

P3767A

STMicroelectronics' New Digital Power Amplifiers for Car Audio Deliver Cleaner Sound and Simplify System Design

- *Second-generation digital audio amplifiers coming to market after world first in 2012, bringing increased performance*
- *New components simplify system design and lower cost for car-radio suppliers while delivering purer, clearer sound to drivers and passengers*

Geneva, December 21, 2015 – STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, is extending its lead in digital automotive-audio technologies by launching a second generation of power amplifiers that simplify design for car-radio system suppliers and deliver better listening experiences to drivers and passengers - even in smaller cars.

ST's new, second-generation [FDA801](#) and [FDA801B](#) 4-channel class-D¹ amplifiers with digital input convert the digital audio source directly into high-quality, cabin-filling sound. The digital input gives immunity to GSM noise, improves sound quality, saves component costs, and simplifies system design. ST introduced the world's first class-D digital-input automotive-audio amplifiers in 2012, and is now moving forward with its new and improved second generation that will be soon completed with pin-compatible ICs in various multi-channel configurations.

“Class-D amplifiers are revolutionizing in-car audio throughout the marketplace, from audiophile systems in prestige vehicles to affordable, high-quality sound in smaller cars,” said Alfio Russo, Group VP, General Manager Audio & Body Division, Automotive Product Group, STMicroelectronics. “ST continues to drive the pace of development, with these new chips setting even more advanced performance and efficiency benchmarks for the industry.”

¹ Class-D amplifier: unlike a conventional audio power amplifier (class AB), the output power transistors in a class-D unit are turned either fully on or fully off by a pulse signal representative of the input audio signal. Transistor power losses when on or off are much lower than when turned partially on as in class AB operation, giving the class-D amplifier a significant efficiency advantage as well as reducing heat dissipation. After amplification the signal is filtered to produce an accurate audio waveform for driving the speaker.

ST's new power amplifiers combine superior audio quality and increased energy efficiency, as well as the unique real-time measurement of speaker impedance via the new Digital Impedance Meter (FDA801B), which represents a quantum leap in automotive diagnostics compared to any other audio amplifier.

Key to these enhancements is ST's advanced fabrication process, BCD9s, which minimizes interference between circuits on the chip, lowers standby-power consumption, and cuts power-transistor dissipation raising efficiency to more than 93%.

By dissipating less power, the FDA801/B can help boost fuel economy in conventional vehicles and extend the driving range of hybrids or battery EVs. Like their predecessors, ST's new amplifiers are compatible with fuel-saving start-stop technology, maintaining uninterrupted playback when the vehicle battery voltage dips as the engine is restarted.

The [FDA801](#) and [FDA801B](#) are available immediately in the LQFP64 Exposed Pad Up package that allows efficient heatsink attachment. Pricing, for high volumes only, is available on request.

Key Technical Features:

- 115dB Signal to Noise Ratio (SNR); 110dB dynamic range
- Simplified digital input eliminates external DAC (Digital to Analog Converter) and external decoupling capacitor, thereby avoiding potential DC-offset problems
- More than 40% power saving compared to standard class-D amplifiers
- Digital Impedance Meter (DIM, in FDA801B) automatically recognizes magnitude and phase of the connected speaker and communicates it by digital bus (I²C)
- Internal 24-bit DAC conversion and very low noise in line-driver and amplifier modes ensure superior audio performance
- On-demand advanced diagnostics allows each channel to independently perform AC or DC diagnostics with configurable parameters
- Ability to drive loads down to 1 ohm gives designers complete flexibility to specify preferred speakers

Technical Note:

In addition to simplifying circuit design, the digital input and external feedback topology make the amplifier's frequency response independent of the load impedance and output-filter design. This allows easy scaling to create multiple product variants based on a common platform, without requiring detailed redesign of the amplifier. Unlike analog-input class-D amplifiers, the FDA801/B can be used in head units as well as booster amps thanks to superior noise immunity, lower switching interference, and lower power dissipation that permits smaller heatsinks.

About STMicroelectronics

ST is a global semiconductor leader delivering intelligent and energy-efficient products and solutions that power the electronics at the heart of everyday life. ST's products are found everywhere today, and together with our customers, we are enabling smarter driving and smarter factories, cities and homes, along with the next generation of mobile and Internet of Things devices.

By getting more from technology to get more from life, ST stands for life.augmented.

In 2014, the Company's net revenues were \$7.40 billion, serving more than 100,000 customers worldwide. Further information can be found at www.st.com.

For Press Information Contact:

Michael Markowitz
Director Technical Media Relations
STMicroelectronics
Tel: +1 781 591 0354
Email: michael.markowitz@st.com