

## Product brief

# IM69D130

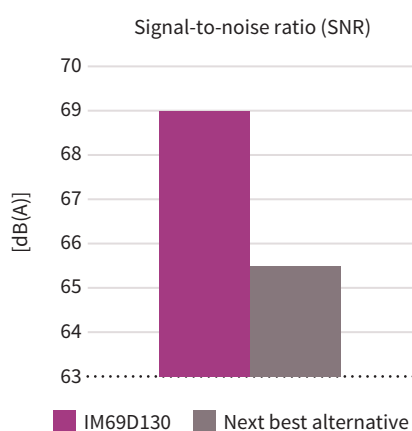
High performance MEMS microphone with 69 dB(A) SNR and lowest distortion

The IM69D130 is designed for applications where low self-noise (high SNR), wide dynamic range, low distortion and a high acoustic overload point is required.

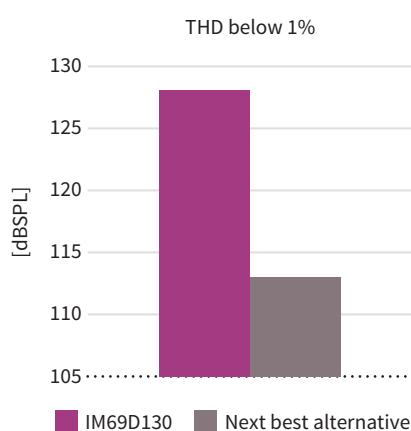
Infineon's Dual Backplate MEMS technology is based on a miniaturized symmetrical microphone design, similar to studio condenser microphones, and results in high linearity of the output signal within a dynamic range of 105 dB. The microphone distortion does not exceed 1 percent even at sound pressure levels of 128 dB SPL. The flat frequency response (28 Hz low-frequency roll-off) and tight manufacturing tolerance result in close phase matching of the microphones, which is important for multi-microphone (array) applications.

The digital microphone ASIC contains an extremely low-noise preamplifier and a high-performance sigma-delta ADC. Different power modes can be selected in order to suit specific current consumption requirements.

Each IM69D130 microphone is trimmed with an advanced IFX calibration algorithm, resulting in small sensitivity tolerances ( $\pm 1$  dB). The phase response is tightly matched ( $\pm 2^\circ$ ) between microphones, in order to support beamforming applications.



**Clear far field and low volume audio pick-up**



**Below 1 percent distortion even if exposed to loud audio signals**

### Key features

- > 69 dB(A) signal-to-noise ratio
- > Below 1 percent distortion at 128 dB SPL (130 dB SPL AOP)
- > Digital (PDM) interface with 6  $\mu$ s group delay at 1 kHz
- > Tight sensitivity ( $-36 \pm 1$  dB) and phase ( $\pm 2^\circ$ ) tolerances
- > 28 Hz low-frequency roll-off
- > 980  $\mu$ A current consumption (300  $\mu$ A in low-power mode)

### Key benefits

- > Far field and soft audio signal pick-up
- > Clear audio signals even at high sound pressure levels
- > Enabling precise steering of audio beams for advanced audio algorithms

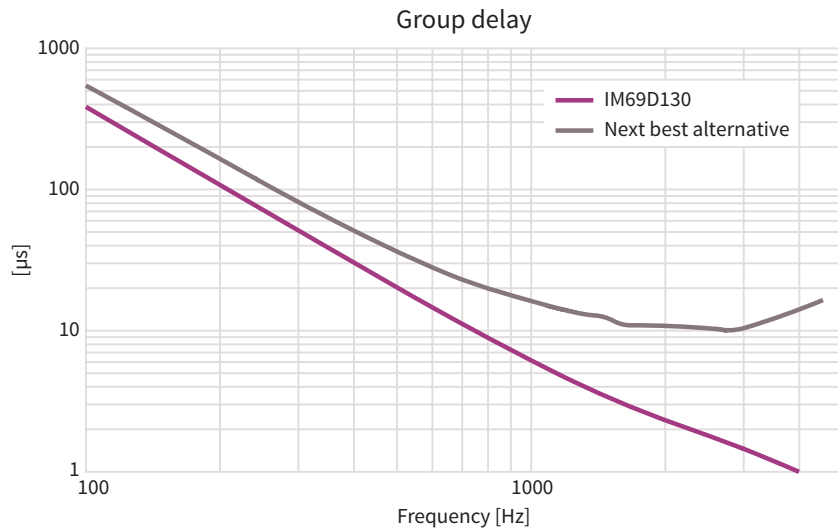
### Typical applications

- > Voice User Interface (VUI): e.g. smart speaker, home automation and IoT devices
- > Active Noise Cancellation (ANC): headphones and earphones
- > High-quality audio capturing: e.g. cameras, camcorders, conference systems
- > Audio pattern detection: industrial or home monitoring

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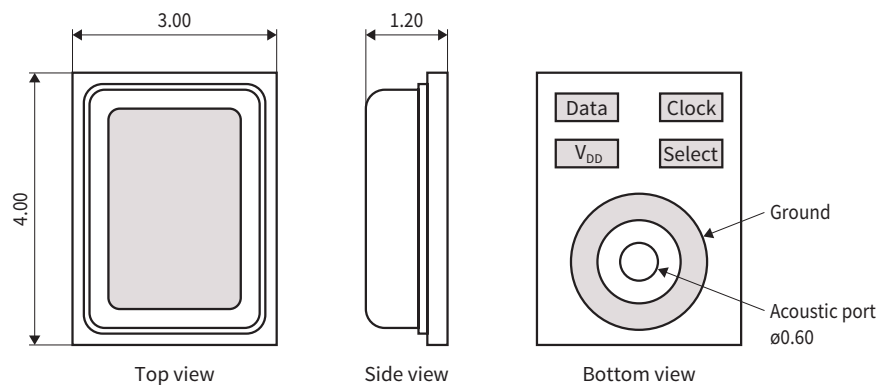
Minimal audio signal latency enabled by an ultra-low microphone group delay



The IM69D130 is designed to be an extremely low-latency digital microphone – aimed at applications such as active noise cancellation, where audio data must be processed extremely quickly.

By delivering best-in-class group delay performance, the IM69D130 brings the system design benefits of digital microphones to many areas which had to use analog up to now.

## Product information



All dimensions in mm

Orderable part number (OPN): IM69D130V01XTSA1

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