



Audio Subsystem with Mono Class D Speaker and Class H Headphone Amplifiers

General Description

The MAX97000 audio subsystem combines a mono speaker amplifier with a stereo headphone amplifier and an analog DPST switch. The headphone and speaker amplifiers have independent volume control and on/off control. The 4 inputs are configurable as 2 differential inputs or 4 single-ended inputs.

The entire subsystem is designed for maximum efficiency. The high efficiency 725mW class D speaker amplifier operates directly from the battery and consumes no more than 1µA in shutdown mode. The class H headphone amplifier utilizes a dual mode charge pump to maximize efficiency while outputting a ground referenced signal that does not require output coupling capacitors.

The speaker amplifier incorporates a distortion limiter to automatically reduce the volume level when excessive clipping occurs. This allows high gain for low-levels signals without compromising the quality of large signals.

All control is performed using the 2-wire, I²C interface. The MAX97000 operate in the extended -40°C to +85°C temperature range, and is available in the 2mm x 2mm, 25-bump WLP package (0.4mm pitch).

Features

- ◆ 2.7V to 5.5V Single Supply Voltage
- ◆ 725mW Speaker Output (V_{PVDD} = 3.7V, R_{SPK} = 8Ω + 68µH)
- ◆ 40mW/Channel Headphone Output (R_L = 16Ω)
- ◆ Low-Emission Class D Amplifier
- ◆ Efficient Class H Headphone Amplifier
- ◆ Ground Referenced Headphone Outputs
- ◆ 2 Stereo Single-Ended Mono Differential Inputs
- ◆ Integrated Distortion Limiter (Speaker Outputs)
- ◆ Integrated DPST Analog Switch
- ◆ No Pop and Click
- ◆ TDMA Noise Free

◆ 2mm x 2mm, 25-Bump 0.4mm Pitch WLP Package

Ordering Information

| PART NUMBER | TEMP RANGE | PIN-PACKAGE |
|--------------|----------------|-------------|
| MAX97000EWA+ | -40°C to +85°C | 25 WLP |

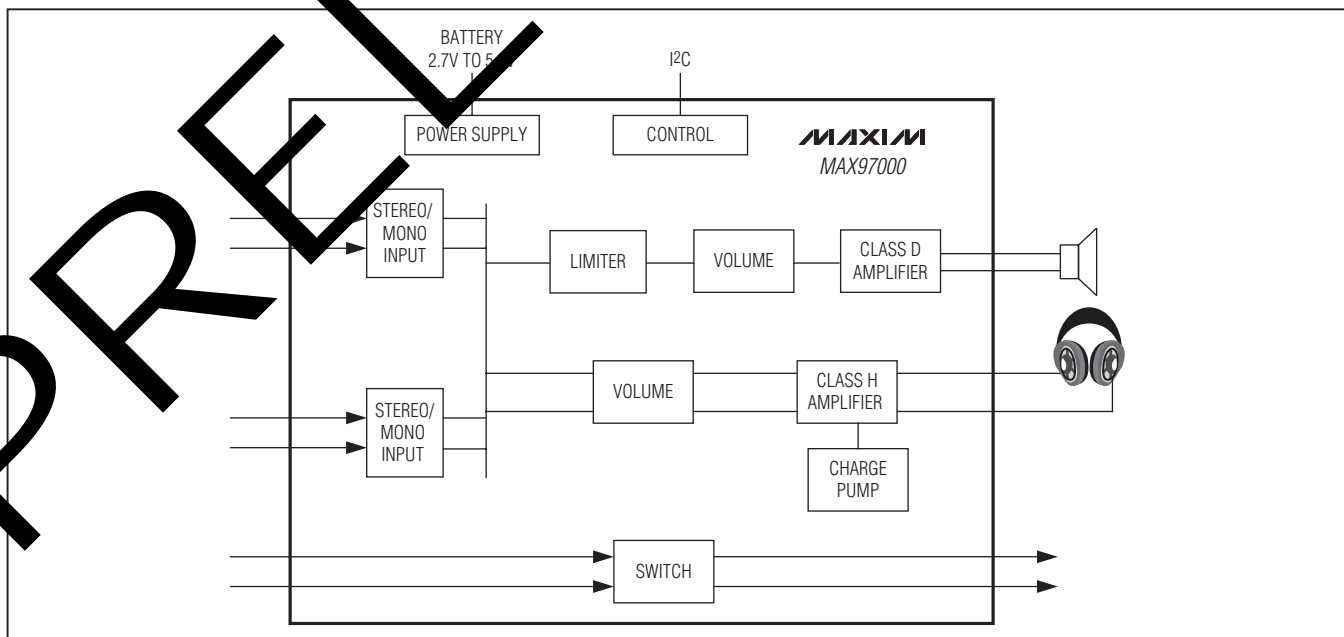
+Denotes a lead(Pb)-free/RoHS-compliant package.

Applications

- Cell Phones
- Portable Multimedia Players

Functional Diagram/Typical Application Circuit appears at end of data sheet.

Simplified Block Diagram



MAX97000

PRELIMINARY