

XENSIV™ – IM66D120A

XENSIV™ – IM66D120A automotive MEMS microphone

The Infineon IM66D120A is part of the 2nd generation automotive qualified high performance MEMS microphones. The device has a PDM digital interface in a 3.5 x 2.65 x 0.98 mm³ package.

Infineon technical leadership in MEMS technology ensures best in class performance for this digital microphone. IM66D120A is optimized for applications where a high sensitivity and narrow dynamic range are beneficial. This makes it perfect for detecting lower-level signals. This microphone is the **best fit for interior applications**. Additionally, the low cut-off frequency (LFRO) makes it a **well-suited device for Active Noise Cancelling (ANC)** systems.

Infineon's MEMS technology is based on a miniaturized microphone design. This results in high linearity of the output signal very close to the AOP. With its low equivalent noise floor, the microphone is no longer the limiting factor in the audio signal chain and enables higher performance of voice recognition algorithms.

The digital microphone ASIC contains a microphone specific THD compensation algorithm for optimal performance at higher Sound Pressure Levels (SPL), an extremely low-noise preamplifier and a high-performance sigma-delta Analog-to-Digital Converter (ADC). The tight manufacturing tolerance, combined with the fact that each device is calibrated with an advanced Infineon calibration algorithm, results in small sensitivity and phase matching tolerances. This makes it **well suited for beam forming arrays and multi-microphone applications**.

Potential applications

- Hands-free calling
- E-call
- In-cabin communication
- Active Noise Cancellation (ANC)
- Road Noise Cancellation (RNC)
- Siren detection
- Speech applications



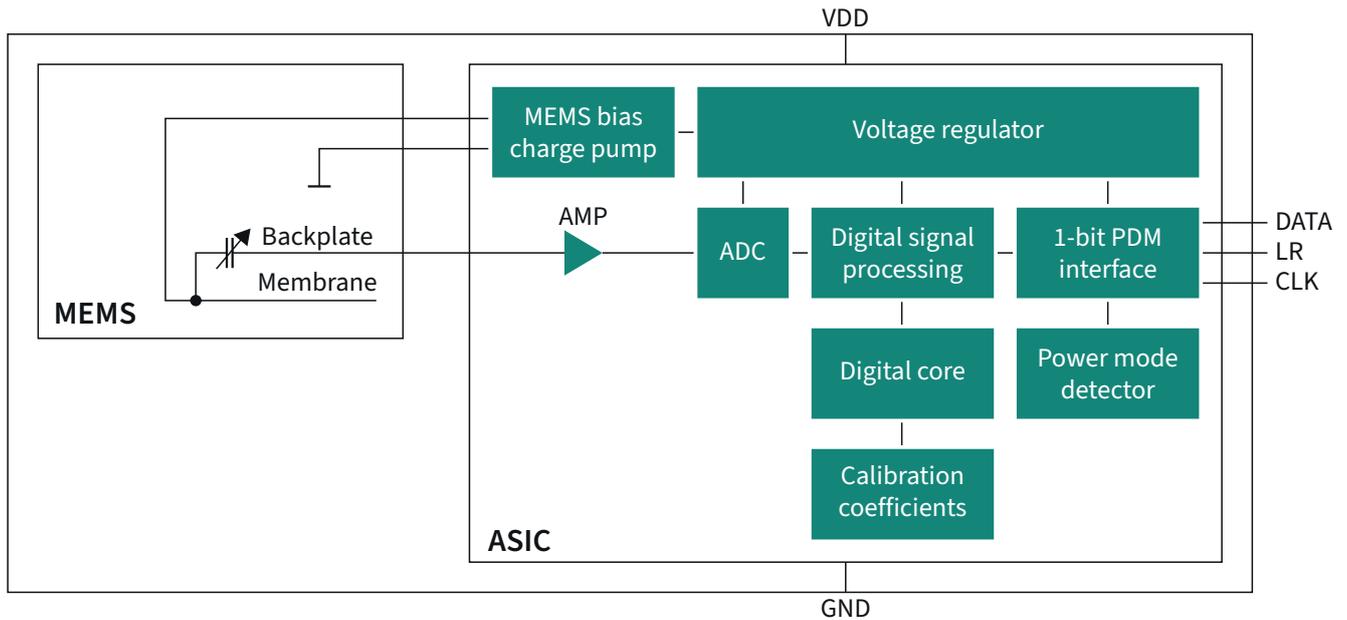
Key features

- Automotive qualification according to AEC-Q103-003
- High sensitivity of -26 dB
- Flat frequency response down to 7 Hz
- Narrow dynamic range
- Close sensitivity and phase matching
- High SNR of 66 dB(A)
- Enlarged operating temperature range up to +105°C
- Acoustic characterization data over the whole temperature range

Key benefits

- **Optimized for speech applications** due to high sensitivity of -26 dB
- Dynamic range of 92 dB **optimized for 16-bit audio codec**
- **Reduced effort, risk, and costs** of qualifications due to full AEC-Q103 qualification
- **Enabling best ANC performance** due to flat frequency response down to 7 Hz and small group delay
- **High speech intelligibility for improved voice command recognition** due to low self-noise of the microphone
- Individually calibrated microphone gives **narrow sensitivity matching** for optimal beam forming performance
- High linearity close to the AOP
- **Extended availability** to match long automotive design cycles
- Flexible use in **different application environments** due to increased operating temperature range
- Digital PDM interface

Block diagram



Product table

Parametrics	IM66D120A
Signal to Noise Ratio (SNR)	66 dB(A)
Acoustic Overload Point (AOP)	120 dB SPL
Total Harmonic Distortion (THD) @ 1%	114 dB SPL
Sensitivity @ 1 kHz, 94 dBSPL	-26±1 dB(A)
Low Frequency Roll Off (LFRO)	7 Hz
Interface	Digital PDM
Current consumption	1100 µA
Supply voltage	1.62 to 3.6 V
Port location	Bottom port
Package dimensions	3.5 x 2.65 x 0.98 mm ³
SP-Nr.	SP005926392

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