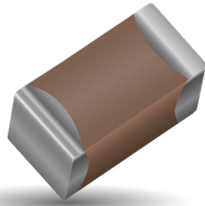


# High Voltage MLC Chips

## FLEXITERM® - 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®.

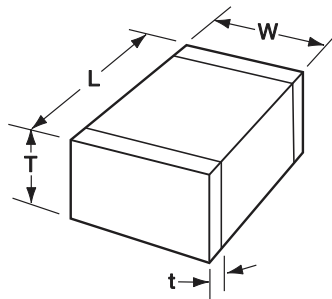
The FLEXITERM® layer is designed to enhance the mechanical flexure and temperature cycling performance of a standard ceramic capacitor, giving customers a solution where board flexure or temperature cycle damage are concerns.

### 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	COG = 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	COG: 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>-0.034</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 Max.	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. 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)	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 SpiCalci software program - <http://www.avx.com/SpiApps/default.asp#spicalci>

Custom values, ratings and configurations are also available.



# High Voltage MLC Chips

## FLEXITERM® - 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	4.60 ± 0.50 (0.181 ± 0.020)								5.70 ± 0.50 (0.224 ± 0.020)								5.72 ± 0.25 (0.225 ± 0.010)									
(W) Width	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	3.40 (0.134)								3.40 (0.134)								3.40 (0.134)									
(t) Terminal	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 1R5																										
1.8 1R8																										
2.2 2R2																										
2.7 2R7																										
3.3 3R3																										
3.9 3R9																										
4.7 4R7																										
5.6 5R6																										
6.8 6R8																										
8.2 8R2																										
10 100	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F
12 120	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F
15 150	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F
18 180	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F
22 220	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F
27 270	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F
33 330	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F
39 390	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F
47 470	E	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	G
56 560	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	G
68 680	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	G
82 820	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	G
100 101	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G
120 121	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G
150 151	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G
180 181	E	E	E	E	E	E	F	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E	E	G	G
220 221	E	E	E	E	E	E	F	E	E	E	E	E	E	E	F	F	E	E	E	E	E	E	E	E	G	G
270 271	E	E	E	E	E	E	F	E	E	E	E	E	E	E			E	E	E	E	E	E	E	E	G	G
330 331	E	E	E	E	E	E	F	E	E	E	E	E	E	E			E	E	E	E	E	E	E	E	G	
390 391	E	E	E	E	E	E		E	E	E	E	E	E	E			E	E	E	E	E	E	E	E	G	
470 471	E	E	E	E	E	E		E	E	E	E	E	E	E			E	E	E	E	E	E	E	E	G	
560 561	E	E	E	E	E	E		E	E	E	E	E	E	E			E	E	E	E	E	E	E	E	G	
680 681	E	E	E	E	E	F	F	E	E	E	E	F	F			E	E	E	E	E	E	E	E	E		
750 751	E	E	E	E	E	F	F	E	E	E	E	F	F			E	E	E	E	E	E	E	E	E		
820 821	E	E	E	E	E	F	F	E	E	E	E	F	F			E	E	E	E	E	F	E	E	E		
1000 102	E	E	E	E	E	F	F	E	E	E	E	F	F			E	E	E	E	E	E	E	E	E		
1200 122	E	E	E	E	E	G	G	E	E	E	E	G	G			E	E	E	E	E	F	F	E	E		
1500 152	E	E	E	F	F	G	G	E	E	E	F	F	G	G			E	E	E	E	E	F	F	E		
1800 182	E	E	E	F	F	G	G	E	E	E	F	F	G	G			E	E	E	E	E	G	G	E		
2200 222	E	E	E	G	G			E	E	E	G	G					E	E	E	E	E					
2700 272	E	E	E	G	G			E	E	E	G	G					E	E	E	F	F					
3300 332	E	E	E	G	G			E	E	E	G	G					E	E	E	F	F					
3900 392	E	E	E	G	G			E	E	E	G	G					E	E	E	G	G					
4700 472	E	E	E	G	G			E	E	E	G	G					F	F	F	G	G					
5600 562	F	F	F	G	G			F	F	F							F	F	F	G	G					
6800 682	F	F	F					F	F	F							F	F	F	G	G					
8200 822	G	G	G					G	G	G							G	G	G							
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	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	A	C	E	F	G	X
Max.	0.813	1.448	1.803	2.210	2.794	0.940
Thickness	(0.032)	(0.057)	(0.071)	(0.087)	(0.110)	(0.037)

NOTE: Contact factory for non-specified capacitance



# High Voltage MLC Chips

## FLEXITERM® - 600V to 5000V Applications



### X7R Dielectric

#### Performance Characteristics

<b>Capacitance Range</b>	10 pF to 0.82 µF (25°C, 1.0 ±0.2 Vrms at 1kHz)
<b>Capacitance Tolerances</b>	±10%; ±20%; +80%, -20%
<b>Dissipation Factor</b>	2.5% max. (+25°C, 1.0 ±0.2 Vrms, 1kHz)
<b>Operating Temperature Range</b>	-55°C to +125°C
<b>Temperature Characteristic</b>	±15% (0 VDC)
<b>Voltage Ratings</b>	600, 630, 1000, 1500, 2000, 2500, 3000, 4000 & 5000 VDC (+125°C)
<b>Insulation Resistance (+25°C, at 500 VDC)</b>	100K MΩ min. or 1000 MΩ - µF min., whichever is less
<b>Insulation Resistance (+125°C, at 500 VDC)</b>	10K MΩ min. or 100 MΩ - µF min., whichever is less
<b>Dielectric Strength</b>	Minimum 120% rated voltage for 5 seconds at 50 mA max. current

### X7R CAPACITANCE RANGE

#### PREFERRED SIZES ARE SHADED

Case Size	0805			1206					1210					1808							1812								
	Reflow/Wave			Reflow/Wave					Reflow Only					Reflow Only							Reflow Only								
(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)								
W) Width	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	1.35 (0.053)			1.80 (0.071)					2.80 (0.110)					2.20 (0.087)							2.80 (0.110)								
(t) Terminal	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) 100 101	X	X	C	C	C	E	E	E	E	E	E	E	E																
120 121	X	X	C	C	C	E	E	E	E	E	E	E	E																
150 151	X	X	C	C	C	E	E	E	E	E	E	E	E																
180 181	X	X	C	C	C	E	E	E	E	E	E	E	E																
220 221	X	X	C	C	C	E	E	E	E	E	E	E	E																
270 271	X	X	C	C	C	E	E	E	E	E	E	E	E																
330 331	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F								
390 391	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F								
470 471	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F									
560 561	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F								
680 681	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F								
750 751	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F								
820 821	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F								
1000 102	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F								
1200 122	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F								
1500 152	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F								
1800 182	X	X		C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F								
2200 222	X	X		C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F								
2700 272	X	X		C	C	E	E							E	E	E	F	F											
3300 332	X	X		C	C	E								E	E	E	F	F											
3900 392	X	X		C	C	E								E	E	E	G												
4700 472	X	X		C	C	E								E	E	E	G												
5600 562	X	X		C	C	E								E	E	E	F												
6800 682	X	X		C	C	E								E	E	E	F												
8200 822	X	X		C	C	E								E	E	E													
Cap (µF) 0.010 103	C	C		C	C	E								E	E	E													
0.015 153	C	C		E	E	E								E	E	E													
0.018 183	C	C		E	E	E								E	E	E													
0.022 223	C	C		E	E									E	E	E													
0.027 273				E	E									E	E	E													
0.033 333				E	E									E	E	E													
0.039 393														E	E	E													
0.047 473														E	E	E													
0.056 563														F	F	F													
0.068 683														F	F	F													
0.082 823														F	F	F													
0.100 104														F	F	F													
0.150 154																													
0.220 224																													
0.270 274																													
0.330 334																													
0.390 394																													
0.470 474																													
0.560 564																													
0.680 684																													
0.820 824																													
1.000 105																													
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								



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

