NXP single 14-bit, 125 MSPS ADC with input buffer & CMOS/LVDS DDR outputs ADC1415Sxxx

Single-channel ADC with input buffer for High-IF applications

Supporting sample rates up to 125 MSPS, this single-channel, 14-bit ADC delivers excellent dynamic performance and features a low-power BiCMOS input buffer for use in High-IF applications.

Key features

- SNR: 73 dB typical, SFDR: 90 dBc typical
- Integrated low-power BiCMOS input buffer supporting input bandwidth up to 800 MHz
- Maximum sample rate: 65, 80, 105, or 125 MSPS
- 14-bit pipelined ADC core with dual-stage linearity compensation
- SPI control/status interface
- HVQFN40 package

Applications

- Wireless and wireline broadband communications, especially multicarrier standards
- Spectral analysis
- Industrial imaging systems
- Ultrasound equipment
- Portable high-speed instrumentation

The NXP ADC1415Sxxx is a single-channel, 14-bit analog-to-digital converter (ADC) optimized for high dynamic performance and low power. It is an ideal choice for industrial and communications applications.

Pin-compatible with the ADC1410Sxxx, it has an integrated low-power BiCMOS input buffer for use in applications with an input frequency up to 800 MHz. The low-noise buffer amplifier provides constant input impedance and outstanding analog performance over a wide frequency range. The input buffer also offers reduced kick-back noise for sensitive applications.

The ADC is available in four models, supporting maximum sample rates of 65, 80, 105, or 125 MSPS. By using a pipelined architecture and dual-stage linearity calibration, it provides high accuracy and guarantees no missing code over the full operating range.

It maintains excellent dynamic performance from baseband to input frequencies up to 170 MHz and beyond, making it ideal for applications in communications, industrial imaging, and medical ultrasound.

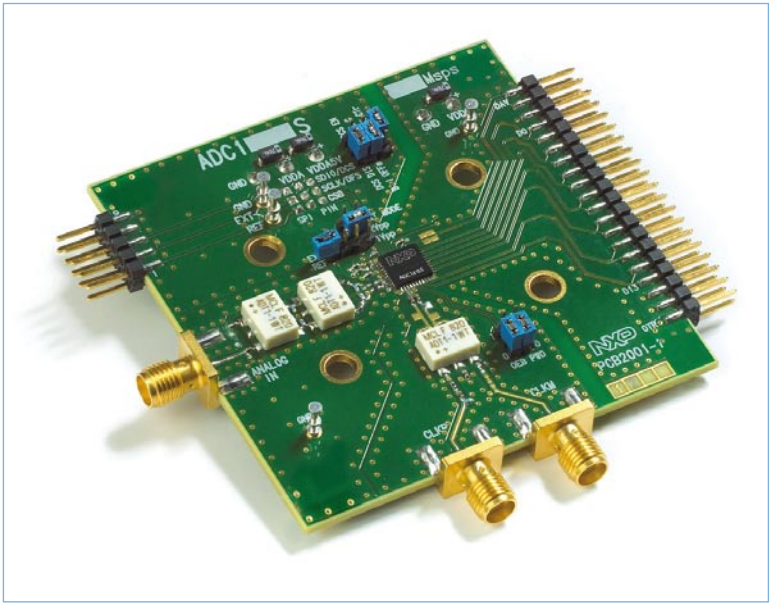
NXP founded by Philips

The ADC operates from a single 3-V supply and can, due to a separate digital output supply, source output logic levels from 1.65 to 3.6 V. The input buffer operates from a single 5-V supply.

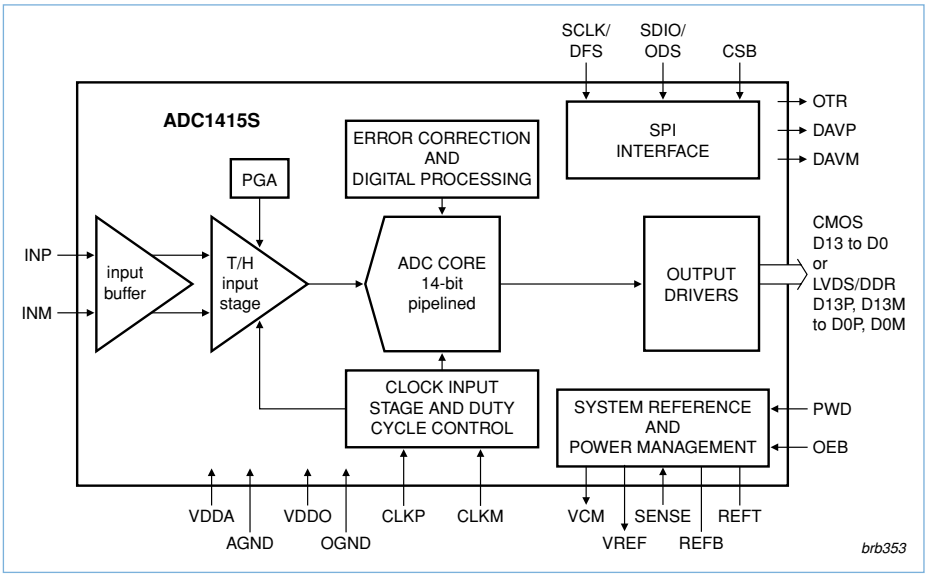
The addition of a Serial Peripheral Interface (SPI) makes the ADC easy to configure and monitor.

A programmable gain amplifier lets the ADC accept an input voltage range from 1 to 2 V_{PP} with a 6-dB programmable fine gain.

ADC1415S demo board



ADC1415Sxxx block diagram



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