



### AUDIO DACs AND CODECS

### FOR BATTERY-POWERED APPLICATIONS

Wolfson's new family of audio ICs for portable applications offers highly integrated, DSP independent solutions that deliver CD quality sound at very low power consumption. The family includes a full audio codec, WM8731, and two DACs, WM8711 and WM8721. All three devices incorporate a powerful headphone amplifier whose output volume can be digitally controlled. Each IC is available as a standard or low voltage part, operating at supply voltages down to 1.42V (digital) and 1.8V (analogue).

Using a unique USB clocking scheme, these ICs can generate 44.1kHz, 48kHz, 96kHz and other commonly used sample rates directly from a 12 or 24MHz clock, eliminating the need for a PLL in applications such as MP3 players. The WM8711 and WM8731 are pin-compatible and feature an on-chip clock oscillator to supply the system clock.

Wolfson's portable audio ICs have a very flexible audio interface which can interface to any industry standard DSP or other digital audio chip, thereby providing designers with a higher degree of flexibility.

### product benefits



long battery life



cd sound quality



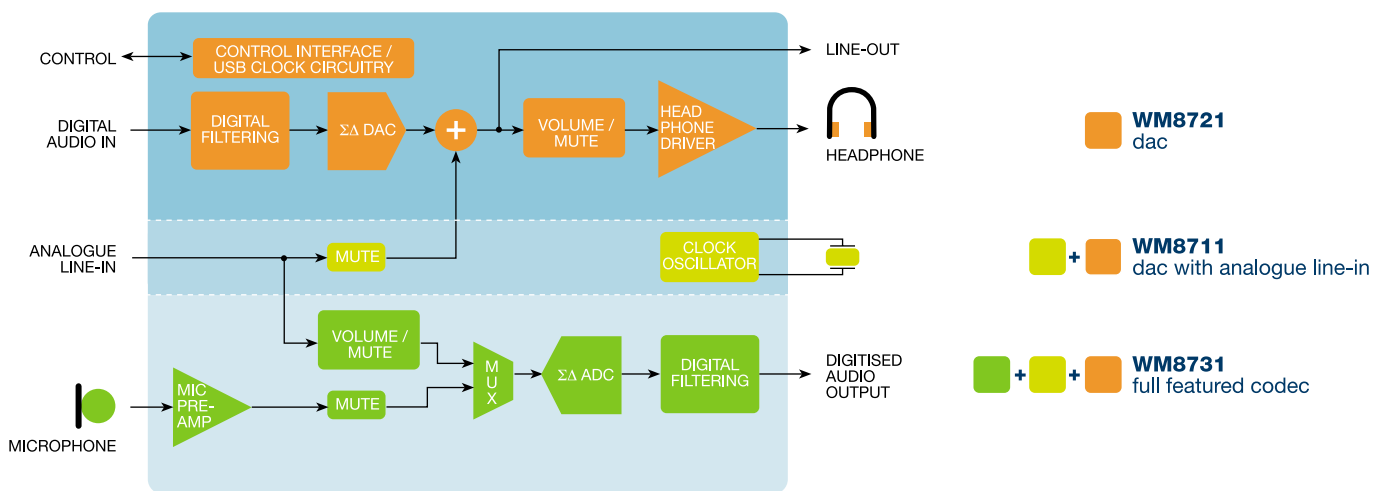
powerful headphone amplifier



highly integrated solution



dsp independent



| device                  | WM8721       | WM8721L           | WM8711       | WM8711L           | WM8731       | WM8731L             |
|-------------------------|--------------|-------------------|--------------|-------------------|--------------|---------------------|
| device type             | dac          | dac (low voltage) | dac          | dac (low voltage) | codec        | codec (low voltage) |
| digital supply voltage  | 1.42V – 3.6V | 1.42V – 3.6V      | 1.42V – 3.6V | 1.42V – 3.6V      | 1.42V – 3.6V | 1.42V – 3.6V        |
| analogue supply voltage | 2.7V – 3.6V  | 1.8V – 3.6V       | 2.7V – 3.6V  | 1.8V – 3.6V       | 2.7V – 3.6V  | 1.8V – 3.6V         |
| analogue line-in        | no           | no                | yes          | yes               | yes          | yes                 |
| microphone input        | no           | no                | no           | no                | yes          | yes                 |
| on-chip clock generator | no           | no                | yes          | yes               | yes          | yes                 |
| package                 | 20-pin SSOP  | 20-pin SSOP       | 28-pin SSOP  | 28-pin SSOP       | 28-pin SSOP  | 28-pin SSOP         |

### product features

- > cd quality audio performance
  - » dac 100dB snr, 88dB thd ('A' weighted @ 48kHz)
  - » adc 97dB snr, 85dB thd (WM8731 only)
- > independent stereo line and headphone outputs
  - » headphone output power: 40mW on 16Ω load
  - » volume and mute controls
- > low supply voltage
  - » 1.42 – 3.6V digital supply
  - » 1.8 – 3.6V analogue supply for low-voltage parts
  - » 2.7 – 3.6V analogue supply for standard parts
- > very low power
  - » playback only: 9mW @ 1.8V, 18mW @ 3.3V
  - » simultaneous playback & record: 18mW @ 1.8V, 36mW @ 3.3V
  - » standby: 30μW
- > programmable sample rates :: 8, 32, 44.1, 48, 88.2, 96kHz
- > on-chip clock generator (WM8711 and WM8731 only)
- > programmable audio data interface
  - » i<sup>2</sup>s, left/right justified or dsp modes
  - » 16/20/24/32-bit word lengths
  - » master or slave clocking mode
- > 2 or 3-wire serial control interface
- > temperature range :: -10°C to +70°C



### ordering information

| part number | voltage supply | standard pack quantity | package |
|-------------|----------------|------------------------|---------|
| WM8711EDS   | standard       | 47                     | SSOP-28 |
| WM8711LEDS  | low            | 47                     | SSOP-28 |
| WM8721EDS   | standard       | 66                     | SSOP-20 |
| WM8721LEDS  | low            | 66                     | SSOP-20 |
| WM8731EDS   | standard       | 47                     | SSOP-28 |
| WM8731LEDS  | low            | 47                     | SSOP-28 |

### product applications

- > mp3 players and recorders
- > mobile information devices
- > palmtops
- > web browsers
- > mobile phones with mp3
- > digital camcorders and cameras
- > usb headsets
- >> all battery powered systems incorporating digital audio

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