



STEVAL-CCA012V1

3 W filter-free class-D audio amplifier demonstration board with 6-12 dB fixed gain select based on the TS2007

Data brief

Features

- Operating range from $V_{CC} = 2.4 \text{ V}$ to 5.5 V
- Dedicated standby mode active low for each channel
- Output power per channel: 1.4 W @ 5 V or 0.5 W @ 3.0 V into 8 Ω with 1% THD+N max
- Output power per channel: 2.3 W @ 5 V or 0.75 W @ 3.0 V into 4 Ω with 1% THD+N max
- Two fixed gain selects: 6 dB or 12 dB
- Low current consumption
- Efficiency: 88% (typ)
- Signal-to-noise ratio: 90 dB (typ)
- PSRR: 68 dB (typ) @ 217 Hz with 6 dB gain
- PWM base frequency: 280 kHz
- Low pop and click noise
- Thermal shutdown protection
- Output short-circuit protection
- RoHS compliant

Description

The STEVAL-CCA012V1 demonstration board is based on the TS2007FC audio power class-D amplifier, housed in a Flip-Chip package, which is capable of driving up to 1.4 W into an 8 Ω load at 5 V. The device offers improved efficiency compared to typical class-AB audio amplifiers.

The TS2007FC allows switching between two different gains: 6 or 12 dB via a logic signal on the GS pin. Pop and click reduction circuitry provides low on/off switching noise while allowing the device to start within 1 ms. An active low standby function permits lower current consumption (down to 1 μA typ). The TS2007FC also integrates output short-circuit protection and thermal shutdown protection.

The STEVAL-CCA012V demonstration board is constructed on a two-layer PCB with easily accessible connectors, allowing users to change



or drive the gain select and standby control pin, and to change the input configuration.

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
17-Jun-2009	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.

© 2009 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 - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com