

MEMS Microphones

TDK introduces the newest MEMS microphone with SoundWire™ functionality

- New T5828 is a MIPI SoundWire™ compliant MEMS microphone
- Offers 68dBA SNR and Acoustic Activity Detect features with always-on ultra-low power mode

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TDK Corporation (TSE: 6762) introduces the T5828 SoundWire™ MEMS microphone as part of the SmartSound™ family of performance products for mobile, TWS, IoT and other consumer devices. This family of high-performance microphones pushes the boundaries of microphone acoustic performance, providing advanced feature sets in small package footprints. The T5828 SoundWire™ MEMS microphone offers a high acoustic overload point (AOP) of 133dB SPL, high signal-to-noise ratio (SNR) 68dBA and wide dynamic range, ideal for environments that shift from very quiet to very loud.

The T5828 microphone:

- Offers very low power, wide dynamic range SoundWire™ Digital
- Introduces Acoustic Activity Detect (AAD) to a SoundWire™ microphone for the first time allowing easy configuration within the SoundWire control protocol, including a very low power 20uA general purpose activity detection to a highly configurable voice activity detection feature.
- Institutes new submodes within the existing High Quality and Low-Power modes allowing dynamic customization of mic performance including:
 - Enhanced AOP mode, 136dB SPL
 - Ultra-Low Power mode, 95uA (the first <100uA PDM microphone)

“TDK continues to expand the SoundWire™ ecosystem by introducing T5828, the most advanced SoundWire™ MEMS microphone available today,” said Ritesh Tyagi, Vice President of Product Management at InvenSense, a TDK group company. “In partnership with Qualcomm, we are demonstrating the advantages of SoundWire™ allowing a simple two wire interface for up to eleven audio devices, a bi-directional audio data stream, and a superior control interface compared to other digital interfaces.”

The TDK T5828 has a small 3.5 x 2.65 x 0.98 mm bottom port package and is available for sampling. For additional information, please contact sales@invensense.com or visit <https://invensense.tdk.com/smartsound/>. TDK will be introducing the T5828 during the 2022 CES Virtual Press Conference for more information contact pr@invensense.com.

Glossary

- TWS: True Wireless Stereo
- HQM: High Quality Mode
- LPM: Low Power Mode
- AOP: Acoustic Overload Point
- SNR: Signal to Noise Ratio
- SPL: Sound Pressure Level
- AAD: Acoustic Activity Detect

Key applications

- Smartphones
- TWS earbuds
- Tablets
- Cameras
- Bluetooth Headsets
- Smart Speakers
- Notebook PCs
- Security and Surveillance

Key features and benefits

- SoundWire interface
- 68dBA SNR
- Enhanced AOP mode, 136dB SPL
- Ultra-Low Power mode, 95uA (the first <100uA PDM microphone)
- Small 3.5 x 2.65 x 0.98 mm bottom port package RTC Input

Key data

| Product | Packaging Dimensions (mm) | SNR dBA | Acoustic Overload Point dB SPL (HQM / EAOPM) | Power μ A (ULPM / LPM / HQM) | LFRO | Interface |
|---------|---------------------------|---------|--|----------------------------------|------|-----------|
| T5828 | 3.50 × 2.65 × 0.98 | 68 | 133 / 136 | 95 / 130 / 330 | 35 | SoundWire |

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 2021, TDK posted total sales of USD 13.3 billion and employed about 129,000 people worldwide.

About InvenSense

InvenSense, Inc., a TDK Group company, is a world leading provider of high performance MEMS sensor platforms. InvenSense's vision of Sensing Everything® targets the consumer electronics and industrial areas with integrated Motion, Sound, and Ultrasonic solutions. InvenSense's solutions combine MEMS (micro electrical mechanical systems) sensors, such as accelerometers, gyroscopes, compasses, microphones, and ultrasonic 3D-sensing 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, fingerprint, location platforms and services can be found in Mobile, Wearables, Smart Home, Industrial, Automotive, and IoT products. InvenSense became part of the MEMS Sensors Business Group within the newly formed Sensor Systems Business Company of TDK Corporation in 2017. In February of 2018, Chirp Microsystems joined the InvenSense family through its acquisition by TDK. InvenSense is headquartered in San Jose, California and has offices worldwide. For more information, go to [invensense.tdk.com](https://www.invensense.tdk.com).

You can download this text and associated images from https://www.tdk.com/en/news_center/press/20220106_05.html

Further information on the products can be found under <https://www.invensense.tdk.com/technology/smartsound/>

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