# STEVAL-CCA016V1

Filter-free stereo 2.8 W Class-D audio power amplifier demo board with selectable 3D sound effects based on the TS4999

Data brief

Features

- Operating range from V_{CC}= 2.4 V to 5.5 V
- Dedicated standby mode active low for each channel
- Output power per channel: 2.8 W at 5 V into 4 Ω with 10% THD+N
- Output power per channel: 0.7 W at 3.6 V into 8 Ω with 1% THD+N max.
- Selectable 3D sound effect
- Four gain setting steps: 3.5, 6, 9.5 and 12 dB.
- Low current consumption
- PSRR: 63 dB typ @ 217 Hz.
- Fast start-up phase: 7.8 ms
- Output short-circuit and thermal shutdown protection
- RoHS compliant

STEVAL-CCA016V1
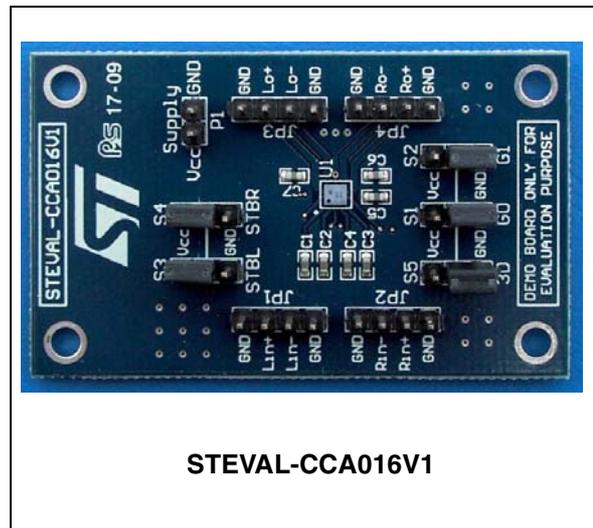
Description

This demonstration board is designed to evaluate the performances of TS4999, that is a stereo fully differential Class-D power amplifier.

It can drive up to 1.35 W into a 8 Ω load at 5 V per channel. The device has four different gain settings utilizing two discrete pins, G0 and G1.

Pop and click reduction circuitry provides low on/off switch noise while allowing the device to start within 8 ms.

3D enhancement effects are selected through one digital input pin that allows more amazing stereo audio sound.

Two standby pins (active low) allow each channel to be switched off separately.

The TS4999 is available in a 18 bumps Flip-Chip package.

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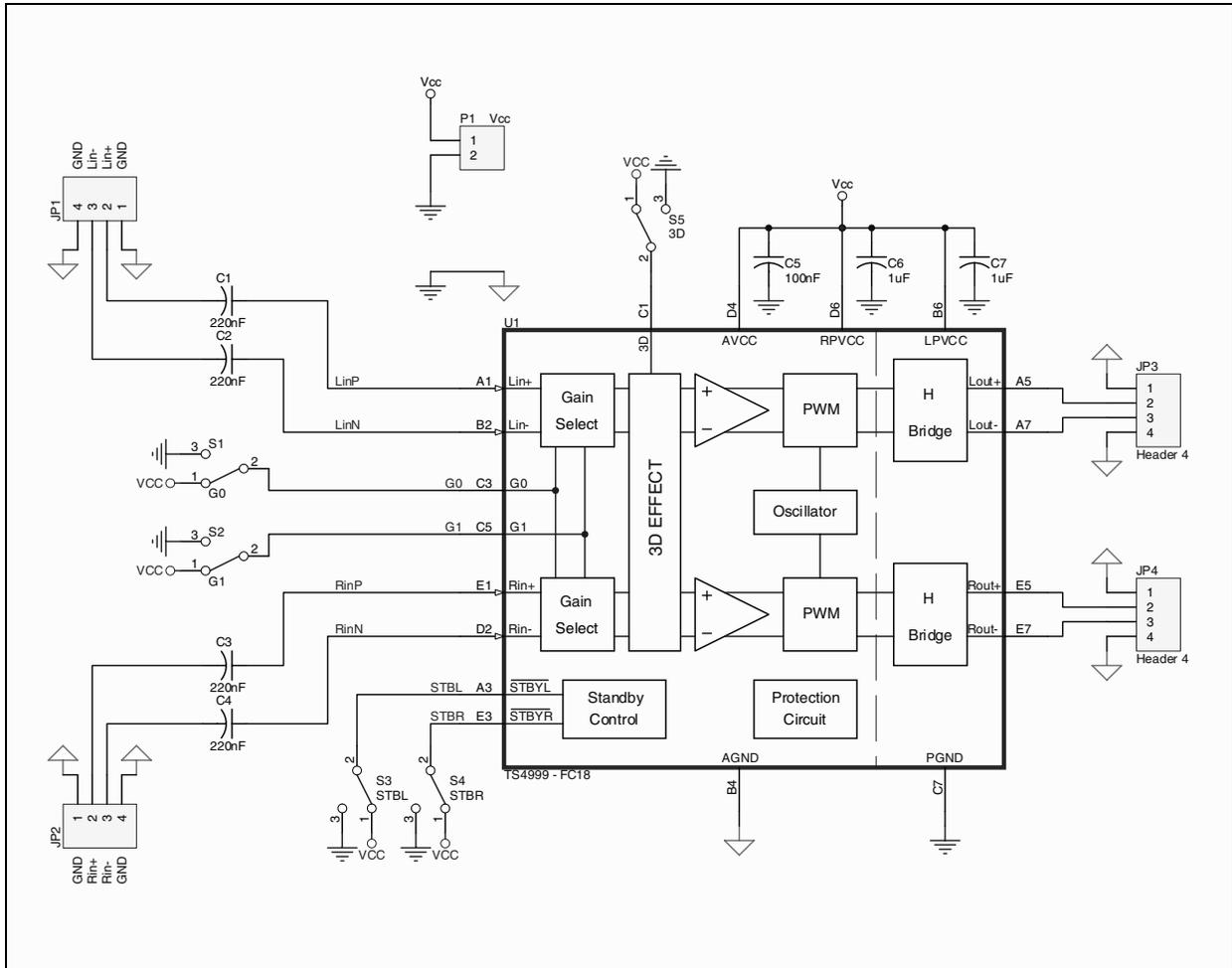# 1   Circuit schematic and BOM list

Figure 1.   Schematic diagram

Table 1.   Components list for the demonstration board

Designation	Quantity	Description
C1, C2, C3, C4	4	220 nF/16 V, SMD ceramic capacitor, 0603
C5	1	100 nF/16 V, SMD ceramic capacitor, 0603
C6, C7	1	1 µF/16 V, SMD ceramic capacitor, 0603
P1	1	2-pin header 2.54 mm pitch
S1, S2, S3, S4, S5	5	3-pin header 2.54 mm pitch
JP1, JP2, JP3, JP4	4	4-pin header 2.54 mm pitch
U1	1	TS4999 class-D audio amplifier

2   Demonstration board layouts

The following figures depict the top view and layers of the demonstration board.

Figure 2.   PCB top layer
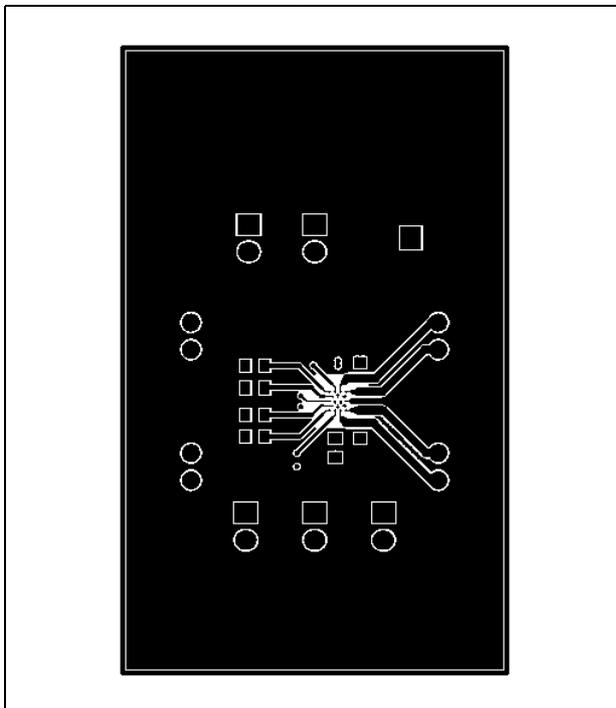
Figure 3.   PCB middle layer 1
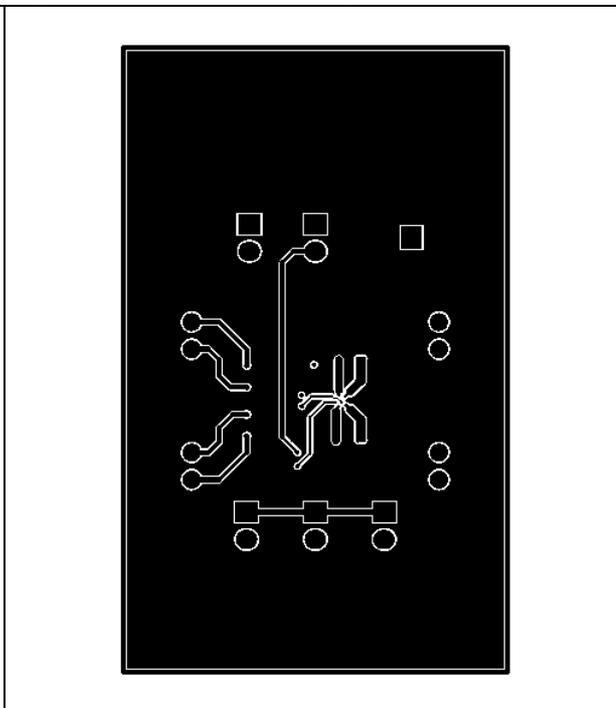
Figure 4.   PCB middle layer 2
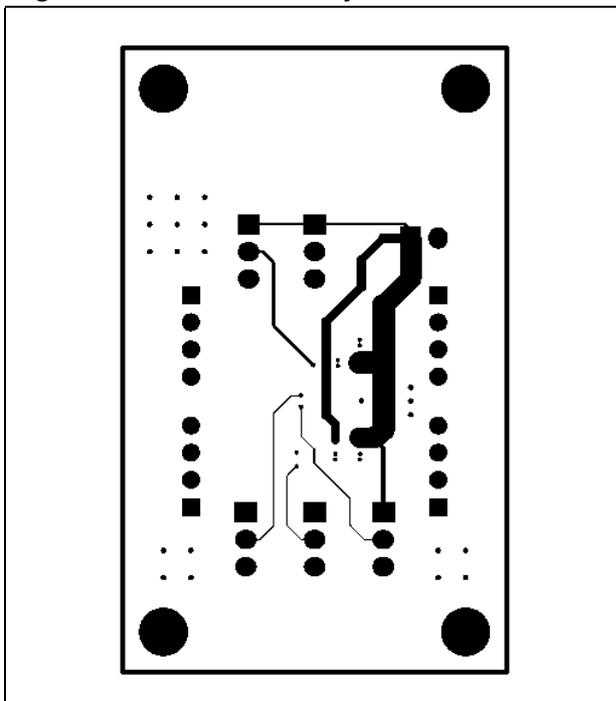
Figure 5.   PCB bottom layer
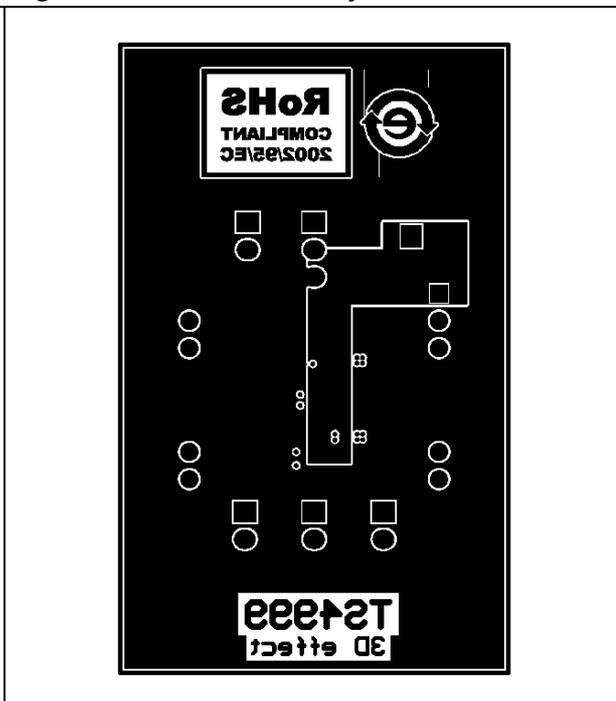
3   Revision history

Table 2.   Document revision history

Date	Revision	Changes
11-Jun-2009	1	Initial release.

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