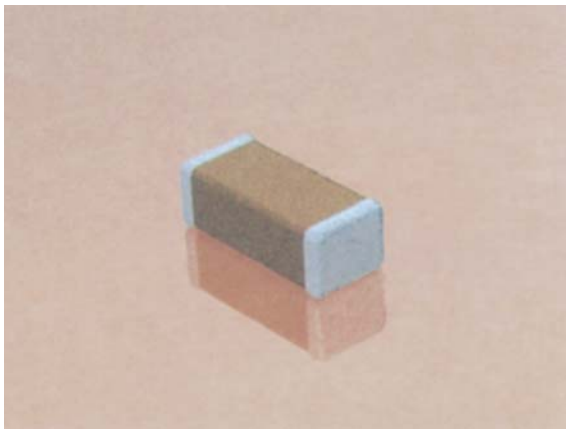


High Voltage MLC Chips



For 600V to 5000V Application



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.

Larger physical sizes than normally encountered chips are used to make high voltage MLC chip products. Special precautions must be taken in applying these chips in surface mount assemblies. 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.

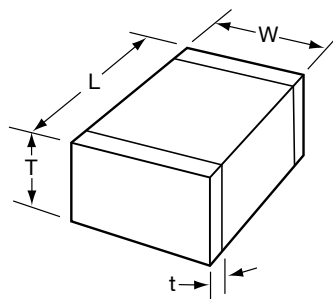
NEW 630V RANGE

HOW TO ORDER

1808	A	A	271	K	A	1	1	A
AVX Style	Voltage	Temperature Coefficient	Capacitance Code (2 significant digits + no. of zeros) Examples:	Capacitance Tolerance COG: J = ±5% K = ±10% M = ±20% X7R: K = ±10% M = ±20% Z = +80%, -20%	Test Level A = Standard	Termination* 1 = Pd/Ag T = Plated Ni and Sn (RoHS Compliant)	Packaging 1 = 7" Reel 3 = 13" Reel 9 = Bulk	Special Code A = Standard
0805	600V/630V = C 1000V = A	COG = A X7R = C	10 pF = 100 100 pF = 101 1,000 pF = 102 22,000 pF = 223 220,000 pF = 224 1 μF = 105					
1206	1500V = S							
1210	2000V = G							
1808	2500V = W							
1812	3000V = H							
1825	4000V = J							
2220	5000V = K							
2225								
3640								

*Note: Terminations with 5% minimum lead (Pb) is available, see pages 75 and 76 for LD style.

Notes: Capacitors with X7R dielectrics are not intended for applications across AC supply mains or AC line filtering with polarity reversal. Contact plant for recommendations. Contact factory for availability of Termination and Tolerance options for Specific Part Numbers.



DIMENSIONS

millimeters (inches)

SIZE	0805	1206	1210*	1808*	1812*	1825*	2220*	2225*	3640*
(L) Length	2.01 ± 0.20 (0.079 ± 0.008)	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)	4.50 ± 0.30 (0.177 ± 0.012)	5.70 ± 0.40 (0.224 ± 0.016)	5.72 ± 0.25 (0.225 ± 0.010)	9.14 ± 0.25 (0.360 ± 0.010)
(W) Width	1.25 ± 0.20 (0.049 ± 0.008)	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)	6.40 ± 0.30 (0.252 ± 0.012)	5.00 ± 0.40 (0.197 ± 0.016)	6.35 ± 0.25 (0.250 ± 0.010)	10.2 ± 0.25 (0.400 ± 0.010)
(T) Thickness Max.	1.30 (0.051)	1.52 (0.060)	1.70 (0.067)	2.03 (0.080)	2.54 (0.100)	2.54 (0.100)	3.30 (0.130)	2.54 (0.100)	2.54 (0.100)
(t) terminal min. max.	0.50 ± 0.25 (0.020 ± 0.010)	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)	0.25 (0.010) 1.02 (0.040)	0.25 (0.010) 1.02 (0.040)	0.76 (0.030) 1.52 (0.060)

*Reflow Soldering Only



High Voltage MLC Chips



For 600V to 5000V Applications

C0G Dielectric Performance Characteristics

Capacitance Range	10 pF to 0.047 μ F (25°C, 1.0 \pm 0.2 Vrms at 1kHz, for \leq 1000 pF use 1 MHz)
Capacitance Tolerances	\pm 5%, \pm 10%, \pm 20%
Dissipation Factor	0.1% max. (+25°C, 1.0 \pm 0.2 Vrms, 1kHz, for \leq 1000 pF use 1 MHz)
Operating Temperature Range	-55°C to +125°C
Temperature Characteristic	0 \pm 30 ppm/°C (0 VDC)
Voltage Ratings	600, 630, 1000, 1500, 2000, 2500, 3000, 4000 & 5000 VDC (+125°C)
Insulation Resistance (+25°C, at 500 VDC)	100K M Ω min. or 1000 M Ω - μ F min., whichever is less
Insulation Resistance (+125°C, at 500 VDC)	10K M Ω min. or 100 M Ω - μ F min., whichever is less
Dielectric Strength	Minimum 120% rated voltage for 5 seconds at 50 mA max. current

HIGH VOLTAGE C0G CAPACITANCE VALUES

VOLTAGE	0805	1206	1210	1808	1812	1825	2220	2225	3640
600/630 min.	10pF	10 pF	100 pF	100 pF	100 pF	1000 pF	1000 pF	1000 pF	1000 pF
600/630 max.	330pF	1200 pF	2700 pF	3300 pF	5600 pF	0.012 μ F	0.012 μ F	0.018 μ F	0.047 μ F
1000 min.	10pF	10 pF	10 pF	100 pF	100 pF	100 pF	1000 pF	1000 pF	1000 pF
1000 max.	180pF	560 pF	1500 pF	2200 pF	3300 pF	8200 pF	0.010 μ F	0.010 μ F	0.022 μ F
1500 min.	—	10 pF	10 pF	10 pF	10 pF	100 pF	100 pF	100 pF	100 pF
1500 max.	—	270 pF	680 pF	820 pF	1800 pF	4700 pF	4700 pF	5600 pF	0.010 μ F
2000 min.	—	10 pF	10 pF	10 pF	10 pF	100 pF	100 pF	100 pF	100 pF
2000 max.	—	120 pF	270 pF	330 pF	1000 pF	1800 pF	2200 pF	2700 pF	6800 pF
2500 min.	—	—	—	10 pF	10 pF	10 pF	100 pF	100 pF	100 pF
2500 max.	—	—	—	180 pF	470 pF	1200 pF	1500 pF	1800 pF	3900 pF
3000 min.	—	—	—	10 pF	10 pF	10 pF	10 pF	10 pF	100 pF
3000 max.	—	—	—	120 pF	330 pF	820 pF	1000 pF	1200 pF	2700 pF
4000 min.	—	—	—	10 pF	10 pF	10 pF	10 pF	10 pF	100 pF
4000 max.	—	—	—	47 pF	150 pF	330 pF	470 pF	560 pF	1200 pF
5000 min.	—	—	—	—	—	—	10 pF	10 pF	10 pF
5000 max.	—	—	—	—	—	—	220 pF	270 pF	820 pF

X7R Dielectric Performance Characteristics

Capacitance Range	10 pF to 0.56 μ F (25°C, 1.0 \pm 0.2 Vrms at 1kHz)
Capacitance Tolerances	\pm 10%; \pm 20%; +80%, -20%
Dissipation Factor	2.5% max. (+25°C, 1.0 \pm 0.2 Vrms, 1kHz)
Operating Temperature Range	-55°C to +125°C
Temperature Characteristic	\pm 15% (0 VDC)
Voltage Ratings	600, 630, 1000, 1500, 2000, 2500, 3000, 4000 & 5000 VDC (+125°C)
Insulation Resistance (+25°C, at 500 VDC)	100K M Ω min. or 1000 M Ω - μ F min., whichever is less
Insulation Resistance (+125°C, at 500 VDC)	10K M Ω min. or 100 M Ω - μ F min., whichever is less
Dielectric Strength	Minimum 120% rated voltage for 5 seconds at 50 mA max. current

HIGH VOLTAGE X7R MAXIMUM CAPACITANCE VALUES

VOLTAGE	0805	1206	1210	1808	1812	1825	2220	2225	3640
600/630 min.	100pF	1000 pF	1000 pF	1000 pF	1000 pF	0.010 μ F	0.010 μ F	0.010 μ F	0.010 μ F
600/630 max.	6800pF	0.022 μ F	0.056 μ F	0.056 μ F	0.100 μ F	0.180 μ F	0.220 μ F	0.220 μ F	0.560 μ F
Development	—	—	—	0.068 μ F	0.120 μ F	0.270 μ F	0.270 μ F	0.330 μ F	—
1000 min.	100pF	100 pF	1000 pF	1000 pF	1000 pF	1000 pF	1000 pF	1000 pF	0.010 μ F
1000 max.	1500pF	6800 pF	0.015 μ F	0.018 μ F	0.027 μ F	0.100 μ F	0.100 μ F	0.100 μ F	0.220 μ F
Development	—	—	—	0.039 μ F	—	—	0.120 μ F	0.150 μ F	—
1500 min.	—	100 pF	100 pF	100 pF	100 pF	1000 pF	1000 pF	1000 pF	1000 pF
1500 max.	—	2700 pF	4700 pF	6800 pF	0.012 μ F	0.033 μ F	0.039 μ F	0.047 μ F	0.100 μ F
Development	—	—	6800 pF	—	0.015 μ F	0.056 μ F	0.056 μ F	0.068 μ F	—
2000 min.	—	10 pF	100 pF	100 pF	100 pF	100 pF	1000 pF	1000 pF	1000 pF
2000 max.	—	1500 pF	2700 pF	2700 pF	4700 pF	0.010 μ F	0.010 μ F	0.022 μ F	0.027 μ F
Development	—	—	3900 pF	3900 pF	8200 pF	0.027 μ F	0.027 μ F	0.033 μ F	—
2500 min.	—	—	—	10 pF	10 pF	100 pF	100 pF	100 pF	1000 pF
2500 max.	—	—	—	1800 pF	3300 pF	6800 pF	8200 pF	0.010 μ F	0.022 μ F
Development	—	—	—	2200 pF	5600 pF	0.015 μ F	0.018 μ F	0.022 μ F	—
3000 min.	—	—	—	10 pF	10 pF	100 pF	100 pF	100 pF	1000 pF
3000 max.	—	—	—	1500 pF	2200 pF	4700 pF	4700 μ F	6800 pF	0.018 μ F
Development	—	—	—	1800 pF	4700 pF	0.012 μ F	0.012 μ F	0.015 μ F	—
4000 min.	—	—	—	—	—	—	—	—	100 pF
4000 max.	—	—	—	—	—	—	—	—	6800 pF
5000 min.	—	—	—	—	—	—	—	—	100 pF
5000 max.	—	—	—	—	—	—	—	—	3300 pF

