



STEVAL-CCA002V1

Low voltage differential audio power amplifier based on the TS4994

Data Brief

Features

- TS4994 low voltage differential audio power amplifier with Programmable standby mode
- Operates from $V_{CC}=2.5\text{ V}$ to 5.5 V
- 1 W output power @ $V_{CC}=5\text{ V}$, THD+N=1%, F=1 kHz, with 8 W load
- Ultra low power consumption in standby mode (10 nA)
- 100 dB PSRR @ 217 Hz in grounded mode ($A_v=1\text{ V/V}$)
- Near zero pop & click
- Ultra low distortion (0.1%)
- Module gain set at 1V/V
- Thermal and short-circuit protection

Description

This evaluation board is designed with the TS4994 low power differential audio amplifier. The micro-package DFN10 (dual flat non-leaded 10 pins) allows space saving and good thermal dissipation. The differential gain is set at 1 V/V and can be adapted as necessary through a modification of the R1 to R4 values.

Equation 1

$$A_v = \frac{R_2}{R_1} = \frac{R_4}{R_3} \text{ with } R_2 = R_4 \text{ with } R_1 = R_3$$

On the board, you can set the Cn3 and Cn4 jumpers can be set to modify the input configuration from capacitor coupled to common mode feedback. In capacitor coupled configuration, the -3dB cut-off frequency in Hz is:

Equation 2

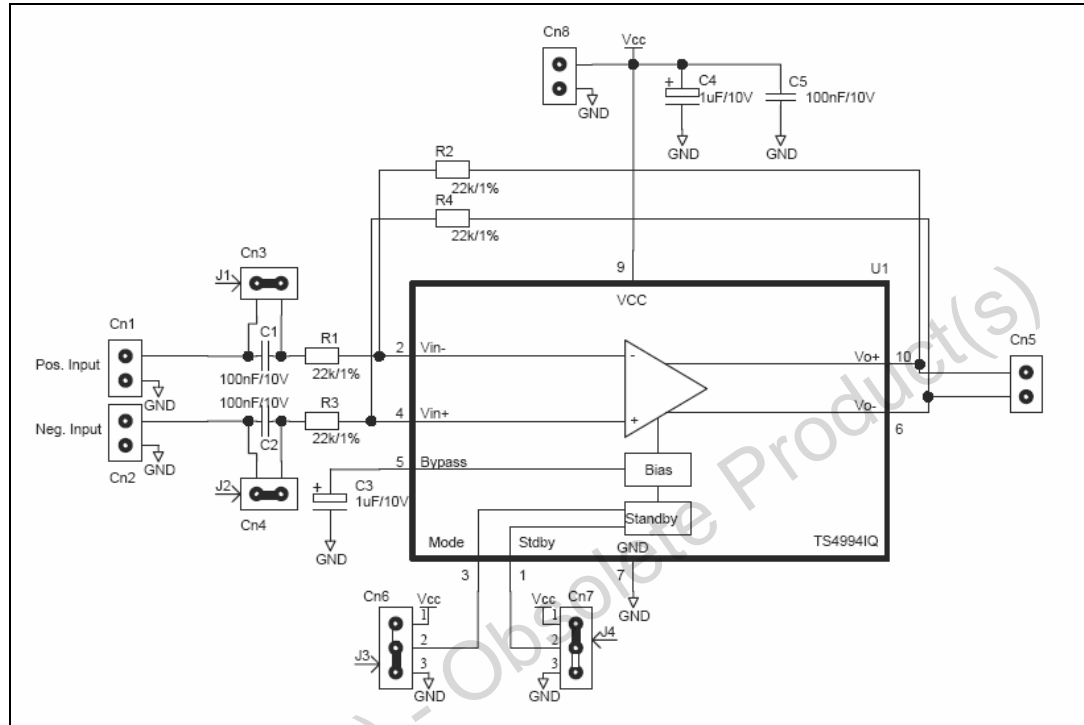
$$\frac{1}{(6.28 \cdot R_1 \cdot C_1)} = \frac{1}{(6.28 \cdot R_3 \cdot C_2)}$$

with R in ohms, C in farads and $C_1=C_2$. For more detailed information about component calculation, refer to the TS4994 datasheet.



1 Board schematic

Figure 1. Schematic



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
19-Dec-2007	1	Initial release

Obsolete Product(s) - Obsolete Product(s)

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2007 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com