

# WM9081

## Mono DAC with integrated 2.6W Class AB/D speaker amplifier

### GET BIG SOUND FROM SMALL SPEAKERS WITH WOLFSON'S INNOVATIVE RETUNE™ MOBILE PARAMETRIC EQUALISER.

The WM9081 is a mono DAC with an integrated, high efficiency, switchable Class AB/D speaker amplifier, capable of delivering up to 2.6W into a 4Ω load. It is ideal for providing optimum sound pressure levels (SPL) from low cost speakers in applications such as portable navigation devices. Compared to a commonly used fab chip solution of DAC and Class D amplifier, WM9081 consumes 30% less PCB area and achieves 20% BOM reduction.

Additionally, the combination of package size, digital audio interface and integrated speaker amplifier in WM9081 give the system designer several advantages in terms of noise reduction. The I<sup>2</sup>S audio interface removes the need to route noise susceptible analog audio signals across a potentially noisy PCB. The WM9081 can be placed very close to the speaker connectors, minimising the Class D track lengths which carry noisy high frequency switching currents.

#### TARGET APPLICATIONS

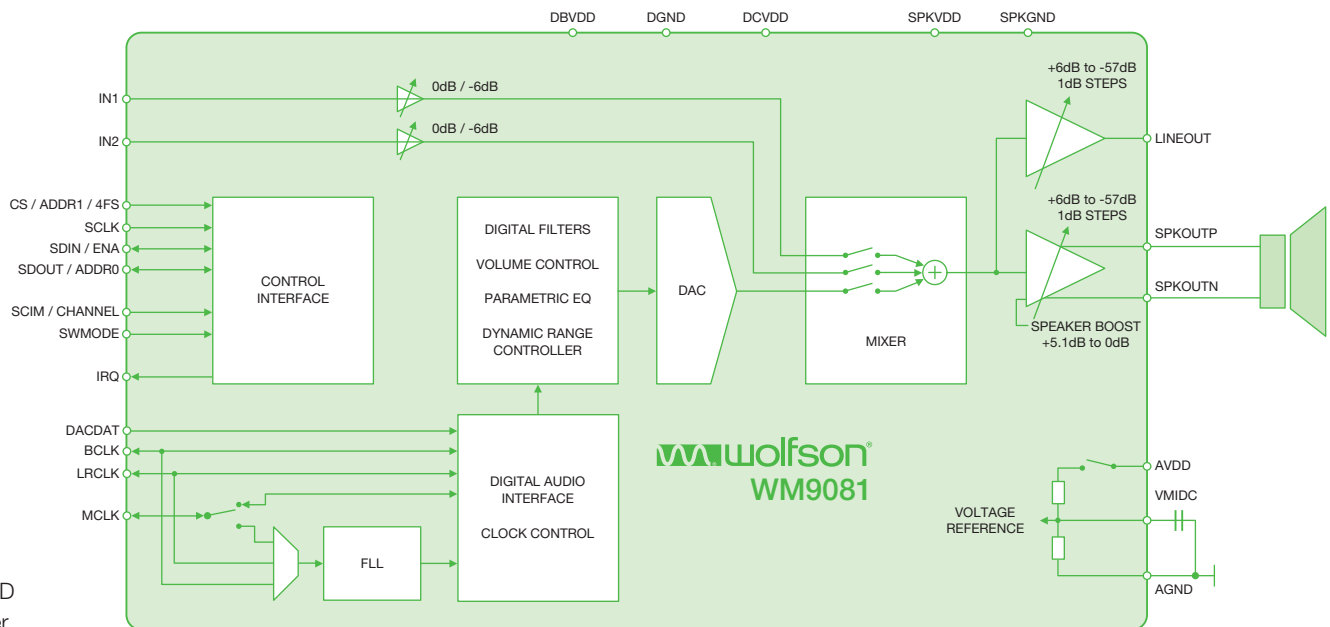


- ▶ Portable navigation systems
- ▶ Mobile handsets
- ▶ Speaker phone systems
- ▶ Multimedia accessories
- ▶ Digital radios

#### PRODUCT BENEFITS

- ▶ High performance audio, delivers optimum sound pressure levels (SPL), from low cost speaker applications
- ▶ Programmable dynamic range control boosts low-level signals to maximise volume for improved intelligibility
- ▶ ReTune™ Mobile Parametric Equaliser enables end user defined music profiles
- ▶ Signal limiter to prevent speaker damage from signal clipping and distortion
- ▶ Integrated register write sequencer to minimise software development time

▶ **WM9081**  
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with integrated  
2.6W Class AB/D  
speaker amplifier



## Mono DAC with integrated 2.6W Class AB/D speaker amplifier

## PRODUCT FEATURES

▲ Mono I<sup>2</sup>S 24bit DAC with integrated mono 2.6W Class AB/D speaker amp

▲ Exceptional audio performance 92dB SNR, 1% THD @ 2.4W

▲ Fully parametric 5 band equaliser

▲ Output limiter and dynamic range controller

▲ Auxiliary analogue inputs and mono line output

▲ Integrated FLL for flexible clocking, supports 8kHz – 27MHz range

▲ 75dB PSRR @ 217Hz on SPKVDD for optimal noise rejection

▲ Sample rates 8kHz – 96kHz

▲ 2/3 wire software control and hardware control modes

## EXCEPTIONAL AUDIO PERFORMANCE

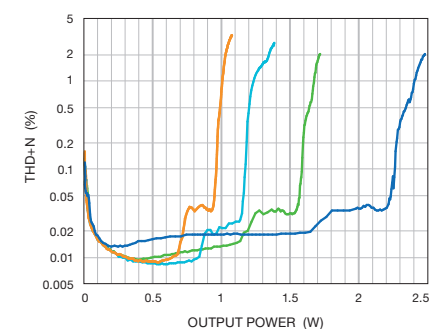
WM9081 provides Wolfson's brand renowned high performance audio, with 92dB SNR in Class D mode and 1% THD+N @ 2.4W output power levels into 4Ω speaker loads, so designers of portable systems do not need to sacrifice on audio performance when seeking maximum output power.

## DIGITALLY OPTIMISED SYSTEM PERFORMANCE

The WM9081 integrates a five-band ReTune™ Mobile Parametric Equaliser with fully programmable coefficients for optimisation of speaker characteristics and speaker frequency response compensation, allowing the end user to define music profiles. Programmable dynamic range control is integrated to help boost low-level signals to maximise volume for improved intelligibility. The WM9081 also features a dynamic range controller (DRC) and limiter. The limiter prevents the audio signal from clipping and causing audible distortion, overloading the battery and potentially damaging the speakers. Whilst the DRC automatically boosts low level signals to maximize volume for improved intelligibility.

## INTEGRATED REGISTER WRITE SEQUENCER

Software development time can be minimised through the use of an integrated register write sequencer. A number of signal paths (such as DAC to speaker mode) can be easily enabled and disabled by just one register write. The internal sequencer manages this by initiating a sequence of pre-programmed multiple writes independently within the WM9081, minimising control interface communication between the processor and WM9081.

EXCEPTIONAL THD+N PERFORMANCE  
SPK THD+N RATIO VS POUT 4Ω

- SPKVDD = 5.0V, AVDD = 3.3V, DCGAIN / ACGAIN = 3.6dB
- SPKVDD = 4.2V, AVDD = 3.3V, DCGAIN / ACGAIN = 2.1dB
- SPKVDD = 3.7V, AVDD = 3.0V, DCGAIN / ACGAIN = 2.1dB
- SPKVDD = 3.3V, AVDD = 3.3V, DCGAIN / ACGAIN = 0dB

## WISCE™ DEVELOPMENT ENVIRONMENT AND EVALUATION TOOLS

For engineers who want to configure all the options on WM9081, a full evaluation system is available. This includes an evaluation board and full schematics, Linux driver and WISCE™ (Wolfson Interactive Set-up Configuration Environment). WISCE™ is a downloadable software GUI, which allows the developer to make real time modifications to an interactive version of the register map and modify the device configuration, whilst developing software settings.

## CONTACT DETAILS

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For more information please visit  
[www.wolfsonmicro.com](http://www.wolfsonmicro.com)

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