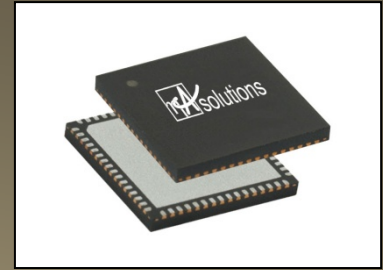


## NS2211-15

### 3G WCDMA Analog Front End



## Features

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- Dual voltage supply:
  - Analog and I/O 2.85 V
  - 1.2V with internal regulators at 65nm
  - 1.8V with internal regulators at 180nm
  - I-Q outputs 2Vp-p differential
- I/Q Rx path
  - Two fully parallel paths for diversity
  - Supports CDMA/WCDMA/EGPRS
  - Programmable gain
  - 12-bit SD ADCs with 75dB DR for CDMA/WCDMA and 85dB for EGPRS
- I/Q Tx path
  - Supports CDMA/WCDMA/EGPRS
  - 10-bit DAC with Analog low-pass filter
  - Current and voltage output modes
- Auxiliary general purpose ADC
  - 10-bit 400kS/s
  - 6 multiplexed inputs
- Auxiliary Radio Control DACs
  - 12-bit 40us for AFC
  - 10-bit 10us for AGC
  - 10-bit 10us for general purpose
  - 10-bit 0.5us for PA control
- Internal references including
  - Bandgap voltage
  - Reference current
- Typical current consumption
  - Each I/Q Rx analog path:
    - EGPRS: 5mA
    - CDMA 8mA
    - WCDMA: 8mA
  - I/Q Tx analog path:
    - EGPRS voltage output: 10mA
    - WCDMA voltage output: 20mA
    - Current output: 20mA
  - Auxiliary DACs (total): 2.5mA
  - Digital section < 3mA (WCDMA)
- Area (with I/O pads) < 12.5 mm<sup>2</sup>
- Area (without I/O pads) < 8 mm<sup>2</sup>

## Applications

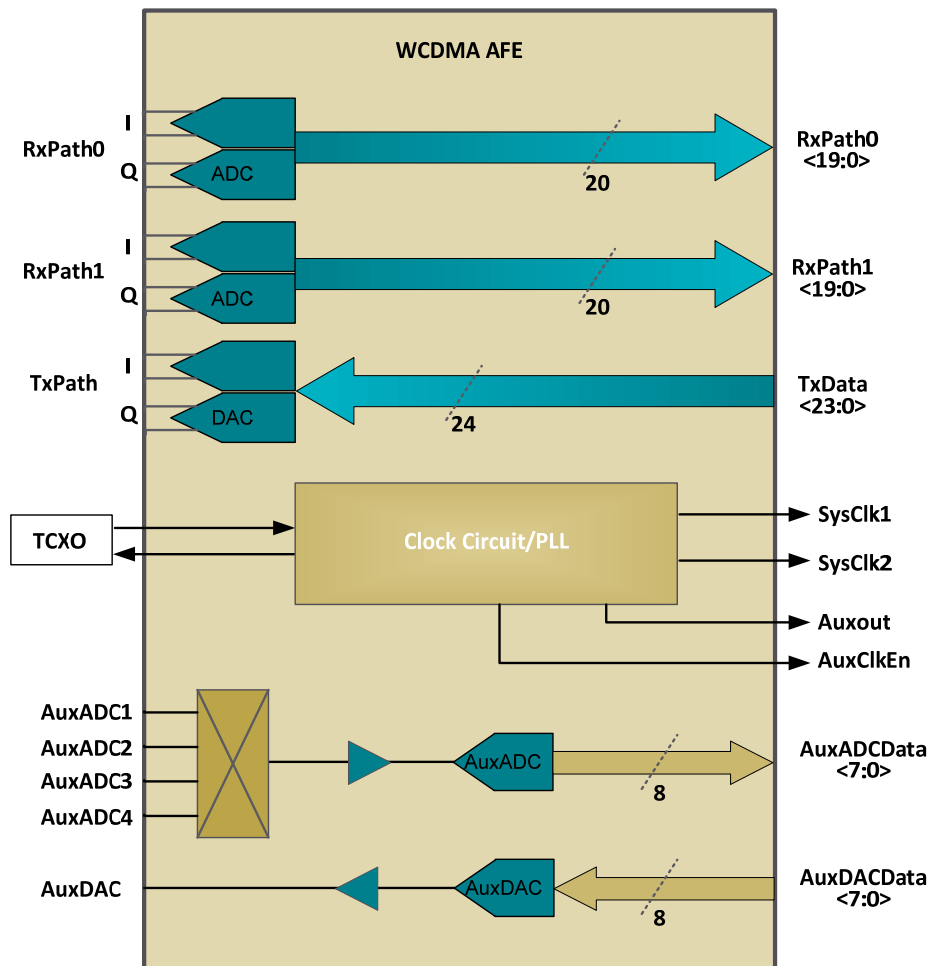
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- 3G Cellular phones and PC cards

## Technology

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- 0.18um standard CMOS
- 65 nm standard CMOS



## Description

The NanoAmp Solutions NS2211-15 is a fully integrated analog front end (AFE) that is capable of performing all functions necessary for the digital baseband to RF transceiver interface in EGPRS, WCDMA and HSPDA handset and modem applications. The AFE is intended for integration into a larger digital baseband or RF transceiver IC.

The AFE consists of two ADC IQ pairs for the receive path, two DAC IQ pairs for the transmit path, one auxiliary ADC and DAC and a clock generation block. The auxiliary DACs enable the baseband a means to control the radio. An on-chip 12-bit ADC with multiplexed inputs allows the monitoring of RSSI, battery voltage, temperature parameters.

The NS2211-15 is designed in standard digital 65nm CMOS. It operates at 2.8 volts and 1.2 volts is generated internally with regulators. It is optimized for low power and high performance 3G operations. The core supports a power-down mode with less than 10 $\mu$ A of current consumption.