

Wolfson WM8910 超低功耗立体声 DAC 方案

Wolfson 公司的 WM8910 是高性能超低功耗立体声 DAC,采用 Wolfson 的 W 类放大器技术,具有立体声参考地耳机放大器,不需要耳机输出耦合电容,典型的 SNR 为 96dB,THD 为 -86dB,DAC 到耳机播放的功耗为 4.5mW,取样频率从 8kHz 到 96kHz,单个寄存器用来写入默认的起动顺序,集成的 FLL 提供了所有必要的时钟,主要用在手提媒体播放器,多媒体手机和手持游戏机.本文介绍了 WM8910 主要特性,方框图以及外部元件连接图.

The WM8910 is a high performance ultra-low power stereo DAC optimised for portable audio applications.

The device features stereo ground-referenced headphone amplifiers using the Wolfson 'Class-W' amplifier techniques - incorporating an innovative dual-mode charge pump architecture - to optimise efficiency and power consumption during playback. The ground-referenced outputs eliminate headphone coupling capacitors. Both headphone and line outputs include common mode feedback paths to reject ground noise.

Control sequences for audio path setup can be pre-loaded and executed by an integrated sequencer to reduce software driver development and eliminate pops and clicks via Wolfson's SilentSwitch™ technology.

The analogue input stage can be configured for single ended, pseudo-differential or fully differential inputs. Up to 2 stereo microphone or line inputs may be connected. The input impedance is constant with PGA gain setting. A stereo digital microphone interface is provided, which can also be mixed with the mic/line signals at the output mixers.

A dynamic range controller provides compression and level control to support a wide range of portable recording applications. Anti-clip and quick release features offer good performance in the presence of loud impulsive noises.

Common audio sampling frequencies are supported from a range of external clocks, either directly or generated via the FLL.

The WM8910 can operate directly from a single 1.8V switched supply. For optimal power consumption, the digital core can be operated from a 1.0V supply.

WM8910 主要特性:

4.5mW power consumption for DAC to headphone playback

DAC SNR 96dB typical, THD -86dB typical

Control sequencer for pop minimised start-up and shutdown

Single register write for default start-up sequence

Integrated FLL provides all necessary clocks

- Self-clocking modes allow processor to sleep

- All standard sample rates from 8kHz to 96kHz

Stereo digital microphone input

2 single ended inputs per stereo channel

1 pseudo differential input per stereo channel

1 fully differential mic input per stereo channel

Digital Dynamic Range Controller (compressor / limiter)

Digital sidetone mixing

Ground-referenced headphone driver

Ground-referenced line outputs

Stereo differential line driver for direct interface to WM9001 speaker driver

40-pin QFN package (5x5mm)

WM8910 应用:

Portable multimedia players

Multimedia handsets

Handheld gaming

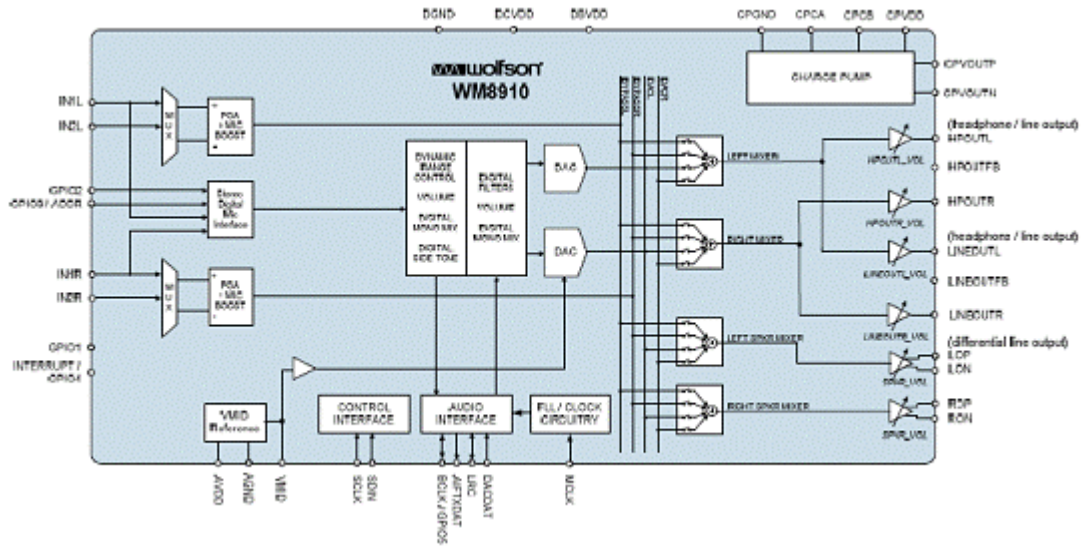


图 1. WM8910 方框图

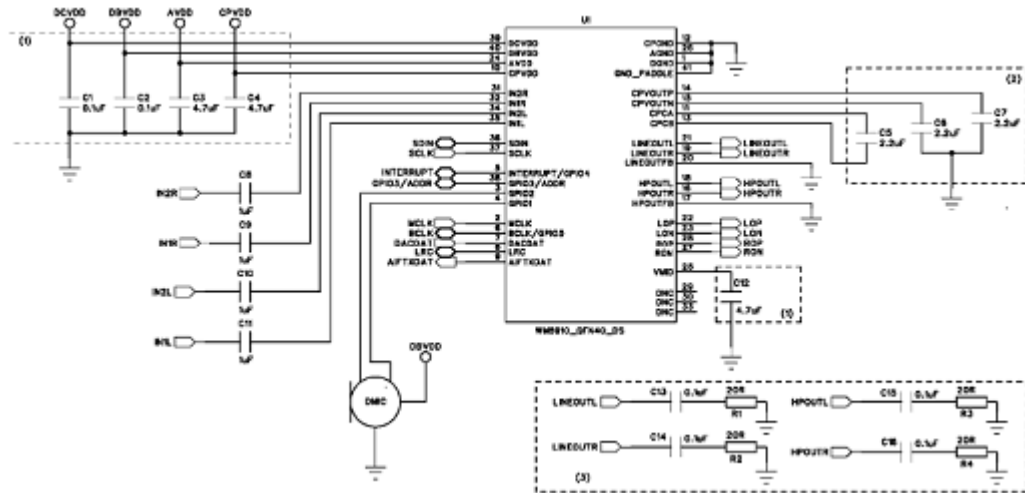


图 2.推荐的 WM8910 外部元件连接图