

FDA801 and FDA801B

Full digital audio amplifiers for car infotainment systems



The power and the robustness of Full Digital Amplification

FDA801 and FDA801B are two new class-D audio amplifiers with a digital input designed for automotive applications. Their superb efficiency, start-stop compliance, reliable and complete diagnostics, in addition to the use of ST's innovative feedback concept, make them the perfect amplifiers for high-performance infotainment systems.

The FDA801B is the first amplifier designed for use in automotive applications able to measure both load impedance and phase and deliver the highest load detection accuracy.

KEY FEATURES

- Class-D efficiency, above 90%
- Very high output power capability
- I²S or TDM digital input
- 6 V operation
- Low-pass output filter included in the feedback loop
- I²C flexible diagnostics
- Full fault protection
- 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

KEY APPLICATIONS

- Head units
- Sound systems
- Boosters

KEY BENEFITS

- High noise-injection immunity thanks to the digital input
- No need for digital-to-analog converter and input filters
- Extremely low power dissipation
- No need for external solutions to play music during cranks with start-stop engines
- Feedback loop helps to reduce radiated emissions, allowing the use of a very low cost and small size output filter and guaranteeing a flat frequency response independent from the load
- The DIM recognizes the load impedance and allows a very accurate diagnostics with any load



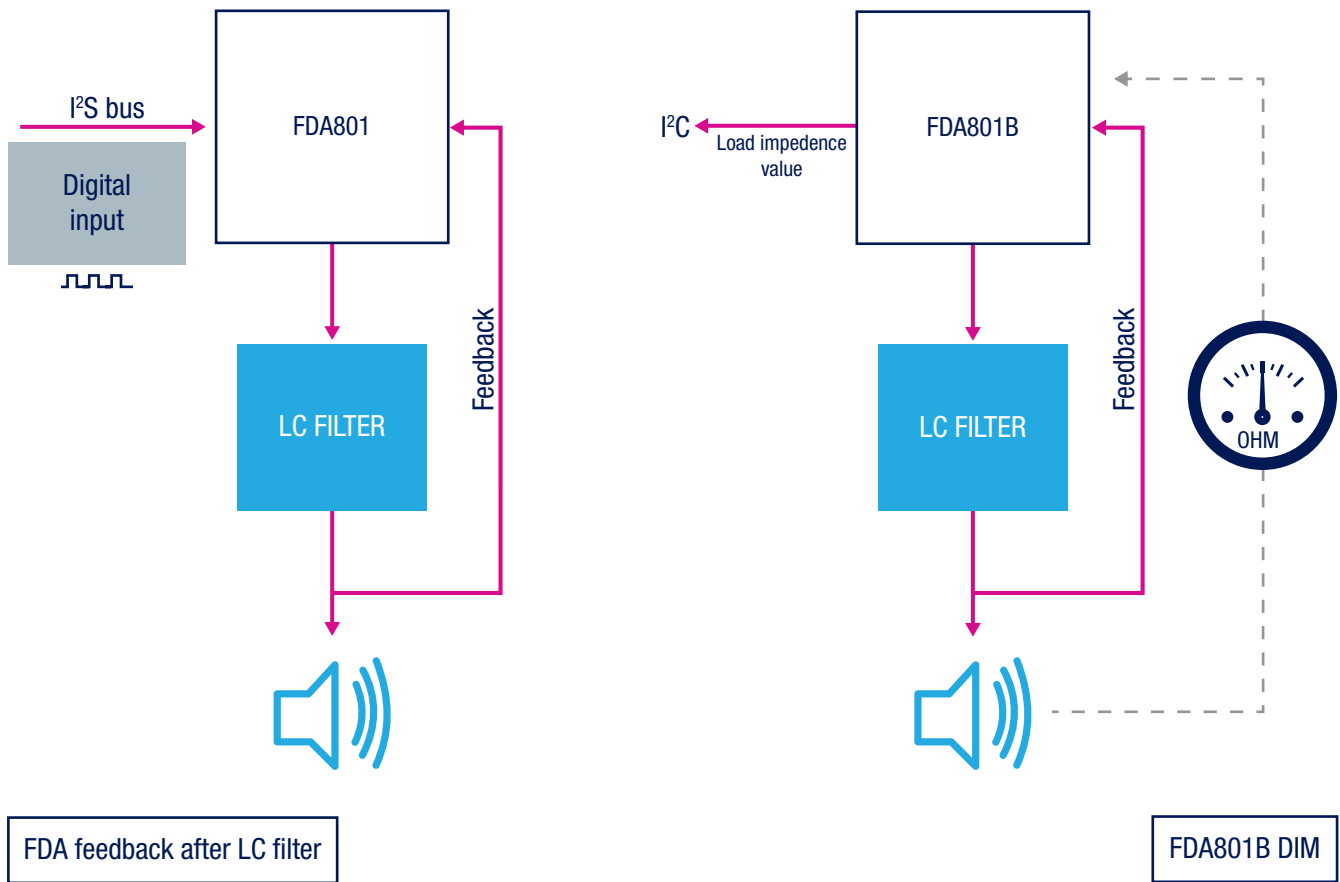
FDA PRODUCT FAMILY

FDA801 and FDA801B are the latest high-power digital-input class-D audio amplifiers, designed for automotive applications. They enhance ST's class-D audio power amplifier family that already includes two 4-channel amplifiers (FDA4100LV and FDA450LV) and a 2-channel amplifier (FDA2100LV), the first products of this kind on the market. Thanks to a digital input, our full digital amplifiers (FDA) save 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 amplifiers comply with international EMI standards, allows the use of less expensive LC filters makes diagnostics very precise and reliable and improves the amplifier frequency response and sound quality, independently of the load. FDA801 and FDA801B amplifiers further reduce the dissipated power with an

efficiency higher than 90%, allowing for very precise and reliable diagnostics. FDA801B embeds an innovative feature allowing it to directly measure the load impedance, thus making load diagnostic routines absolutely reliable and simple with every kind of speaker connection.

FDA801B'S INNOVATIVE LOAD IMPEDANCE MEASUREMENT FEATURE



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
FDA2100LV	2 x 180 W / 1 x 300 W PWM digital input power amplifier with built-in diagnostics features and step-up driver



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