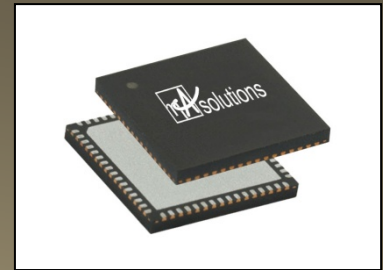


NS2210-15

High Precision N-Bit Delta-Sigma
Analog to Digital Converter



Features

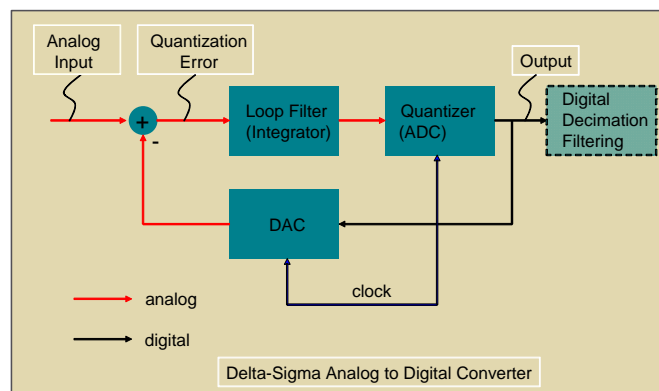
- Scalable bandwidth and frequency
- Resolution is 14 bits at 135kHz bandwidth
- Resolution is 12 bits at 2MHz bandwidth
- Clock rate up to 125 MHz
- INL and DNL +/- 1 LSB noise
- 65nm digital CMOS process
- Single Supply Operation at 2.5V

Benefits

- Silicon proven design
- Ultra-Low Power consumption with 5mA at 2.5V per channel.
- Small silicon footprint at 0.25 sq mm
- Scalable 65 nm CMOS

Applications

- GSM/EDGE
- CDMA 2000
- WCDMA
- Wireless Transmitters



Description

The NanoAmp Solutions NS2210-15 is a general purpose programmable 3rd to 5th order continuous-time Sigma-Delta digital to analog converter. The ADCs are based on a 1-bit $\Sigma\Delta$ modulator that uses a programmable sampling frequency of 52MHz, 104MHz, and 125MHz for different performance and bandwidths. The output digital stream is a 1 bit digital signal representing 12-14 bits of resolution depending on the mode of the A/D converter.

An optional decimation filter for GSM/EDGE and WCDMA is available for filtering the output for these applications.

Electrical Characteristics

| <i>Parameter</i> | <i>Conditions</i> | <i>Min</i> | <i>Typ</i> | <i>Max</i> | <i>Units</i> |
|---------------------------|-------------------|------------|------------|------------|-----------------------|
| Analog Supply Voltage | | 2.25 | 2.5 | 2.75 | V |
| Digital Supply Voltage | | 2.25 | 2.5 | 2.75 | V |
| Analog Supply Current | | | 5 | | mA |
| Digital Supply Current | | | 1 | | mA |
| Power Down Current | | | 1 | | uA |
| Input Clock | | 52 | 104 | 125 | MHz |
| Bandwidth | | 135 | 260 | 2000 | kHz |
| Full-Scale Output Voltage | | | 2.5 | | V |
| SNR | | | 75-85dB | | |
| INL | | -1 | | 1 | LSB |
| DNL | | -1 | | 1 | LSB |
| THD | | | 0.1 | | % |
| Turn on time | | | 10 | | uS |
| Operating Temperature | | -30 | | 85 | C |
| Area Analog | | | 0.25 | | mm ² |
| Area Digital | | | 0.10 | | mm ² (opt) |

Legend

O = Output
 I = Input
 IO = Input/Output
 P = Power (Supply or Ground)
 A = Analog Signal

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