



Capacitors - Ceramic Chip Components
High Voltage Multi-Layer



Note: Capacitors may require a surface coating to prevent external arcing. Solder mask should not be used beneath capacitors. For more information, visit "Surface Arc Season":

[https://www.johansondielectrics.com/
arc-season-and-board-design-observations](https://www.johansondielectrics.com/arc-season-and-board-design-observations)

Features:

- Diverse Case Sizes, Voltages, & Capacitance Ranges
- DC Voltages from 500 through 6KV
- Case Sizes 0805 - 2225
- Capacitance Range: 10 pF - 0.47 µF
- Dielectrics Type: NP0, X7R
- Soft Polyterm® available to reduce stress. (Contact factory).

Common Applications:

- | | |
|---------------------------|----------------------------|
| • Analog & Digital Modems | • Lighting Ballast Circuit |
| • Voltage Multipliers | • Back-lighting Inverters |
| • DC-DC Converters | • LAN/WAN Interface |

Electrical Specifications:

Dielectric Withstanding Voltage:

- DWV = 1.5 X rated WVDC for ratings 500-999 WVDC
- DWV = 1.2 X rated WVDC for ratings \geq 1,000 WVDC

CASE SIZE				CAPACITANCE SELECTION				
EIA	Sizes	Inches	(mm)	Rated Voltage	NP0 Dielectric		X7R Dielectric	
					Minimum	Maximum	Minimum	Maximum
0805	L	.080 ±.010	(2.03 ±.25)	200 VDC	-	-	1000 pF	0.022 µF
	W	.050 ±.010	(1.27 ±.25)	500 VDC	10 pF	680 pF	1000 pF	0.010 µF
	T	.055 Max.	(1.40)	630 VDC	10 pF	560 pF	1000 pF	6800 pF
	E/B	.020 ±.010	(0.51±.25)	1000 VDC	10 pF	390 pF	100 pF	2700 pF
1206	L	.125 ±.010	(3.18 ±.25)	250 VDC	-	-	1000 pF	0.068 µF
	W	.062 ±.010	(1.57 ±.25)	500 VDC	10 pF	1500 pF	1000 pF	0.033 µF
	T	.067 Max.	(1.70)	630 VDC	10 pF	1200 pF	1000 pF	0.027 µF
	E/B	.020 ±.010	(0.51±.25)	1000 VDC	10 pF	1000 pF	100 pF	0.010 µF
				2000 VDC	10 pF	220 pF	100 pF	4700 pF
1210	L	.125 ±.010	(3.18 ±.25)	250 VDC	-	-	1000 pF	0.150 µF
	W	.095 ±.010	(2.41 ±.25)	500 VDC	10 pF	3900 pF	1000 pF	0.068 µF
	T	.080 Max.	(2.03)	630 VDC	10 pF	2700 pF	1000 pF	0.047 µF
	E/B	.020 ±.010	(0.51±.25)	1000 VDC	10 pF	1800 pF	100 pF	0.015 µF
				2000 VDC	10 pF	560 pF	100 pF	4700 pF
				3000 VDC	10 pF	220 pF	100 pF	1000 pF
1808	L	185 ±.020	(4.70 ±.51)	500 VDC	10 pF	4700 pF	1000 pF	0.100 µF
	W	.080 ±.010	(2.03 ±.25)	630 VDC	10 pF	3300 pF	1000 pF	0.047 µF
	T	.085 Max.	(2.16)	1000 VDC	1.0 pF	2200 pF	100 pF	0.022 µF
	E/B	.020 ±.010	(0.51±.25)	2000 VDC	1.0 pF	820 pF	100 pF	0.010 µF
				3000 VDC	1.0 pF	470 pF	100 pF	3300 pF
				4000 VDC	1.0 pF	180 pF	100 pF	1800 pF
				5000 VDC	1.0 pF	75 pF	47 pF	390 pF
				6000 VDC	1.0 pF	75 pF	47 pF	150 pF

Available capacitor values include these significant retma values and their multiples: 1.0 1.2 1.5 1.8 2.2 2.7 3.3 3.9 4.7 5.6 6.8 8.2 (1.0 = 1.0, 10, 100, 1000, etc.) Consult factory for non-retma values and sizes or voltages not shown.



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Case Size				Capacitance Selection				
EIA	Sizes	Inches	(mm)	Rated Voltage	NP0 Dielectric		X7R Dielectric	
					Minimum	Maximum	Minimum	Maximum
1812	L W T E/B	 .177 ±.012 .125 ±.010 .110 Max. .025 ±.015	(4.50 ±.30) (3.18 ±.25) (2.80) (0.64±.38)	250 VDC	-	-	0.010 uF	0.470 uF
				500 VDC	100 pF	8200 pF	1000 pF	0.330 uF
				630 VDC	100 pF	6800 pF	1000 pF	0.120 uF
				1000 VDC	10 pF	5600 pF	1000 pF	0.100 uF
				2000 VDC	10 pF	1800 pF	100 pF	0.010 uF
				3000 VDC	10 pF	1000 pF	100 pF	4700 pF
				4000 VDC	10 pF	390 pF	100 pF	1200 pF
				5000 VDC	10 pF	150 pF	100 pF	820 pF
				6000 VDC	10 pF	150 pF	10 pF	330 pF
1825	L W T E/B	 .180 ±.010 .250 ±.010 .140 Max. .025 ±.015	(4.57 ±.25) (6.35 ±.25) (3.56) (0.64±.38)	500 VDC	100 pF	0.018 uF	0.01 uF	0.390 uF
				630 VDC	100 pF	0.015 uF	0.01 uF	0.270 uF
				1000 VDC	10 pF	0.012 uF	1000 pF	0.180 uF
				2000 VDC	10 pF	5600 pF	100 pF	0.039 uF
				3000 VDC	10 pF	2200 pF	100 pF	8200 pF
				4000 VDC	10 pF	1200 pF	100 pF	2200 pF
				5000 VDC	10 pF	390 pF	100 pF	1500 pF
				6000 VDC	10 pF	390 pF	100 pF	820 pF
2220	L W T E/B	 .225 ±.015 .200 ±.015 .150 Max. .025 ±.015	(5.72 ±.38) (5.08 ±.38) (3.81) (0.64±.38)	500 VDC	1000 pF	0.018 uF	0.01 uF	0.470 uF
				630 VDC	1000 pF	0.018 uF	0.01 uF	0.270 uF
				1000 VDC	100 pF	0.015 uF	1000 pF	0.120 uF
				2000 VDC	100 pF	5600 pF	1000 pF	0.039 uF
				3000 VDC	10 pF	2700 pF	100 pF	0.010 uF
				4000 VDC	10 pF	1500 pF	100 pF	2700 pF
				5000 VDC	10 pF	470 pF	100 pF	1500 pF
				6000 VDC	10 pF	470 pF	100 pF	820 pF
2225	L W T E/B	 .225 ±.010 .255 ±.015 .160 Max. .025 ±.015	(5.72 ±.25) (6.48 ±.38) (4.06) (0.64±.38)	500 VDC	1000 pF	0.027 uF	0.01 uF	0.560 uF
				630 VDC	1000 pF	0.022 uF	0.01 uF	0.390 uF
				1000 VDC	100 pF	0.018 uF	1000 pF	0.180 uF
				2000 VDC	100 pF	8200 pF	1000 pF	0.056 uF
				3000 VDC	10 pF	3300 pF	100 pF	0.012 uF
				4000 VDC	10 pF	1800 pF	100 pF	3300 pF
				5000 VDC	10 pF	470 pF	100 pF	2700 pF
				6000 VDC	10 pF	470 pF	100 pF	1200 pF

Available cap. values include these significant retma values and their multiples: 1.0 1.2 1.5 1.8 2.2 2.7 3.3 3.9 4.7 5.6 6.8 8.2
(1.0 = 1.0, 10, 100, 1000, etc.) Consult factory for non-retma values and sizes or voltages not shown.

HOW TO ORDER

VP	DD	202	W	102	K	1	GV	001	E
Subfamily	Size	Voltage	DTC	Capacitance	Tol	Mark	Termination	Special Code	Pack
VP = High Volt PME SMD ≥ 500V	CT = 0805 DD = 1206 DP = 1808 DF = 1210	501 = 00 V 631 = 630 V 102 = 1000 V 202 = 2000 V	G = NPO/C0G W = X7R	1st two digits are significant; 3rd digit denotes number of zeros. 102 = 1000 pF 104 = 0.10 µF	J = ± 5% K = ±10% M = ±20%	1 = No mark 2 = EIA mark	GV = Ni/Sn (RoHS) NT = Ni/SnPb GF = Polyterm Sn (RoHS) ZZ = Special Code	001 = Default catalog item	B = Bulk E = Embossed 7" T = Punched 7"
VB = High Volt BME SMD ≥ 500V	DR = 1812 EF = 2220 EH = 2225 DV = 1825	302 = 3000 V 402 = 4000 V 502 = 5000 V 602 = 6000 V							

Example: VPDD202W102K1GV001E Capacitors HVS PME, 1206, X7R, 2000V, 1000pF±10%, Ni/Sn (RoHS), 7" Reel Embossed Tape