

FDA Family

Full digital audio amplifiers for car infotainment systems



ST's FDA combines high quality audio with automotive robustness

The FDA80x and FDA90x are new class-D audio amplifiers with a digital input designed for automotive applications. With unrivaled efficiency, start-stop compliance, reliable diagnostic functionality and ST's innovative feedback concept, these are the perfect amplifiers for advanced high-performance infotainment systems. They are the first amplifiers designed for use in automotive applications able to deliver a high level of load detection accuracy with an advanced real-time load monitor.

KEY FEATURES

- Class-D efficiency, above 90%
- Very high output power capability
- I²S or TDM digital input
- Start-Stop operation
- Low-pass output filter included in the feedback loop
- Input and output offset detector
- DIM (digital input meter) to communicate the speaker impedance through I²C bus (B version)
- Very low output noise
- Line driver mode (FDA801)
- Current sense: real-time load current monitor (FDA90x) on I²C or I²S data bus

KEY APPLICATIONS

- Head units
- Sound systems and boosters
- Telematics audio and eCall
- Acoustic Vehicle Alerting Systems (AVAS)

KEY BENEFITS

- High noise-injection immunity due to digital input
- No need for digital-to-analog conversion and input filtering
- Extremely low power dissipation
- No need for external solutions to play music during cranks with start-stop engines
- Feedback loop helps reduce radiated emissions, allowing the use of a very low cost and small footprint output filter as well as guaranteeing a flat, load-independent frequency response
- The DIM recognizes the load impedance enabling very accurate diagnostics with any load
- Full real-time diagnostics and advanced speaker tuning for audio enhancement



FDA PRODUCT FAMILY

ST automotive full digital amplifiers (FDA) eliminate the cost of an external DAC and capacitors (removing the risk of DC offset for leakage), are immune to RF noise injection (mobile phones) and have excellent audio performance (SNR and DR > 110 dB). The implementation of ST's innovative feedback concept after the external filter helps ensure that the amplifiers comply with international EMI standards, allows the use of low cost LC filters, makes diagnostics very precise and reliable and also improves the amplifier

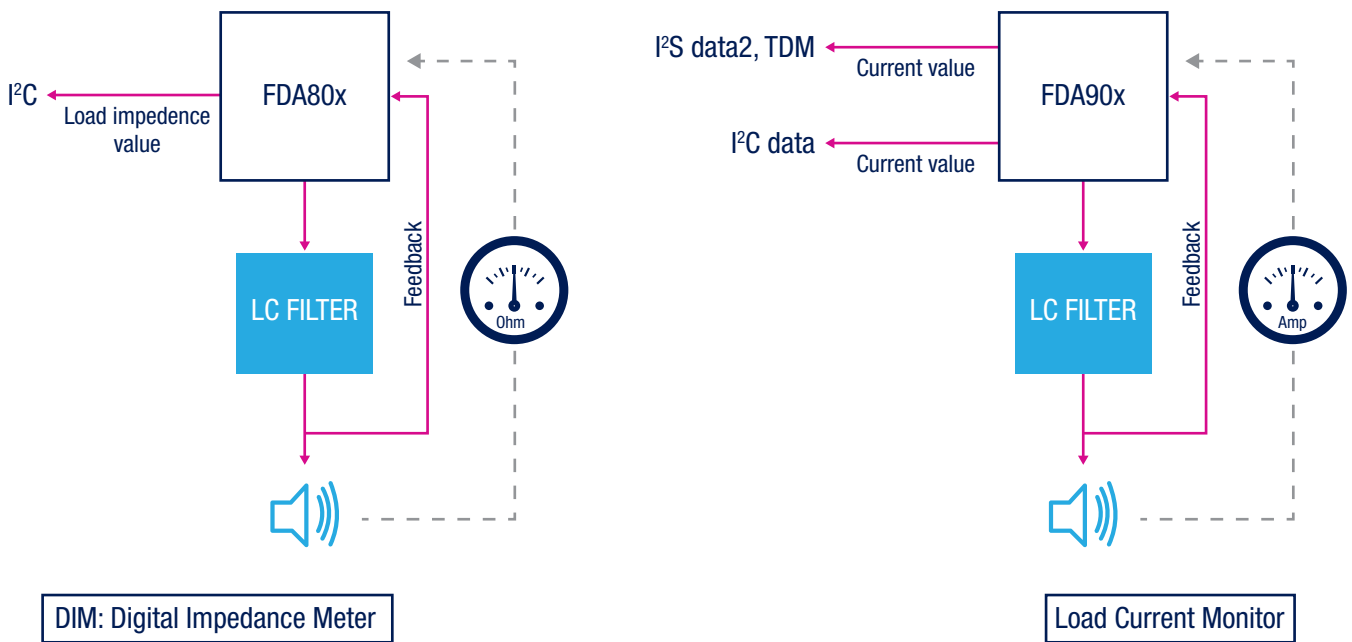
frequency response and sound quality, independently of the load.

The FDA80x and FDA90x amplifiers reduce the dissipated power with an efficiency higher than 90%, enabling very precise and reliable diagnostics.

Most of the FDA product family have an embedded "DIM", an innovative feature that measures load impedance, making load diagnostic routines simple and reliable with any kind of speaker connection and configuration. The FDA802x is compatible

with a 50 V supply voltage, adding support for 8 Ohm speakers at full power. The FDA90x features real-time load current monitor, that enables the continuous control of the speakers, helping to build systems that enhance audio performance, maintain sound quality over the system lifetime with added robustness. The FDA803/903D are designed to support audio applications, telematics systems, eCall boxes, and sound generators for electric vehicles. They can operate down 3.3V.

FDA FAMILY INNOVATIVE FEATURES



DEVICE SUMMARY

Part number	Description
FDA801	4 x 50 W class-D digital input power amplifier with I ² C diagnostics
FDA801B	4 x 50 W class-D digital input power amplifier with I ² C diagnostics and digital impedance meter (DIM)
FDA4100LV	4 x 135 W PWM digital input power amplifier with I ² C diagnostics and step-up driver
FDA450LV	4 x 50 W PWM digital input power amplifier with built-in diagnostics features
FDA2100BLV	2 x 180 W / 1 x 300 W PWM digital input power amplifier with built-in diagnostics features and step-up driver
FDA802	2 x 125 W class-D digital input power amplifier with I ² C diagnostics, 50V operation
FDA802B	2 x 125 W class-D digital input power amplifier with I ² C diagnostics, 50V operation and DIM
FDA803D	1 x 45 W class-D digital input power amplifier with I ² C diagnostics, for car audio and telematics
FDA901	4 x 50 W class-D digital input power amplifier with I ² C diagnostics, DIM and load current monitor *
FDA903D	1 x 45 W class-D digital input power amplifier with I ² C diagnostics load current monitor for car audio and telematics

*coming soon



© STMicroelectronics - May 2018 - Printed in United Kingdom - All rights reserved
The STMicroelectronics corporate logo is a registered trademark of the STMicroelectronics group of companies
All other names are the property of their respective owners

