maxim integrated™

MAX98096

Audio Hub with Wideband FlexSound Processor

General Description

The MAX98096 is a full-featured high performance audio hub with low power consumption and advanced signal processing, making it ideal for a wide range of portable applications.

Three differential analog microphone inputs and four 1-bit digital microphone inputs accept audio from main, accessory, and background microphones. Analog line inputs accept four single-ended or two differential audio signals.

Three digital audio interfaces supports standard PCM formats such as I2S, left justified, and TDM. Three integrated sample rate converters and highly configurable signal routing enable a wide range of use cases. The FlexSound™ audio processor provides low-power advanced signal processing, including equalization, dynamic range compression, speaker protection, microphone noise suppression during wideband calls, acoustic echo cancellation, and ambient aware outputs.

Integrated amplifiers can output signals from three DACs or any of the analog inputs. Amplifiers include a differential receiver amplifier, a stereo Class D speaker amplifier, a stereo Class H headphone amplifier, and four single-ended line outputs.

The 117-bump WLP (6.9mm x 4.7mm x 0.5mm pitch) package is fully specified over the -40°C to +85°C extended temperature range.

FlexSound is a trademark and DirectDrive is a registered trademark of Maxim Integrated Products, Inc.

Benefits and Features

♦ **101dB DR Stereo DAC (8kHz < f_S < 96kHz)**
♦ **90dB DR Stereo ADC (8kHz < f_S < 96kHz)**
♦ **5.9mW Playback Power Consumption**
♦ **40kB Local Data RAM, 56kB Local Instruction ROM**
♦ **3 Stereo Single-Ended/Differential Analog Microphone Inputs (or 1 Analog/2 Stereo PDM Digital Microphone Inputs)**
♦ **2 Stereo Single-Ended/Mono Differential Line Inputs**
♦ **Three I2S/PCM/TDM Digital Audio Interfaces**
♦ **FlexSound Technology Signal Processing**
  ◊ **Enhanced Speakerphone**
  ◊ **Single/Dual Microphone Wideband Noise Suppression (16kHz Sampling Rate)**
  ◊ **Ambient Aware Receiver Output**
  ◊ **Acoustic Echo Cancellation**
♦ **Stereo Low EMI Class D Amplifiers**
  ◊ **3.2W per Channel (4Ω, $V_{PVDD\_}$ = 5.0V)**
  ◊ **1.2W per Channel (8Ω, $V_{PVDD\_}$ = 4.2V)**
♦ **Stereo DirectDrive® Headphone Amplifiers**
  ◊ **Jack Detection and Identification**
♦ **Differential Receiver Amplifier/Stereo Line Output**
♦ **Asynchronous Digital Mixing and Sample Rate Conversion**

Ordering Information **appears at end of data sheet.**

For related parts and recommended products to use with this part, refer to **www.maximintegrated.com/MAX98096.related**.

Simplified Block Diagram
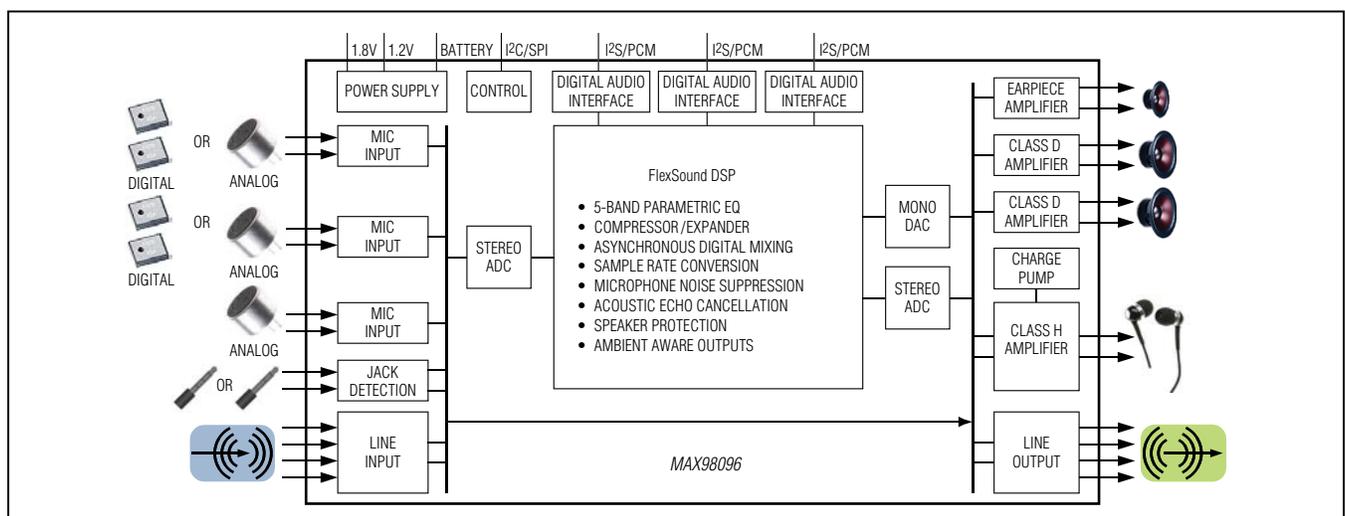
For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim's website at www.maximintegrated.com.

19-6376; Rev 1; 1/13