Multilayer Ceramic Capacitors

TDK offers MLCCs with 10 nF and C0G characteristics at 1,250 V in 3225 size for automotive and commercial

- Enabling space-saving designs and reducing the number of components
- Qualified based on AEC-Q200

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TDK Corporation (TSE: 6762) has expanded its CGA series for automotive and C series for commercial multilayer ceramic capacitors (MLCCs) to 10 nF at 1,250 V in 3225 size (3.2 x 2.5 x 2.5 mm – L x W x H), with C0G characteristics (Class I dielectric). This is the industry's highest capacitance* for a 1,250-V rated product in 3225 size and this temperature characteristic. Mass production of the product series began December 2024.

Circuits using silicon carbide (SiC) MOSFETs, which can withstand high temperatures and high voltages, are being adopted, and more and more circuits are becoming higher voltage and higher current to reduce the charging time of electric vehicles. With this, the demand for high-voltage resistance for resonant and snubber capacitors grows.

C0G characteristic products change their capacitance only slightly over temperature and voltage, making them ideal for such applications. These MLCCs are high voltage resistant because their product and process design were optimized. This makes them compatible with high-voltage circuits and makes it possible to reduce the number of MLCCs mounted in series, contributing to space-saving designs. Furthermore, compared to TDK's previous products, it can reduce the heat generated and thus contributes to prevent excessive heat in the applications. TDK will further expand its lineup to meet the needs of customers.

*Source: TDK, as of January 2025

Glossary

- AEC-Q200: Automotive Electronics Council standard for passive automotive components

Main applications

- Resonant circuit capacitors
- Snubber capacitors

Main features and benefits

- C0G characteristics with very small changes in capacitance over temperature and voltage
- Enabling space-saving designs and reducing the number of components because the products can withstand high voltage up to 1,250 V in 3225 size.
- High reliability qualified based on AEC-Q200

Type*	Outer dimensions [mm]	Temperature characteristics	Rated voltage [V]	Capacitance [nF]	Capacitance tolerance [%]
CGA6P1C0G3B103G250AC	3.2 x 2.5 x 2.5	C0G	1,250	10	±2
CGA6P1C0G3B103J250AC					±5
C3225C0G3B103G250AC					±2
C3225C0G3B103J250AC					±5

*CGA is for automotive, and C is for commercial.
Samples may be purchased from the product page that is displayed after clicking Type.

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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Article describing the product features and applications in detail can be found below.
https://product.tdk.com/en/techlibrary/solutionguide/mlcc-c0g-resonantcircuit.html

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