

Automotive Grade Capacitors - AEC-Q200 range

We offer a range of high quality automotive grade components. With AEC-Q200 approved ranges up to a voltage rating of 1kV we provide for the requirements of modern automotive applications including EV and HEV.

Ranges include :-

1. Standard MLCCs
2. StackiCap™ - large capacitance/small case size MLCCs
3. Open Mode and Tandem capacitors
4. 3 terminal EMI components
5. X2Y Integrated Passive Component
6. X8R high temperature MLCCs
7. Safety Certified MLCCs

All fully tested / approved and available with a range of suitable termination options, including tin/lead plating and Knowles FlexiCap™.



AEC-Q200 MLCC range - maximum capacitance values

		0603	0805	1206	1210	1808	1812		1825	2220		2225	3640	
							StackiCap™ 3.2mm max thickness			StackiCap™ 4.2mm max thickness			StackiCap™ 4.2mm max thickness	
50/ 63V	COG/NPO	1nF	4.7nF	15nF	27nF	27nF	47nF	-	82nF	100nF	-	150nF	220nF	-
	X7R	100nF *	220nF	470nF	1µF	-	2.2µF	-	2.2µF	3.3µF	-	3.3µF	4.7µF	-
100V	COG/NPO	470pF	2.2nF	8.2nF	15nF	15nF	39nF	-	47nF	56nF	-	68nF	180nF	-
	X7R	47nF	100nF	220nF	680nF	-	1µF	-	1.5µF	1.5µF	-	2.2µF	3.3µF	-
200/ 250V	X8R	-	33nF	100nF	220nF	220nF	470nF	-	-	1.0µF	-	1.5µF	-	-
	COG/NPO	220pF	1nF	3.3nF	8.2nF	8.2nF	18nF	-	27nF	33nF	-	33nF	82nF	-
500V	X7R	10nF	47nF	150nF	330nF	-	680nF	1.0µF	1.0µF	1.0µF	2.2µF	1.5µF	1.5µF	5.6µF
	X8R	-	15nF	68nF	150nF	150nF	330nF	-	-	680nF	-	1.0µF	-	-
630V	COG/NPO	-	680pF	2.7nF	6.8nF	5.6nF	15nF	-	18nF	22nF	-	22nF	56nF	-
	X7R	-	15nF	68nF	150nF	-	330nF	470nF	560nF	560nF	1.2µF	680nF	1.0µF	2.7µF
1kV	X8R	-	4.7nF	22nF	47nF	47nF	120nF	-	-	330nF	-	470nF	-	-
	COG/NPO	-	560pF	2.7nF	6.8nF †	5.6nF	15nF	-	10nF	15nF	-	15nF	39nF	-
1.2kV	X7R	-	10nF	47nF	100nF	-	150nF	330nF	200nF	330nF	1.0µF	390nF	680nF	2.2µF
	X8R	-	2.2nF	10nF	33nF	33nF	68nF	-	-	180nF	-	220nF	-	-
1.5kV	COG/NPO	-	150pF	1.5nF	2.2nF	2.2nF	5.6nF	-	10nF	10nF	-	10nF	22nF	-
	X7R	-	3.3nF	10nF	47nF	-	68nF	180nF	200nF	120nF	470nF	150nF	180nF	1.0µF
2kV	X8R	-	1.5nF	3.3nF	6.8nF	6.8nF	27nF	-	-	68nF	-	82nF	-	-
	COG/NPO	-	68pF	390pF	680pF	1.0nF	3.3nF	-	4.7nF	4.7nF	-	6.8nF	18nF	-
2.5kV	X7R	-	-	3.3nF	18nF	-	33nF	100nF	68nF	82nF	220nF	100nF	150nF	470nF
	X8R	-	-	2.2nF	5.6nF	5.6nF	15nF	-	-	47nF	-	56nF	-	-
3kV	COG/NPO	-	68pF	390pF	680pF	680pF	2.2nF	-	3.9nF	4.7nF	-	4.7nF	12nF	-
	X7R	-	-	2.7nF	6.8nF	-	22nF	56pF	47nF	47nF	150nF	68nF	100nF	330nF
2kV	X8R	-	-	1.5nF	3.3nF	3.3nF	10nF	-	-	27nF	-	33nF	-	-
	COG/NPO	-	47pF	220pF	390pF	470pF	1.5nF	-	1.8nF	2.2nF	-	2.2nF	5.6nF	-
2.5kV	X7R	-	-	2.2nF	4.7nF	-	10nF	33pF	10nF	27nF	100nF	33nF	47nF	150nF
	X8R	-	-	680pF	1.5nF	1.5nF	5.6nF	-	-	15nF	-	22nF	-	-
3kV	COG/NPO	-	-	100pF	180pF	270pF	680pF	-	-	1.5nF	-	-	-	-
	X7R	-	-	-	-	1.2nF	3.3nF	-	-	10nF	-	12nF	-	-
3kV	COG/NPO	-	-	68pF	150pF	220pF	470pF	-	-	1nF	-	-	-	-
	X8R	-	-	-	-	820pF	2.7nF	-	-	5.6nF	-	6.8nF	-	-

Notes: 1) * 0603 Max thickness 0.9mm above 56nF, FB6 suffix code. 2) † 1210 Max thickness 2.2mm as suffix AG1. 3) See page 62 of the MLC Capacitors catalogue for full details of the StackiCap™ range.

Safety Certified Capacitors

Dielectric	Approval Body	X1 PY2		X2 SP	Y2/X1 SP		Y2/X1 B16	X2 B17
		1808	1812	1808	2211	2215	2220	2220
COG/NPO	TÜV, UL	4.7pF - 390pF	4.7pF - 470pF	4.7pF - 1.5nF	4.7pF - 1.0nF	820pF - 1.0nF	-	-
X7R	TÜV, UL	150pF - 1nF	150pF - 2.2nF	150pF - 4.7nF	100pF - 3.9nF	2.7nF - 3.9nF	150pF - 10nF	150pF - 22nF (TÜV approval only)

Note: See pages 65, 66 and 67 of the MLC Capacitors catalogue for full details of 250Vac Safety Certified AC Capacitors and ordering information.

Automotive Grade Capacitors - AEC-Q200 range

AEC-Q200 range - Open Mode - max capacitance values

	0603	0805	1206	1210	1808	1812	2220	2225
	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R
50/63V	22nF	100nF	220nF	470nF	470nF	1.0µF	1.5µF	2.7µF
100V	6.8nF	27nF	100nF	220nF	220nF	680nF	1.0µF	1.5µF
200/250V	2.7nF	15nF	68nF	100nF	100nF	330nF	680nF	1.0µF
500V	-	5.6nF	39nF	68nF	68nF	180nF	330nF	390nF
630V	-	-	22nF	33nF	27nF	100nF	180nF	220nF
1kV	-	-	6.8nF	15nF	15nF	47nF	82nF	100nF

AEC-Q200 range - Tandem - max capacitance values

	0603	0805	1206	1210	1812
	X7R	X7R	X7R	X7R	X7R
50/63V	6.8nF	33nF	100nF	180nF	390nF
100V	2.2nF	10nF	47nF	82nF	220nF
200/250V	1.0nF	4.7nF	22nF	47nF	100nF

AEC-Q200 range - 3 Terminal EMI Components (E01 & E07) - max capacitance values

		E01			E07		
		0805	1206	1806	0805	1206	1806
50V	COG/NP0	820pF	1.0nF	2.2nF	220pF	1nF	1.5nF
	X7R	47nF	100nF	200nF	47nF	100nF	200nF
100V	COG/NP0	560pF	1.0nF	2.2nF	120pF	560pF	680pF
	X7R	15nF	15nF	68nF	15nF	15nF	68nF

Note: For some lower capacitance parts, higher voltage rated parts may be supplied. See page 54 for full details of the product range.

AEC-Q200 range - X2Y Integrated Passive Components (E03) - capacitance values

		0805	1206	1410	1812
		50V	COG/NP0	390pF - 470pF	1.2nF - 1.5nF
	X7R	18nF - 33nF	56nF - 150nF	180nF - 330nF	390nF - 560nF
100V	COG/NP0	10pF - 330pF	22pF - 1.0nF	100pF - 3.9nF	820pF - 6.8nF
	X7R	470pF - 15nF	1.5nF - 47nF	4.7nF - 150nF	8.2nF - 330nF

Note: For some lower capacitance parts, higher voltage rated parts may be supplied. See page 56 for full details of the product range.

Ordering information - AEC-Q200 ranges

1210	Y	100	0103	K	S	T	---
Chip size	Termination	Voltage	Capacitance in picofarads (pF)	Capacitance tolerance	Dielectric Release codes	Packaging	Suffix code
0603 0805 1206 1210 1808 1812 1825 2220 2225 3640	<p>Y = FlexiCap™ termination base with Ni barrier (100% matte tin plating). RoHS compliant.</p> <p>H = FlexiCap™ termination base with Ni barrier (Tin/lead plating with min. 10% lead). Not RoHS compliant.</p> <p>J = Nickel barrier (100% matte tin plating). RoHS compliant. Lead free.</p> <p>A = Nickel barrier (Tin/lead plating with min. 10% lead). Not RoHS compliant.</p> <p>Note: AEC-Q200 X7R is only available in Y or H termination.</p>	<p>050 = 50V 063 = 63V 100 = 100V 200 = 200V 250 = 250V 500 = 500V 630 = 630V 1K0 = 1kV 1K2 = 1.2kV 1K5 = 1.5kV 2K0 = 2kV 2K5 = 2.5kV 3K0 = 3kV</p>	<p>First digit is 0.</p> <p>Second and third digits are significant figures of capacitance code.</p> <p>The fourth digit is number of zeros following</p> <p>Example: 0103 = 10nF</p>	<p>F = ±1% G = ±2% J = ±5% K = ±10% M = ±20%</p>	<p>S = X7R (BME) AEC-Q200 E = X7R (2R1) AEC-Q200 K = COG/NP0 (BME/NP0) AEC-Q200 A = COG/NP0 (1B/NP0) AEC-Q200 T = X8R with AEC-Q200 release</p>	<p>T = 178mm (7") reel R = 330mm (13") reel B = Bulk pack - tubs or trays</p>	<p>WS2 = StackiCap™ M01 = Open Mode T01 = Tandem E01 & E07 = 3 terminal EMI component E03 = X2Y product</p>