



CIRRUS LOGIC®

CS4340
CS4341

24-Bit, 96-kHz Stereo D/A Converter for Audio

The following information is based on the technical data sheet:

CS4340 DS297PP1 OCT '98

CS4341 DS298PP1 OCT '98

Please contact Cirrus Logic for further information.

***CRYSTAL*® PRODUCT INFORMATION**

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For further information on Cirrus Logic products, please visit our website “www.cirrus.com” or call our literature department (800) 888-5016 ext. 3594 or (512) 912-3594 for data sheets and application notes.

24-Bit, 96-kHz Stereo D/A Converter for Audio

Features

- Complete stereo DAC system: interpolation, D/A, output analog Filtering
- 102 dB dynamic range
- 90 dB THD+N
- Low clock jitter sensitivity
- +3 V to +5 V power supply
- Filtered line level outputs
- On-chip digital de-emphasis for 32, 44.1, and 48 kHz
- 30 mW with 3 V supply
- PopGuard™ Technology
- Volume Control (CS4341)
 - 1 dB steps
 - 90 dB attenuation
 - zero crossing steps

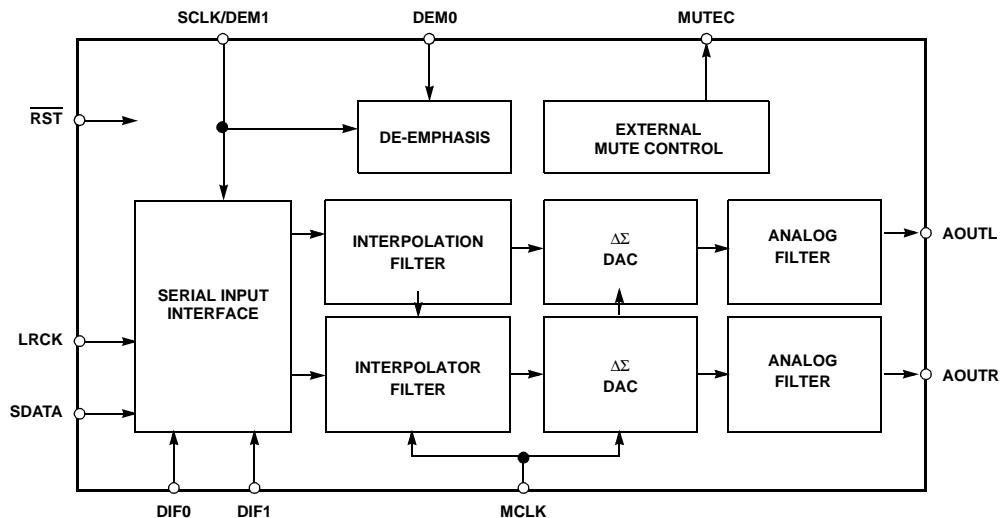
Description

The CS4340 and CS4341 are complete stereo digital-to-analog systems including digital interpolation, volume control (CS4341 only), fourth-order delta-sigma digital-to-analog conversion, digital de-emphasis and switched capacitor analog filtering. The advantages of this architecture include: ideal differential linearity, no distortion mechanisms due to resistor matching errors, no linearity drift over time and temperature and a high tolerance to clock jitter.

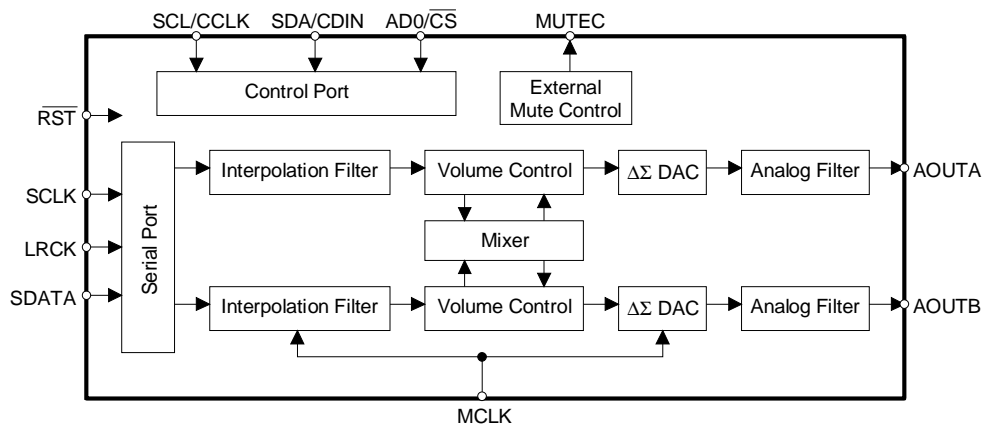
The CS4340 and CS4341 accept data at audio sample rates from 2 kHz to 100 kHz, consume very little power, and operate over a wide power supply range. The features of the CS4340 and CS4341 are ideal for DVD players, CD players, MP3 players, AV Recievers, and set-top box systems.

Block Diagrams

CS4340



CS4341



Overview

The CS4340 and CS4341 include a unique set of tools to deal with the extraneous signal artifacts that can occur in any single supply system as well as muting and conversion errors.

PopGuard™ Technology

Pop Guard technology allows the single-ended outputs to slowly ramp to the quiescent voltage during power-on or to 0 volts during power-off. This feature can be used to eliminate audible ‘clicks’ and ‘pops’. Please refer to the applications section of the product Data Sheet for details of implementing this feature.

External Mute Control

The Mute Control pin goes high during power-up initialization, reset, muting, master clock to left/right clock frequency ratio errors or power-down. The Mute Control output will go active following the reception of 8192 consecutive audio samples of static 0 or -1. A single sample of non-static data will release the mute. The quiescent voltage on the output will be retained while the Mute Control pin is active during the Auto-Mute period. Use of Mute Control is not mandatory but recommended for designs requiring the absolute minimum in extraneous ‘clicks’ and ‘pops’.

FAQs

- 1) What is the benefit of switched capacitor analog filter architecture?
A: Clock Jitter is common in audio systems and it degrades D/A converter performance. Switched capacitor filters are less sensitive to clock jitter than continuous time filters; therefore it is easier for a designer to use the CS4340/41 and achieve the target specifications of the D/A converter and the total audio system.
- 2) What is the advantage of PopGuard™ Technology?
A: Single ended D/A converters create audible noise when powered on/off. This noise is commonly referred to as ‘clicks’ and ‘pops’. A system

designer using a traditional D/A converter must use external mute circuitry to attenuate this noise. The CS4340/41 integrate patented Pop-Guard Technology that eliminates this noise and reduces system cost, board space, and complexity.

Ordering Information

Model Number	Temperature Range	Package
CS4340-KS	-10 to 70 °C	16-pin SOIC
CS4341-KS	-10 to 70 °C	16-pin SOIC
CDB4340	Evaluation Board	



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