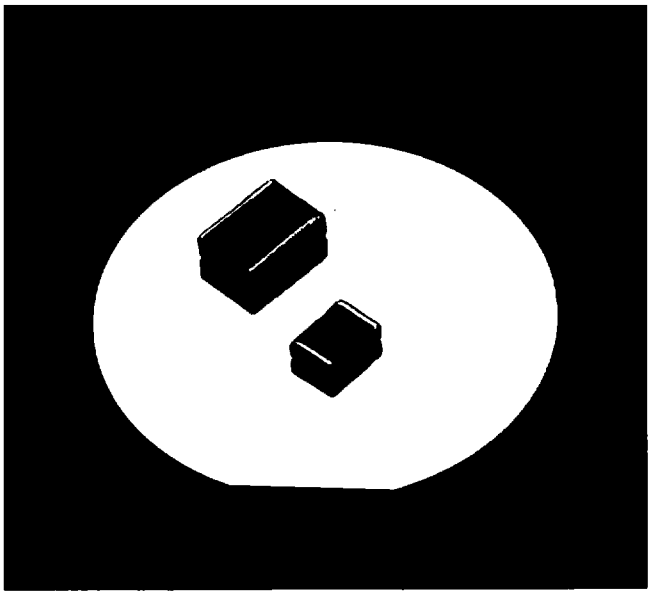
AVX

High Voltage Chips



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.

Larger physical sizes than normally encountered chips are used to make high voltage chips to maintain high insulation resistance. These larger sizes require that special precautions be taken in applying these chips in surface mount assemblies. This is due to differences in the coefficient of thermal expansion (CTE) between the substrate materials and chip capacitors.

These high voltage chip designs also exhibit ESRs well below 10 milliohms from 100 KHz through 20 MHz. The same dictates governing the high voltage design carries the added benefits of extremely low ESR in relatively low (.05 μF to .005 μF) capacitance and small packages.

AVX Styles: 1808, 1812, 1825, 2225 & 3640

How to Order:

1808	A	A	271	K	A	1	M	A
AVX Style	**Voltage** 500V = 7 600V = C 1000V = A 1500V = S 2000V = G 2500V = W 3000V = H 4000V = J 5000V = K	**Temperature Coefficient** C0G =A X7R = C	**Capacitance Code** (2 significant digits + no. of zeros) Examples: 10pF = 100 100pF = 101 1,000pF = 102 22,000pF = 223 220,000pF = 224 1μF = 105	**Capacitance Tolerance** C0G: J= ±5% K= ±10% M= ±20% X7R: K= ±10% M= ±20% Z= +80 -20%	**Failure Rate** A=Not applicable	**Termination** 1= Pd/Ag T= NiGuard Nickel Barrier Solder Plate	**Marking Packaging** M = Reel Marking B = Bulk 1 = Reel Unmarked 9 = Bulk Unmarked	**Special Code** A = Standard

High Voltage Chips

NPO Dielectric

General Specifications

Capacitance Range
100 pF to .018 μF

Capacitance Tolerances
±5%, ±10%, ±20%

Operating Temperature Range
-55°C to +125°C

Temperature Characteristic
0 ± 30 ppm/°C

Voltage Ratings
500 VDC, 1000 VDC, 2000 VDC, 3000 VDC, 4000 VDC, and 5000 VDC (+125°C)

Dissipation Factor
0.1% max. (+25°C and +125°C)
1.0 Vrms, 1kHz

Insulation Resistance (+25°C, at rated voltage)
100,000 megohms min. or 1000 ohm-Farads min., whichever is less

Insulation Resistance (+125°C, at rated voltage)
10,000 megohms min. or 100 ohm-Farads min., whichever is less

Dielectric Strength
120% rated voltage

X7R Dielectric

General Specifications

Capacitance Range
100 pF to 0.56 μF (1.0 Vrms, 1kHz)

Capacitance Tolerances
±5%, ±10%, ±20%

Operating Temperature Range
-55°C to +125°C

Temperature Characteristic
±15% (0 VDC)

Voltage Ratings
500 VDC, 600 VDC, 1000 VDC, 1500 VDC, 2000 VDC, and 2500 VDC (+125°C)

Dissipation Factor
2.5% max. (+25°C, 1.0 Vrms, 1kHz)

Insulation Resistance (+25°C, at rated voltage)
100,000 megohms min. or 1000 ohm-Farads min., whichever is less

Insulation Resistance (+125°C, at rated voltage)
10,000 megohms min. or 100 ohm-Farads min., whichever is less

Dielectric Strength
120% rated voltage

High Voltage Chips

Capacitance Ranges/NPO Dielectric

SIZE		1206	1210	1808**		1812**			1825**				2225**				3640**				
(L) Length	MM (in.)	3.20 ± 0.2 (.126 ± .008)	3.20 ± 0.2 (.126 ± .008)	4.57 ± .25 (.180 ± .010)		4.50 ± 0.3 (.177 ± .012)			4.50 ± 0.25 (.177 ± .012)				5.72 ± .25 (.225 ± .010)				9.14 ± .25 (.360 ± .010)				
(W) Width	MM (in.)	1.60 ± 0.2 (.063 ± .008)	2.49 ± 0.2 (.098 ± .008)	2.03 ± .25 (.080 ± .010)		3.20 ± 0.2 (.126 ± .008)			6.40 ± 0.3 (.252 ± .012)				6.35 ± .25 (.250 ± .010)				10.2 ± .25 (.400 ± .010)				
(T) Thickness	MM (in.)	1.50 (.059)	2.03 (.079)	2.03 (.080)		2.54 (.100)			2.54 (.100)				2.54 (.100)				2.54 (.100)				
(t) Terminal	MIN. MAX.	.25 (.010) .71 (.028)	.25 (.010) .71 (.028)	.25 (.010) 1.02 (.040)		.25 (.010) 1.02 (.040)			.25 (.010) 1.02 (.040)				.25 (.010) 1.02 (.040)				.25 (.010) 1.02 (.040)				
WVDC		500	500	1000	2000	1000	2000	3000	1000	2000	3000	4000	1000	2000	3000	4000	1000	2000	3000	4000	5000
Cap. (pF)	10																				
	12																				
	15																				
	18																				
	22																				
	27																				
	33																				
	39																				
	47																				
	56																				
	68																				
	82																				
	100																				
	120																				
	150																				
	180																				
	220																				
	270																				
	330																				
	390																				
	470																				
	560																				
	680																				
	820																				
	1000																				
	1200																				
	1500																				
	1800																				
	2200																				
	2700																				
	3300																				
	3900																				
	4700																				
	5600																				
	6800																				
	8200																				
Cap. (μF)	.010																				
	.012																				
	.015																				
	.018																				

NOTES:
- Dimensions are in millimeters, dimensions in parenthesis are in inches.
- **Other capacitance values and voltages are available—contact AVX.**

****IR and Vapor phase soldering only recommended.**

High Voltage Chips

Capacitance Ranges/X7R Dielectric

SIZE		1206	1210	1808**			1812**				1825**				2225**					3640**			
(L) Length	MM (in.)	3.20 ± 0.2 (.126 ± .008)	3.20 ± 0.2 (.126 ± .008)	4.57 ± .25 (.180 ± .010)			4.50 ± 0.3 (.177 ± .012)				4.50 ± 0.25 (.177 ± .012)				5.72 ± .25 (.225 ± .010)					9.14 ± .25 (.360 ± .010)			
(W) Width	MM (in.)	1.60 ± 0.2 (.063 ± .008)	2.49 ± 0.2 (.098 ± .008)	2.03 ± .25 (.080 ± .010)			3.20 ± 0.2 (.126 ± .008)				6.40 ± 0.3 (.252 ± .012)				6.35 ± .25 (.250 ± .010)					10.2 ± .25 (.400 ± .010)			
(T) Thickness	MM (in.)	1.50 (.059)	2.03 (.079)	2.03 (.080)			2.54 (.100)				2.54 (.100)				2.54 (.100)					2.54 (.100)			
(t) Terminal	MIN. MAX.	.25 (.010) .71 (.028)	.25 (.010) .71 (.028)	.25 (.010) 1.02 (.040)			.25 (.010) 1.02 (.040)				.25 (.010) 1.02 (.040)				.25 (.010) 1.02 (.040)					.25 (.010) 1.02 (.040)			
WVDC		500	500	600	1000	1500	600	1000	1500	2000	600	1000	1500	2000	600	1000	1500	2000	2500	1000	1500	2000	2500
Cap. (pF)	100																						
	120																						
	150																						
	180																						
	220																						
	270																						
	330																						
	390																						
	470																						
	560																						
	680																						
	820																						
	1000																						
	1200																						
	1500																						
	1800																						
	2200																						
	2700																						
	3300																						
	3900																						
	4700																						
	5600																						
	6800																						
	8200																						
Cap. (μF)	.010																						
	.012																						
	.015																						
	.018																						
	.022																						
	.027																						
	.033																						
	.039																						
	.047																						
	.056																						
	.068																						
	.082																						
	.10																						
	.12																						
	.15																						
	.18																						
	.22																						
	.27																						
	.33																						
	.56																						

NOTES:
- Dimensions are in millimeters, dimensions in parenthesis are in inches.
- **Other capacitance values and voltages are available—contact AVX.**

**** IR and Vapor phase soldering only recommended.**