

16-bit 125MSPS four-channel Analog-to-Digital Converter (ADC)

1 Main features:

- ◆ Conversion bits: 16 bits
- ◆ Clock frequency: 125 MSPS
- ◆ Supply voltage: 1.8V
- ◆ Power consumption: 185 mW/CH
- ◆ Data interface: LVDS interface
- ◆ SFDR: 89dBc@128MHz input
- ◆ SNR: 77.6dBFS@128MHz input
- ◆ ADC internal reference voltage source
- ◆ 1 to 8 integer input clock divider
- ◆ Encapsulation: QFN48

2. Typical applications

- ◆ Wireless communication system
- ◆ Intelligent antenna system
- ◆ Software radio
- ◆ Broadband data application
- ◆ Medical ultrasound equipment
- ◆ Radar and aviation systems

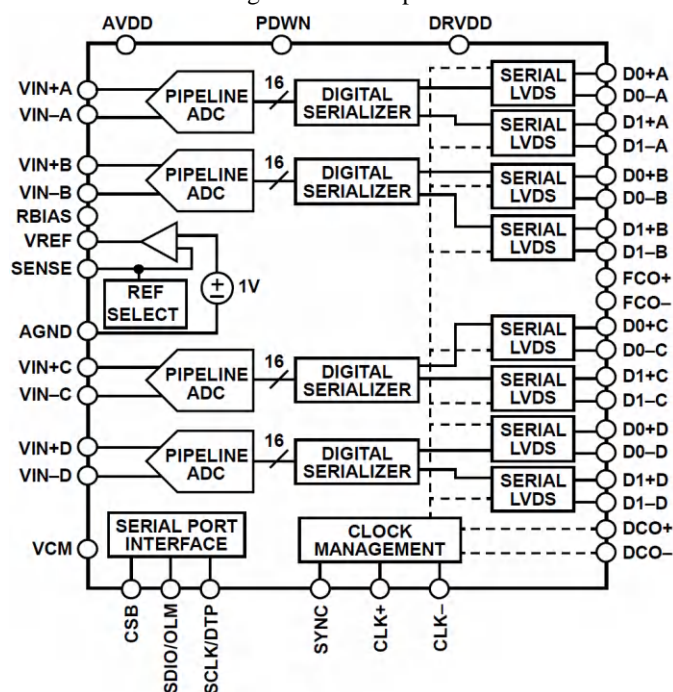
3 Product Description

The chip is a 16-bit, 125 MSPS single-channel ADC designed for communication applications requiring high performance, low cost, and small size. The ADC core uses a multi-level, differential pipeline architecture and integrates output error correction logic. The front-end wideband differential sampling and holding circuit allows users to flexibly select various input ranges. The reference voltage circuit is integrated in the chip. The chip has a clock duty ratio regulator,

5 Compared with similar foreign products

| | precision | Clock frequency | Data port | CH power consumption | SNR | SFDR | Encapsulation form |
|--------------------------|-----------|-----------------|-----------|----------------------|---------------------|-----------------|--------------------|
| AD9653 (ADI) | 16Bit | 125MHz | LVDS | 164mW@12 5MSPS | 73.9dBFS@ 128MHz | 87dBc@128 MHz | QFN48 |
| BLAD16Q 125 (Beiling) | 16Bit | 125MHz | LVDS | 155mW@12 5MSPS | 76.4dBFS@ 151MHz | 82.5dBc@128 MHz | QFN48 |
| HL9653 | 16Bit | 125MHz | LVDS | 185mW@12 5MSPS | 77.6dBFS@ 128MHz | 89dBc@128 MHz | QFN48 |

which can compensate the fluctuation of ADC clock duty ratio and ensure the output performance of the converter. The chip output is LVDS signal. The chip has a power saving mode to reduce power consumption. The chip implements various configurations through the three-wire SPI interface. The chip adopts QFN48 encapsulation. It is compatible with foreign products AD9653 pin and can be replaced. The internal structure block diagram of the chip is as follows:



4 Product Highlights

- ◆ The integrated voltage reference source is used to simplify the peripheral circuit.
- ◆ Proprietary differential inputs maintain excellent SNR at 300 MHz input frequencies.
- ◆ Standard serial port configuration: output data format, clock DCS enable, power saving mode, test mode, reference voltage value, etc.