

DA7218

DA7218 is a high-performance, low-power audio codec optimised for use in headsets or wearable devices. It contains two analogue microphone input paths, or up to four digital microphone input paths, or a combination of both. It also has a stereo DAC to headphone output path. DA7218 has ultra-low power operating modes to support always-on audio-detect applications. Both Input (ADC) and Output (DAC) paths include DRE, and can be run at different sample rates simultaneously. A fully flexible digital mixing core which includes an independent sidetone path with programmable filtering makes the DA7218 suitable for multiple applications.



32 ball WL-CSP Package, 0.5mm pitch

DA7218 has single-ended headphone outputs, and has been designed with headphone-detect for use in accessories. The other chip in this family, the DA7217, has differential headphone outputs and has been designed for use inside headset devices.

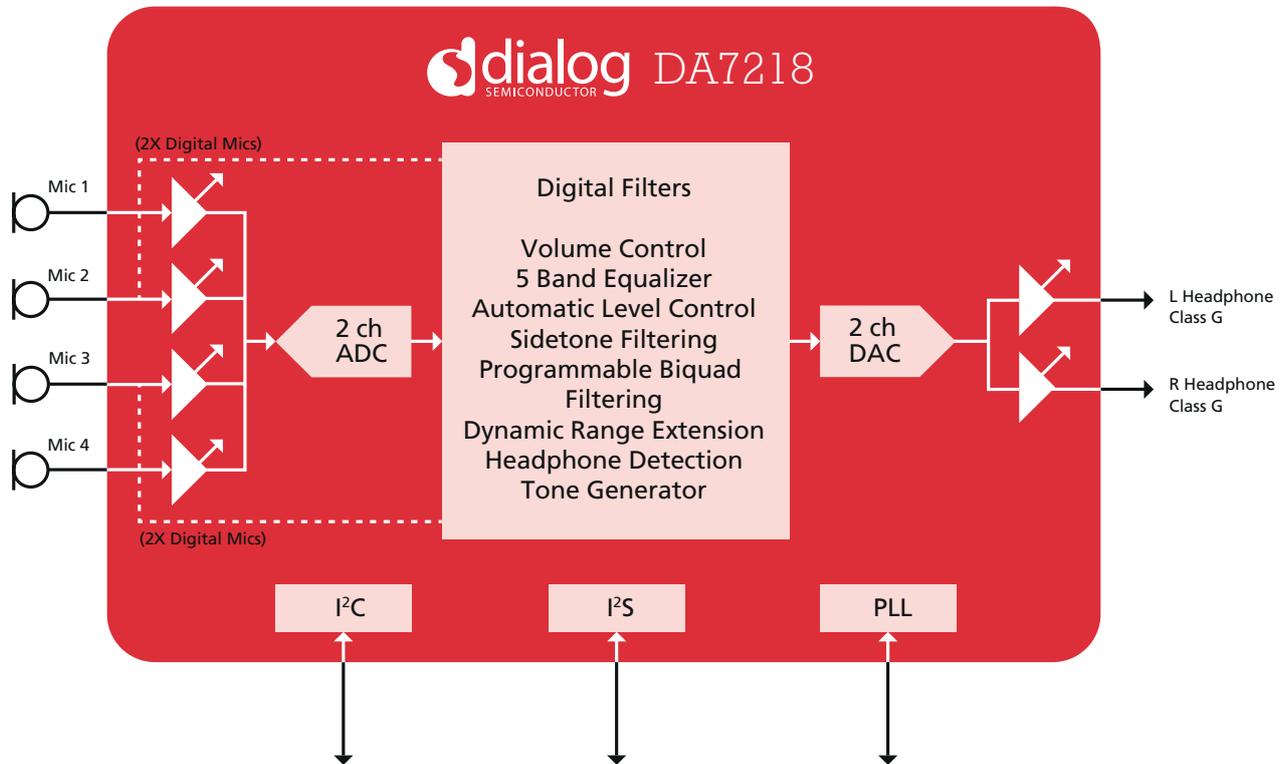
Features

- ▶ Shutdown mode for 5 μ A current consumption during standby
- ▶ High performance microphone to ADC record path with 90 dB SNR
- ▶ Dynamic Range Extension (DRE) to increase the record path dynamic range to 105 dB
- ▶ Low-power always-on record mode with automatic level detection
- ▶ A hybrid analogue/digital automatic level control to dynamically control the record level
- ▶ High performance stereo DAC to headphone playback path with 100 dB SNR
- ▶ Dynamic Range Extension to increase the playback path dynamic range to 110 dB
- ▶ A high efficiency two-level, true-ground charge pump for generating Class-G headphone supplies
- ▶ Dedicated low-latency digital sideband filter
- ▶ with three programmable bi-quad stages
- ▶ DAC digital filters with audio and voice mode high-pass cut-off, 5-band equaliser and five programmable bi-quad stages
- ▶ Voice mode filtering up to 32 kHz
- ▶ Flexible digital mixing from all seven inputs to all six outputs with independent gain on each mixer path
- ▶ Ability to run the ADCs at a different sample rate to the DACs
- ▶ Digital tone generator with built-in support for DTMF
- ▶ Phase-locked loop with sample rate tracking to generate the system clock
- ▶ 4-wire digital audio interface with support for I2S, four-channel I2S, TDM and other audio formats
- ▶ 2-wire I2C compatible control interface with

Feature highlights

- ▶ Superior hi-fidelity audio performance for immersive record and playback
- ▶ Sub 500uW Always ON power extends battery life for audio activity detection
- ▶ Flexible programming filtering (Sideband, Voice) enhances voice and audio playback
- ▶ Mixed sample rate support for wideband applications
- ▶ Supports the latest generation of low power analogue & digital microphones
- ▶ Small package footprint with an optimised ball-out conducive for low cost PCB manufacturing

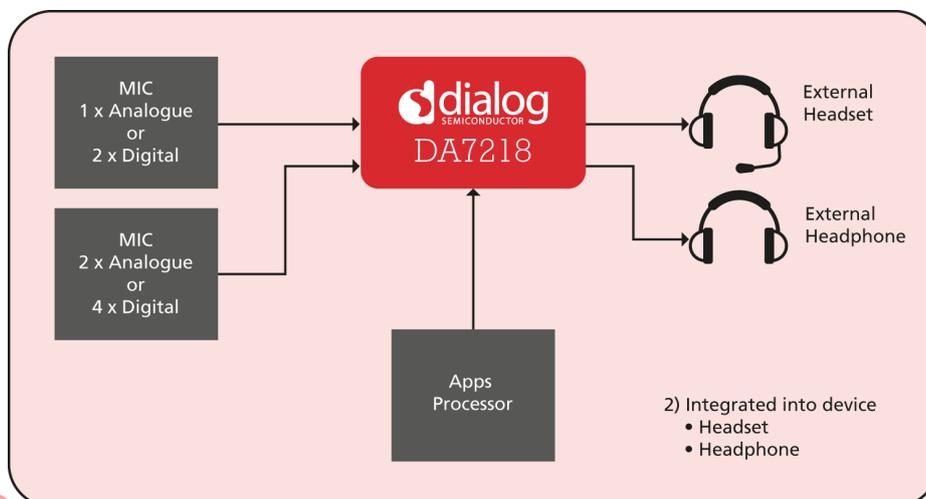
Block Diagram



Applications

- ▶ Wireless headset applications
- ▶ Headphone applications
- ▶ Portable audio applications
- ▶ Portable gaming
- ▶ IC Voice recorders
- ▶ Tablets and eBooks

Audio System diagram



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