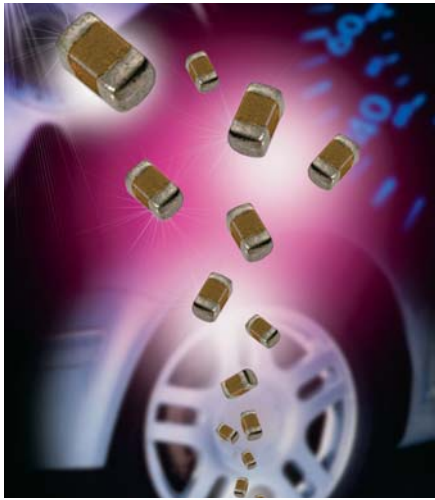


High Voltage MLC Chip Capacitors

For 600V to 3000V Automotive Applications – AEC-Q200



Modern automotive electronics could require components capable to work with high voltage (e.g. xenon lamp circuits or power converters in hybrid cars). AVX offer high voltage ceramic capacitors qualified according to AEC-Q200 standard.

High value, low leakage and small size are difficult parameters to obtain in capacitors for high voltage systems. AVX special high voltage MLC chip capacitors meet these performance characteristics and are designed for applications such as snubbers in high frequency power converters, resonators in SMPS, and high voltage coupling / dc blocking. These high voltage chip designs exhibit low ESRs at high frequencies.

Due to high voltage nature, larger physical dimensions are necessary. These larger sizes require special precautions to be taken in applying of MLC chips. The temperature gradient during heating or cooling cycles should not exceed 4°C per second. The preheat temperature must be within 50°C of the peak temperature reached by the ceramic bodies through the soldering process. Chip sizes 1210 and larger should be reflow soldered only. Capacitors may require protective surface coating to prevent external arcing.

To improve mechanical and thermal resistance, AVX recommend to use flexible terminations system - FLEXITERM®.

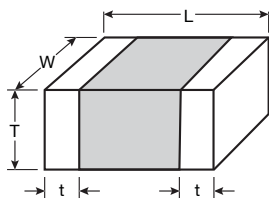
HOW TO ORDER

1210	C	C	223	K	4	T	1	A
AVX Style	Voltage	Dielectric	Capacitance Code	Capacitance Tolerance	Failure Rate	Termination	Packaging	Special Code
1206	A = 630V	C = X7R	(2 significant digits + no. of zeros) e.g. 103 = 10nF (223 = 22nF)	J = ±5% K = ±10% M = ±20%	4 = Automotive	T = Plated Ni/Sn Z = FLEXITERM®	1 or 2 = 7" Reel 3 or 4 = 13" Reel	A = Standard
1210	S = 1500V							
1808	G = 2000V							
1812	W = 2500V							
2220	H = 3000V							

*AVX offers nonstandard case sizes. Contact factory for details.

Notes: Capacitors with X7R dielectrics are not intended for applications across AC supply mains or AC line filtering with polarity reversal. Please contact AVX for recommendations.

CHIP DIMENSIONS DESCRIPTION (See capacitance range chart on page 106)



L = Length
W = Width
T = Thickness
t = Terminal

X7R DIELECTRIC PERFORMANCE CHARACTERISTICS

Parameter/Test	Specification Limits	Measuring Conditions
Operating Temperature Range	-55°C to +125°C	Temperature Cycle Chamber
Capacitance Dissipation Factor Capacitance Tolerance	within specified tolerance 2.5% max. ±5% (J), ±10% (K), ±20% (M)	Freq.: 1kHz ±10% Voltage: 1.0Vrms ±0.2Vrms T = +25°C, V = 0Vdc
Temperature Characteristics	X7R = ±15%	Vdc = 0V, T = (-55°C to +125°C)
Insulation Resistance	100GΩ min. or 1000MΩ • μF min. (whichever is less) 10GΩ min. or 100MΩ • μF min. (whichever is less)	T = +25°C, V = 500Vdc T = +125°C, V = 500Vdc (t ≥ 120 sec, I ≤ 50mA)
Dielectric Strength	No breakdown or visual defect	120% of rated voltage t ≤ 5 sec, I ≤ 50mA

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X7R CAPACITANCE RANGE
PREFERRED SIZES ARE SHADED

Case Size		1206					1210				1808					1812						2220						
Soldering		Reflow/Wave					Reflow Only				Reflow Only					Reflow Only						Reflow Only						
(L) Length	mm	3.20 ± 0.20					3.20 ± 0.20				4.57 ± 0.25					4.50 ± 0.30						5.70 ± 0.40						
	(in.)	(0.126 ± 0.008)					(0.126 ± 0.008)				(0.180 ± 0.010)					(0.177 ± 0.012)						(0.224 ± 0.016)						
(W) Width	mm	1.60 ± 0.20					2.50 ± 0.20				2.03 ± 0.25					3.20 ± 0.20						5.00 ± 0.40						
	(in.)	(0.063 ± 0.008)					(0.098 ± 0.008)				(0.080 ± 0.010)					(0.126 ± 0.008)						(0.197 ± 0.016)						
(T) Thickness	mm	1.52					1.70				2.03					2.54						3.30						
	(in.)	(0.060)					(0.067)				(0.080)					(0.100)						(0.130)						
(t) Terminal	min	0.25 (0.010)					0.25 (0.010)				0.25 (0.010)					0.25 (0.010)						0.25 (0.010)						
	max	0.75 (0.030)					0.75 (0.030)				1.02 (0.040)					1.02 (0.040)						1.02 (0.040)						
Voltage (V)		630	1000	1500	2000	2500	630	1000	1500	2000	630	1000	1500	2000	2500	3000	630	1000	1500	2000	2500	3000	4000	630	1000	1500	2000	3000
Cap. (pF)		101	120	150	180	220	270	330	390	470	560	680	820	1000	1200	1500	1800	2200	2700	3300	3900	4700	5600	6800	8200			
		103	123	153	183	223	273	333	393	473	563	683	823	102	122	152	182	222	272	332	392	472	562	682	822			
Cap. (µF)		0.01	0.012	0.015	0.018	0.022	0.027	0.033	0.039	0.047	0.056	0.068	0.082	0.100	0.120	0.150	0.180	0.220	0.270	0.330	0.390	0.470	0.560	0.680	0.820			
		103	123	153	183	223	273	333	393	473	563	683	823	104	124	154	184	224	274	334	394	474	564	684	824			
Voltage (V)		630	1000	1500	2000	2500	630	1000	1500	2000	630	1000	1500	2000	2500	3000	630	1000	1500	2000	2500	3000	4000	630	1000	1500	2000	3000
Case Size		1206					1210				1808					1812						2220						

NOTE: Contact factory for non-specified capacitance values