Multilayer ceramic chip capacitors: World's smallest automotive-grade MLCCs in the mega cap class

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TDK Corporation has expanded its CKG series of MEGACAP Type MLCCs to include miniature 1608 to 3216 (EIA 0603 to 1206) packages. Until now these MLCCs were available only in 3225 to 5750 packages (EIA 1210 to 2220). With dimensions of only 1.9 x 1.3 x 1.5 mm^3 the new 1608 components are the world's smallest automotive-

grade MLCCs in the mega cap class.

The new MLCCs in the smaller case sizes have a capacitance of 10 µF and rated voltages from 16 V to 25 V. The high-reliability, automotive-grade MLCCs with lead frames offer superior thermal shock and mechanical stress resistance. These components are designed for applications in automobiles, base stations and wherever highest reliability is essential. Mass production is scheduled to start in July 2013.

Until now it was extremely difficult to create MEGACAP Type MLCCs with lead frames in such miniature case sizes. Thanks to TDK's fully-automated high-precision assembly process customers can count on a stable supply of high-quality components. The new manufacturing technologies can also be applied to larger sizes.

The number of electronic control units (ECU) deployed in and near the engine compartment where extreme temperature conditions exist has increased significantly. The capacitors used in such harsh environments need to be extremely heat resistant and reliable. TDK has developed products with outstanding resistance to extreme temperatures, vibrations, and shock. The advanced structural design of the CKG series of MEGACAP Type MLCCs enables a very wide operating temperature range of -55 to +150 °C and optimal reliability for use in ECUs.

With the new miniaturized MEGACAP Type MLCCs TDK again reconfirms its position as a market leader for electronic components with outstanding reliability.

Main applications

- High temperature and high reliability automotive applications such as ECUs for powertrain (engine and gear), braking (ABS,

ESP), and power steering applications
- Power supply units for Telecommunication base stations, etc.
- Suppression of capacitor acoustic noise in computers, etc.

Main features and benefits

- MEGACAP Type MLCCs now available in miniature 1608 to 3216 packages (EIA 0603 to 1206), thus including the world's smallest automotive-grade MLCCs in the mega cap class (1608)
- Superior thermal shock resistance with a reduced tendency toward capacitor cracking and fewer mounting solder cracks than standard MLCCs
- Superior mechanical stress resistance

Provided by TDK Corporation