



NXP dual-channel high power Class-D amplifiers TDF859x for automotive

Studio quality sound for the new era of driver experiences

Operating with a maximum output power of 145 W, these highly dynamic stereo Class-D amplifiers for in-car entertainment deliver a superior audio experience, while increasing energy efficiency and lowering the temperature.

KEY FEATURES

- ▶ Leading sound performance
 - No pop noise from DC offset voltage
 - Suitable for 1 to 8 Ω speakers
 - Differential inputs for reduced noise
- ▶ Very high efficiency
 - TDF8599A: supply voltage = 8 V to 35 V, max stereo output = 135 W / 4 Ω
 - TDF8599B: supply voltage = 8 V to 24 V, max stereo output = 70 W / 4 Ω
 - TDF8597: supply voltage = 6 V - 24 V, max stereo output = 100 W / 2 Ohm
 - TDF8599C: supply voltage = 8 V to 48 V, max stereo output = 145 W / 8 Ω
 - Spread spectrum
- ▶ Best EMI performance
 - Phase staggering
 - BD modulation
 - Frequency hopping

- ▶ Ultra-efficient operation
 - Low quiescent current per channel
- ▶ Control and diagnostic functions
 - I²C-bus clip detection
 - Hardware-controlled thermal foldback and protection
- ▶ AEC-Q100 qualified
- ▶ Small HSOP36 package (SOT851-2)

TARGET APPLICATIONS

- ▶ Automotive head units
- ▶ Automotive sound systems



These dual-channel Class-D amplifiers deliver the very high level of sound quality required by today's advanced in-car entertainment systems. In stereo mode, with a maximum supply voltage of 48 V, the maximum output power is up to 145 W. In mono mode, the amplifier can go even higher (up to 250 W), to support applications such as high-end subwoofer systems.

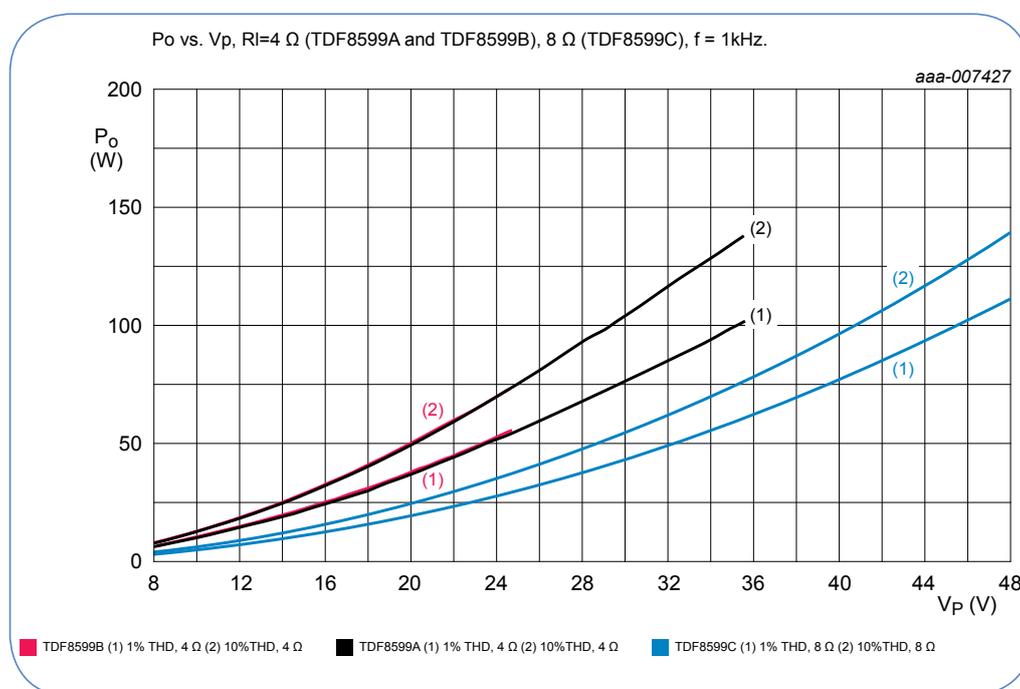
The increased energy efficiency of these amplifiers means heat dissipation can be reduced significantly when driving at high output powers.

All amplifiers are produced in Silicon-On-Insulator (SOI) BCD MOS technology and, as a result, deliver superior EMC performance and minimize interference levels.

All amplifier are fully qualified according to the automotive quality standard AEC -Q100 and available in a small space saving HSOP36 package.

As with all of NXP's automotive amplifiers, all devices are controlled via the I²C-bus. This enables smart diagnostics for assembly, service, and general operating functions. During system assembly, for example, connections can be checked to ensure that all connectors and speakers are properly connected. The diagnostics can also be used during fault analysis, when the audio application is serviced, to identify problems such as a disconnected tweeter or a short to ground. During normal operations, the diagnostics can be used to avoid overstress and/or damage.

OUTPUT POWER VERSUS SUPPLY VOLTAGE



SELECTION GUIDE

Product number	Channels	Supply voltage	Load dump	Maximum output power (stereo)	I ² C	Watchdog timer	Package
TDA8599ATH	2	8 to 35 V	50 V	135 W	Yes	Yes	HSOP36
TDA8599BTH	2	8 to 24 V	50 V	70 W	Yes	Yes	HSOP36
TDF8599CTH	2	8 to 48 V	50 V	145 W	Yes	Yes	HSOP36
TDF8597TH	2	6 to 24 V	50 V	100 W	Yes	Yes	HSOP36