# Press RELEASES

**PR-No. 11 – 02. July 2024**

## TDK launches low power MEMS microphone with I²S interface to worldwide distribution

- *T5848 I²S microphones with Acoustic Activity Detect (AAD) provide high sound fidelity at ultra-low power*
- *Enables IoT and edge AI applications including wearables, TWS earbuds, AR glasses, smart speakers, home security, action cameras, TV remotes and various AI systems*
- *Now available through worldwide distribution channels*

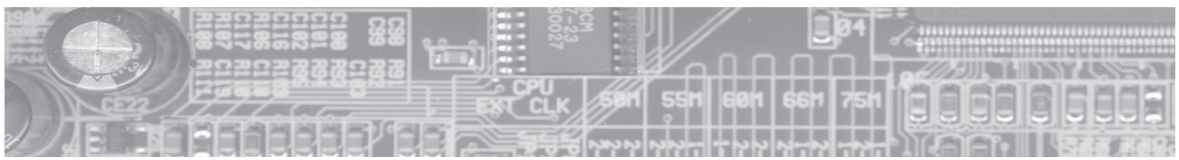
*June 25, 2024*

**TDK Corporation (TSE:6762)** announces worldwide distribution of its InvenSense SmartSound™ T5848 I²S microphones to enable intelligent keyword, voice command and sound detection at ultra-low power. Together with the InvenSense SmartSound T5838, the T5848 I²S microphone supports edge and generative AI systems with its innovative Acoustic Activity Detect (AAD) feature – ideal for IoT applications including smart watches, TV remotes, home security, augmented reality glasses, action cameras, smart speakers and TWS earbuds.

**Key features and advantages of the T5848 and T5838 microphones for low-power edge AI applications include:**

- **Superior performance at low power**: In high-quality mode, the T5848 and T5838 deliver 68 dBA SNR and 133 AOP, providing excellent sound fidelity to ensure accurate keyword detection even in noisy environments while only consuming a minuscule 330 µA at 1.8V. They consume only 130 µA in always-on low-power mode, prolonging the battery life of always-on systems.





- **Acoustic Activity Detect (AAD) Feature**: T5848 and T5838 can be programmed to listen for acoustic activity indicating keywords or voice commands, allowing the application's processor to efficiently manage power consumption during idle periods. This enables IoT and edge AI devices to remain in an always-on state, ready to respond to user interactions without draining the battery.

**Unique to the T5848 are additional features and advantages including:**

- **Simpler system design:** T5848 supports the I²S interface, which saves components in the system. It also reduces processing requirements such as filtering the microphone output in the system hardware or software.
- **High SNR for accurate response of AI systems:** The exceptional SNR of the T5848 ensures AI systems receive high-quality input, even in noisy surroundings where keywords or voice commands must be distinguished from irrelevant background noise. Such high-quality input improves the accuracy and reliability of response required for next-generation AI systems.

"Voice interface is now ubiquitous in IoT devices as progress in AI technology makes voice interactions more natural and user friendly," said Uday Mudoi, VP & GM – Microphone Business Unit, InvenSense, a TDK Group Company. "The T5848 with I²S interface enables simpler designs for always-on edge and generative AI systems."

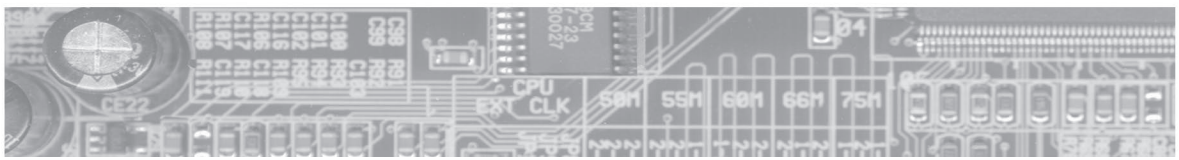
TDK will demonstrate its microphones and the unique AAD feature at Sensors Converge 2024, booth #920, on June 25 and 26. TDK will present a full range of sensor system solutions targeted for applications across automotive, consumer, health, industrial, machine learning, robotics and more.

TDK's T5848 microphones are available now for evaluation and integration into various devices. TDK microphones have been integrated by multiple ecosystem partners, which reduces required engineering investment and time to market for edge AI systems with intelligent keyword or audio detection needs.

**Glossary**

- AI: Artificial Intelligence





- AOP: Acoustic Overload Point
- SNR: Signal to Noise Ratio
- PDM: Pulse Density Modulation
- I²S: Inter-IC Sound audio format
- AAD: Acoustic Activity Detect

**Main applications**

- Smart watches
- Voice activated TV remote controls
- Window glass break detection
- Augmented reality glasses
- Wearables
- Action cameras
- Smart speakers

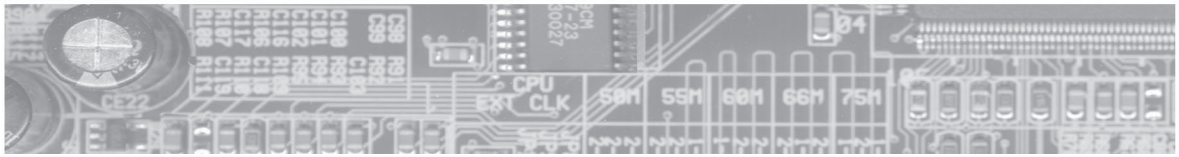
**Main features and benefits**

- Low noise digital MEMS microphone with I²S output
- Multiple operational modes: Sleep, Low Power, High Quality
- Acoustic Activity Detect (AAD) modes for both Analog and Digital with power consumption as low as 20 µA
- SNR of 68 dBA and AOP of 133 dB SPL in high quality mode
- 130 µA in always-on mode and 330 µA in high-performance mode
- RoHS/WEEE compliant

**Availability and Pricing**

More Information about availability, samples and pricing, please visit email: sales.europe@macnica.com.





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## About TDK Corporation

TDK Corporation is a world leader in electronic solutions for the smart society based in Tokyo, Japan. Built on a foundation of material sciences mastery, TDK welcomes societal transformation by resolutely remaining at the forefront of technological evolution and deliberately "Attracting Tomorrow." It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products.

TDK's comprehensive, innovation-driven portfolio features passive components such as ceramic, aluminum electrolytic and film capacitors, as well as magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in automotive, industrial and consumer electronics, and information and communication technology.

The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2024, TDK posted total sales of USD 14.6 billion and employed about 101,000 people worldwide.

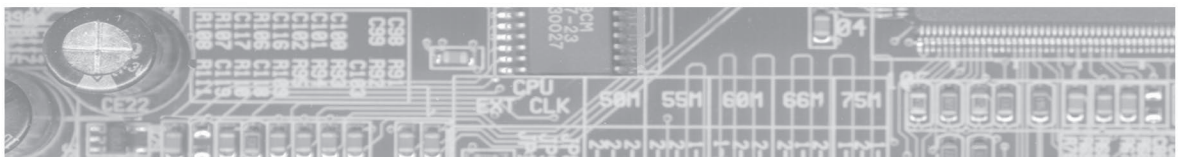
## About InvenSense

InvenSense, a TDK Group company, is a world-leading provider of Sensing Solutions. InvenSense's vision of Sensing Everything® targets the consumer electronics and industrial areas with integrated Motion, Sound, Pressure, and Ultrasonic solutions.

InvenSense's solutions combine MEMS (micro electrical mechanical systems) sensors, such as accelerometers, gyroscopes, compasses, microphones, barometric pressure sensors, and ultrasonic time-of-flight sensors with proprietary algorithms and firmware that intelligently process, synthesize, and calibrate the output of sensors, maximizing performance and accuracy. InvenSense's motion tracking, ultrasonic, audio, location platforms and services can be found in Mobile, Wearables, Smart Home, Industrial, Automotive, IoT, Robotics, and many more types of products.

InvenSense became part of the MEMS Sensors Business Group within the Sensor Systems Business Company of TDK Corporation in 2017. In April of 2022, Chirp





Microsystems formally merged with InvenSense. InvenSense is headquartered in San Jose, California and has offices worldwide.

For more information https://www.invensense.tdk.com/.

**About Macnica ATD Europe GmbH**
Macnica's ATD Europe GmbH, (former Macnica GmbH), was originally established in the UK in 2006, and moved to Germany in July 2008, to increase efficacy of its service for European customers.

By it's acquisition of the Munich based company Scantec Mikroelektronik in 2014 Macnica Europe formed a powerful semiconductor distribution with headquarter in Ingolstadt and offices in Munich, Regensburg, Milton Keynes (UK) and Warsaw offering an attractive and competitive portfolio of highly sophisticated devices.

Macnica provides end to end support from design-in to production through its global service network to its customers, regardless of the final destination of the product shipment to customers' manufacturing locations.

**About Macnica ATD Europe S.A.S.**
Founded in 1990 as ATD Electronique, Macnica ATD Europe headquarter offers innovative components dedicated to imaging applications for the European market. Its product portfolio includes: image sensors (CCD, CMOS, InGaAs, Thermal etc.), optics, interface circuits, FPGA & IPs, imaging processors, cables and OLED microdisplays.

It also covers development tools and design services enabling fast and efficient realization of new high-performance camera systems for markets such as machine vision, medical, life sciences, surveillance, automotive and others. After the acquisition of the company by Macnica Inc. as of October 1, 2020 the company operates under the name Macnica ATD Europe.

**About Macnica, Inc.**
Macnica was established in 1972 as a semiconductor distribution company headquartered in Yokohama, Japan, and has over 85 sales offices worldwide in eastern Asia, Europe and the USA. Total number of employees is over 3,900 and its consolidated revenue for fiscal 2021 was approximately US$ 7.6 B.

Macnica is famous for having an excellent engineering team of more than 900 application support engineers, IC designers and software developers with strong focus on providing technical support for its customers including custom design services. Macnica is continuing to extend its presence globally by having successful partners in strategic areas in the electronics market.

More information about Macnica: https://www.macnica.com/global/en/home.html.



