

Multilayer ceramic chip capacitors

High reliability MLCCs for automotive applications in a 0603 (EIA 0201) package

- Compact 0603 X7R MLCC series, including the world's first 50 V type*
- Qualified to AEC-Q200

January 17, 2013

TDK Corporation presents the new CGA1 series of 0603 (EIA 0201) MLCCs for use in automotive electronics applications. With dimensions of only 0.6 x 0.3 x 0.3 mm³, the new components offer rated voltages from 6.3 V to 50 V, thus including the world's first 0603 X7R MLCC with a rated voltage of 50 V. The 0603 package is the smallest used by the automotive industry.

The new high reliability component is designed for operating temperatures up to 125 °C and is qualified to AEC-Q200. With their compact dimensions, the capacitors were developed to meet the demanding size and weight requirements that are vital for automotive applications. The products are available with X7R temperature characteristics. Special customer requirements (such as a temperature rating up to 150 °C) can be met upon request. Mass production started in January 2013.

MLCCs are among the key electronic components driving progress in automotive electronics, and TDK is the industry leader in the area of MLCCs for automotive applications. The use of new high reliability dielectric materials optimized with fine-grain technology enabled the successful development and mass production of the new series, thus contributing toward more compact, lightweight, and multifunctional automotive units. Typical applications for the TDK CGA1 series include tire pressure monitoring systems (TPMS), remote keyless entry systems (RKE), in-vehicle infotainment systems (IVI), and various kinds of sensor systems.

* As of January 2013, according to TDK investigations

Main applications

- Tire pressure monitoring systems (TPMS), remote keyless entry systems (RKE), in-vehicle infotainment systems (IVI), and various kinds of sensor systems, etc.

Main features and benefits

- 0603 size X7R series including world's first 50 V type
- Compact size enables high-density mounting
- Qualified to AEC-Q200

Key data

Type	Dimensions [mm]	Rated Voltage [V]	Capacitance [nF]	Temperature characteristics
CGA1 series	0.6 x 0.3 x 0.3	6.3 to 50	0.1 to 10	X7R -55°C to +125°C

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 which are 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 2012, TDK posted total sales of USD 9.9 billion and employed about 79,000 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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Contacts for regional media

Region	Contact	Phone	Mail
Japan	Ms. Mari KONISHI TDK Corporation Tokyo, Japan	+813 5201-7102	pr@jp.tdk.com
ASEAN	Ms. Emi OGATA TDK Singapore (Pte) Ltd. Singapore	+65 6273 5022	asean.inquiry@sg.tdk.com
Greater China	Ms. Clover XU TDK China Co., Ltd. Shanghai, China	+86 21 61962307	pr@cn.tdk.com
Europe	Mr. Frank TRAMPNAU TDK Electronics Europe GmbH Dusseldorf, Germany	+49 211 9077 127	trampnau@eu.tdk.com
America	Ms. Sara M. REYNOSO TDK Corporation of America Irving, TX, USA	+1 972-409-4519	sara.reynoso@us.tdk.com