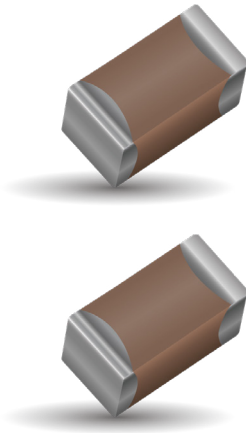


High Voltage MLC Chip Capacitors

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 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

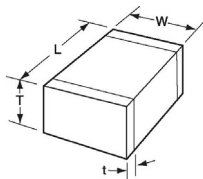
1210	C	C	223	K	4	T	1	A
Size	Voltage	Dielectric	Capacitance Code	Capacitance Tolerance	Failure Rate	Terminations	Packaging	Special Code
1206	C = 630V	X7R = C	2 Sig. Digits + Number of Zeros e.g. 103 = 10nF (223 = 22nF)	K = ±10% M = ±20%	4=Automotive	T = Plated Ni and Sn Z = FLEXITERM®	1 or 2 = 7" Reel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

*AVX offers nonstandard case size. 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 128)



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	within specified tolerance	Freq.: 1kHz ±10%
Dissipation Factor	2.5% max.	Voltage: 1.0Vrms ± 0.2Vrms
Capacitance Tolerance	±5% (J), ±10% (K), ±20% (M)	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

High Voltage MLC Chips FLEXITERM®

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



X7R CAPACITANCE RANGE

PREFERRED SIZES ARE SHADED

Case Size		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 ± 0.50 (0.224 ± 0.020)							
(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	mm 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
Case Size		1206					1210				1808					1812					2220							

NOTE: Contact factory for non-specified capacitance values