

# ADC1003S030/040/050: Single 10 Bits ADC, Up to 30, 40 or 50 MHz, with Voltage Regulator

## Product Feature Sheet

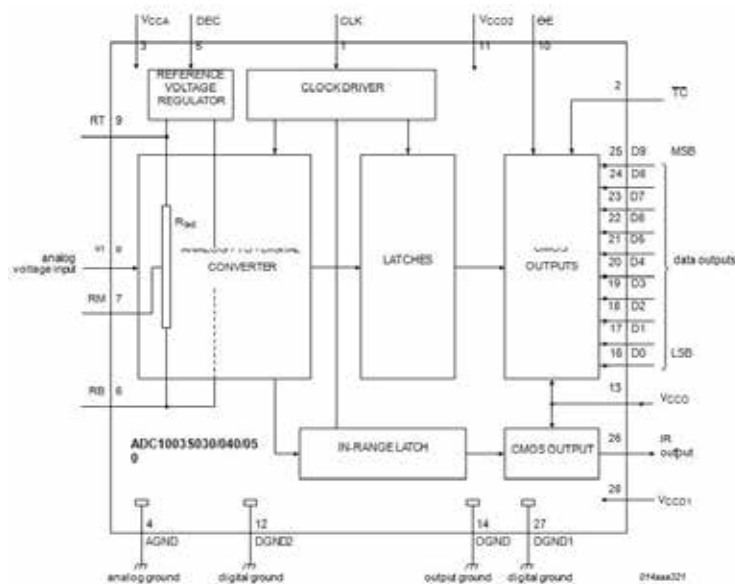
### Features

- 10-bit resolution
- Sampling rate up to 50 MHz
- DC sampling allowed
- One clock cycle conversion only
- High signal-to-noise ratio over a large analog input frequency range
- (9.3 effective bits at 4.43 MHz full-scale input at fclk = 40 MHz)
- No missing codes guaranteed
- In-Range (IR) CMOS output
- Levels TTL and CMOS compatible digital inputs
- 3 V to 5 V CMOS digital outputs
- Low-level AC clock input signal allowed
- Internal reference voltage regulator
- Power dissipation only 235 mW (typical)
- Low analog input capacitance, no buffer amplifier required
- No sample-and-hold circuit required

### Typical Applications

- High-speed analog-to-digital conversion for:
  - Video data digitizing
  - Radar
  - Transient signal analysis
  - Global Positioning System (GPS) receiver
  - $\Sigma\Delta$  modulators

### Block Diagram



### Device Overview

The ADC1003S030/040/050 are a family of 10-bit high-speed low-power Analog-to-Digital Converters (ADC) for professional video and other applications. They convert the analog input signal into 10-bit binary-coded digital words at a maximum sampling rate of 50 MHz. All digital inputs and outputs are Transistor-Transistor Logic (TTL) and CMOS compatible, although a low-level sine wave clock input signal is allowed.

The device includes an internal voltage reference regulator. If the application requires that the reference is driven via external sources the recommendation is to use one of the ADC1004S030/040/050 family.

### Absolute Maximum Ratings:

Analog Supply Voltage	4.75 V to 5.25 V
Digital Supply Voltage	4.75 V to 5.25 V
Output Supply Voltage	3.0 V to 5.25 V
Analog Supply Current	35 mA
Digital Supply Current	21 mA
Output Supply Current	2 mA
Integral Non-Linearity	$\pm 0.8$ LSB to $\pm 2.0$ LSB
Differential Non-Linearity	$\pm 0.5$ LSB to $\pm 0.9$ LSB
Maximum Clock Frequency - ADC1003S030TS	30 MHz
Maximum Clock Frequency - ADC1003S040TS	40 MHz
Maximum Clock Frequency - ADC1003S050TS	50 MHz
Total Power Dissipation	235 mW to 305 mW

### Ordering Information

ADC1003S030TS/C1,1	30 MHz
ADC1003S040TS/C1,1	40 MHz
ADC1003S050TS/C1,1	50 MHz