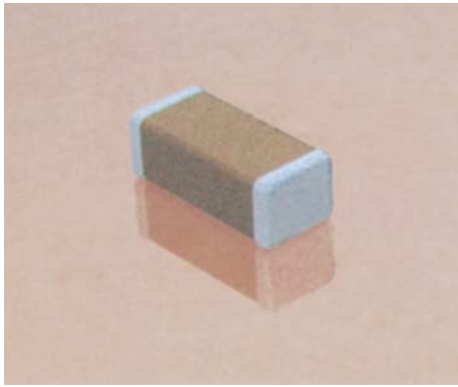


# High Voltage MLC Chips FLEXITERM®

## For 600V to 5000V 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®.

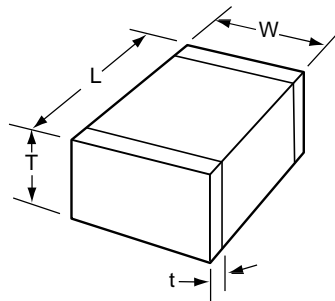
The FLEXITERM® layer is designed to enhance the mechanical flexure and temperature cycling performance of a standard ceramic capacitor, giving customers a solution where board flexure or temperature cycle damage are concerns.

## HOW TO ORDER

1808	A	C	272	K	A	Z	1	A
<b>AVX Style</b>	<b>Voltage</b>	<b>Temperature Coefficient</b>	<b>Capacitance Code</b> (2 significant digits + no. of zeros)	<b>Capacitance Tolerance</b>	<b>Test Level</b>	<b>Termination*</b>	<b>Packaging</b>	<b>Special Code</b>
0805 1206 1210 1808 1812 1825 2220 2225	600V/630V = C 1000V = A 1500V = S 2000V = G 2500V = W 3000V = H 4000V = J 5000V = K	C0G = A X7R = C	Examples: 10 pF = 100 100 pF = 101 1,000 pF = 102 22,000 pF = 223 220,000 pF = 224 1 μF = 105	C0G: J = ±5% K = ±10% M = ±20% X7R: K = ±10% M = ±20% Z = +80%, -20%		Z = FLEXITERM® 100% Tin (RoHS Compliant)	2 = 7" Reel 4 = 13" Reel	A = Standard
***								

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	2.10 ± 0.20 (0.083 ± 0.008)	3.30 ± 0.30 (0.130 ± 0.012)	3.30 ± 0.40 (0.130 ± 0.016)	4.60 ± 0.50 (0.181 ± 0.020)	4.60 ± 0.50 (0.181 ± 0.020)	4.60 ± 0.50 (0.181 ± 0.020)	5.70 ± 0.50 (0.224 ± 0.020)	5.70 ± 0.50 (0.224 ± 0.020)
(W) Width	1.25 ± 0.20 (0.049 ± 0.008)	1.60 <sup>+0.30</sup> <sub>0.10</sub> (0.063 <sup>+0.012</sup> <sub>-0.004</sub> )	2.50 ± 0.30 (0.098 ± 0.012)	2.00 ± 0.20 (0.079 ± 0.008)	3.20 ± 0.30 (0.126 ± 0.012)	6.30 ± 0.40 (0.248 ± 0.016)	5.00 ± 0.40 (0.197 ± 0.016)	6.30 ± 0.40 (0.248 ± 0.016)
(T) Thickness	1.35 (0.053)	1.80 (0.071)	2.80 (0.110)	2.20 (0.087)	2.80 (0.110)	3.40 (0.134)	3.40 (0.134)	3.40 (0.134)
(t) terminal	min. 0.50 ± 0.20 max. (0.020 ± 0.008)	0.60 ± 0.20 (0.024 ± 0.008)	0.75 ± 0.35 (0.030 ± 0.014)	0.75 ± 0.35 (0.030 ± 0.014)	0.75 ± 0.35 (0.030 ± 0.014)	0.75 ± 0.35 (0.030 ± 0.014)	0.85 ± 0.35 (0.033 ± 0.014)	0.85 ± 0.35 (0.033 ± 0.014)

\*Reflow Soldering Only



Performance of SMPS capacitors can be simulated by downloading SpiCalc software program - <http://www.avx.com/SpiApps/default.asp?spicalci>  
Custom values, ratings and configurations are also available.

# High Voltage MLC Chips FLEXITERM®

For 600V to 5000V Applications

## NPO (C0G) Dielectric Performance Characteristics

Capacitance Range	10 pF to 0.100 µF (+25°C, 1.0 ±0.2 Vrms, 1kHz)
Capacitance Tolerances	±5%, ±10%, ±20%
Dissipation Factor	0.1% max. (+25°C, 1.0 ±0.2 Vrms, 1kHz)
Operating Temperature Range	-55°C to +125°C
Temperature Characteristic	0 ±30 ppm/°C (0VDC)
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

## NPO (C0G) CAPACITANCE RANGE PREFERRED SIZES ARE SHADED

Case Size Soldering	0805					1206					1210					1808								1812							
	Reflow/Wave					Reflow/Wave					Reflow Only					Reflow Only								Reflow Only							
(L) Length mm (in.)	2.10 ±0.20 (0.083 ±0.008)					3.30 ±0.30 (0.130 ±0.012)					3.30 ±0.40 (0.130 ±0.016)					4.60 ±0.50 (0.181 ±0.020)								4.60 ±0.50 (0.181 ±0.020)							
(W) Width mm (in.)	1.25 ±0.20 (0.049 ±0.008)					1.60 ±0.30/-0.10 (0.063 ±0.012/-0.004)					2.50 ±0.30 (0.098 ±0.012)					2.00 ±0.20 (0.079 ±0.008)								3.20 ±0.30 (0.126 ±0.012)							
(T) Thickness mm (in.)	1.35 (0.053)					1.80 (0.071)					2.80 (0.110)					2.20 (0.087)								2.80 (0.110)							
(t) Terminal min max	0.50 ±0.20 (0.020 ±0.008)					0.60 ±0.20 (0.024 ±0.008)					0.75 ±0.35 (0.030 ±0.014)					0.75 ±0.35 (0.030 ±0.014)								0.75 ±0.35 (0.030 ±0.014)							
Voltage(V)	600	630	1000	600	630	1000	1500	2000	600	630	1000	1500	2000	600	630	1000	1500	2000	2500	3000	4000	600	630	1000	1500	2000	2500	3000	4000		
Cap (pF)	1.5 1R5	A	A		X	X	X	X	X																						
	1.8 1R8	A	A		X	X	X	X	X																						
	2.2 2R2	A	A		X	X	X	X	X																						
	2.7 2R7	A	A		X	X	X	X	X																						
	3.3 3R3	A	A		X	X	X	X	X																						
	3.9 3R9	A	A		X	X	X	X	X																						
	4.7 4R7	A	A		X	X	X	X	X																						
	5.6 5R6	A	A		X	X	X	X	X																						
	6.8 6R8	A	A		X	X	X	X	X																						
	8.2 8R2	A	A		X	X	X	X	X																						
	10 10	A	A	A	X	X	X	X	X																						
	12 12	A	A	A	X	X	X	X	X																						
	15 15	A	A	A	X	X	X	X	X																						
	18 18	A	A	A	X	X	X	X	X																						
	22 22	A	A	A	X	X	X	X	X																						
	27 27	A	A	A	X	X	X	X	X																						
	33 33	A	A	A	X	X	X	X	X																						
	39 39	A	A	A	X	X	X	X	X																						
	47 47	A	A	A	X	X	M	D	D																						
	56 56	A	A	A	X	X	M	C	C																						
	68 68	A	A	A	X	X	M	C	C																						
	82 82	X	X	X	X	X	C	C	C																						
	100 101	X	X	X	X	X	C	C	C																						
	120 121	C	C	C	X	X	C	E	E																						
	150 151	C	C	C	X	X	C	E	E																						
	180 181	C	C	C	X	X	E	E	E																						
	220 221	C	C	C	X	X	E	E	E																						
	270 271	C	C	C	C	C	E	E	E																						
	330 331	C	C	C	C	C	E	E	E																						
	390 391	C	C	C	C	C	E	E	E																						
	470 471	C	C	C	C	C	E	E	E																						
	560 561	C	C	C	C	C	E	E	E																						
	680 681	C	C	C	C	C	E	E	E																						
	750 751	C	C	C	E	E	E	E	E																						
	820 821	C	C	C	E	E	E	E	E																						
	1000 101				E	E	E	E	E																						
	1200 122				E	E	E	E	E																						
	1500 152				E	E	E	E	E																						
	1800 182				E	E	E	E	E																						
	2200 222				E	E	E	E	E																						
	2700 272				E	E	E	E	E																						
	3300 332				E	E	E	E	E																						
	3900 392				E	E	E	E	E																						
	4700 472				E	E	E	E	E																						
	5600 562				E	E	E	E	E																						
	6800 682				E	E	E	E	E																						
	8200 822				E	E	E	E	E																						
Cap (µF)	0.010 103																														
	0.012 123																														
	0.015 153																														
	0.018 183																														
	0.022 223																														
	0.033 333																														
	0.047 473																														
	0.056 563																														
	0.068 683																														
	0.100 104																														
Voltage(V)	600	630	1000	600	630	1000	1500	2000	600	630	1000	1500	2000	600	630	1000	1500	2000	2500	3000	4000	600	630	1000	1500	2000	2500	3000	4000		
Case Size	0805			1206					1210					1808								1812									



# High Voltage MLC Chips FLEXITERM®

For 600V to 5000V Applications

NP0 (C0G) CAPACITANCE RANGE  
PREFERRED SIZES ARE SHADED

Case Size	1825								2220								2225									
Soldering	Reflow Only								Reflow Only								Reflow Only									
(L) Length mm (in.)	4.80 ±0.50 (0.181 ±0.020)								5.70 ±0.50 (0.224 ±0.020)								5.72 ±0.25 (0.225 ±0.010)									
(W) Width mm (in.)	6.30 ±0.40 (0.248 ±0.016)								5.00 ±0.40 (0.197 ±0.016)								6.35 ±0.25 (0.250 ±0.010)									
(T) Thickness mm (in.)	3.40 (0.134)								3.40 (0.134)								2.54 (0.100)									
(l) Terminal min max	0.75 ±0.35 (0.030 ±0.014)								0.85 ±0.35 (0.033 ±0.014)								0.85 ±0.35									
Voltage (V)	600	630	1000	1500	2000	2500	3000	4000	600	630	1000	1500	2000	2500	3000	4000	5000	600	630	1000	1500	2000	2500	3000	4000	5000
Cap (pF)	1.5 1R3								1.5 1R3									1.5 1R3								
1.8 1R8									1.8 1R8									1.8 1R8								
2.2 2R2									2.2 2R2									2.2 2R2								
2.7 2R7									2.7 2R7									2.7 2R7								
3.3 3R3									3.3 3R3									3.3 3R3								
3.9 3R9									3.9 3R9									3.9 3R9								
4.7 4R7									4.7 4R7									4.7 4R7								
5.6 5R6									5.6 5R6									5.6 5R6								
6.8 6R8									6.8 6R8									6.8 6R8								
8.2 8R2									8.2 8R2									8.2 8R2								
10 100	E	E	E	E	E	E	E	E	10 100	E	E	E	E	E	E	E	E	10 100	E	E	E	E	E	E	E	E
12 120	E	E	E	E	E	E	E	E	12 120	E	E	E	E	E	E	E	E	12 120	E	E	E	E	E	E	E	E
15 150	E	E	E	E	E	E	E	E	15 150	E	E	E	E	E	E	E	E	15 150	E	E	E	E	E	E	E	E
18 180	E	E	E	E	E	E	E	E	18 180	E	E	E	E	E	E	E	E	18 180	E	E	E	E	E	E	E	E
22 220	E	E	E	E	E	E	E	E	22 220	E	E	E	E	E	E	E	E	22 220	E	E	E	E	E	E	E	E
27 270	E	E	E	E	E	E	E	E	27 270	E	E	E	E	E	E	E	E	27 270	E	E	E	E	E	E	E	E
33 330	E	E	E	E	E	E	E	E	33 330	E	E	E	E	E	E	E	E	33 330	E	E	E	E	E	E	E	E
39 390	E	E	E	E	E	E	E	E	39 390	E	E	E	E	E	E	E	E	39 390	E	E	E	E	E	E	E	E
47 470	E	E	E	E	E	E	E	E	47 470	E	E	E	E	E	E	E	E	47 470	E	E	E	E	E	E	E	E
56 560	E	E	E	E	E	E	E	E	56 560	E	E	E	E	E	E	E	E	56 560	E	E	E	E	E	E	E	E
68 680	E	E	E	E	E	E	E	E	68 680	E	E	E	E	E	E	E	E	68 680	E	E	E	E	E	E	E	E
82 820	E	E	E	E	E	E	E	E	82 820	E	E	E	E	E	E	E	E	82 820	E	E	E	E	E	E	E	E
100 101	E	E	E	E	E	E	E	F	100 101	E	E	E	E	E	E	E	F	100 101	E	E	E	E	E	E	E	F
120 121	E	E	E	E	E	E	E	F	120 121	E	E	E	E	E	E	E	F	120 121	E	E	E	E	E	E	E	F
150 151	E	E	E	E	E	E	E	F	150 151	E	E	E	E	E	E	E	F	150 151	E	E	E	E	E	E	E	F
180 181	E	E	E	E	E	E	E	F	180 181	E	E	E	E	E	E	E	F	180 181	E	E	E	E	E	E	E	F
220 221	E	E	E	E	E	E	E	F	220 221	E	E	E	E	E	E	E	F	220 221	E	E	E	E	E	E	E	F
270 271	E	E	E	E	E	E	E	F	270 271	E	E	E	E	E	E	E	F	270 271	E	E	E	E	E	E	E	F
330 331	E	E	E	E	E	E	E	F	330 331	E	E	E	E	E	E	E	F	330 331	E	E	E	E	E	E	E	F
390 391	E	E	E	E	E	E	E	F	390 391	E	E	E	E	E	E	E	F	390 391	E	E	E	E	E	E	E	F
470 471	E	E	E	E	E	E	E	F	470 471	E	E	E	E	E	E	E	F	470 471	E	E	E	E	E	E	E	F
560 561	E	E	E	E	E	E	E	F	560 561	E	E	E	E	E	E	E	F	560 561	E	E	E	E	E	E	E	F
680 681	E	E	E	E	E	E	E	F	680 681	E	E	E	E	E	E	E	F	680 681	E	E	E	E	E	E	E	F
750 751	E	E	E	E	E	E	E	F	750 751	E	E	E	E	E	E	E	F	750 751	E	E	E	E	E	E	E	F
820 821	E	E	E	E	E	E	E	F	820 821	E	E	E	E	E	E	E	F	820 821	E	E	E	E	E	E	E	F
1000 102	E	E	E	E	E	E	E	F	1000 102	E	E	E	E	E	E	E	F	1000 102	E	E	E	E	E	E	E	F
1200 122	E	E	E	E	E	E	E	F	1200 122	E	E	E	E	E	E	E	F	1200 122	E	E	E	E	E	E	E	F
1500 152	E	E	E	E	E	E	E	F	1500 152	E	E	E	E	E	E	E	F	1500 152	E	E	E	E	E	E	E	F
1800 182	E	E	E	E	E	E	E	F	1800 182	E	E	E	E	E	E	E	F	1800 182	E	E	E	E	E	E	E	F
2200 222	E	E	E	E	E	E	E	F	2200 222	E	E	E	E	E	E	E	F	2200 222	E	E	E	E	E	E	E	F
2700 272	E	E	E	E	E	E	E	F	2700 272	E	E	E	E	E	E	E	F	2700 272	E	E	E	E	E	E	E	F
3300 332	E	E	E	E	E	E	E	F	3300 332	E	E	E	E	E	E	E	F	3300 332	E	E	E	E	E	E	E	F
3900 392	E	E	E	E	E	E	E	F	3900 392	E	E	E	E	E	E	E	F	3900 392	E	E	E	E	E	E	E	F
4700 472	E	E	E	E	E	E	E	F	4700 472	E	E	E	E	E	E	E	F	4700 472	E	E	E	E	E	E	E	F
5600 562	E	E	E	E	E	E	E	F	5600 562	E	E	E	E	E	E	E	F	5600 562	E	E	E	E	E	E	E	F
6800 682	E	E	E	E	E	E	E	F	6800 682	E	E	E	E	E	E	E	F	6800 682	E	E	E	E	E	E	E	F
8200 822	E	E	E	E	E	E	E	F	8200 822	E	E	E	E	E	E	E	F	8200 822	E	E	E	E	E	E	E	F
Cap (pF)	0.010 103								0.010 103									0.010 103								
0.012 123									0.012 123									0.012 123								
0.015 153									0.015 153									0.015 153								
0.018 183									0.018 183									0.018 183								
0.022 223									0.022 223									0.022 223								
0.033 333									0.033 333									0.033 333								
0.047 473									0.047 473									0.047 473								
0.056 563									0.056 563									0.056 563								
0.068 683									0.068 683									0.068 683								
0.100 104									0.100 104									0.100 104								
Voltage (V)	600	630	1000	1500	2000	2500	3000	4000	600	630	1000	1500	2000	2500	3000	4000	5000	600	630	1000	1500	2000	2500	3000	4000	5000
Case Size	1825								2220								2225									

Letter Max. Thickness	A	C	E	F	G	X
	0.813 (0.032)	1.448 (0.057)	1.8034 (0.071)	2.2098 (0.087)	2.794 (0.110)	0.940 (0.037)

NOTE: Contact factory for non-specified capacitance values





# High Voltage MLC Chips FLEXITERM®

For 600V to 5000V Applications

## X7R CAPACITANCE RANGE PREFERRED SIZES ARE SHADED

Case Size	1825								2220								2225								3640											
Soldering	Reflow Only								Reflow Only								Reflow Only								Reflow Only											
(L) Length mm (in.)	4.80 ±0.50 (0.181 ±0.020)								5.70 ±0.50 (0.224 ±0.020)								5.72 ±0.25 (0.225 ±0.010)								9.14 ±0.25 (0.360 ±0.010)											
(W) Width mm (in.)	6.30 ±0.40 (0.248 ±0.016)								5.00 ±0.40 (0.197 ±0.016)								6.35 ±0.25 (0.250 ±0.010)								5.72 ±0.25 (0.225 ±0.010)											
(T) Thickness mm (in.)	3.40 (0.134)								3.40 (0.134)								2.54 (0.100)								2.54 (0.100)											
(t) Terminal min max	0.75 ±0.35 (0.030 ±0.014)								0.85 ±0.35 (0.033 ±0.014)								0.85 ±0.35 (0.033 ±0.014)								0.76 (0.030) 1.52 (0.062)											
Voltage (V)	600	630	1000	1500	2000	2500	3000	4000	600	630	1000	1500	2000	2500	3000	4000	5000	600	630	1000	1500	2000	2500	3000	4000	5000	600	630	1000	1500	2000	2500	3000	4000	5000	
Cap (pF)	[Grid of F and G values]																																			
Cap (µF)	[Grid of F and G values]																																			
Voltage (V)	600	630	1000	1500	2000	2500	3000	4000	600	630	1000	1500	2000	2500	3000	4000	5000	600	630	1000	1500	2000	2500	3000	4000	5000	600	630	1000	1500	2000	2500	3000	4000	5000	
Case Size	1825								2220								2225								3640											

Letter	A	C	E	F	G	P	X
Max. Thickness	0.813 (0.032)	1.448 (0.057)	1.8034 (0.071)	2.2098 (0.087)	2.794 (0.110)	3.048 (0.120)	0.940 (0.037)

NOTE: Contact factory for non-specified capacitance values

