel-Lucent Nokia® 3FE47582JC compatible SFP transceiver provides 2.4Gbs/1.2Gbs-C+ throughput up to 60km over single-mode fiber (SMF) using a wavelength of 1490nmTx/1310nmRx via a SC connector. It is also capable of withstanding rugged environments and can operate at temperatures between -40C to +85C. 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. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. 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."

## 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 | Notes |
|---|---|---|---|---|---|---|
| Storage Temperature | | -40 | | 85 | °C | |
| Operating Case Temp for C-temp | | -40 | | 85 | °C | |
| Bit Rate for Tx | | | 2.488 | | Gbps | |
| Bit Rate for Rx | | | 1.244 | | Gbps | |

## Electrical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| Power Supply Voltage | Vcc | 3.15 | 3.3 | 3.45 | V | |
| Power Supply Current | Is | | | 500 | mA | |
| **Transmitter** | | | | | | |
| Data Input Swing Differential/TX | Vin, pp | 200 | | 2000 | mV | |
| Date Differential Impedance | Zin | 90 | 100 | 110 | Ω | |
| LVTTL Input High | V | 2.0 | | Vcc+0.3 | V | |
| LVTTL Input Low | V | 0 | | 0.8 | V | |
| **Receiver** | | | | | | |
| Data Output Swing Differential/RX | Vout, pp | 400 | | 1600 | mV | |
| Date Differential Impedance | Zin | 90 | 100 | 110 | Ω | |
| LVTTL Output High | V | 2.4 | | Vcc | V | |
| LVTTL Output Low | V | 0 | | 0.4 | V | |

**Optical Characteristics**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Transmitter** | | | | | | |
| **TX Central Wavelength** | $\lambda X$ | 1480 | 1490 | 1550 | nm | |
| **Spectral Width (-20dB)** | $\Delta\lambda$ | | | 1 | nm | |
| **Side Mode Suppression Ratio** | SMSR | 30 | | | dB | |
| **Mean Launched Power** | | 6.5 | | 10 | dBm | |
| **Mean Launched Power (TX Off)** | | | | -45 | dBm | |
| **Extinction Ratio** | ER | 8.2 | | | dB | |
| **Optical Return Loss Tolerance** | ORL | -15 | | | dB | |
| **Transmitter and Dispersion Penalty** | TDP | | | 1 | dB | |
| **Transmitter Mask** | Compliant With ITU-T G.984.2 | | | | | 1 |
| **Receiver** | | | | | | |
| **Receive Wavelength** | $\lambda X$ | 1290 | 1310 | 1330 | nm | |
| **Sensitivity** | Rx_sen | | | -33 | dBm | 2 |
| **Receiver Overload** | $P_{max}$ | -7 | | | dBm | 2 |
| **Receiver Burst Mode Dynamic Range** | | 15 | | | dB | |
| **Damage Threshold for Receiver** | | 5 | | | dBm | |
| **SD Assert Level** | LOS_A | | | -33 | dBm | |
| **SD De-assert Level** | LOS_D | -45 | | | dBm | |
| **SD Hysteresis** | LOS_H | 0.5 | | 6 | dB | |
| **WDM Filter isolation to 1550nm** | | 38 | | | dB | |
| **WDM Filter isolation to 1650nm** | | 35 | | | dB | |

**Notes:**
1. PRBS2$^{23}$-1@2.488G
2. PRBS2$^{23}$-1@1.244G, ER=10, BER<10$^{-10}$

**Timing Characteristics**

| Parameter | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|
| Guard Time (Tg) | 25.6 | | | ns |
| Reset Pulse Width (Tr) | | | 12.8 | ns |
| Reset Delay (Trd) | | | 12.8 | ns |
| Receiver Preamble Time (Tp) | | | 140 | ns |
| SD Assert Time (TSDA) | | | 100 | ns |
| SD De-assert Time (TSDD) | | | 12.8 | ns |
| RSSI Trigger Delay (Ttd) | 25 | | | ns |
| RSSI Trigger Pulse Width (Tw) | 500 | | | ns |
| Internal I2C Delay (TI2C) | | | 500 | us |

## Timing Sequence for RSSI
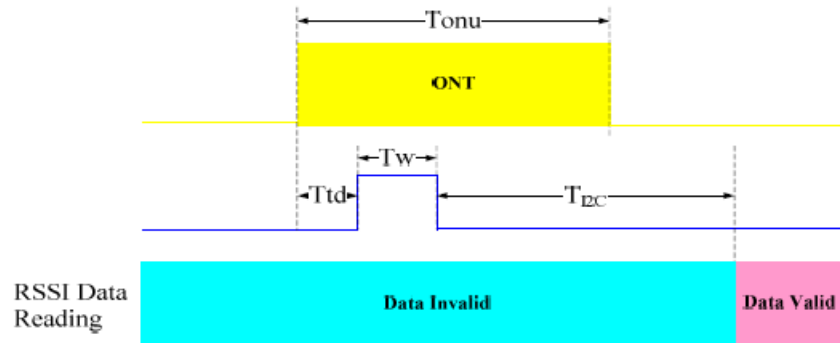


## Timing Sequence for Ranging Mode
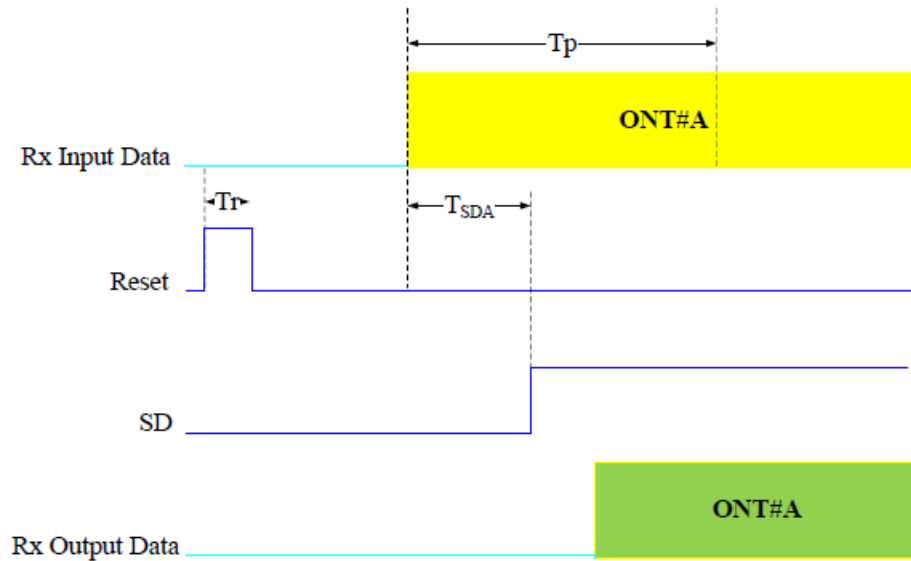
**Timing Sequence for Working Mode**
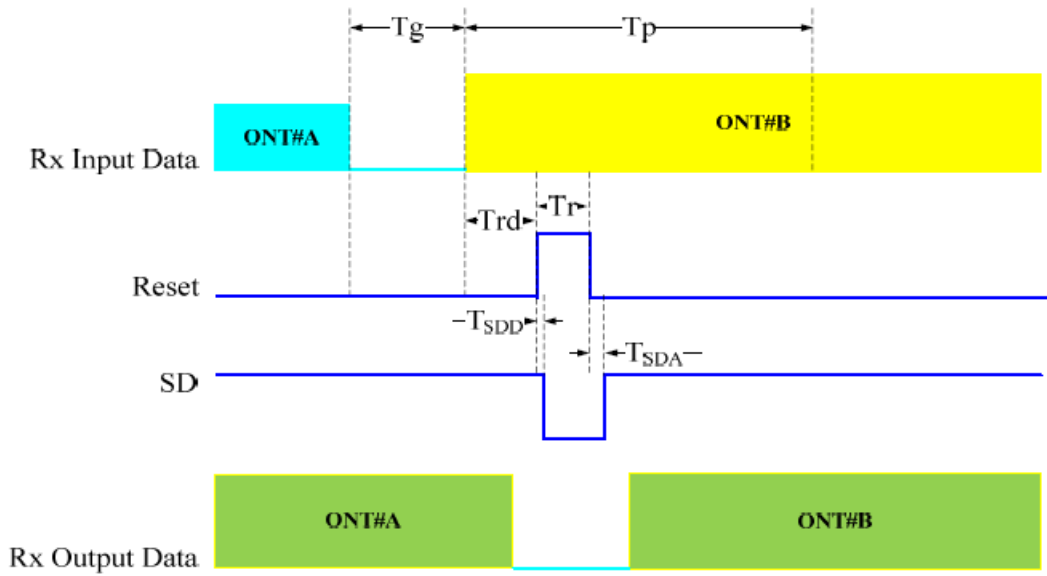


**Pin Descriptions**

| Pin | Symbol | Level/Logic | Name/Descriptions |
|---|---|---|---|
| 1 | VeeT | | Module Transmitter Ground |
| 2 | Tx_Fault | LVTTL-O | Module Transmitter Fault |
| 3 | Tx_DIS | LVTTL-I | Laser output is disabled when this pin is asserted high or left unconnected |
| 4 | SDA | LVTTL-I | 2-Wire Serial Interface Data Line |
| 5 | SCL | LVTTL-I/O | 2-Wire Serial Interface Clock |
| 6 | MOD_ABS | LVTTL-O | Module Absent, connected to ground in the module |
| 7 | RX_Reset | LVTTL-I | Receiver RESET signal |
| 8 | RX_SD | LVTTL-O | Receiver Signal Detected Indication |
| 9 | RSSI_TRIG | LVTTL-I | Receiver RSSI Trigger signal |
| 10 | VeeR | | Module Receiver Ground |
| 11 | VeeR | | Module Receiver Ground |
| 12 | RD- | LVPECL-O | Receiver Inverted Data Output |
| 13 | RD+ | LVPECL-O | Receiver Non-Inverted Data Output |
| 14 | VeeR | | Module Receiver Ground |
| 15 | VccR | | Module Receiver 3.3V Supply |
| 16 | VccT | | Module Transmitter 3.3V Supply |
| 17 | VeeT | | Module Transmitter Ground |
| 18 | TD+ | LVPECL-I | Transmitter Non-Inverted Data Input |
| 19 | TD- | LVPECL-I | Transmitter Inverted Data Input |
| 20 | VeeT | | Module Transmitter Ground |

## Recommended Interface Circuit
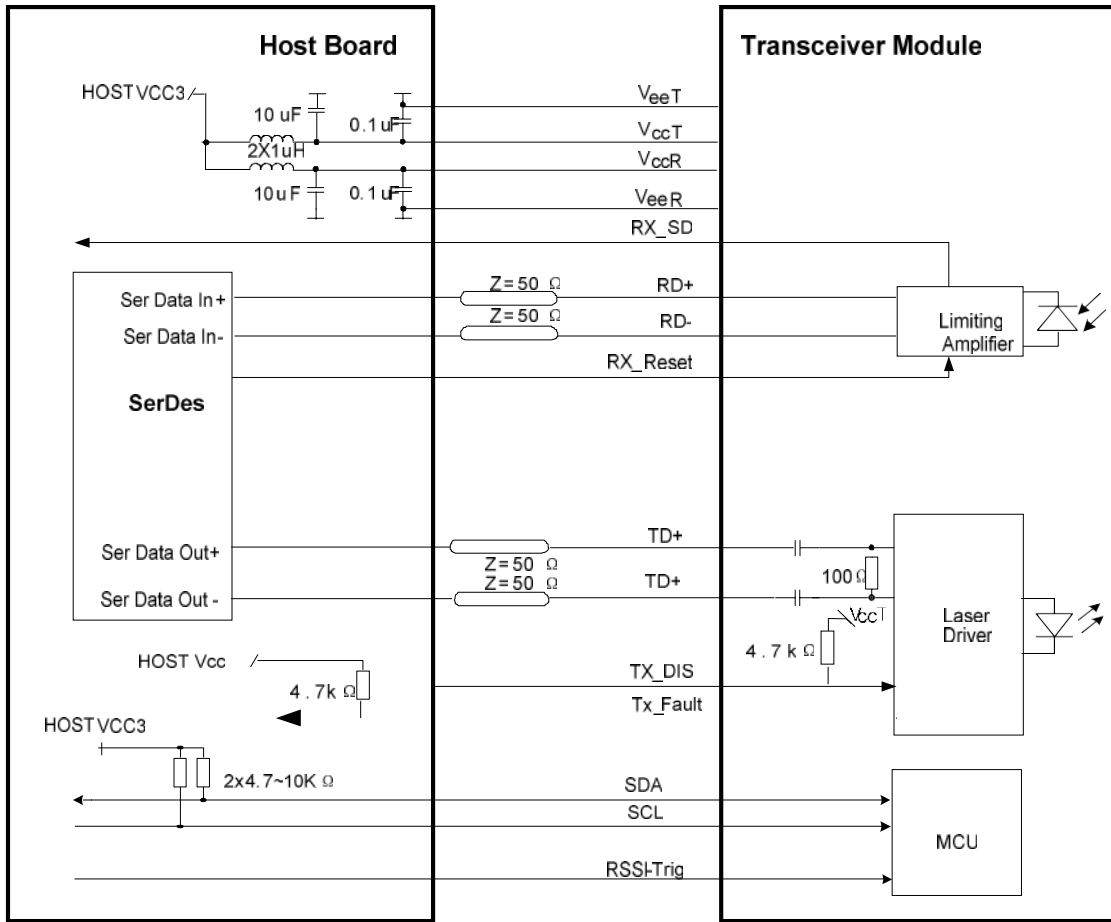
## Mechanical Specifications
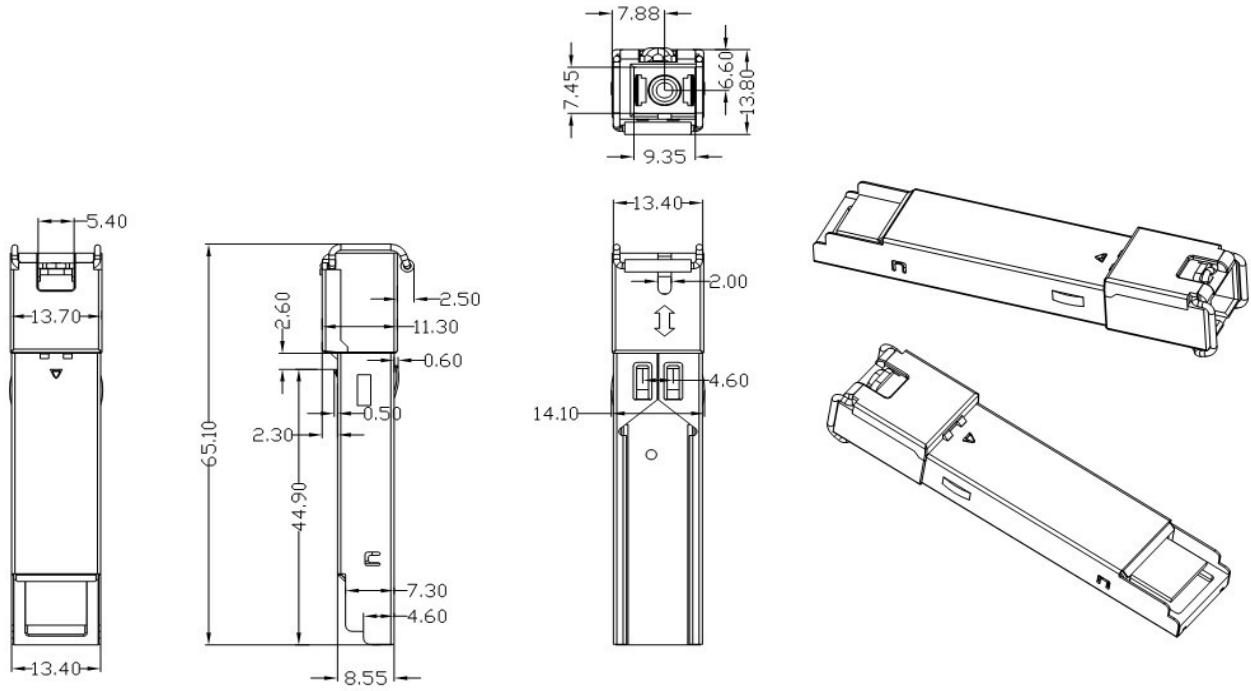
**About ProLabs**

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.

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