

# Low EMI, Ultra-Low Distortion, 2.5-W Mono Filterless Class-D Audio Power Amplifier

## DESCRIPTION

The EUA2032 is a high efficiency, 2.5W mono class-D audio power amplifier. A new developed filterless PWM modulation architecture further reduces EMI and THD+N, as well as eliminates the LC output filter, reducing external component count, system cost, and simplifying design.

Operating in a single 5V supply, EUA2032 is capable of driving 4Ω speaker load at a continuous average output of 2.5W/10% THD+N or 2W/1% THD+N. The EUA2032 has high efficiency with speaker load compared to a typical class AB amplifier. With a 3.6V supply driving an 8Ω speaker, the efficiency for a 400mW power level is 84%.

In cellular handsets, the earpiece, speaker phone, and melody ringer can each be driven by the EUA2032. The gain of EUA2032 is externally configurable which allows independent gain control from multiple sources by summing signals from separate sources.

The EUA2032 is available in space-saving WCSP and TDFN packages.

## FEATURES

- Unique Modulation Scheme Reduces EMI Emissions
- Efficiency at 3.6V With an 8-Ω Speaker:
  - 84% at 400 mW
- Low 2.4-mA Quiescent Current and 0.5-μA Shutdown Current
- 2.5V to 5.5V Wide Supply Voltage
- Ultra-Low Distortion - 0.07% THD+N at 1W and 8-Ω Load
- Shutdown Pin Compatible with 1.8V Logic GPIO
- Improved PSRR (-72 dB) Eliminates Need for a Voltage Regulator
- Fully Differential Design Reduces RF Rectification and Eliminates Bypass Capacitor
- Improved CMRR Eliminates Two Input Coupling Capacitors
- Internally Generated 250-kHz Switching Frequency
- Integrated Pop and Click Suppression Circuitry
- 1.5mm × 1.5mm Wafer Chip Scale Package (WCSP)
- 3mm × 3mm TDFN-8 Package
- RoHS compliant and 100% lead(Pb)-free

## APPLICATIONS

- Ideal for Wireless or cellular Handsets and PDAs

## Typical Application Circuit

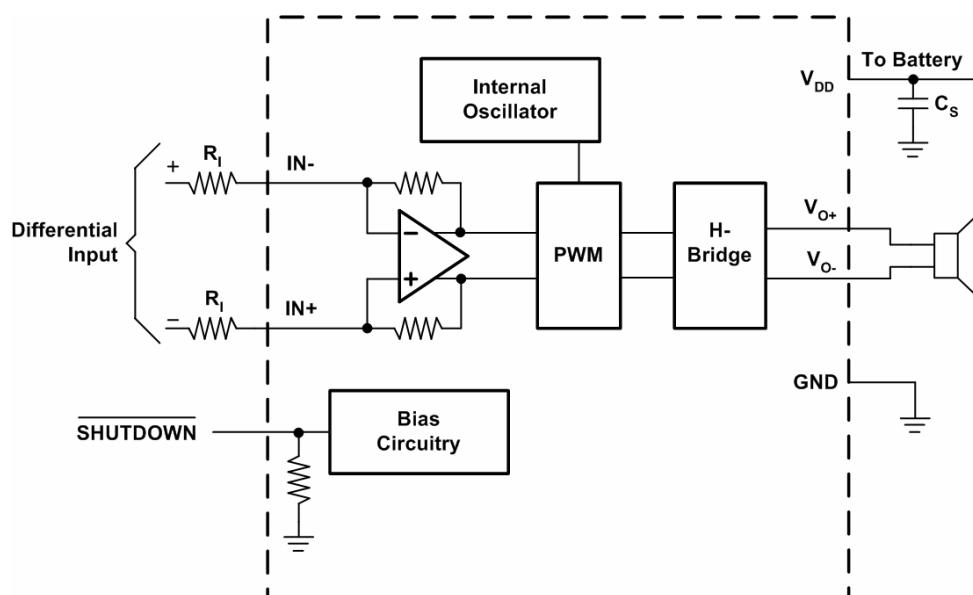


Figure1.