

## Rechargeable batteries

### **CeraCharge™ – first rechargeable solid-state SMD battery**

- Compact EIA 1812 case size
- Wide temperature range from -20 °C to +80 °C
- Up to 1000 recharging cycles

November 21, 2017

TDK Corporation presents CeraCharge™ – the first solid-state rechargeable battery in SMD technology. Depending on requirements, the number of charge/discharge cycles this battery is able to perform ranges from several dozens to up to 1000. With its compact EIA 1812 package (4.5 x 3.2 x 1.1 mm) it offers a capacity of 100 µAh at a rated voltage of 1.4 V. This battery is also capable of delivering currents in the order of several mA for short periods. Thanks to the SMD technology, placement of the battery is easy and it can be processed using reflow soldering techniques, which in turn reduces the production cost of the end product.

In contrast to most common technologies, CeraCharge is a solid-state rechargeable battery with no liquid electrolyte. The battery is based on a multilayer technology, similar to MLCCs. This means that a relatively high energy density and smallest volume are combined with the safety and high volume manufacturing benefits of ceramic multilayer components. In addition, the use of a solid ceramic element as an electrolyte rules out the risk of fire, explosion, or leakage of liquid electrolyte.

To increase the capacity and the voltage, any number of individual CeraCharge components can be connected in series and parallel. This opens up a wide range of possible applications – particularly in devices intended for the Internet of Things. These include, for example, real-time clocks, Bluetooth beacons, wearables or systems for energy harvesting.

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#### **Main applications**

- IoT devices, real-time clocks, Bluetooth beacons, systems for energy harvesting.

#### **Main features and benefits**

- Compact SMD design in EIA 1812 case size
- Easy placement and processing using reflow soldering techniques
- Solid ceramic electrolyte rules out the risks of fire, explosion, or leakage of liquid electrolyte.

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## 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 portfolio includes passive components, such as ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, high-frequency products, and piezo and protection components, as well as sensors and sensor systems and power supplies. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK's further main product groups include magnetic application products, energy devices, and flash memory application devices. 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 2017, TDK posted total sales of USD 10.5 billion and employed about 100,000 people worldwide.

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## Contact for regional media

Region	Contact		Phone	Mail
<b>ASEAN</b>	Mr. K. UNTERWEGER	EPCOS PTE LTD SINGAPORE	+65 6597 0618	<a href="mailto:klaus.unterweger@epcos.com">klaus.unterweger@epcos.com</a>
<b>Greater China</b>	Ms. S. SUEN	EPCOS LTD HONG KONG	+852 3669 8224	<a href="mailto:stella.suen@epcos.com">stella.suen@epcos.com</a>
<b>Europe</b>	Mr. C. JEHLE	EPCOS Munich, GERMANY	+49 89 54020 2441	<a href="mailto:christoph.jehle@epcos.com">christoph.jehle@epcos.com</a>
<b>India</b>	Mr. G. DALVI	EPCOS India Private Ltd. Mumbai, INDIA	+91 22 2575 0804	<a href="mailto:girish.dalvi@epcos.com">girish.dalvi@epcos.com</a>
<b>Japan</b>	Mr. Y. OSUGA	TDK Corporation Tokyo, Japan	+813 6852 7102	<a href="mailto:pr@jp.tdk.com">pr@jp.tdk.com</a>
<b>North America</b>	Ms. D. MARTIN	EPCOS Inc. Fountain Hills AZ, USA	+1 480 836 4104	<a href="mailto:debbie.martin@epcos.com">debbie.martin@epcos.com</a>
<b>South America</b>	Mr. C. DALL'AGNOL	EPCOS do Brasil Ltda. Gravataí, BRAZIL	+55 51 3484 7158	<a href="mailto:candido.dallagnol@epcos.com">candido.dallagnol@epcos.com</a>