

Multilayer ceramic chip capacitors

CA series of stacked MEGACAP Type MLCCs with high capacitance and low ESR

- Broad capacitance range from 20 nF to 150 μ F
- Available with C0G, X7T, X7S, and X7R temperature characteristics

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TDK Corporation has developed a new series of vertically stacked MEGACAP Type MLCCs that combine high capacitance and low ESR. The new CA series offers rated voltages from 25 V to 1000 V and covers a capacitance range from 20 nF to 150 μ F. The new MLCCs are available with C0G, X7T, X7S, and X7R temperature characteristics. Thanks to their high capacitance values, the new capacitors are suitable for the resonant circuits of wireless and plug-in charging systems, for example, for industrial vehicles and robots. They can also be used in smoothing and decoupling applications in industrial equipment. Production of the CA series began in April 2018. Automotive grade products will be introduced after mid-2018.

The MEGACAP Type MLCCs feature metal lead frames attached to the electrode ends of the components to protect against board flexure cracks and solder cracks from thermal shocks. The metal material of the terminal has also been optimized to lower the ESR and achieve a higher ripple current capability. In order to enable a low profile with increased capacitance, TDK has adapted its MEGACAP stack design so that the MLCC elements are stacked side by side. The vertically stacked design enables stacks with three or even more elements. Hybrid joints between the metal terminals and the MLCC are both soldered and clamped to prevent the individual MLCC elements from falling out of the lead frame at the increasingly higher reflow temperatures. The CA series will be available initially with 2x and 3x stacks. In the future the lineup will be expanded with 5x stacks. TDK offers a broad portfolio of MLCCs for a wide range of applications. TDK will continue to place a special focus on the development of technologically superior automotive grade MLCCs.

Main applications

- Resonant circuits for wireless and plug-in charging systems
- Smoothing and decoupling applications in industrial equipment

Main features and benefits

- High capacitance enabled by stacked design
- Low ESR due to optimized terminal material

Key Data

Type	Temperature characteristic	Rated voltage [V]	Capacitance [F]	Stacked elements	Dimensions [mm]	
CAA572C0G3A203J *	C0G	1000	20 n	2	2x stack: 6.1 x 5.6 x 6.4	
CAA572C0G3A303J *			30 n	2		
CAA572C0G3A443J *			44 n	2		
CAA572C0G3A663J *			66 n	2		
CAA573C0G3A993J *			99 n	3		
CAA572C0G2J204J *		630	200 n	2	3x stack: 6.1 x 8.4 x 6.4	
CAA573C0G2J304J *			300 n	3		
CAA572X7T2J105M **	X7T	630	1 μ	2	2x stack: 6.1 x 5.0 x 6.4	
CAA573X7T2J155M **			1.5 μ	3		
CAA572X7T2W225M **		450	2.2 μ	2		3x stack: 6.1 x 7.5 x 6.4
CAA573X7T2W335M **			3.3 μ	3		
CAA572X7S2A336M **	X7S	100	33 μ	2	6.1 x 7.5 x 6.4	
CAA573X7S2A476M **			47 μ	3		
CAA572X7R1V107M **	X7R	35	100 μ	2	2x stack: 6.4 x 5.0 x 6.8	
CAA573X7R1V157M **			150 μ	3		
CAA572X7R1E107M **		25	100 μ	2	3x stack: 6.4 x 7.5 x 6.8	
CAA573X7R1E157M **			150 μ	3		

* Production begin: April 2018 (AEC-Q200 qualified products after mid-2018)

** Production begin: July 2018 and onward

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 passive components, such as ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, high-frequency products, and piezo and protection components, as well as sensors and sensor systems and power supplies. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK's further main product groups include magnetic application products, energy devices, and flash memory application devices. TDK focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer 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 2017, TDK posted total sales of USD 10.5 billion and employed about 100,000 people worldwide.

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Further information on the products can be found under https://product.tdk.com/info/en/catalog/datasheets/mlcc_commercial_megacap_ca_en.pdf.

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