I2S/PCM Audio Interfaces Stereo CODEC with Capless Headphone Drivers for Portable Audio Applications

FEATURES

- 2 ADCs and 2 DACs @ 24-bit and inter PLL processing with flexible clocking scheme
- Up to 100dB SNR during DAC playback path
- Up to 95dB SNR during ADC record path
- Capless stereo headphone driver with 18mW@1.8V
- Two stereo differential speaker outputs
- Three audio inputs
  - Two differential analog microphone inputs with 30dB~48dB boost amplifier gain
  - One differential or single-ended line-in input
- Two low noise analog microphone bias
- Audio jack insert/ button press detection
- TWI/RSB control interface
- One 24-bit 8KHz ~ 192KHz I2S/PCM interface
- Support DRC for the DAC playback output
- Soft mute circuit for pop noise suppression
- Support digital microphone interface
- 40 pin , 5×5 mm^2 QFN Package

APPLICATIONS

- Box
- Tablets
- Player/recorder/WiFi speaker

DESCRIPTION

AC101 is a highly integrated audio codec designed for player and tablet application platforms. It has one I2S/PCM interface, 2 channel DAC and 2 channel ADC with a high level of mixed-signal integration.

An integrated digital PLL supports a large range of input/output frequencies, and It can generate required audio clocks for codec from standard audio crystal rate such as 22.5792MHz and 24.576MHz, also can be from common reference clock frequencies. The 2 ADC and 2 DAC in device use advanced multi-bit delta-sigma modulation technique to convert data between analog and digital . The SNR performance can reach 100 dB A-wight.

Three analog input paths allow diverse analog audio sources such as two sets of differential microphone, one differential or single-ended linein or stereo FM input.

One ground-reference headphone output is provided. The output amplifier are powered from an integrated Charge Pump in order to achieve a higher quality, less power consumption in headphone playback, whist without any DC blocking capacitor and avoiding unwanted noise.

Two stereo differential speaker output is available by using an external amplifier to drive the loud-speaker. It can also be configured as single-ended output pin for some application of external single-ended amplifier.

AC101 is controlled through TWI (2-wire serial interface) or RSB(reduced serial bus) . It only works in the slave mode .

DRC function provide an useful digital sound processing capability in DAC playback path. It is used to attenuate the peak signals and boost the low-level.

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TYPICAL APPLICATION DIAGRAM

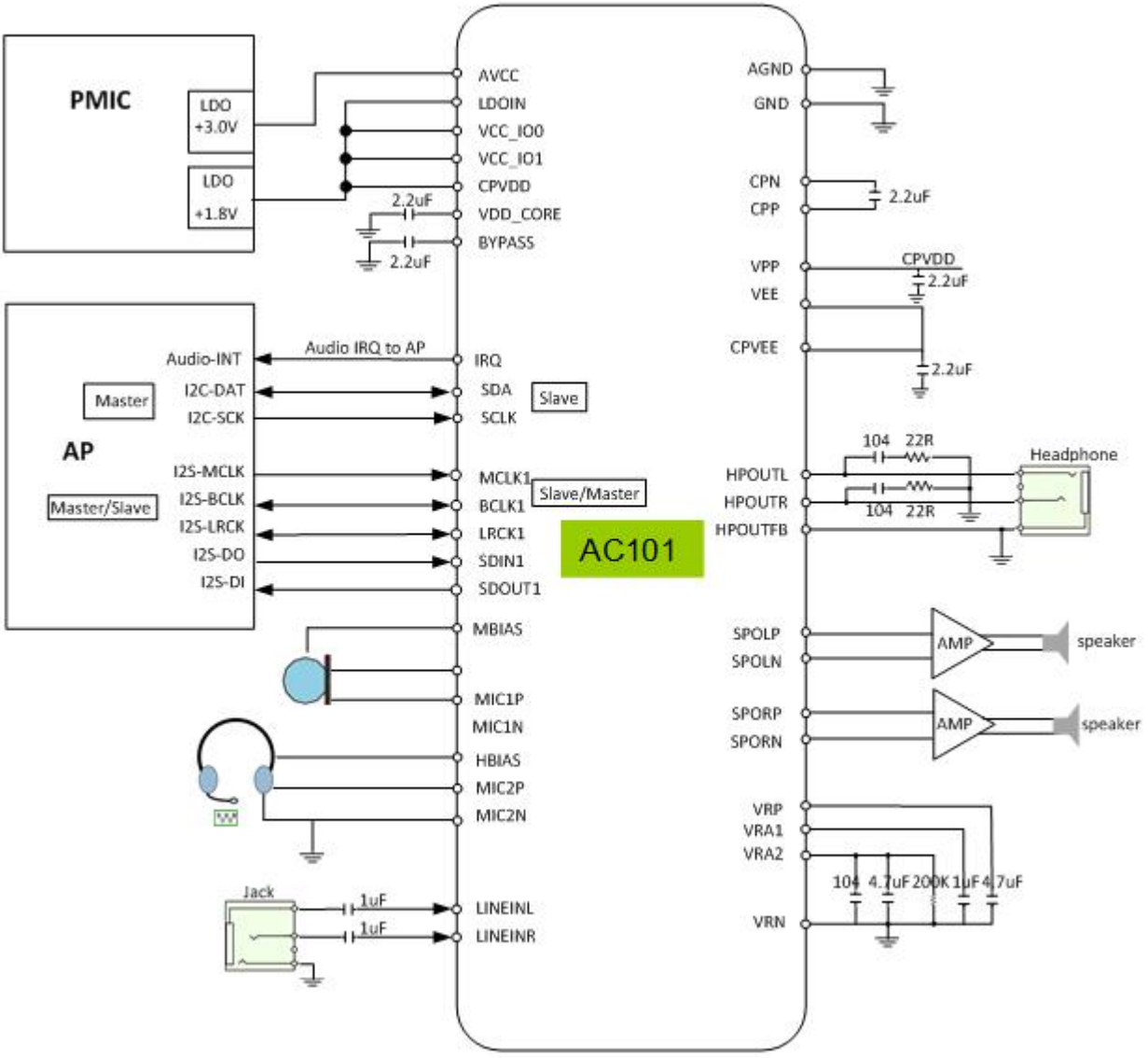


Figure 1. Typical Application Circuit

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PIN CONFIGURATION

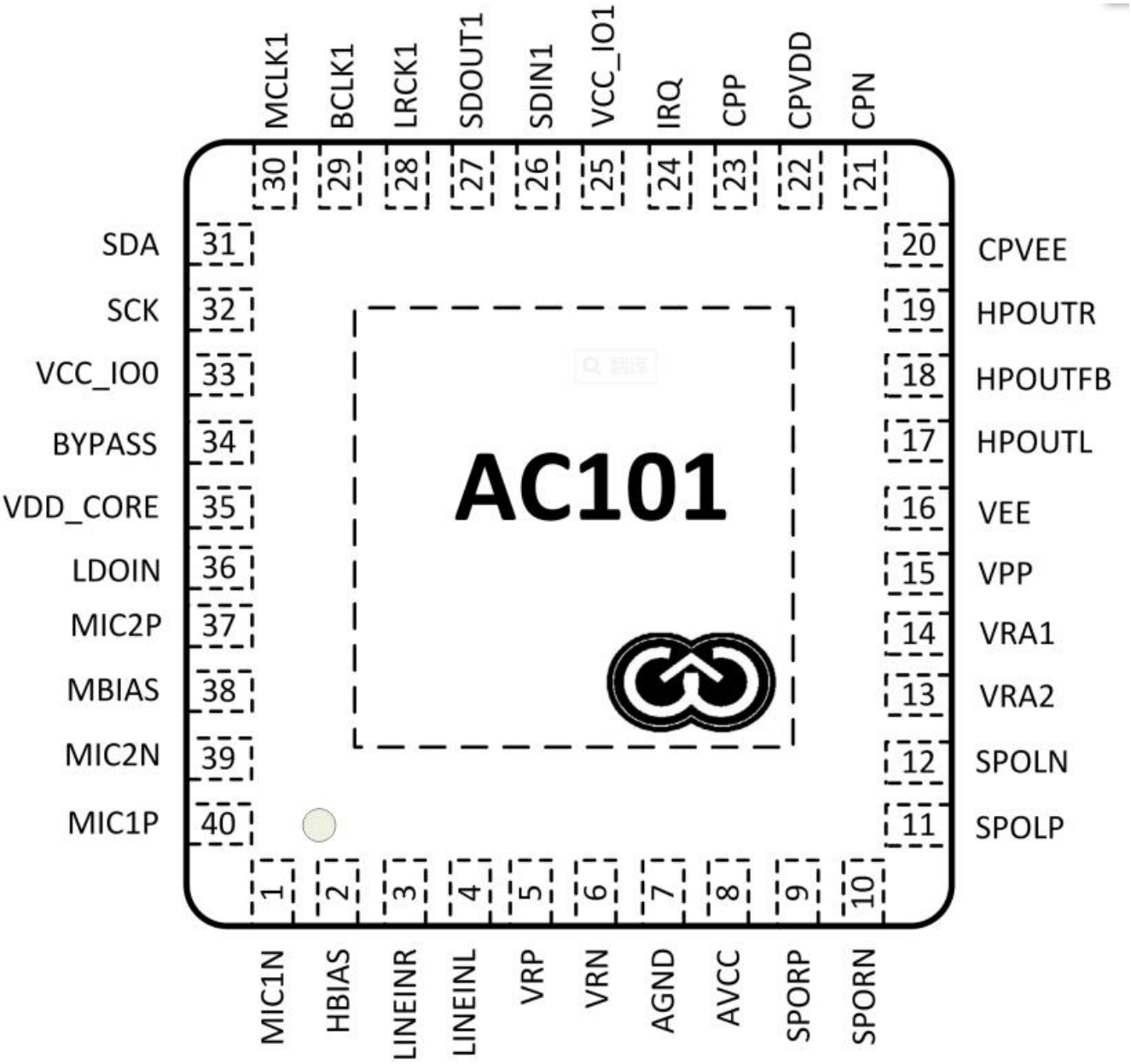


Figure 2. AC101 Pin Configuration

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