



**THE DATASHEET OF  
TDF8530TH/N2,118**





## NXP quad-channel Class-D audio amplifier TDF8530TH

# Award-winning 4-channel Class-D amplifier for seamless audio in hybrid cars

Winner of the CEM Yearly Choice Award for “Most Competitive Automotive Electronics Product,” this ultra-efficient device supports 6 V stop-start applications and delivers audiophile sound quality.

### KEY FEATURES

- ▶ Outstanding sound performance confirmed by customer feedback
  - Harmonics
  - THD
  - Plop
  - Noise level
  - Frequency range
- ▶ Energy efficiency and start-stop support
  - Ultra-efficient 4-channel Class-D amplifier
    - Output power: 4 x 70 W
    - Supply voltage: 6 to 24 V
  - Uninterrupted sound experience in cars with start-stop systems
  - Low operating voltage: down to 6 V
- ▶ Protection and diagnostics for automotive robustness
  - Thermal fold-back in hardware for optimal sound under maximum power conditions
  - Protection against slamming a door or the trunk lid

- Full range of diagnostics increases quality, reduces yield loss, and lowers screening costs
- ▶ AEC-Q100 ensuring automotive quality
- ▶ Small HSOP44 package (SOT1131-1)

### ADVANCED CLOCKING FOR EMC ROBUSTNESS:

- ▶ Switchable oscillator clock source: internal for Master mode or external for Slave mode
- ▶ Spread spectrum mode
- ▶ Phase staggering
- ▶ Frequency hopping

### APPLICATIONS

- ▶ Automotive head-unit radio
- ▶ Automotive sound systems



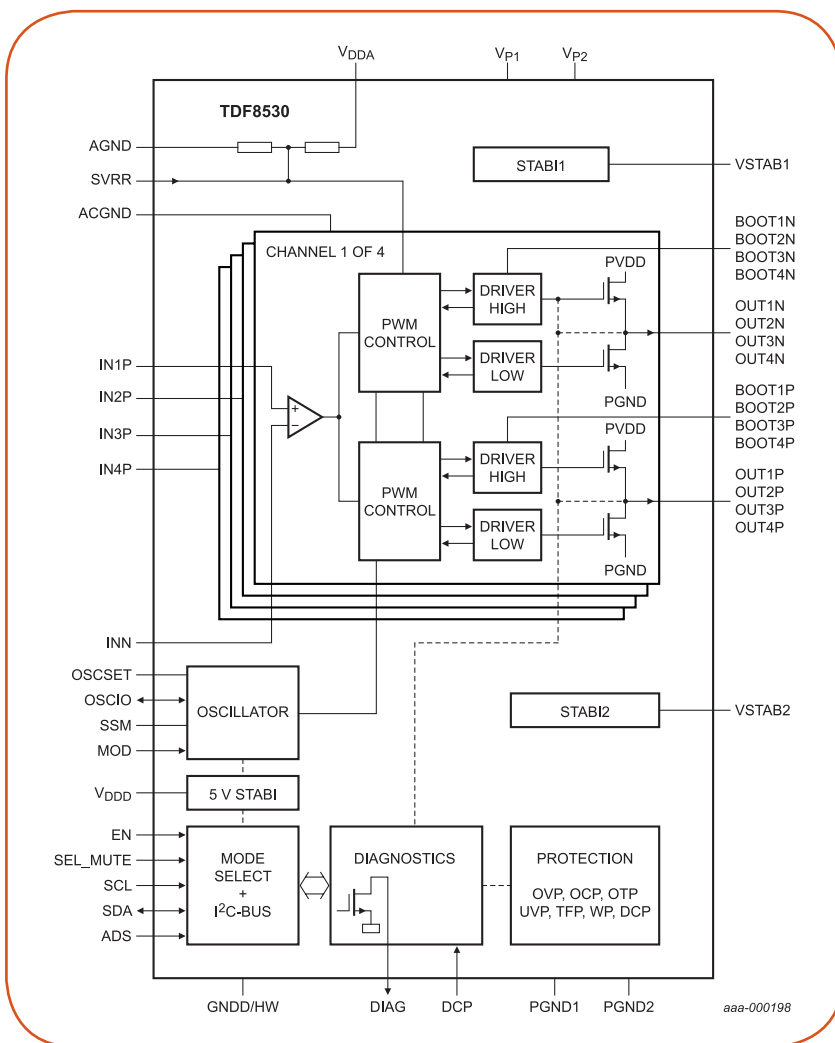
NXP's highly integrated, high-performance Class-D amplifiers for automotive applications bring concert-quality sound to in-car entertainment systems.

The TDF8530, one of the latest additions to NXP's portfolio, is an ultra-efficient, quad-channel Class-D audio amplifier that supports the 6 V requirement for start-stop vehicles. It enables a rich, seamless audio experience in hybrid electric vehicles, micro-hybrids, mild hybrids, and other energy-saving vehicles that use start-stop systems.

The TDF8530 is optimized for use in the head-unit radio and in sound-system platforms. It also supports new applications, such as ambient sound systems, which generate engine sounds in electric vehicles, and active noise-cancellation systems.

The TDF8530 is an ultra-efficient device, generating 70 W per channel at the maximum supply voltage of 24 V. It delivers optimal sound under maximum power conditions, offers outstanding EMC performance, and uses a thermal fold-back, integrated in hardware, to protect the device from overheating.

A full range of diagnostics and protections ensure full robustness in the harsh automotive environment. Controlled by the I<sup>2</sup>C bus, the diagnostics cover familiar functions such as speaker protection, clip detection, and AC load tweeter detection, and also include unique features for start-up functions.



**Block diagram**

[www.nxp.com](http://www.nxp.com)

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Date of release: April 2013

Document order number: 9397 750 17410

Printed in the Netherlands

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