

Multilayer ceramic chip capacitors

Automotive grade MLCCs for reliable ESD protection

- Compliant with the IEC 61000-4-2 standard for ESD immunity
- Available with C0G and NP0 thermal characteristics
- Qualified to AEC-Q200

October 15, 2013

TDK Corporation presents the new CGA3EA series of automotive grade MLCCs that meet the ESD immunity requirements according to the IEC 61000-4-2 standard. The new components are available in package size 1608 (EIA 0603) and offer rated capacitances ranging from 1 nF to 10 nF and a rated voltage of 100 V. The new series comprises two lineups of MLCCs with different thermal characteristics: C0G components with a temperature range of -55°C to +125°C and a temperature coefficient of 0 ± 30 ppm/°C max., and NP0 components with a temperature range of -55°C to +150°C and the same temperature coefficient.

The material used in the CGA3EA series features a low dielectric constant and thus maintains stable performance even when load conditions such as temperature or voltage change. The new components are therefore able to withstand ESD events of up to 8 kV and higher, as proven by the contact discharge test according to IEC 61000-4-2 (level 4). Mass production of the CGA3EA series, which is qualified to AEC-Q200, started in October 2013.

Development of the new MLCCs was made possible by TDK's know-how in a range of sophisticated technologies, including the pulverization of dielectric materials, high-dispersion processing, and both thin-layer and multilayer technology for dielectric ceramics. As a result the CGA3EA series are able to offer reliable ESD protection in a wide range of automotive electronics applications such as airbag controllers, remote keyless entry systems, navigation systems and more.

Main applications

- Input and output sections of a wide range of automotive applications such as airbag controllers, remote keyless entry systems, and navigation systems

Main features and benefits

- Compliant with IEC 61000-4-2 level 4 or higher
- Series offers both C0G and NP0 components with a temperature range of -55°C to +125°C and -55°C to +150°C, respectively, and a capacitance temperature coefficient of 0 ± 30 ppm/°C max.
- Stable capacitance values regardless of DC bias, temperature or aging effects
- Capacitance range from 1 nF to 10 nF (E6)
- Qualified to AEC-Q200

Key data

Series	Dimensions [mm]	Thermal characteristics	Rated voltage [V]	Capacitance [nF]	ESD immunity [kV]
CGA3EA	1.6 x 0.8	C0G NP0	100	1	8
				1.5	10
				2.2	12
				3.3	16
				4.7	16
				6.8	22
				10	30

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 electronic components, modules and systems marketed under the product brands TDK and EPCOS, power supplies, magnetic application products as well as energy devices, flash memory application devices, and others. TDK focuses on demanding markets in the areas of information and communication technology and consumer, automotive and industrial 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 2013, TDK posted total sales of USD 9.1 billion and employed about 80,000 people worldwide.

About TDK-EPC Corporation

TDK-EPC Corporation, a TDK group company, is the manufacturer of TDK's electronic components, modules and systems and is headquartered in Tokyo, Japan. TDK-EPC was founded on October 1, 2009, from the combination of the electronic components business of TDK and the EPCOS Group. The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites, inductors, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors.

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