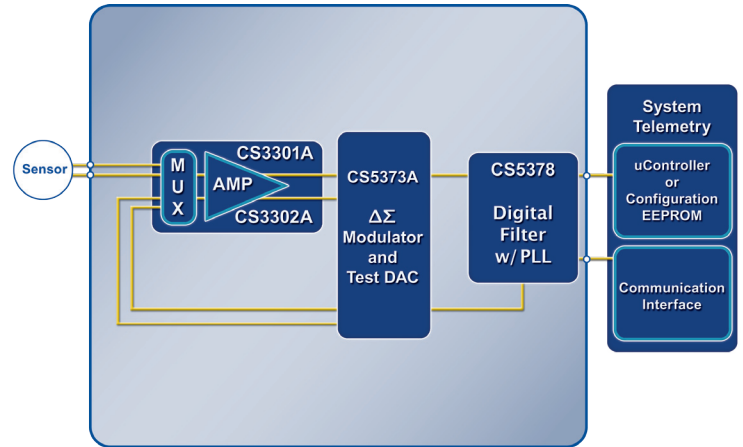
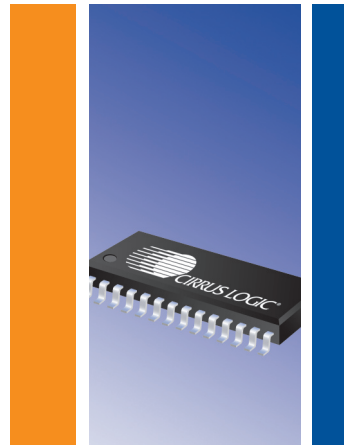


CS5373A/78

 7.4 mm
 9.9 mm
 CS5373A
 28-pin SSOP dimensions



CS5373A FEATURES

- Dual power-supply configuration
 - $V_{A+} = 2.5\text{ V}$; $V_{A-} = -2.5\text{ V}$; $V_D = 3.3\text{ V}$
- Small footprint: 28-pin SSOP package

CS5373A MODULATOR

- 24-bit analog-to-digital conversion
- Fourth-order Delta-Sigma architecture
- Clock-jitter-tolerant architecture
- Input voltage range 5 V_{p-p} differential
- High dynamic range (signal-to-noise ratio)
 - 127 dB at 215 Hz bandwidth (2 ms sampling)
 - 124 dB at 430 Hz bandwidth (1 ms sampling)
- Low Total Harmonic Distortion (THD)
 - -118 dB THD typical
 - -112 dB THD max
- Low-power consumption
 - Normal mode: 5 mA
 - Sleep mode: 220 μA

CS5373A TEST DAC

- Digital Delta-Sigma input, differential analog output
- Selectable differential outputs (OUT \pm , BUF \pm)
- Selectable output attenuation
 - 1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64
- User programmable test modes
 - AC differential/common mode output
 - DC pulse/calibration output
- AC output voltage: 5 V_{p-p} differential
- DC output voltage: 2.5 V_{dc} differential
- Outstanding noise performance
 - 114 dB SNR @ 430 Hz bandwidth
- Low total harmonic distortion (THD)
 - OUT \pm : -115 dB THD typical, -112 dB THD max
 - BUF \pm : -105 dB THD typical, -95 dB THD max
- Low-power consumption
 - Normal mode: 8 mA
 - Sleep mode: 500 μA
 - Power down: 120 μA

High-Performance Chipset for Seismic & Geophysical Measurements

The CS5373A & CS5378 Chipset

The CS5373A is a single-channel, high-performance, low-power, fourth-order Delta-Sigma modulator plus an integrated test DAC for sensor and electronics channel testing. The CS5378 is a multifunction digital filter utilizing a low-power signal processing architecture to achieve efficient filtering for Delta-Sigma modulators. When combined, the CS5373A and the CS5378 produce a compact high-resolution, self-testing, analog-to-digital measurement system that is ideal for single-sensor seismic and geophysical applications.

CS5373A 24-Bit Delta-Sigma Modulator

The CS5373A modulator provides high dynamic range and low total harmonic distortion, while consuming significantly less power per channel than our previous generation seismic modulators. This modulator consumes 5 mA in normal operation, 220 μA when placed in sleep mode and by halting the input clock of the modulator, it enters a power down state using only 2 μA .

CS5373A Test DAC

The CS5373A integrated Test DAC is a multifunction differential output digital-to-analog converter intended to test high-resolution, low-frequency measurement systems.

The dual outputs provide a precision output (OUT \pm) for testing the electronics channel and a buffered output (BUF \pm) for in-circuit sensor testing. DAC distortion performance (THD) is typically -115 dB from the precision output and -105 dB from the buffered output. Noise performance is 114 dB SNR over a 430 Hz bandwidth. Driven with a digital Delta-Sigma bit stream from the CS5378 digital filter, the maximum AC analog output voltage is a differential 5 V peak-to-peak signal.

Low-power consumption, selectable attenuation, dual outputs and programmable test modes make this device ideal for testing single sensor seismic acquisition systems and geophysical instruments.



7.4 mm

9.9 mm

CS5378

28-pin SSOP dimensions

CS5378 FEATURES

- **Single-channel digital decimation filter**
 - Multiple on-chip FIR and IIR coefficient sets
 - Programmable coefficients for custom filters
 - Synchronous operation
- **Selectable output word rate**
 - 4000, 2000, 1000, 500, 333, 250 SPS
 - 200, 125, 100, 50, 40, 25, 20, 10, 5, 1 SPS
- **Integrated PLL for clock generation**
 - 1.024 MHz, 2.048 MHz, or 4.096 MHz input
 - Standard clock or Manchester-encoded input
- **Digital Calibrations**
 - Gain correction
 - Offset correction
 - Offset calibration
- **Digital test bit-stream signal generator**
 - Sine wave or impulse output mode
 - Ideal for use with the CS5373A Seismic Test DAC
- Time break controller
- 8 general-purpose I/O
- Microcontroller or EEPROM configuration
- Low-power consumption
 - 20 mW at 500 SPS OWR
- Flexible power supplies
 - I/O interface and PLL: 3.3 V or 5.0 V
 - Digital logic core: 2.5 V, 3.3 V, or 5.0 V
- **Small footprint: 28-pin SSOP**

Highly Integrated, Multifunction Decimation Filter with PLL Delivers Accurate Results

The CS5378 is a multifunction digital filter utilizing a low-power signal processing architecture to achieve efficient filtering for Delta-Sigma modulators. Digital filter coefficients for the FIR and IIR filters are included on chip or can be programmed for custom applications. Using the on-chip selectable coefficient sets, the digital filter decimation ratios produce output word rates ranging from 4,000 SPS to 1 SPS, resulting in measurement bandwidths ranging from 1,720 Hz down to 430 mHz.

The CS5378 provides highly integrated peripherals that simplify system design:

- Selectable digital filter decimation ratios
- Offset and gain corrections
- CS5373A digital test DAC bit-stream signal generator
- Time-break controller
- 8 general-purpose I/O pins
- On-chip PLL and SPI port

Single-S. A Superior Seismic Solution.

The CS5373A Delta-Sigma modulator with integrated test DAC and the CS5378 digital filter are the foundation of our Single-S seismic platform. When combined with the CS3301A/02A differential amplifiers, this chipset can easily and quickly create a flexible high-resolution single-sensor measurement system for seismic and geophysical data acquisition.

The bottom line? With this chipset, your system ROI is enhanced. Cirrus Logic's fourth-generation seismic development provides a chipset with exceptional performance and low-power consumption in a very small footprint, enabling end-measurement instruments to perform efficiently and accurately in a smaller, lighter package size compared to previous generation products.

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