Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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DA7212
Stereo CODEC with enhanced automatic level controller and 1.2W speaker driver

DA7212 is a high performance, low-power audio codec with an enhanced hybrid ALC and a powerful speaker driver targeting portable and embedded applications.
A key benefit of the DA7212 is that it operates from a single supply and has an internal LDO that can be used to optimise power consumption.

The audio front-end simultaneously supports stereo auxiliary line inputs plus analogue and digital microphones with two independent microphone biases. These inputs can be mixed into the input and/or output mixer paths.

34 ball WL_CSP Package, 0.5mm pitch

The audio/voice capture path also integrates an enhanced ALC and noise gate function to ensure the dynamic range of the stereo ADCs is maximised. Comprehensive analogue mixing and bypass paths to the output drivers are available.

The playback path delivers 98dB into 16Ω stereo headphones whilst only consuming 6.9mW (under JEITA conditions). The headphone driver is true-ground with built-in charge pump. A dedicated mono speaker channel is available that can deliver 1.2W into 8Ω mini-speaker when supplied from 5.0V.

All High pass channel filtering is performed digitally. Other digital functions include programmable 5-band EQ, beep generator and wind noise filter.

The codec supports both master and slave mode operation using the internal PLL which may be bypassed if not required. The low power fractional PLL has been optimised to support a wide range of sample and reference clock frequencies. Internal suppression circuits help maintain audio synchronisation in the presence of system noise on the external clock.

Digital audio transfer to and from the external processor is available via bidirectional I2S interface which supports all common sample rates.
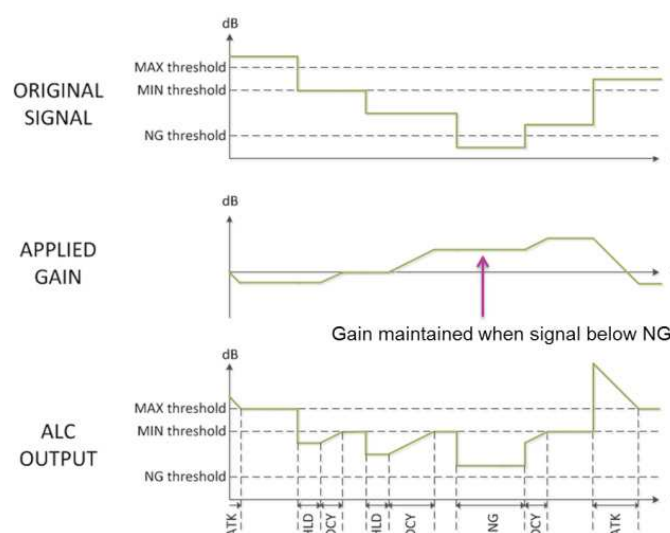
Features

► High performance 24-bit audio codec in 7.5mm2 footprint

► Ultra low power consumption. Stereo Playback: 6 .9mW, Stereo Record: 2.0mW @1.8V

► Supports upto four analogue microphones with two switchable low noise microphone bias outputs

► Digital microphone interface supporting single channel or dual channel options

► Stereo auxiliary input channel

► Flexible analogue and digital mixing paths

► DSP for ALC, 5-band EQ, noise gate, beep generator

► System controller for pop/click free operation and easy setup

► Bidirectional I2S with sample-rate tracking

► Mono lineout/mini Speaker driver: 400mW into 8Ω @ 3.0 V with pop/click suppression

    – 65mW @ 1.2V, THD < 1%, R = 8Ω

    – 80mW @ 1.5V, THD < 1%, R = 8Ω

    – 350mW @ 3.0V, THD < 1%, R = 8Ω

    – 1.2W @ 5.0V, THD < 10%, R = 8Ω

► Integrated PLL supports common audio sample rates between 8-96kHz from 2-54MHz reference clock

► Wide supply range (1.7V to 2.5V)

Applications

► Personal Media Players

► Audio headphone/headsets

► Wearables

► Embedded applications

► Arduino compatible development systems

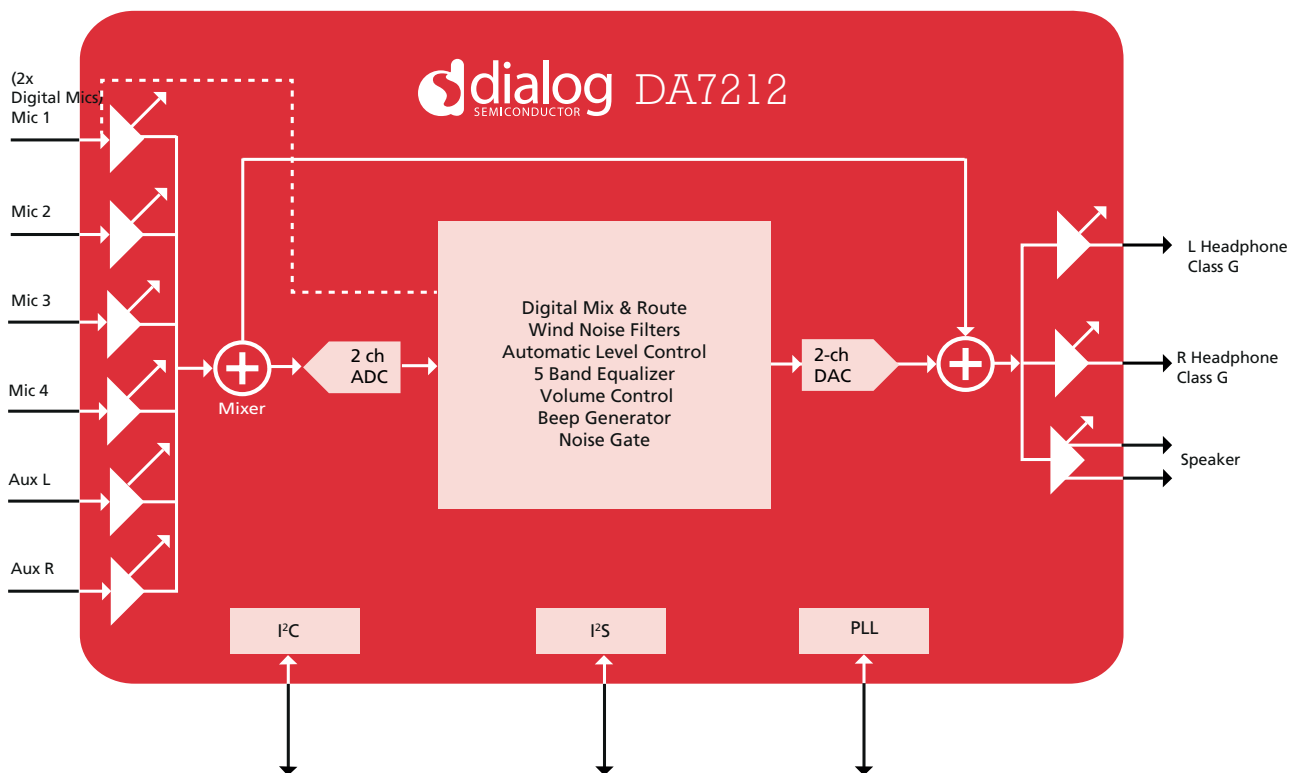## ALC & Noise Gate Timing

Gain maintained when signal below NG

Features highlights

► Stereo Playback/Record: 6.9mW & 2.0mW @ 1.8V
► Hybrid Digital/Analogue ALC offering faster reaction times and finer gain resolution
► Built-in beep generator that outputs all DTMF keypad tones
► 5-band EQ

Board Area highlights

► 7.5mm2 package footprint enabling PCB space savings in area constrained applications
► Capless headphone driver eliminates large AC coupling capacitors
► Optimised ball-out conducive for low cost PCB manufacturing

Block Diagram

dialog SEMICONDUCTOR DA7212

(2x Digital Mics)
Mic 1
Mic 2
Mic 3
Mic 4
Aux L
Aux R

Mixer

2 ch ADC

Digital Mix & Route
Wind Noise Filters
Automatic Level Control
5 Band Equalizer
Volume Control
Beep Generator
Noise Gate

2-ch DAC

L Headphone Class G
R Headphone Class G
Speaker

I²C
I²S
PLL