

S1M0085X

Output Cap-less Audio subsystem with Class-D Speaker Amplifier

Overview

The S1M0085X is a high efficient Class-D audio power amplifier which can deliver 700mW of power maximally into 8Ω speaker load at 3.3V power supply. (@THD+N = 1%)

The variable switching frequency technique is used to achieve good EMI property. (spread spectrum modulation) S1M0085X integrates stereo Class-AB amplifier that can deliver 40mW maximally into the 32Ω headphone.

The S1M0085X also integrates input and output selection switches internally, it can deliver various audio signals efficiently to the speaker. (ex. Audio1,2 and Voice)

Adopting output capacitor-less configuration, the application circuit can be more simple and cost-competitive.

The S1M0085X features a 32-step digital volume control and eight different output modes which are programmed through I²C or SPI signal.

The competitive design in a 4x4 [mm] ELP package contributes to the saving of PCB size, and the Class-D amplifier makes the system to be efficient by increasing battery life time.

Application

- Mobile Handheld Phones
- Portable Applications : PMP, Navigator, PDA, Note PC etc.

Features Summary

- High Power Speaker output
 - 2.5W into 4Ω @ 5V
 - 1.3 W into 8Ω @ 5 V
 - 700 mW into 8Ω @ 3.3 V
- High Efficiency Class-D audio amp
 - 91 % Efficiency , @ 3.6V, 0.7W into 8Ω
 - 86 % Efficiency , @ 3.6V, 1.2W into 4Ω
- Low EMI structure
 - Variable PWM frequency (Spread Spectrum)
- High PSRR stereo Headphone amplifier
 - PSRR > 85dB
- Power Supply Range : 2.7 V to 5.5 V
- Low power consumption
- Low shut down current
- Audio selection switches included
- V of -54~18dB
- Cap-less output configuration
- High Quality sound
 - THD + N < 0.01 % , @ 1 KHz
- Start-up procedure for preventing Pop-Up Noise
- Space saving package
 - 4mm X 4mm 24 ELP package with 0.5mm pitch
- Internal short protection circuit
 - Load short, Power short

Functional Block Diagram

