



## Single-Supply Capless 2Vrms Headphone and Line-Out Amplifier

The AK4201 is a low cost stereo headphone amplifier with an integrated charge pump. The charge pump creates a negative power supply that enables a ground-referenced output, eliminating the need for large ac-coupling capacitors, saving board space and cost. Line output is 2Vrms, while the headphone amp can deliver up to 65mW into 16Ω. The AK4201 has greater than 100dB power-supply rejection ratio (PSRR), enabled by an integrated regulator. The AK4201 delivers a wide dynamic range while preserving linearity for improved THD+N performance. The AK4201 is available in a tiny USON package (2.2mm × 2.9mm), requiring minimal board space.

### FEATURES

- Capless architecture
  - Ground-referenced outputs
  - No DC-blocking capacitors required
- High PSRR
  - >100dB at 1kHz
  - Integrated regulators
- Low output noise: 11μVrms
- Excellent THD+N:
  - -100dB, 1kΩ load,  $V_o = 2V_{rms}$
  - -0.1%, 16Ω load,  $P_o = 50mW$ ,  $V_{DD} = 5V$
  - -0.1%, 16Ω load,  $P_o = 20mW$ ,  $V_{DD} = 3.3V$
- Adjustable gain range: ±16dB
- Power supply: +2.6V to +3.6V or 5.0V ±10%
- Low  $I_q$ : 4.8mA
- Power down mode: <0.1μA
- Tiny package
  - 12-pin USON
  - 2.2mm x 2.9mm, 0.5mm pitch

### APPLICATIONS

- Notebook computers
- Portable media players
- Mobile phones
- TV headphone driver

### BENEFITS

- Functions as either headphone or line amplifier
- Ground-referenced outputs eliminate coupling capacitors
- No power-on pop noise
- Excellent PSRR allows for high fidelity in noisy environments
- Tiny package and low power ideal for battery-powered applications

