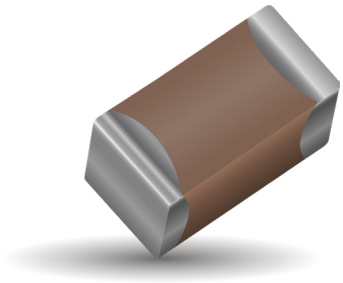
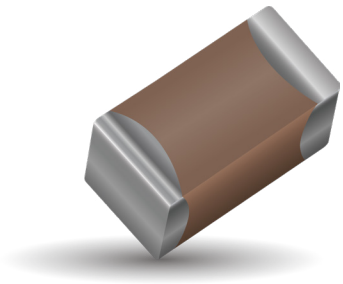
High Voltage MLC Chip Capacitors
For 600V to 3000V Automotive Applications - AEC-Q200





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

High value, low leakage and small size are diffocult parameters to obtain in cpacitors for high voltage systems. AVX special hgih 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®.

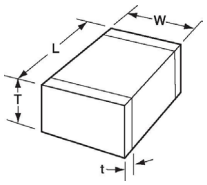
HOW TO ORDER

1210	C	C	223	K	4	T	1	A
Size	**Voltage**	**Dielectric**	**Capacitance Code**	**Capacitance Tolerance**	**Failure Rate**	**Terminations**	**Packaging**	**Special Code**
1206 1210 1808 1812 2220	C = 630V A = 1000V S = 1500V G = 2000V W = 2500V H = 3000V	X7R = C	2 Sig. Digits + Number of Zeros e.g. 103 = 10nF (223 = 22nF)	K = ±10% M = ±20%	4=Automotive	T = Plated Ni and Sn Z = FLEXITERM®	1 or 2 = 7" Reel 3 or 4 = 13" Reel	A = Std. Product

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

Notes: Capacitors with X7R dielectrics are not indeded 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 109)



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: 1.0Vrm s ±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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High Voltage MLC Chips FLEXITERM®
For 600V to 3000V Automotive Applications – AEC-Q200

X7R CAPACITANCE RANGE
PREFERRED SIZES ARE SHADED

CaseSize		1206					1210				1808						1812							2220				
Soldering		Reflow/Wave					ReflowOnly				ReflowOnly						ReflowOnly							ReflowOnly				
(L) Length	mm (in.)	3.20 ± 0.20 (0.126 ± 0.008)					3.20 ± 0.20 (0.126 ± 0.008)				4.57 ± 0.25 (0.180 ± 0.010)						4.50 ± 0.30 (0.177 ± 0.012)							5.70 ± 0.40 (0.224 ± 0.016)				
(W) Width	mm (in.)	1.60 ± 0.20 (0.063 ± 0.008)					2.50 ± 0.20 (0.098 ± 0.008)				2.03 ± 0.25 (0.080 ± 0.010)						3.20 ± 0.20 (0.126 ± 0.008)							5.00 ± 0.40 (0.197 ± 0.016)				
(T) Thickness	mm (in.)	1.52 (0.060)					1.70 (0.067)				2.03 (0.080)						2.54 (0.100)							3.30 (0.130)				
(t)Terminal	min max	0.25 (0.010) 0.75 (0.030)					0.25 (0.010) 0.75 (0.030)				0.25 (0.010) 1.02 (0.040)						0.25 (0.010) 1.02 (0.040)							0.25 (0.010) 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)	100 101	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
	120 121	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
	150 151	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
	180 181	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
	220 221	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
	270 271	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
	330 331	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
	390 391	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
	470 471	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■							
	560 561	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■							
	680 681	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■							
	820 821	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■							
	1000 102	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			■	■	■	■	
	1200 122	■	■	■	■		■	■	■	■	■	■	■	■	■		■	■	■	■	■				■	■	■	■	
	1500 152	■	■	■	■		■	■	■	■	■	■	■	■			■	■	■	■	■				■	■	■	■	
	1800 182	■	■	■			■	■	■	■	■	■	■				■	■	■	■	■				■	■	■	■	
	2200 222	■	■	■			■	■	■	■	■	■	■				■	■	■	■	■		■		■	■	■	■	■
	2700 272	■	■	■			■	■	■	■	■	■	■				■	■	■	■					■	■	■	■	
	3300 332	■	■				■	■	■	■	■	■	■				■	■	■	■					■	■	■	■	
	3900 392	■	■				■	■	■		■	■	■				■	■	■	■					■	■	■	■	
	4700 472	■	■				■	■	■		■	■					■	■	■	■					■	■	■	■	
	5600 562	■	■				■	■	■		■	■					■	■	■	■					■	■	■	■	
	6800 682	■	■				■	■			■	■					■	■	■	■					■	■	■	■	
	8200 822	■	■				■	■			■	■					■	■	■	■					■	■	■	■	
Cap (µF)	0.01 103	■					■	■			■	■					■	■	■						■	■	■	■	
	0.012 123						■	■			■	■					■	■	■						■	■	■	■	
	0.015 153						■	■			■	■					■	■	■						■	■	■	■	
	0.018 183						■	■			■	■					■	■							■	■	■	■	
	0.022 223						■	■			■	■					■	■							■	■	■	■	
	0.027 273						■	■			■	■					■								■	■			
	0.033 333										■	■					■								■	■			
	0.039 393										■	■					■								■	■			
	0.047 473										■	■					■								■	■			
	0.056 563																								■				
	0.068 683																								■				
	0.082 823																								■				
	0.100 104																								■				
	0.120 124																								■				
	0.150 154																								■				
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
CaseSize		1206					1210				1808						1812							2220				

NOTE: Contact factory for non-specified capacitance values

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