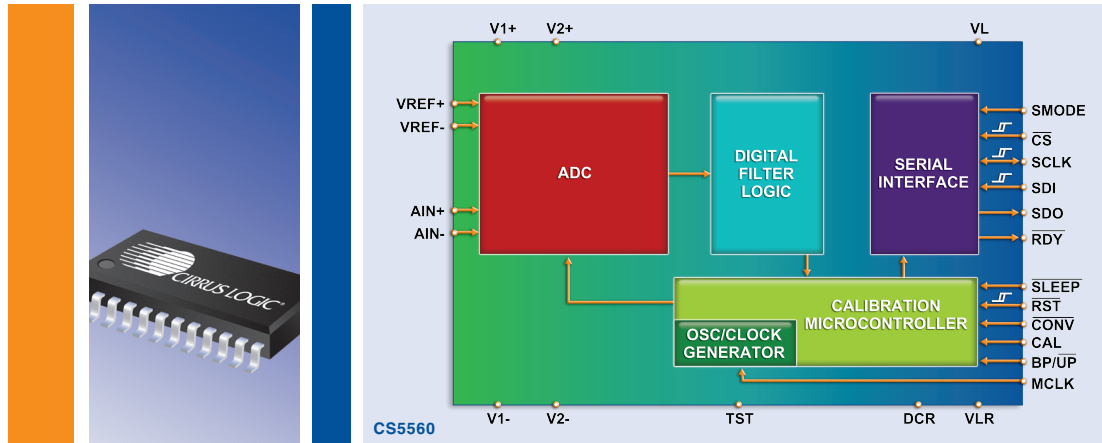


CS5560/70/80 Family

www.DataSheet4U.com
 2.56 mm x 1.69 mm
 actual size

CS5560/70/80
 24-pin SSOP



High-Throughput Delta-Sigma A/D Converters

CS5560/70/80

The CS556x/7x/8x family of 24- and 16-bit Delta-Sigma analog-to-digital converters combine the higher-bandwidth, low-distortion performance of SAR converters with high-resolution, low-noise performance typical of Delta-Sigma ADCs. The breakthrough combination of features provides designers of precision instrumentation, such as industrial process controllers, laboratory instrumentation, medical instrumentation, and high-speed weighing systems, with a significantly higher level of measurement accuracy, lower noise and higher throughput.

The CS556x provides a much higher level of noise suppression than SAR converters, resulting in higher accuracy conversions and reduced post-conversion processing. The family features DNL error as low as ± 0.04 LSB typical

(CS5571), compared to ± 1 LSB typical within SAR converters. In addition, the single-clock latency digital filter allows conversion-rate switching of the input with no loss in throughput. The CS556x's high-throughput precision performance stands out among high-resolution Delta-Sigma converters. With near-flat digital FIR filter characteristics, the CS556x product line achieves unrestricted, wide-bandwidth signal throughput usually seen only in higher-speed SAR converters – at resolutions up to 24 bits. With this flat filter, output data is a 1:1 representation of the input signal across the entire frequency range, up to the sampling rate of the converter. In comparison, most Delta-Sigma converters utilize Sinc filters, which attenuate the signal at specific frequencies.

Other additional key features of the CS556x include:

- High-impedance buffered inputs that simplify external circuitry;
- Fully differential inputs that provide the best possible noise rejection and dynamic accuracy, with the ability to measure bipolar signals; and
- Self calibration to ensure superior measurement accuracy over variations in supply and temperature.

A flexible serial interface eases connections to a variety of microcontrollers without external components (includes slave and self-sequencing master modes).

CS5560/70/80 Family

CS5560/61 FEATURES

- High-speed Delta-Sigma A/D converter
 - Exceptional 0.9 LSB differential nonlinearity error
- 24-bits, no missing codes
- 20 microsecond conversion rate, no latency
- Self-calibrating architecture maintains accuracy over time and temperature
- High-impedance buffered, differential (CS5560) or single-ended (CS5561) input versions
- Signal-to-noise ratio: 109 dB (CS5560)
- $S/(N+D) = 108$ dB (CS5560)
- Digital filter flat to near-Nyquist rate
- 1.8 V to 3.3 V digital and 5 V or ± 2.5 V analog supplies
- Simple three/four-wire digital interface
- 85 mW power consumption
- 24-pin SSOP package; lead-free assembly

CS5570/71 FEATURES

- High-speed Delta-Sigma A/D converter
 - Exceptional 0.1 LSB nonlinearity error
- 16-bits, no missing codes
- 10 microsecond conversion rate, no latency
- Self-calibrating architecture maintains accuracy over time and temperature
- High-impedance buffered, differential (CS5570) or single-ended (CS5571) input versions
- Signal-to-noise ratio: 98 dB (CS5570)
- Digital filter near-flat to Nyquist sampling rate
- 1.8 V to 3.3 V digital and 5 V or ± 2.5 V analog supplies
- Simple three/four-wire digital interface
- 70 mW power consumption (buffers off)
- 24-pin SSOP package; lead-free assembly

CS5580/81 FEATURES

- High-speed Delta-Sigma A/D converter
 - Exceptional 0.1 LSB nonlinearity error
- 16-bits, no missing codes
- 5 microsecond conversion rate, no latency
- Self-calibrating architecture maintains accuracy over time and temperature
- High-impedance buffered, differential (CS5580) or single-ended (CS5581) input versions
- Signal-to-noise ratio: 86 dB (CS5580)
- Digital filter flat to near-Nyquist rate
- 1.8 V to 3.3 V digital and 5 V or ± 2.5 V analog supplies
- Simple three/four-wire digital interface
- 70 mW power consumption (buffers off)
- 24-pin SSOP Package; lead-free assembly

Part Number	Resolution	Throughput kSPS	Integral Linearity	Differential Linearity	Number of Channels	Power Consumption	Package
CS5560	24	50	± 6 ppm	0.9	1, Differential	85 mW	24 SSOP
CS5561	24	50	± 6 ppm	0.9	1, Single-ended	85 mW	24 SSOP
CS5570	16	100	± 15 ppm	0.1	1, Differential	70 mW	24 SSOP
CS5571	16	100	± 15 ppm	0.1	1, Single-ended	70 mW	24 SSOP
CS5580	16	200	± 60 ppm	0.1	1, Differential	70 mW	24 SSOP
CS5581	16	200	± 60 ppm	0.1	1, Single-ended	70 mW	24 SSOP