

AEC-Q200 Capacitors

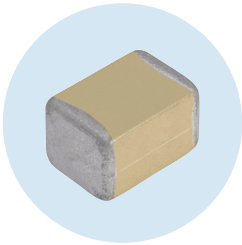
Product Overview

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.

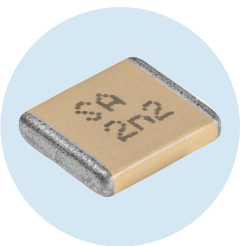
IATF 16949 Certified

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.



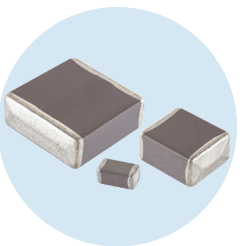
STACKICAP™ TECHNOLOGY X7R HIGH DENSITY

Product	<ul style="list-style-type: none"> • Case sizes: 1812 - 3640 • Voltage Ratings: Up to 2kV • Capacitance Values: Up to 2.2μF
Applications	<ul style="list-style-type: none"> • Battery management system • On-board charger • DC-DC converter • 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



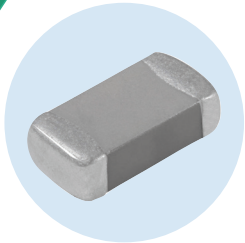
SAFETY CAPACITORS COG AND X7R

Product	<ul style="list-style-type: none"> • Case sizes: 1808, 1812, 2211, 2215, 2220, 2720 and 3825 • Voltage Ratings: 250Vac, 310Vac, 440Vac, 500Vac, 520Vac and 660Vac / Up to 1.5kVDC certified per EN60384-14 Annex H • Capacitance Values: Up to 18nF in Y2 Class, 56nF in X2 Class
Applications	<ul style="list-style-type: none"> • Battery management system • On-board charger • DC-DC converter • 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 7mm min creepage for case size 3825 and 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



HITECA™ MULTILAYER CERAMIC CAPACITORS

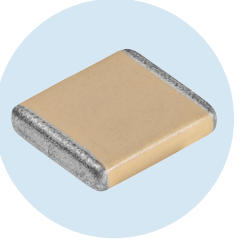
Product	<ul style="list-style-type: none"> • Case sizes: 1206 - 2225 • Voltage Ratings: Up to 2kV • Capacitance Values: Up to 470nF
Applications	<ul style="list-style-type: none"> • Power Supply • Ripple Current Smoothing • DC-DC converter • Snubber Capacitors • Inverter • EV and HEV
Benefits	<ul style="list-style-type: 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



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 • 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 • FlexiCap™ Capacitor Values: Up to 4.7μF
Applications	<ul style="list-style-type: none"> • Open mode case sizes: 0603 - 2225 • Voltage Ratings: Up to 3kV • Tandem capacitor case sizes: 0603 - 1812 • Voltage Ratings: Up to 250V2 • Open mode Capacitor Values: Up to - 2.7μF • Tandem Capacitor Values: Up to 390nF • 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 • 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