12-Bit, 6 GSPS/10.25 GSPS, RF Analog-to-Digital Converter

Data Sheet **AD9217**

FEATURES

- **High instantaneous dynamic range NSD**
  - **−155.1 dBFS/Hz at 10 GSPS with −9 dBFS, 170 MHz input**
  - **−153 dBFS/Hz at 10 GSPS with −1 dBFS, 170 MHz input**
- **SFDR: 70 dBFS at 10 GSPS with −1 dBFS, 1000 MHz input**
- **SFDR excluding H2 and H3 (worst other spur): −89 dBFS at 10 GSPS with −1 dBFS, 1000 MHz input**
- **Low power dissipation: 4.2 W typical at 10 GSPS**
- **Integrated input buffer (6.5 GHz input bandwidth)**
  - **1.4 V p-p full-scale analog input with R_{IN} = 50 Ω**
  - **Overvoltage protection**
- **Low latency, high speed parallel output port**
- **Fast overrange detection for efficient AGC**
- **On-chip temperature sensor**
- **On-chip negative voltage generators**
- **Low CER: <1 × 10^{-16}**
- **Reconfigurable support for AD9213 native mode**
- **12 mm × 12 mm, 192-ball BGA-ED package**

GENERAL DESCRIPTION

The AD9217 is a single, 12-bit, 6 GSPS/10.25 GSPS, radio frequency (RF) analog-to-digital converter (ADC) with a 6.5 GHz input bandwidth. The AD9217 supports high dynamic range frequency and time domain applications requiring wide instantaneous bandwidth and low conversion error rates (CER).

The AD9217 features a low latency, high speed, parallel CML output interface that supports full bandwidth operation with compatible FPGA/ASIC receivers. The AD9217 can be reconfigured to operate in native AD9213 mode for applications requiring additional digital processing and JESD204B output support. Refer to the AD9213 data sheet when operating the AD9217 in AD9213 mode.

The AD9217 achieves dynamic range and linearity performance while consuming 4.2 W typical. The device is based on an interleaved pipeline architecture and features a proprietary calibration and randomization technique that suppresses interleaving spurious artifacts into its noise floor. The linearity performance of the AD9217 is preserved by a combination of on-chip dithering and calibration, which results in excellent spurious-free performance over a wide range of input signal conditions.

The AD9217 is offered in a 192-ball ball grid array (BGA) package and is specified over a junction temperature range of −20°C to +115°C.

FUNCTIONAL BLOCK DIAGRAM

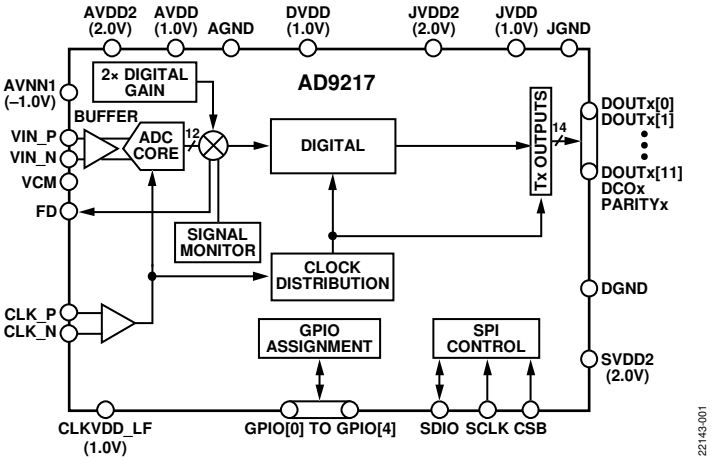

Figure 1.

For more information about the AD9217, contact the Analog Devices, Inc., High Speed Converters Group at highspeed.converters@analog.com.

Rev. Sp0 **Document Feedback**

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NOTES

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