

## Corporate

# TDK successfully developed a material for solid-state batteries with 100-times higher energy density

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TDK Corporation (TSE:6762) successfully developed a material for CeraCharge, a next-generation solid-state battery with an energy density of 1,000 Wh/L, approximately 100 times greater than the energy density of TDK's conventional solid-state battery.

TDK's technology is aimed at a solution that can be utilized in various wearable devices, such as wireless earphones, hearing aids and even smartwatches, with the goal of replacing existing coin cell batteries.

Utilizing TDK's proprietary material technology, TDK has managed to develop a material for the new solid-state battery with a significantly higher energy density than TDK's conventional mass-produced solid-state batteries (Type: CeraCharge) due to the use of oxide-based solid electrolyte and lithium alloy anodes. The use of oxide-based solid electrolyte makes batteries extremely safe. It is intended for use in wearable and other devices that come in direct contact with the human body.

The battery can be applied for replacing coin cell primary batteries in compliance with EU battery regulations, which require them to be replaced by rechargeable batteries, which is expected to contribute to the reduction of environmental impact.

TDK will strive to develop the battery cells and package structure design and advance toward mass production, targeting the development of its new product, the solid-state battery. Moreover, TDK aims to enhance the capacity of the batteries through multi-layer lamination technology and expand its operating temperature range by applying the production engineering technology TDK has accumulated in the electronic components business.

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### Main applications

- Various wearable devices such as wireless earphones, hearing aids and smartwatches
- Environmental sensors
- Replacement of coin cell batteries

### Main features and benefits

- The use of oxide-based solid electrolyte makes battery extremely safe
- Smaller size and higher capacitance contribute to smaller device size and longer operating time



**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.

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Further information on existing CeraCharge products can be found under [https://www.tdk.com/en/featured\\_stories/entry\\_024.html](https://www.tdk.com/en/featured_stories/entry_024.html)

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