Multilayer ceramic capacitors

TDK expands MLCC lineup with new low-resistance soft termination

- Enables low resistance, equivalent to that of standard products, with only part of the terminal electrode covered by a resin layer
- New products with 10 µF in 3216 size and 22 µF in 3225 size
- Compliant with AEC-Q200

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TDK Corporation (TSE:6762) has expanded its CN series of multilayer ceramic capacitors (MLCCs) that are the first of their kind. The new products, 10 µF capacitance in 3216 size (3.2 x 1.6 x 1.6 mm) and 22 µF capacitance in 3225 size (3.2 x 2.5 x 2.5 mm), offer low-resistance soft termination with low terminal resistance equivalent to standard products. Mass production will commence in September 2021.

MLCCs with soft termination prevent short-circuits in power lines. However, since soft termination has a slightly higher terminal electrode resistance, it is necessary to keep the resistance low to reduce loss. TDK's new kind of soft termination are resistant to board flexure stress while limiting rising resistance by covering only the board mounting side with a resin layer.

TDK predicts these products will encourage replacing MLCCs in power lines with soft termination to improve reliability. These new products have a higher capacitance than conventional products, help reduce parts and downsize equipment. TDK will continue to expand its MLCC line-up to meet customer needs in the future.

Glossary

- Soft termination: Standard terminal electrodes have a two-layer plating structure with the base electrodes Cu and Ni-Sn, while soft termination has a conductive resin applied between the two layers of plating with the base electrodes Cu and Ni-Sn
- AEC-Q200: Automotive Electronics Council standard for passive automotive components.

Main applications

- Smoothing and decoupling of the power lines for various kinds of electronic control units (ECU) for automobiles
- Power lines for industrial robots, etc.

Main features and benefits

- TDK's unique terminal structure realizes soft termination that has a low resistance equivalent to that of standard products
- Higher capacitances of 10 µF in 3216 size and 22 µF in 3225 size enable space-saving designs and a reduction in number of components
- High reliability, compliant with AEC-Q200

Key data

Type	Outer dimensions [mm]	Temperature characteristics	Rated voltage [V]	Capacitance [µF]
CNA5L1X7R1E106K	3.2 x 1.6 x 1.6	X7R	25	10
CNA6P1X7R1E226M	3.2 x 2.5 x 2.5	X7R	25	22
CNC5L1X7R1E106K	3.2 x 1.6 x 1.6	X7R	25	10
CNC6P1X7R1E226M	3.2 x 2.5 x 2.5	X7R	25	22

*CNA is for automotive products, and CNC is for general products.

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.

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