



16-bit 100KSPS 8-channel Analog-to-Digital Converter (ADC)

1 Main features:

- ◆ Conversion bits: 16 bits
- ◆ Conversion rate: 100KSPS
- ◆ Number of channels: 8
- ◆ +5V single power supply
- ◆ Input range: $\pm 10V$
- ◆ Power consumption: $\leq 60mW$
- ◆ External and internal 2.5V benchmarks are available
- ◆ High speed serial/parallel interface
- ◆ Clock on chip
- ◆ Encapsulation: SSOP28/CSOP28

2 Typical Applications

- ◆ Industrial program control
- ◆ Multi-channel data acquisition
- ◆ Digital signal processing

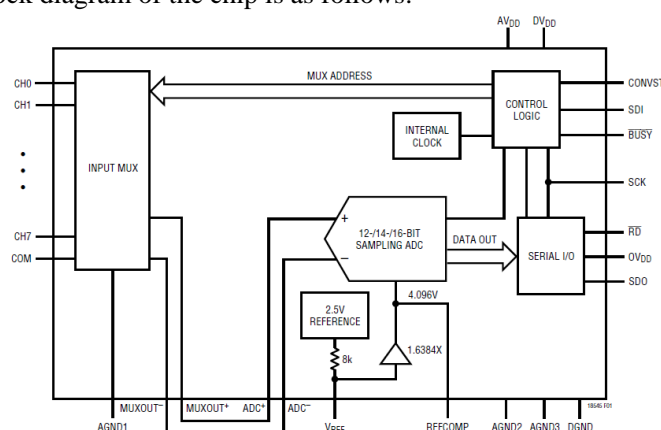
3 Product Description

This product is a high-speed, low-power, 16-bit, 8-channel sampling analog-to-digital converter powered by a single +5V power supply. The HL1856 has a successive approximation switching capacitor ADC, a 2.5V/4.096V internal reference voltage source, and a high-speed serial interface with a maximum power consumption of 60mW. After calibration, all linear errors are minimized. Simulate the standard industry range of $\pm 10V$ for full scale inputs. HL1856 data throughput of 100KSPS, integrated high-speed parallel interface, can be directly connected to the microprocessor for data processing.

5 Compared with similar foreign products

	passage	precision	Conversion rate	Data port	Power dissipation	Input range	SFDR	Encapsulation form
LTC1856 (ADI)	8	16Bit	100KSPS	serial	40mW	$\pm 10V$	103dB@2kHz	SSOP28
HL1856	8	16Bit	100KSPS	serial	40mW	$\pm 10V$	103dB@2kHz	SSOP28

HL1856 adopts continuous approximation technique for analog input voltage. The device uses capacitor array charge distribution technology instead of traditional laser modified step resistors. The input is subdivided into binary weighted capacitance network and the real analog-to-digital conversion is performed. The resistance value of the device is not matched due to temperature induction, and the linear variation can be eliminated by using capacitor array. Because of the capacitor array on the chip, no additional external circuitry is required to perform the sampling/holding function. The internal structure block diagram of the chip is as follows:



4 Product Highlights

Using resistance voltage division to achieve a single power supply +5V power supply, the input range can reach $\pm 10V$.

- ◆ Supports external reference voltage or internal reference voltage.
- ◆ It is manufactured using CMOS process technology and uses special switching technology to enhance dynamic performance.
- ◆ Complete calibration before leaving the factory.