

2.6 W Boosted Digital Speaker Amplifier with Feedback-Loop

Features

- High Efficiency Boost Converter
 - Typical output voltage 6.1 V
 - Class-G control by digital feed-forward processing
 - Active anti-windup scheme for loop compensation
- High Performance Digital Speaker Amplifier
 - Full digital class-D audio amplifier
 - Max. 2.0 W at 8 Ω, THD+N < 1%, 1 kHz
 - Max. 2.6 W at 6 Ω, THD+N < 1%, 1 kHz
 - High audio performance: SNR 105 dB, THD+N 0.008%
 - TDM multi-channel input interface: 4 or 8 channel, 16-bit or 32-bit at 48 kHz
 - I²C address selection input for stereo speakers
 - SDO output high impedance control for stereo speakers
- Digital Signal Processing for Sound Tuning
 - Soft volume and soft mute
 - Dynamic range compressor and high pass filter
 - Post scaler
 - Digital audio feedback signal for echo cancellation
- Protections
 - Overcurrent protection
 - Under / overvoltage protection for boost converter
 - Overcurrent limit for boost converter
 - Thermal management / shutdown circuit
- Others
 - Fault diagnostics by I²C interface

- Input clock monitoring circuit with internal oscillator
- Internal low power, low noise PLL
- Supports four channel applications

Applications

- Mobile Phones
- Tablets
- Wireless Mobile Speakers

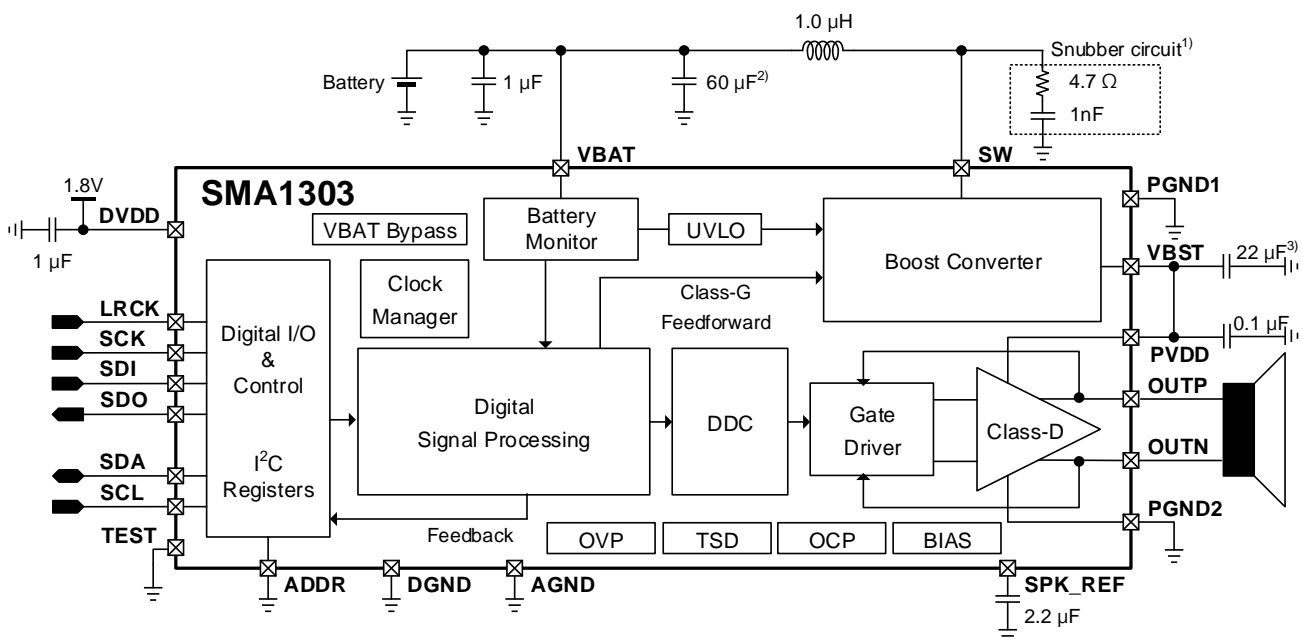
Description

This document contains the detailed specifications of the SMA1303 digital class-D audio amplifier with an integrated boost converter. From a single cell Li-ion battery power supply, the boost converter converts boosted output voltage into full digital amplifier to make stable large sound pressure levels.

Device Information

Part Number	Package	Body Size
SMA1303-W	4 x 5 - WLCSP	1.78 mm x 2.09 mm

Simplified Block Diagram



*Technology by
Iron Device Corporation

SMA1303

Notes

- 1) The snubber circuit on the SW pin can be changed depending on the PCB condition.
- 2) The typical value is 22 μ F if a battery is connected. If there is no battery at the boost converter input, the total capacitance should be over 60 μ F.
- 3) The typical value is 22 μ F to 33 μ F. The minimum capacitance at 6.1 V derating is 3 μ F.