High-efficiency – Intelligent adaptive boost mechanisms which enable boost and track audio signal

FEATURES AND BENEFITS

- High output power with 10V boost voltage
  - 5.6 W with 8 ohm load
  - 6.2 W with 4 ohm load
- Best-in-class efficiency
  - 91% peak efficiency for 600 mW sinewave
- Exceptional power efficiency enables highest capability and dynamic range
  - Up to 112dB on 8 ohm speaker
- Small package size
  - 2.51 mm x 3.55 mm x 0.525 mm
- Easy routing pinning support
  - One layer PCB possible layout design
- Audio enhancement and speaker protection algorithm
  - SpeakerBoost 2.0 algorithm embedded for drums and audio quality improvement

EFF VS PWR

TFA9894D is a high efficiency 10 V boosted Class-D audio amplifier with a sophisticated SpeakerBoost and protection algorithm, delivering up to 5.6 W (AVG) output power into an 8 Ω speaker, and up to 6.2 W (AVG) output power into 4 Ω speaker at a battery supply voltage of 4 V.
KEY SPECIFICATIONS

- SPK Class-D
  - 5.6 W with 8 ohm load (THD <1%;
    \( V_{BAT} = 4 \text{ V} \))
  - 6.2 W with 4 ohm load (THD <1%;
    \( V_{BAT} = 4 \text{ V} \))
  - 14 uVrms noise floor
  - 91% peak efficiency for 600 mW sine wave
- Four TDM/I2S I/O pins
  - Support for 8 slots
  - Input for main audio stream
  - Input for selected secondary audio stream
- Multiple sample rate support
  - 16 k/32 k/44.1 k/48 kHz sample rate support
- MCU platform digital I/O support
  - 3.3 V digital I/O required
- SpeakerBoost 2.0 Integrated
- NXP® audio software suite
- Enhanced battery safeguard

COMPETITION — WEAKER DRUMS REPRODUCTION

- Attack – less impact
- Early reverb – less bass due to protection limiter
- Early reverb – more background noise

TFA9894 — IMPROVED DRUMS REPRODUCTION

- Attack – sharper, more impact
- Early reverb – more bass
- Early reverb – less background noise