

Actuators

PiezoListen™: Ultra-thin piezo speaker with a wide dynamic range

- Optimized frequency characteristics in the range as low as 400 Hz
- High sound pressure based on TDK's piezoelectric technology
- Expandable lineup for a broad range of applications

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TDK Corporation (TSE: 6762) has developed an ultra-thin piezoelectric speaker – PiezoListen™ – that produces sound over a broader frequency range and with a greater output in the low range than any existing piezoelectric speakers. It features an operating frequency range of 400 to 20,000 Hz and achieves a high sound pressure of 80 dB, even at low voltages of 24 V_{P-P} or below. The speakers have a maximum output power of 34 W and an impedance of 2 to 100 Ω. With a thickness of just 0.49 mm, PiezoListen is also one of the thinnest piezo speakers available. The development of the low-profile, high-displacement piezoelectric element was made possible by TDK's patented lamination and material technologies. Samples of the general grade product (PHUA3030-049B-00-000) will be available starting in June 2019.

Thanks to its low profile, PiezoListen enables designers to overcome installation space constraints. Moreover, the new speaker element features a very flexible form and is thus able to produce sound from many different kinds of objects and materials. With the new PiezoListen piezo speakers, TDK is helping customers to design innovative audio applications. Not only is the standard format for video content rapidly moving to 4K and 8K resolutions, but more and more video content is offering multichannel audio as well.

In addition to the wide-range speaker, the PiezoListen lineup will be extended in the coming year with a sound positioning speaker with an operating frequency range of 1000 to 20,000 Hz that will allow users to create their own 3D audio experience. Possible applications for PiezoListen are speakers for televisions, tablets, laptops and other devices, as well as for surround sound systems.

* Source: TDK market research May 2019

Main applications

- Speakers for televisions, tablets, laptops and other devices
- Positioning speakers in surround systems

Main features and benefits

- Ultra-thin speaker with a thickness of 0.49 mm
- Able to produce sound from many different kinds of objects and materials
- A wide frequency range of 400 to 20,000 Hz with high sound pressure of 80 dB

Key Data

Type	Dimensions [mm]	Max. rated voltage [V _{P-P}]	Operating frequency [Hz]	Operating temperature [°C]	Grade
PHUA3030-049B-00-000	30 x 30 x 0.49	24	400 to 20,000	-10 to 60	General

About TDK Corporation

TDK Corporation is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's comprehensive 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 the areas of information and communication technology and automotive, industrial and consumer electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2019, TDK posted total sales of USD 12.5 billion and employed about 105,000 people worldwide.

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