EMC components
Automotive feedthrough filters with high current capability

- Suitable for a wide range of applications due to the high current capability of up to 10 A
- Broad capacitance and temperature spectrum

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TDK Corporation has developed a new series of 3-terminal feedthrough filters that are designed to meet the automotive industry's demands for EMC components in emerging safety and infotainment applications. The new components are available in case sizes EIA 0603 (1.6 mm x 0.8 mm) to EIA 1206 (3.2 mm x 1.6 mm) with rated capacitance values ranging from 22 pF to 1 µF, and rated voltages from 10 V to 100 V. The robust new components, which can withstand temperatures of up to 125 °C and are rated for high currents up to 10 A, are thus well suited for a wide range of noise suppression applications in automotive electronics. Thanks to their high reliability, the new components with their broad capacitance range fulfill requirements for EMC filtering – for most types even in applications connected directly to the battery. Mass production is slated to begin in January 2015.

TDK's market-leading experience and know-how in automotive MLCCs enabled the development of the new 3-terminal feedthrough filter series, which contribute to the safety and reliability of gasoline, diesel and electric vehicles. Noise suppression requirements are rising dramatically as more and more vehicles offer new and sophisticated safety features such as collision avoidance systems. These applications employ GHz band radar and camera sensors for image recognition to detect an imminent crash, warn the driver and sometimes even take action autonomously to avoid the crash. As a result, these circuits operate at higher frequencies and clock rates than is typical in cars up until now, and this drives the need for components to suppress the conducted noise.

The new highly reliable 3-terminal feedthrough filters extend the growing range of MLCC-based components for automotive electronics. TDK will continue to expand its product range for the automotive sector, one of the company's key markets for the future.

Main applications

- Noise suppression in the power supplies of in-vehicle infotainment (IVI) systems, car navigation equipment, automotive cameras and radar
- RF noise suppression for high-current CPUs

Main features and benefits

- Suitable for a wide range of applications due to the high current capability of up to 10 A
- Broad capacitance range from 22 pF to 1 µF
- Broad temperature range from -55 ºC to +125 ºC
- Most types are suitable for applications connected directly to the battery

Key data

Type	Dimensions [mm]	Rated voltage [V]	Rated current [A]	Rated capacitance
C1608	1.6 x 0.8	25 to 50	1 to 2	22 pF to 0.1 µF
C2012	2.0 x 1.25	10 to 50	1 to 4	22 pF to 1 µF
C3216	3.2 x 1.6	25 to 50	2	0.1 µF to 1 µF
C3216	3.2 x 1.6	100	up to 10	0.01 µF to 1 µF

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 2014, TDK posted total sales of USD 9.6 billion and employed about 83,000 people worldwide.

* 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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