UDA1341TS: Economy audio CODEC for MiniDisc (MD) home stereo and portable applications

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Overview

The UDA1341TS is a single-chip stereo Analog-to-Digital Converter (ADC) and Digital-to-Analog Converter (DAC) with signal processing features employing bitstream conversion techniques. Its fully integrated analog front end, including Programmable Gain Amplifier (PGA) and a digital Automatic Gain Control (AGC). Digital Sound Processing (DSP) featuring makes the device an excellent choice for primary home stereo MiniDisc applications, but by virtue of its low power and low voltage characteristics it is also suitable for portable applications such as MD/CD boomboxes, notebook PCs and digital video cameras.

The UDA1341TS is similar to the UDA1340M and the UDA1344TS but adds features such as digital mixing of two input signals and one channel with a PGA and a digital AGC.

The UDA1341TS supports the I²S-bus data format with word lengths of up to 20 bits, the MSB-justified data format with word lengths of up to 20 bits, the LSB-justified serial data format with word lengths of 16, 18 and 20 bits and three combinations of MSB data output combined with LSB 16, 18 and 20 bits data input. The UDA1341TS has DSP features in playback mode like de-emphasis, volume, bass boost, treble and soft mute, which can be controlled via the L3-interface with a microcontroller.

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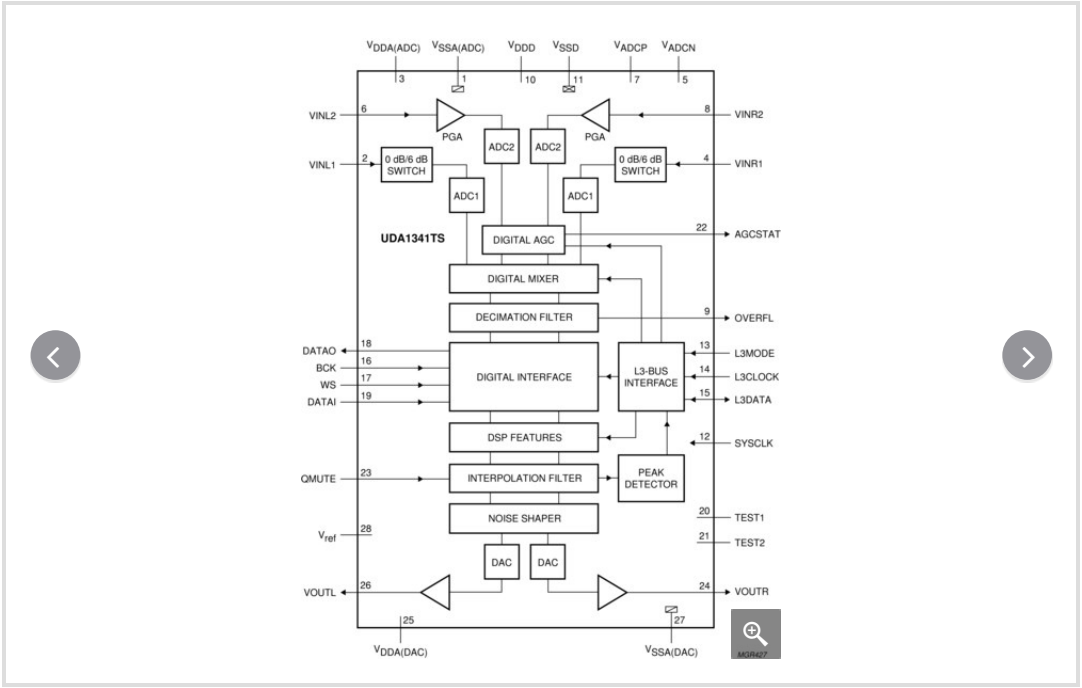

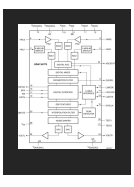

Outline 3d SOT341-1

Features

General

- Low power consumption
- 3.0 V power supply
- 256f_s , 384f_s or 512f_s system clock frequencies (f_{sys})
- Small package size (SSOP28)
- Partially pin compatible with UDA1340M and UDA1344TS
- Fully integrated analog front end including digital AGC
- ADC plus integrated high-pass filter to cancel DC offset
- ADC supports 2 V (RMS value) input signals
- Overload detector for easy record level control
- Separate power control for ADC and DAC
- No analog post filter required for DAC
- Easy application
- Functions controllable via L3-interface.

Multiple format data interface

- I²S-bus, MSB-justified and LSB-justified format compatible
- Three combinational data formats with MSB data output and LSB 16, 18 or 20 bits data input
- 1f_s input and output format data rate.

DAC digital sound processing

- Digital dB-linear volume control (low microcontroller load)
- Digital tone control, bass boost and treble
- Digital de-emphasis for 32, 44.1 or 48 kHz audio sample frequencies (f_s)
- Soft mute.

Advanced audio configuration

- DAC and ADC polarity control
- Two channel stereo single-ended input configuration
- Microphone input with on-board PGA
- Optional differential input configuration for enhanced ADC sound quality
- Stereo line output (under microcontroller volume control)
- Digital peak level detection
- High linearity, dynamic range and low distortion.