PUIaudio

NEW PRODUCT HIGHLIGHT

MEMS Microphones

September 30, 2025

Table Of Contents

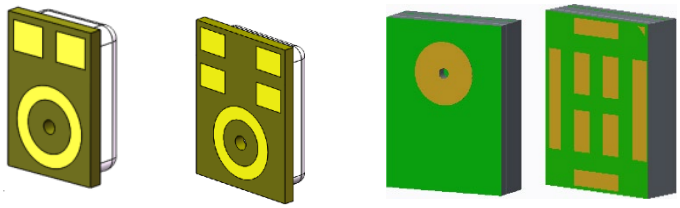
New MEMS Microphones

PUI Audio is proud to introduce its new MEMS microphones. Designed for surface mounting and high-temperature reflow assembly, these microphones feature a high acoustic overload point to support a wide dynamic range and reliability, along with a high signal-to-noise ratio for consistent high performance.

Analog and Digital

Key Features

- High Signal-to-Noise
- Low to High Sensitivity
- Small surface-mount package
- Low Power Consumption



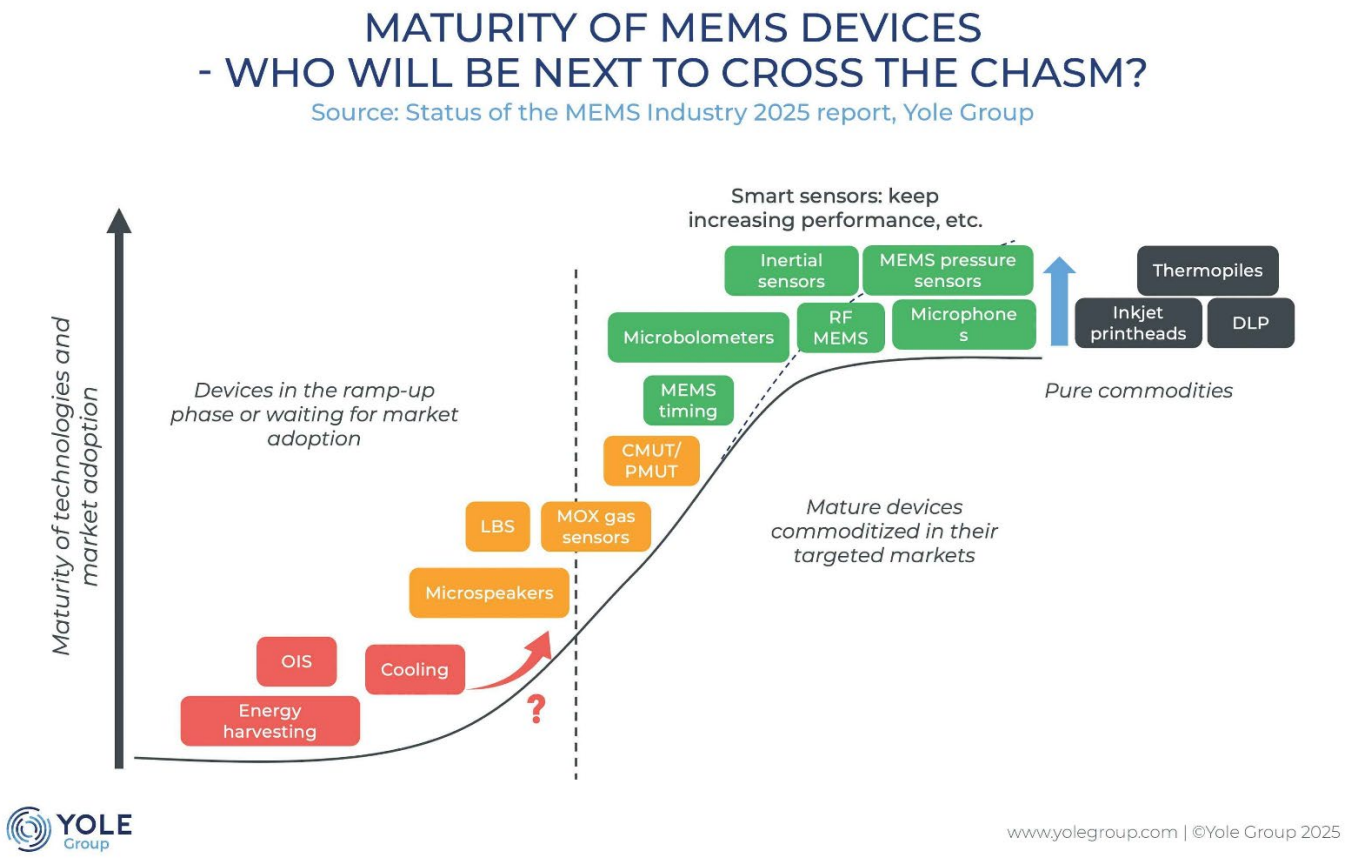
Output Signal Type	PUI Part Number	Dimensions (mm)	Sensitivity (dBV)	SNR (dB) Typ.	AOP (SPL)	Current (uA) Typical	Supply Voltage (V)
Analog	**AMM-2742-B**	2.75 X 1.85 X 0.9	-42 ±1	63	133	105	2.4 ≤ VS ≤ 3.3
Analog	**AMM-3537-B**	3.50 x 2.65 x 1.0	−37±1	70	130	105	1.6 ≤ VS ≤ 3.6
Digital	**DMM-3535-B**	3.50 x 2.65 x 2.0	-35 ±1	66.5	130	900	1.6 ≤ VS ≤ 3.3
Digital	**DMM-4026-T**	4 x 3 x 1.1	-26 ±1	65	120	750	1.6 ≤ VS ≤ 3.6

Key Applications

- Medical devices from respiratory monitoring to fitness wearables
- Industrial systems - audio sensing in harsh environments
- Security devices - high-SNR input for glass-break and fire detection
- Microphone arrays - for beamforming and noise cancellation
- Consumer electronics - such as earphones, IoT devices, and voice assistants

Let PUI Audio power your next design with precision and performance! Our engineering team is eager to collaborate to develop customized audio solutions. Ready to kick off a brainstorming session about your audio needs in the manufacturing industry? Reach out! Meet with an engineer or chat with us. We are here to help.

Key Trends in MEMS Technology



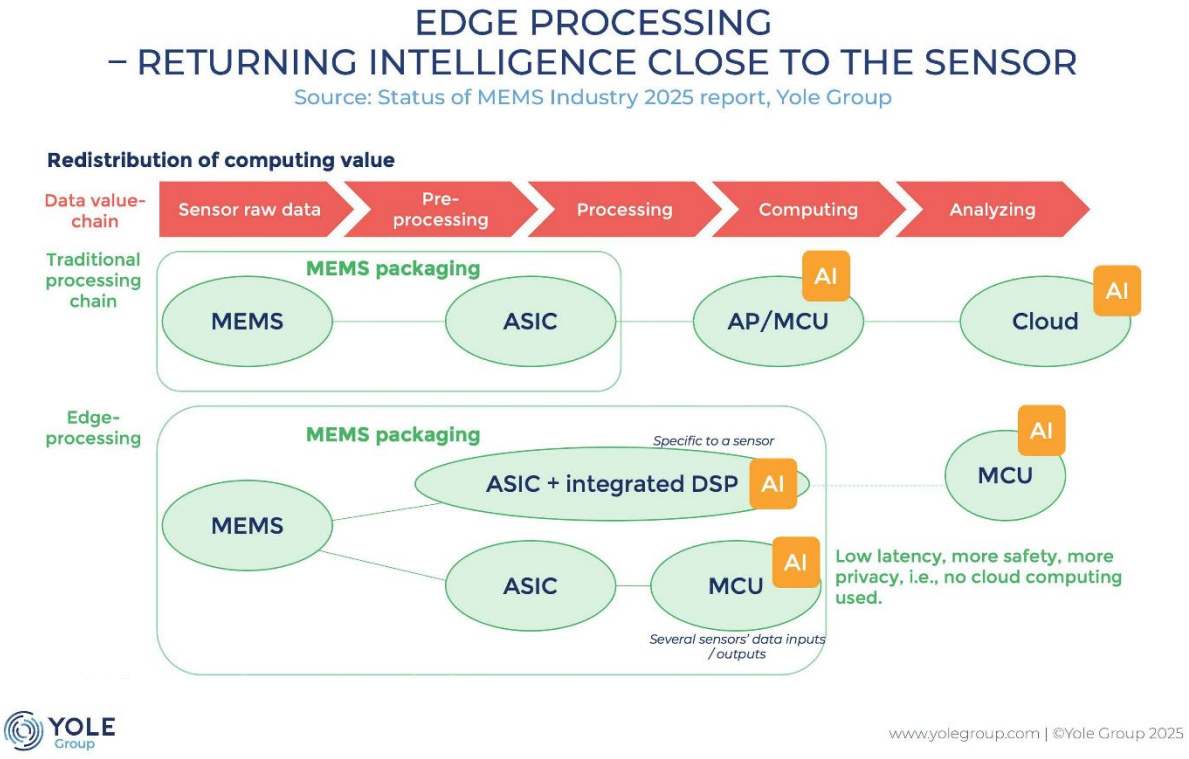
Source: Yole Development

The MEMS industry is on the rise. Success depends on innovation, market opportunities and the strength of the surrounding ecosystem.

KEY TAKE AWAYS:

- $15.4 billion global MEMS revenue in 2024: Yole Group announces a 5% YoY growth.
- With a $19.2 billion forecast by 2030, the MEMS market will have a 3.7% CAGR from 2024 to 2030.

Value is shifting from simply supplying raw sensor data to delivering "smart sensors" with embedded intelligence. Traditionally, most of the data processing and intelligence occurred far from the sensor in the application processor or the cloud while the sensor itself provided only raw data with little local intelligence. Now, intelligence is being pushed closer to the sensor, inside the MEMS packaging or directly into the ASIC. Local DSP/AI functions can filter, preprocess, or even analyze sensor data before transmitting it.



Frequently Asked Questions

1. **Does PUI Audio's MEMS Microphones support digital output and how do they compare with other manufacturers?**

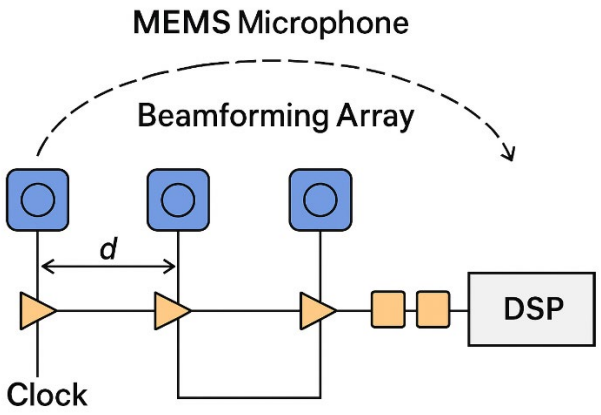
   We offer 15 digital microphones with SNR up to 68dB and lower current consumption compared to leading models on the market, available in sensitivities of –26, –35, and –37dBV, in both bottom- and top-port configurations.

   https://puiaudio.com/search?query=DMM

2. **How to integrate PUI Audio MEMS microphones into a beamforming array**

   The Key considerations for beamforming include

   1. **Selecting the right microphone**: High SNR ensures accurate spatial filtering
   2. **Arranging the microphones** based on directional pickup. Spacing between microphones should generally be less than half the wavelength of the highest frequency of interest to avoid spatial aliasing.
   3. **Conditioning and Calibration**: Microphones in an array should have similar gain to avoid distortion of spatial cues. Also, ensure to apply calibration gains and phase corrections as needed.



3. **Which MEMS microphones offer the best SNR for voice UI**

   PUI Audio offer several high-SNR microphones in both analog and digital options. Please use the filters to select the microphone that best fits your application criteria

   https://puiaudio.com/products/category/microphones

4. **What is Phase response and is it important for beamforming arrays?**

   Phase response defines the variation in signal phase versus frequency. A tolerance of –5° to +5° indicates minimal deviation from an ideal flat (0°) reference, ensuring low distortion. For multi-microphone arrays, consistent and linear phase response across devices is critical to maintain beamforming accuracy and spatial audio performance.

5. **Does PUI Audio offer MEMS microphones for low noise applications, such as consumer electronics?**

   All microphones exhibit a certain amount of self-noise arising from the transducer, internal electronics, and packaging. This self-noise establishes the minimum detectable signal level, often referred to as the noise floor. A lower noise floor corresponds to a higher signal-to-noise ratio (SNR). A microphone's SNR is the difference between its inherent self-noise level and a standard reference pressure, specifically 94 dB SPL (1 Pa) at 1 kHz. Specifications are typically reported as an A-weighted value (dBA) with a 20 kHz bandwidth, accounting for the human ear's frequency sensitivity. When comparing the SNR of different microphones, ensure they are based on the same weighting and bandwidth.

   PUI Audio MEMS microphones deliver SNRs up to 70 dB, providing excellent performance for applications that require ultra-low noise and multi-microphone beamforming. This improvement expands design possibilities across a range of professional and industrial systems, including conferencing and telepresence systems, smart audio arrays, and acoustic sensing and surveillance.

We have previously published white papers MEMS Microphones to help guide select the right microphone for your application. You can access them by visiting our website's Resource Library and applying the microphones filter.

- https://puiaudio.com/wp-content/uploads/2023/06/High-Performance-MEMS-Microphones.pdf
- https://puiaudio.com/resource/choosing-the-right-microphone/