

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

1 Main features:

- ◆ Conversion bits: 16 bits
- ◆ Conversion rate: 100KSPS
- ◆ +5V single power supply
- ◆ Input range: $\pm 10V$
- ◆ Power consumption: $\leq 100mW$
- ◆ External and internal 2.5V benchmarks are available
- ◆ High speed parallel interface
- ◆ Clock on chip
- ◆ Encapsulation: DIP28

2 Typical Applications

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

3 Product Description

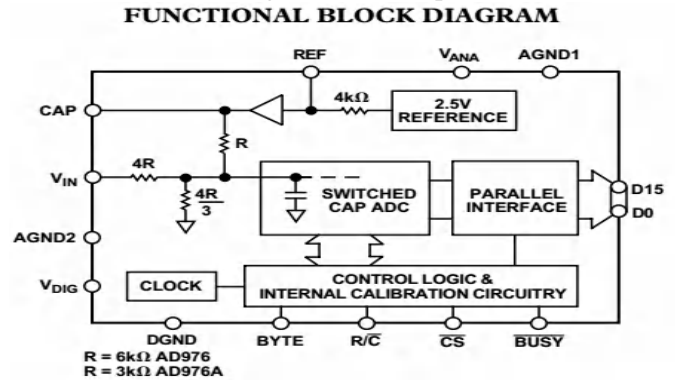
This product is a high speed, low power, 16-bit sampling analog-to-digital converter, powered by a single +5V power supply. The HL976 has a successive approximation switching capacitor ADC, a 2.5V internal reference voltage source, and a high-speed parallel interface with a maximum power consumption of 120mW. After calibration, all linear errors are minimized. Simulate the standard industry range of $\pm 10V$ for full scale inputs. HL976 data throughput of 100KSPS, integrated high-speed parallel interface,

can be directly linked to the microprocessor for data processing.

HL976 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. Due to the capacitor array on the chip

In the column, no additional external circuit is required to perform the sample/hold 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.

5 Compared with similar foreign products

	precision	Conversion rate	Data port	Power dissipation	Input range	SFDR	Encapsulation form
AD976 (ADI)	16Bit	100KSPS	parallel	100mW	$\pm 10V$	90dB	DIP28
KHMY39	16Bit	100KSPS	parallel	120mW	$\pm 10V$	90dB	DIP28