

AEC-Q200 Capacitors

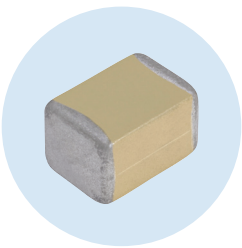
Product Overview

AEC-Q200 Background

The Component Technical Committee established AEC-Q200, "Stress Test Qualification for Passive Components," to define the minimum stress test-driven qualification requirements for passive electrical devices, including ceramic capacitors.

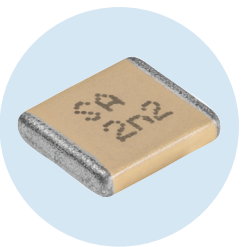
IATF 16949 Certified

Knowles Precision Devices has developed a range of MLC capacitors and surface-mount EMI filters qualified to AEC-Q200 that meets the needs of high reliability and automotive manufacturers.



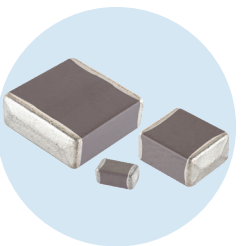
Product	<ul style="list-style-type: none"> • Case sizes: 1812 - 3640 • Voltage Ratings: Up to 2kV 	<ul style="list-style-type: none"> • Capacitance Values: Up to 2.2μF
Applications	<ul style="list-style-type: none"> • Battery management system • On-board charger • DC-DC converter 	<ul style="list-style-type: none"> • AC-DC inverter • PTC heater controller
Benefits	<ul style="list-style-type: none"> • Suitable for applications in power supplies filtering and DC-DC converters • Suitable replacement for film and tantalum capacitors • Designed to provide high CV in compact packages 	

STACKICAP™ TECHNOLOGY X7R HIGH DENSITY



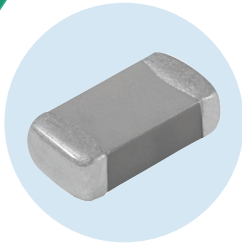
SAFETY CAPACITORS COG AND X7R		
Product	<ul style="list-style-type: none">• Case sizes: 1808, 1812, 2211, 2215, 2220 and 2720• Voltage Ratings: 250Vac, 310Vac, 440Vac and 500Vac / Up to 1.5kVDC certified per EN60384-14 Annex H• Capacitance Values: Up to 12nF in Y2 Class, 56nF in X2 Class	
Applications	<ul style="list-style-type: none">• Battery management system• On-board charger• DC-DC converter	<ul style="list-style-type: none">• AC-DC inverter• PTC heater controller• E-compressor inverter
Benefits	<ul style="list-style-type: none">• Class Y2/X1 safety capacitors, including Humidity Robustness Grade IIIB• Guaranteed 5mm min creepage for case size 2720, mandatory for ≥250Vac Class Y2 and ≥305Vac Class X1 full certification• Y2 Class safety certified capacitors — AQL tested to ≥4kVDC and 3000Vac 60s — ideal for high voltage battery systems• The only Y2 class safety certified MLCC available with an Open Mode design to further mitigate against mechanical cracking• Reduces board area and overcomes height restrictions• FlexiCap™ option available on all sizes• UL and TUV certified; AEC-Q200 Qualified	

SAFETY CAPACITORS C0G AND X7R



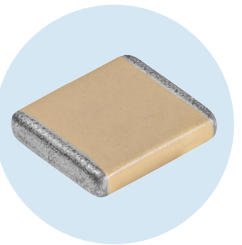
HITECA™ MULTILAYER CERAMIC CAPACITORS	
Product	<ul style="list-style-type: none">• Case sizes: 1206 - 2225• Voltage Ratings: Up to 2kV• Capacitance Values: Up to 470nF
Applications	<div><ul style="list-style-type: none">• Power Supply• Ripple Current Smoothing• DC-DC converter<ul style="list-style-type: none">• Snubber Capacitors• Inverter• EV and HEV</div>
Benefits	<ul style="list-style-type: none">• High Capacitance across the range• Capacitance stability over temperature and voltage compared to other class II dielectrics• Zero capacitance aging• High voltage ratings allow for component de-rating in application• Lower parasitic losses under common operating conditions

HITECA™ MULTILAYER CERAMIC CAPACITORS



HIGH VOLTAGE COG/NPO INCLUDING SNUBBER APPLICATIONS

Product	<ul style="list-style-type: none"> • Case sizes: 0603 - 3640 • Voltage Ratings: Up to 6kV • Capacitance Values: Up to 220nF 	
Applications	<ul style="list-style-type: none"> • High voltage where stability under temperature and voltage is critical • DC-DC converters • Wireless charging resonant tank 	<ul style="list-style-type: none"> • Battery management • PTC heater controller • EV and HEV
Benefits	<ul style="list-style-type: none"> • A high voltage range to satisfy the emerging requirements of EVs • Suitable for both industrial and automotive markets • Offers capacitance selection for 1.5kV and 2kV range that is important for snubber applications • Offers 3kV and 4kV parts to satisfy the demands of 800V battery system DWV testing 	



FAILURE MITIGATION MLCC HIGH VOLTAGE COG AND X7R

Product	<ul style="list-style-type: none"> • FlexiCap™ Capacitor case sizes: 0603 - 3640 • Voltage Ratings: Up to 6kV 	
Applications	<ul style="list-style-type: none"> • Open mode case sizes: 0603 - 2225 • Voltage Ratings: Up to 3kV 	<ul style="list-style-type: none"> • FlexiCap™ Capacitor Values: Up to 4.7μF • Open mode Capacitor Values: Up to - 2.7μF • Tandem Capacitor Values: Up to 390nF
Benefits	<ul style="list-style-type: none"> • DC/DC converter • Battery management • PTC heater controller • EV and HEV 	
Benefits	<ul style="list-style-type: none"> • FlexiCap™ technology reduces the mechanical stress being exerted on the capacitor by PCB design/ assembly processes. <ul style="list-style-type: none"> - Offering 5 millimeter bend test deflection without failure • Open Mode enhanced internal electrode design reduces risk of ceramic crack that may lead to electrical short circuit • Tandem introduces two capacitors in series within a single part, so that failure of one will not compromise circuit integrity • High voltage ratings allow for component de-rating in application 	



METAL FRAME J-LEAD TERMINAL MLCC (LEADED STANDOFF)

Product	<ul style="list-style-type: none"> • Case sizes: 2220 & 2225 - all ranges • Voltage Ratings: Up to 6kV • Capacitance Values: Up to 3.3μF 	
Applications	<ul style="list-style-type: none"> • High voltage where stability under temperature and voltage is critical • DC-DC converters • Wireless charging resonant tank 	<ul style="list-style-type: none"> • Battery management • PTC heater controller • EV and HEV
Benefits	<ul style="list-style-type: none"> • Enhanced performance under critical testing conditions such as thermal shock and mechanical vibration • Capable of 3000 thermal cycles with no degradation of interconnect when mounted to FR4 board • Suitable for both industrial and automotive markets • Offers 3kV and 4kV parts to satisfy the demands of 800V battery system DWV testing • High voltage ratings allow for component de-rating in application 	