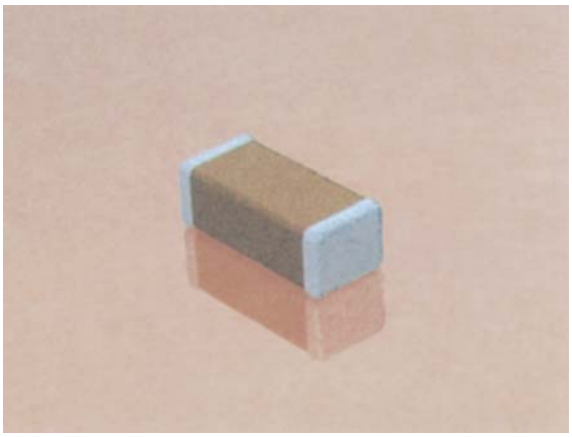
High Voltage MLC Chips FLEXITERM®

For 600V to 3000V Applications



High value, low leakage and small size are difficult parameters to obtain in capacitors for high voltage systems. AVX special high voltage MLC chips 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.

To make high voltage chips, larger physical sizes than are normally encountered are necessary. These larger sizes require that special precautions be taken in applying these chips in surface mount assemblies. In response to this, and to follow from the success of the FLEXITERM® range of low voltage parts, AVX is delighted to offer a FLEXITERM® high voltage range of capacitors, FLEXITERM®.

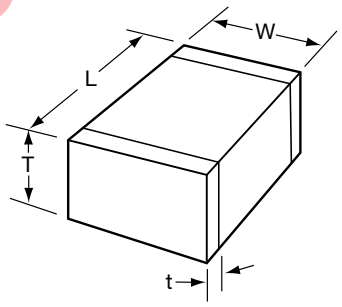
The FLEXITERM® layer is designed to enhance the mechanical flexure and temperature cycling performance of a standard ceramic capacitor, giving customers a solution where board flexure or temperature cycle damage are concerns.

HOW TO ORDER

1808	A	C	272	K	4	Z	1	A
AVX Style	**Voltage**	**Temperature Coefficient**	**Capacitance Code**	**Capacitance Tolerance**	**Test Level**	**Termination***	**Packaging**	**Special Code**
0805	600V/630V = C	C0G = A	(2 significant digits	C0G: J = ±5%		Z = FLEXITERM®	1 = 7" Reel	A = Standard
1206	1000V = A	X7R = C	+ no. of zeros)	K = ±10%		100% Tin	3 = 13" Reel	
1210	1500V = S		Examples:	M = ±20%		(RoHS Compliant)	9 = Bulk	
1808	2000V = G		10 pF = 100	X7R: K = ±10%				
1812	2500V = W		100 pF = 101	M = ±20%				
1825	3000V = H		1,000 pF = 102	Z = +80%,				
2220			22,000 pF = 223	-20%				
2225			220,000 pF = 224					
***			1 µF = 105					

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.

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



DIMENSIONS

millimeters (inches)

SIZE	0805	1206	1210*	1808*	1812*	1825*	2220*	2225*
(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)	5.7 ± 0.40 (0.224 ± 0.016)	5.72 ± 0.25 (0.225 ± 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)	5.0 ± 0.40 (0.197 ± 0.016)	6.35 ± 0.25 (0.250 ± 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)
(t) terminal min.	0.50 ± 0.25 (0.020 ± 0.010)	0.25 (0.010)	0.25 (0.010)	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)	1.02 (0.040)	1.02 (0.040)

*Reflow Soldering Only

High Voltage MLC Chips FLEXITERM®

For 600V to 5000V Applications

C0G Dielectric

Performance Characteristics

Capacitance Range	10 pF to 0.018 µF (25°C, 1.0 ±0.2 Vrms at 1kHz, for ≤ 1000 pF use 1 MHz)
Capacitance Tolerances	±5%, ±10%, ±20%
Dissipation Factor	0.1% max. (+25°C, 1.0 ±0.2 Vrms, 1kHz, for ≤ 1000 pF use 1 MHz)
Operating Temperature Range	-55°C to +125°C
Temperature Characteristic	0 ±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 MΩ min. or 1000 MΩ - µF min., whichever is less
Insulation Resistance (+125°C, at 500 VDC)	10K MΩ min. or 100 MΩ - µF 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
600/630	min.	10pF	10 pF	100 pF	100 pF	100 pF	1000 pF	1000 pF	1000 pF
	max.	330pF	1200 pF	2700 pF	3300 pF	5600 pF	0.012 µF	0.012 µF	0.018 µF
1000	min.	10pF	10 pF	10 pF	100 pF	100 pF	100 pF	1000 pF	1000 pF
	max.	180pF	560 pF	1500 pF	2200 pF	3300 pF	8200 pF	0.010 µF	0.010 µF
1500	min.	—	10 pF	10 pF	10 pF	10 pF	100 pF	100 pF	100 pF
	max.	—	270 pF	680 pF	820 pF	1800 pF	4700 pF	4700 pF	5600 pF
2000	min.	—	10 pF	10 pF	10 pF	10 pF	100 pF	100 pF	100 pF
	max.	—	120 pF	270 pF	330 pF	1000 pF	1800 pF	2200 pF	2700 pF
2500	min.	—	—	—	10 pF	10 pF	10 pF	100 pF	100 pF
	max.	—	—	—	180 pF	470 pF	1200 pF	1500 pF	1800 pF
3000	min.	—	—	—	10 pF	10 pF	10 pF	10 pF	10 pF
	max.	—	—	—	120 pF	330 pF	820 pF	1000 pF	1200 pF
4000	min.	—	—	—	10 pF	10 pF	10 pF	10 pF	10 pF
	max.	—	—	—	47 pF	150 pF	330 pF	470 pF	560 pF
5000	min.	—	—	—	—	—	—	10 pF	10 pF
	max.	—	—	—	—	—	—	220 pF	270 pF

X7R Dielectric

Performance Characteristics

Capacitance Range	10 pF to 0.33 µF (25°C, 1.0 ±0.2 Vrms at 1kHz)
Capacitance Tolerances	±10%; ±20%; +80%, -20%
Dissipation Factor	2.5% max. (+25°C, 1.0 ±0.2 Vrms, 1kHz)
Operating Temperature Range	-55°C to +125°C
Temperature Characteristic	±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 MΩ min. or 1000 MΩ - µF min., whichever is less
Insulation Resistance (+125°C, at 500 VDC)	10K MΩ min. or 100 MΩ - µF 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
600/630	min.	100pF	1000 pF	1000 pF	1000 pF	1000 pF	0.010 µF	0.010 µF	0.010 µF
	max.	6800pF	0.022 µF	0.056 µF	0.056 µF	0.100 µF	0.180 µF	0.220 µF	0.220 µF
	Development				0.068 µF	0.120 µF	0.270 µF	0.270 µF	0.330 µF
1000	min.	100pF	100 pF	1000 pF	1000 pF	1000 pF	1000 pF	1000 pF	1000 pF
	max.	1500pF	6800 pF	0.015 µF	0.018 µF	0.027 µF	0.100 µF	0.100 µF	0.100 µF
	Development					0.039 µF		0.120 µF	0.150 µF
1500	min.	—	100 pF	100 pF	100 pF	100 pF	1000 pF	1000 pF	1000 pF
	max.	—	2700 pF	4700 pF	6800 pF	0.012 µF	0.033 µF	0.039 µF	0.047 µF
	Development			6800 pF		0.015 µF	0.056 µF	0.056 µF	0.068 µF
2000	min.	—	10 pF	100 pF	100 pF	100 pF	100 pF	1000 pF	1000 pF
	max.	—	1500 pF	2700 pF	2700 pF	4700 pF	0.010 µF	0.010 µF	0.022 µF
	Development			3900 pF	3900 pF	8200 pF	0.027 µF	0.027 µF	0.033 µF
2500	min.	—	—	—	10 pF	10 pF	100 pF	100 pF	100 pF
	max.	—	—	—	1800 pF	3300 pF	6800 pF	8200 pF	0.010 µF
	Development				2200 pF	5600 pF	0.015 µF	0.018 µF	0.022 µF
3000	min.	—	—	—	10 pF	10 pF	100 pF	100 pF	100 pF
	max.	—	—	—	1500 pF	2200 pF	4700 pF	4700 pF	6800 pF
	Development				1800 pF	4700 pF	0.012 µF	0.012 µF	0.015 µF