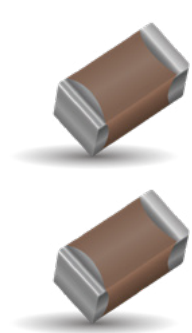


High Voltage MLC Chip Capacitors

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). KYOCERA 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. KYOCERA 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, KYOCERA AVX recommend to use flexible terminations system - FLEXITERM®.

HOW TO ORDER

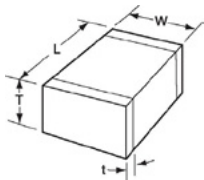
1210	C	C	223	K	4	T	2	A
Size 1206 1210 1808 1812 2220	Voltage C = 630V A = 1000V S = 1500V G = 2000V W = 2500V H = 3000V	Dielectric X7R = C	Capacitance Code 2 Sig. Digits + Number of Zeros e.g. 103 = 10nF (223 = 22nF)	Capacitance Tolerance K = ±10% M = ±20%	Failure Rate 4 = Automotive	Terminations T =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

*KYOCERA 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 KYOCERA 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 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



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.kyocera-avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.

TDS-SMDMLCC-0018 | Rev 1

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					Reflow/Wave					Reflow Only						Reflow Only						Reflow Only				
(L) Length	mm		3.2 ± 0.2 (0.126 ± 0.008)					3.2 ± 0.2 (0.126 ± 0.008)					4.57 ± 0.25 (0.18 ± 0.01)						4.5 ± 0.3 (0.177 ± 0.012)						5.7 ± 0.5 (0.224 ± 0.02)				
W) Width	mm		1.6 ± 0.2 (0.063 ± 0.008)					2.5 ± 0.2 (0.098 ± 0.008)					2.03 ± 0.25 (0.08 ± 0.01)						3.2 ± 0.2 (0.126 ± 0.008)						5 ± 0.4 (0.197 ± 0.016)				
(t) Terminal	mm		0.5 ± 0.25 (0.02 ± 0.01)					0.5 ± 0.25 (0.02 ± 0.01)					0.61 ± 0.36 (0.024 ± 0.014)						0.61 ± 0.36 (0.024 ± 0.014)						0.64 ± 0.39 (0.025 ± 0.015)				
	max																												
Voltage (V)			630	1000	1500	2000	2500	630	1000	1500	2000	630	1000	1500	2000	2500	3000	630	1000	1500	2000	2500	3000	630	1000	1500	2000	3000	
Cap (pF)	101	100	C	E	E	E	E																						
	121	120	C	E	E	E	E																						
	151	150	C	E	E	E	E																						
	181	180	C	E	E	E	E																						
	221	220	C	E	E	E	E					E	E	E	E	E	E												
	271	270	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E												
	331	330	C	E	E	E	E	E	E	E	E	E	E	E	E	E	F	E											
	391	390	C	E	E	E	E	E	E	E	E	E	E	E	E	E	F	E											
	471	470	C	E	E	E	E	E	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E					
	561	560	C	E	E	E	E	E	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E					
	681	680	C	E	E	E	E	E	E	E	E	E	E	F	F	F	F	E	E	E	E	E	F	F					
	821	820	C	E	E	E	E	E	E	E	E	E	E	F	F	F	F	E	E	E	E	F	F	F					
	102	1000	C	E	E	E	E	E	E	E	E	E	E	F	F	F	F	E	E	E	E	F	F	F	F	F	G		
	122	1220	C	E	E	E	E		E	E	E	E						F	F	F	F	G		F	F	F	F	G	
	152	1500	C	E	E	E	E		E	E	E	E						F	F	F	F	G		F	F	F	F	G	
	182	1800	C	E	E				E	E	E	E						F	F	F	F	G		F	F	F	F	G	
	222	2200	C	E	E				E	E	E	E						F	F	F	F	G		F	F	F	F	G	
	272	2700	C	E	E				E	E	E	E						F	F	F	F			F	F	F	F		
	332	3300	C	E					E	E	E	E						F	F	F	F			F	F	F	F		
	392	3900	C	E					E	E	E							F	F	F	F			F	F	F	F		
	472	4700	C	E					E	E	E							F	F	G	G			F	F	F	F		
	562	5600	C	E					E	E	E							F	F	G	G			F	F	F	F		
	682	6800	E	E					E	E								F	F	G	G			F	F	F	F		
	822	8200	E						E	E								F	F	G	G			F	F	G	G		
	103	0.01	E						E	E								F	F	G				G	G	G	G		
	123	0.012							E	E								F	F	G				G	G	G	G		
	153	0.015							E	E								F	F	G				G	G	G	G		
	183	0.018							E	E								F	F					G	G	G	G		
	223	0.022							E									F	F					G	G	G	G		
	273	0.027							Q									F						G	G				
	333	0.033																F						G	G				
	393	0.039																F						G	G				
	473	0.047																F						G	G				
	563	0.056																						G	G				
	683	0.068																						G	G				
	823	0.082																						G	G				
	104	0.1																						G	G				
	124	0.12																						G					
	154	0.15																						G					
	224	0.22																											
	334	0.33																											
	474	0.47																											
	684	0.68																											
	105	1																											
	155	1.5																											
	225	2.2																											
	335	3.3																											
	475	4.7																											
	106	10																											
	226	22																											
WVDC			630	1000	1500	2000	2500	630	1000	1500	2000	630	1000	1500	2000	2500	3000	630	1000	1500	2000	2500	3000	630	1000	1500	2000	3000	
Size			1206					1210					1808						1812						2220				

NOTE: Contact factory for non-specified capacitance values

Letter	A	C	E	F	G	Q
Max Thickness	0.81 (0.032)	1.45 (0.057)	1.80 (0.071)	2.20 (0.087)	2.80 (0.110)	1.78 (0.070)

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