30 W, Filterless, Class D, Output Sensing Audio Amplifier with SoundWire

Data Sheet

SSM3525-MIPI

FEATURES

Meets MIPI Alliance SoundWire Specification Version 1.1
Clocking, audio data and control handled over 2-wire interface
SoundWire interface support at 1.2 V or 1.8 V
Filterless digital input, mono Class D amplifier with Σ-Δ modulation
4.5 V to 17 V operation, such as a 2-cell or 3-cell battery
Input/output supply operation from 1.1 V to 1.90 V
30.2 W output power, 17 V supply and 4 Ω load at 1% THD + N
37.5 μV rms noise, 107 dB A weighted SNR
Supports sample rates from 8 kHz to 192 kHz
Flexible digital and analog gain adjustment
AGC with battery voltage-based limiter
74 dB SNR on output current sensing and 85 dB SNR on voltage sensing
6.63 mA quiescent current at 12 V PV$_{DD}$ supply
Temperature sensor with 1°C readout
Short-circuit, thermal protection, and thermal warning
23-ball, 2.26 mm × 2.38 mm, 0.4 mm pitch WLCSP

APPLICATIONS

Mobile computing
Portable electronics

GENERAL DESCRIPTION

The SSM3525-MIPI consists of all the blocks available in the SSM3525 plus a SoundWire® block. This data sheet provides detailed information on the SoundWire block.

The SSM3525-MIPI is a fully integrated, high efficiency, mono Class D audio amplifier with digital input and digitized output of output voltage, output current, and PV$_{DD}$ supply with SoundWire interface. The SoundWire interface meets the MIPI® SoundWire Specification Version 1.1. For more detailed technical information on the SoundWire protocol, refer the MIPI Alliance SoundWire Specification Version 1.1.

The SoundWire protocol allows transport of control information, setup commands and audio data, such as pulse-code modulation (PCM) or pulse-density modulation (PDM) data, or other payload data over a 2-pin interface. The 2-pin interface uses the SW_CLK and SW_DATA pins to connect to the SoundWire bus. The SoundWire bus usually consists of one master interface and one or more slave interfaces, up to a maximum of eleven slave interfaces.

The SoundWire protocol allows increased system flexibility and system level power saving, as well as support for interrupt alerts to the master interface from slave interfaces.
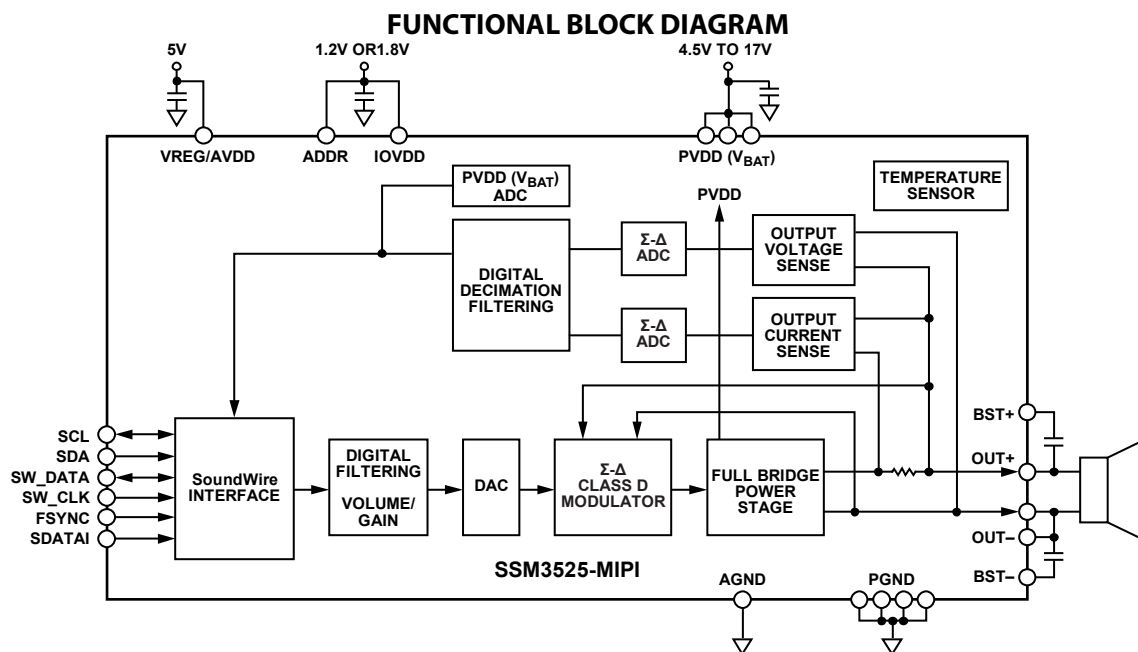
FUNCTIONAL BLOCK DIAGRAM

Figure 1. SSM3525-MIPI SoundWire Mode Block Diagram

For more information about the SSM3525-MIPI, contact Analog Devices, Inc., at consumer.Apps@analog.com.

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