

Press Release

Akustica's New AKU230 Digital Microphone is Bosch-Built; Includes World's Smallest Fully Integrated MEMS Device

- ▶ First Akustica CMOS MEMS microphone manufactured by Bosch
- ▶ Monolithic microphone die is world's smallest at only 0.70mm²
- ▶ Industry-standard form, fit and function for easy integration

PITTSBURGH—March 30, 2011—[Akustica, Inc.](#), inventors of the first single-chip digital micro-electromechanical systems (MEMS) microphone—today announced a new single-chip digital MEMS microphone for high-quality voice applications in laptops, tablets and netbook PCs.

The new AKU230—which represents Akustica's 4th-generation MEMS microphone—is the company's first product that leverages the extensive MEMS fabrication capabilities and global supply chain of Bosch, which acquired Akustica in 2009. Akustica chose to move production of their newest complementary metal-oxide semiconductor [\(CMOS\) MEMS](#) microphone to the Bosch foundry in Reutlingen, Germany because of Bosch's unparalleled MEMS manufacturing experience and the rigorous standards of quality that have allowed Bosch to ship more than 1.6 billion MEMS sensors worldwide.

"Bosch ships more than 200 million MEMS sensors annually," said [Dr. Stefan Finkbeiner](#), CEO and general manager of Akustica. "With access to Bosch resources, Akustica is further able to deliver on-time and to-specification the tens of millions of MEMS microphones that our customers are demanding now and in the future."

In-House Design and Manufacturing Capabilities

The AKU230 leverages Akustica's patented monolithic CMOS MEMS platform, a technology which integrates the mechanical function of microphones and other sensors with analog and digital electronics—all in a

single chip. Unlike other MEMS microphone manufacturers who may buy any or all of their MEMS, ASIC, and package design from a third party, Akustica has always maintained a complete in-house MEMS, ASIC, and package design-team. Now, as part of Bosch, Akustica has added in-house foundry capabilities. This combination of in-house design and fabrication enables a new level of MEMS innovation that allows the company to rapidly develop both tailored solutions for customers and compelling features for new products.

For example, close collaborations between the design and manufacturing teams for the AKU230 enabled Akustica to shrink the size of the monolithic AKU230 die so that the microphone die, which contains the microphone membrane, amplifier and sigma-delta converter, is only 0.84mm x 0.84mm. This means the AKU230's single-chip CMOS MEMS die is not only significantly smaller than competitors' microphone sensors, but it is also believed to be the smallest fully-integrated MEMS device in the world.

Convenient Electronic Design and Integration

The AKU230's form factor, interface circuitry and performance were designed to industry standards, making it easy for equipment manufacturers to design Akustica's digital MEMS microphone into high-volume camera modules or mass-market mobile computers.

With a footprint of 3.76 x 4.72mm, and just 1.25mm tall, the AKU230 package is also 30% thinner than the previous generation of digital microphones, and is ideally suited to thin form-factor integrations.

The AKU230 features:

- -26 dBFS +/-2dB Sensitivity
- 56 dB typical SNR
- -57 dBFS Power Supply Rejection
- An industry-standard, ultra-small, ultra-thin package which fits inside the bezels of even the smallest tablet computers
- Highly-matched sensitivity control and stereo-microphone data multiplexing, ideal for dual microphone arrays that create directionality and noise suppression to enhance audio quality
- Immunity to radio frequency and electromagnetic interference, further improving voice capture

According to the research firm iSuppli, the digital microphone category is expected to reach nearly 450 million units by 2014: an annual growth rate of over 40 percent. “Akustica created the digital microphone market back in 2006,” said [J r mie Bouchaud](#), director and principal analyst, MEMS and Sensors, IHS iSuppli. “The AKU2000 was the first digital silicon microphone, and Akustica’s line of products is still the only family of monolithic MEMS microphones in the market today. Digital MEMS microphones are now embedded in millions of laptops, netbooks and other consumer-electronic devices due to their small size, ease of integration and immunity to EM and RF interference.”

Price and Availability

The AKU230 is in mass production and is priced at \$1.30 in 10K-unit quantities. Available in a robust LGA package, the AKU230 is designed for high-volume assembly into camera modules, microphone arrays, and other consumer electronic platforms. For ordering or technical information on the AKU230, please visit www.akustica.com or contact: sales@akustica.com.

About Akustica

Akustica is the leading supplier of silicon microphone products that are improving voice-input quality in a host of voice-enabled applications, from mobile phones to Internet telephony on notebooks and PC camera modules. More information about Akustica is available at www.akustica.com or by calling +412.390.1730.

About Bosch

In the U.S., Canada and Mexico, the Bosch Group manufactures and markets automotive original equipment and aftermarket products, industrial drives and control technology, power tools, security and communication systems, packaging technology, thermotechnology, household appliances, solar energy and healthcare products. Having established a regional presence in 1906, Bosch in North America employs over 20,000 associates in more than 70 locations, with reported sales of \$7.3 billion in fiscal 2009. For more information, visit www.boschusa.com.

The Bosch Group is a leading global supplier of technology and services. According to preliminary figures, some 283,500 associates generated sales of 47.3 billion euros (\$62.7 billion) in the areas of automotive and industrial technology, consumer goods, and building technology in fiscal 2010. The Bosch Group comprises Robert Bosch GmbH and its more than 300 subsidiaries and regional companies in over 60 countries. If its sales and service partners are included, then Bosch is represented in roughly 150 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. Bosch spent some four billion euros (\$5 billion) for research and development in 2010, and applied

for over 3,800 patents worldwide. With all its products and services, Bosch enhances the quality of life by providing solutions which are both innovative and beneficial. Bosch is celebrating its 125th anniversary in 2011.

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