



AK4375A

Low-Power Advanced 32-bit DAC with HP/SRC

1. General Description

The AK4375A is a stereo advanced 32-bit high sound quality audio DAC with a built-in ground-referenced headphone amplifier. An internal circuit is newly developed 32-bit digital filters for better sound quality, achieving low distortion characteristics and wide dynamic range. The AK4375A also has a jitter cleaner with a built-in SRC and a X'tal. The AK4375A is available in a 36-pin CSP package, utilizing less board space than competitive offerings.

2. Features

1. Stereo High Sound Quality Low Power Advanced 32-bit DAC
 - 4 types of Digital Filter for Sound Color Selection
2. Ground-referenced Class-G Stereo Headphone-Amp
 - Output Power: 25mW @ 32Ω, 40mW @ 16Ω, THD+N = 0.1%
 - S/(N+D): 99dB
 - S/N: 110dB
 - Output Noise Level: -119dBV (Analog Volume ≤ -14dB)
 - Analog Volume: +6 ~ -40dB & Mute, 2dB Step
 - Ground Loop Noise Cancellation
3. Digital Audio interface
 - Master / Slave Mode
 - Sampling Frequency:
 - Slave Mode: 8k, 11.025k, 12k, 16k, 22.05k, 24k, 32k, 44.1k, 48k, 64k, 88.2k, 96k, 128k, 176.4k, 192kHz
 - Master Mode: 8k, 11.025k, 12k, 16k, 22.05k, 24k, 32k, 44.1k, 48k, 64k, 88.2k, 96k, 176.4k, 192kHz
 - Interface Format: 32/24/16-bit I²S/MSB justified
4. Asynchronous Sample Rate Converter:
 - Up sample: up to ×6
 - Down sample: down to ×1/6
 - 4 types of Digital Filter for Sound Color Selection
5. Power Management
6. PLL
7. Jitter Cleaner with a built-in SRC and X'tal Oscillator
8. μP I/F: I²C(400kHz)
9. Operation Temperature Range: Ta = -40 ~ 85°C
10. Power Supply:
 - AVDD (DAC, PLL): 1.7 to 1.9V
 - CVDD (HP-Amp, Charge Pump): 1.7 to 1.9V
 - LVDD (LDO2 for Digital Core): 1.7 to 1.9V (built-in LDO)
 - TVDD (Audio I/F): 1.65 to 3.6V
11. AK4375 Register / Pin Compatible
12. Package: 36-pin CSP (2.371 × 2.623mm, 0.4mm pitch)

3. Block Diagram and Functions

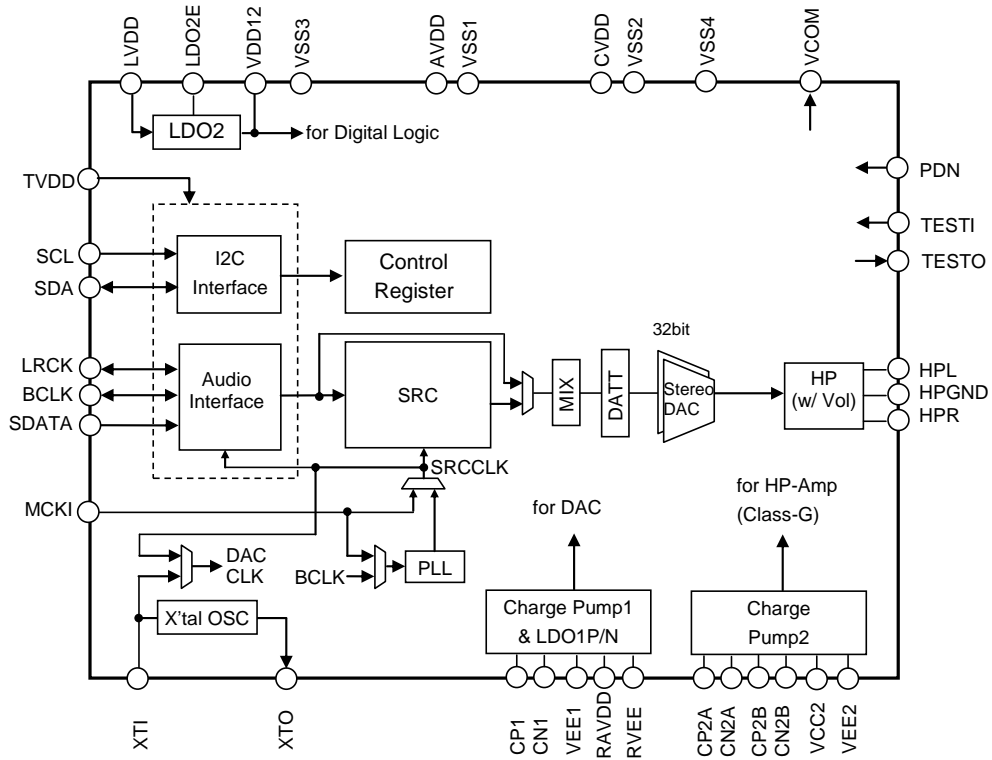


Figure 1. AK4375A Block Diagram

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