



TS4990 low voltage audio power amplifier Evaluation board user guidelines

TS4990 features

- TS4990 low voltage audio power amplifier with active low standby mode
- Operating from $V_{CC}=2.2V$ to $5.5V$
- $1.2W$ output power @ $V_{CC}=5V$, THD=1%, F=1kHz, with 8Ω load
- Ultra low power consumption in standby mode (10nA)
- 62dB PSRR @ 217Hz in grounded mode ($A_v=2V/V$)
- Near zero pop & click
- Ultra low distortion (0.1%)
- Module gain set at $2V/V$
- Thermal and short circuit protection

Description

The DEMO TS4990 is an evaluation board designed for the TS4990 low power audio amplifier. The micropackage DFN8 (dual flat non leaded 8 pins) allows space saving and good thermal dissipation.

The BTL gain is set at $2V/V$ and can be adapted if necessary with a modification of R1 or R2 values.

On the board, R3 and C3 component locations are empty to allow you to modify the input configuration from single ended to differential. For differential mode, R4 must be modified.

The C1 component location is also empty so that you can add a low pass filter if required.

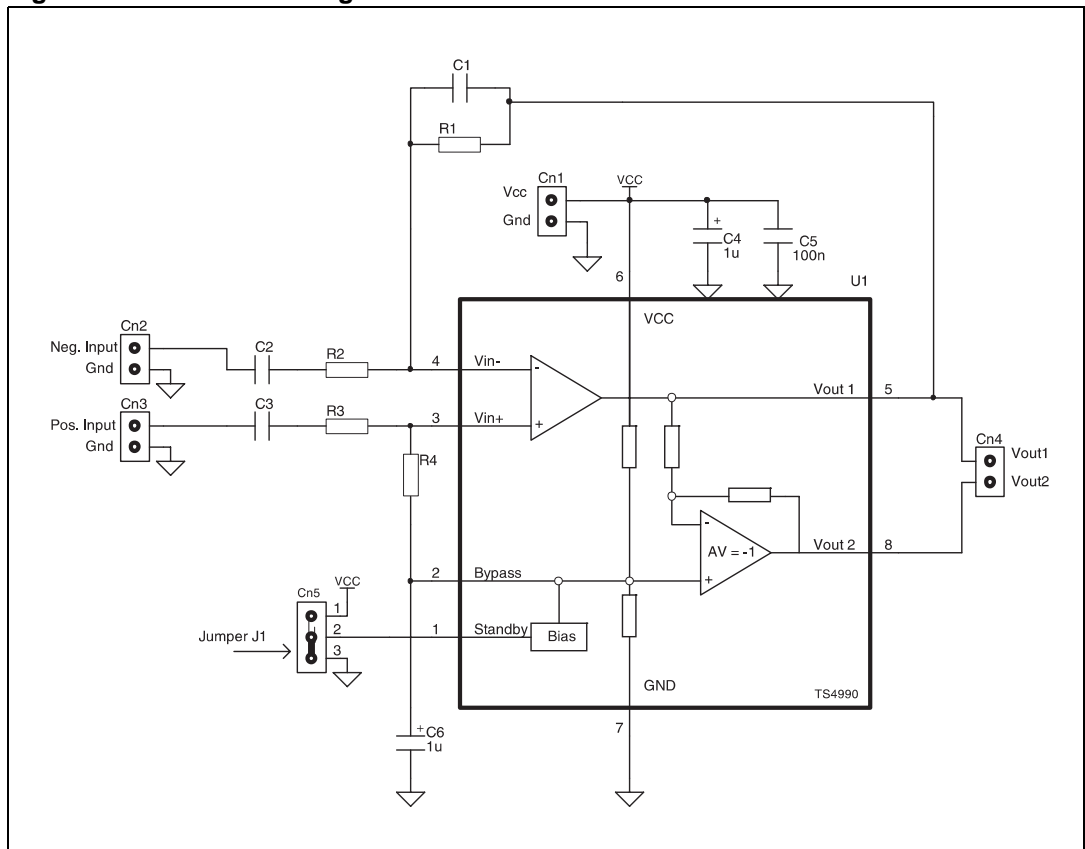
More information about component calculations is available in the TS4990 datasheet.

Connector configuration

Caution: When you apply power supply through Cn1, DO NOT invert the polarity because it would destroy the amplifier U1.

Connector	Description
Cn1	Power connector (V_{CC} and GND). Power supply voltage from 2.2V to 5.5V.
Cn2 and Cn3	Input signal connector (GND and active input signal).
Cn4	Output signal connector (V_{out1} and V_{out2}).
Cn5	Standby control connector (V_{CC} , standby, GND). A short-circuit between V_{CC} and standby puts U1 in operation mode. A short-circuit between GND and Standby puts U1 in standby mode.

Figure 1. Schematic diagram



Component list for the DEMO TS4990/DFN

Designation	Quantity	Description
C1	0	Unconnected, ceramic capacitors, 0603
C2	1	100nF/16V, ceramic capacitors, 0603
C3	0	Unconnected, ceramic capacitors, 0603
C4	1	1 μ F/50V, electrolytic capacitor
C5	1	100nF/16V, ceramic capacitors, 0603
C6	1	1 μ F/50V, electrolytic capacitor
Cn1	1	2 pins header 2.54mm pitch
Cn2	1	2 pins header 2.54mm pitch
Cn3	1	2 pins header 2.54mm pitch
Cn4	1	2 pins header 2.54mm pitch
Cn5	1	3 pins header 2.54mm pitch
J1	1	Jumper, 2.54mm pitch
R1	1	22k, 1/16W 1% resistor, 0603
R2	1	22k, 1/16W 1% resistor, 0603
R3	0	Unconnected, 1/16W 1% resistor, 0603
R4	1	0R, 1/16W 1% resistor, 0603
U1	1	TS4990IQ (DFN8 package)

Evaluation board layout

The following schematics show the different layers and the top view of the evaluation board.

Figure 2. PCB top layer view

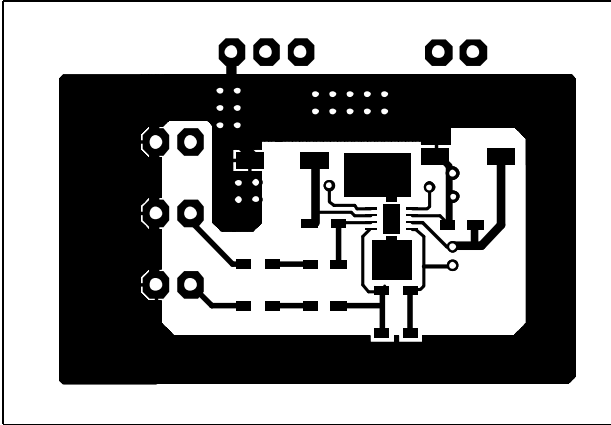


Figure 3. PCB bottom layer view

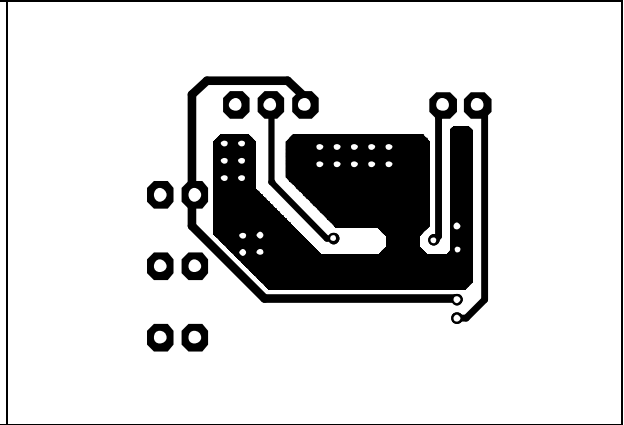
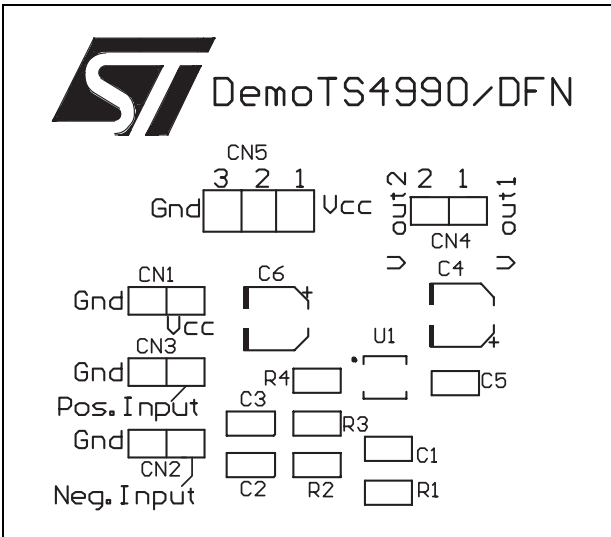


Figure 4. Top view of demo board



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