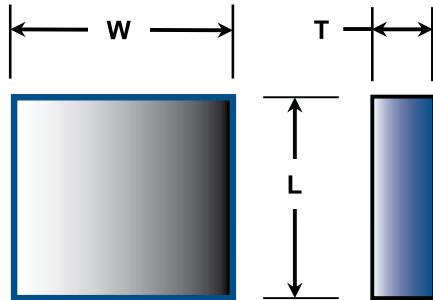


High Voltage Single Layer Bare Rectangular Capacitors

Military & Commercial Grade - 3 kVDC to 10 kVDC



CalRamic Technologies LLC manufactures a series of highly reliable, single layer, rectangular ceramic capacitors that are designed and manufactured under strict quality control guidelines to ensure unparalleled performance in high voltage applications.

These capacitors, which draw on thirty plus years of proven design and process experience, utilize double action pressing to minimize gradients within the dielectric powder and produce a finished capacitor with a uniform fired ceramic density.

Capacitors are available with ultra stable Class I, NPO dielectrics, essential where low losses and tight capacitance tolerances are critical and stable Class II, X5R, X7R and X5U dielectric materials, which are intended for those applications where higher losses and less precision can be tolerated.

These capacitors are ideally suited as snubbers for switching power supplies, coupling and decoupling capacitors, inverter circuitry, lighting ballasts, and other high voltage pulse applications.

1. Termination Type: 100% fired-on silver

Performance Characteristics

Specification	Dielectric Type (EIA Designation)			
	NPO (COG)	X7R	X5R	X5U
Material Classification	Type I, Ultra Stable, K76	Type II, Stable, K2350	Type II, Stable, K2500	Type II, Stable, K5000
Coefficient of Thermal Expansion	$9 \times 10^{-6} / ^\circ\text{C}$	$11 \times 10^{-6} / ^\circ\text{C}$	$11 \times 10^{-6} / ^\circ\text{C}$	$11 \times 10^{-6} / ^\circ\text{C}$
Density	72 g / in ³			
Operating Temperature Range	-55 to +125°C		-55 to +85°C	
Aging Rate	0	-2% Max per decade hour		-3% Max per decade hour
Temperature Coefficient	± 30 PPM / °C	$\pm 15\%$		+22 / -56%
Voltage Coefficient	Negligible	-20% Max @ WVDC		-35% Max @ WVDC
Capacitance Range	5.2 pF to 300 pF	120 pF to 9000 pF	140 pF to 10,200 pF	270 pF to 0.020 μF
Voltage Range	3 kVDC to 20 kVDC			
Insulation Resistance @ +25°C	100,000 M Ω or 1000 M Ω - μF , W/E is less			
Insulation Resistance @ T Max	10,000 M Ω or 100 M Ω - μF , W/E is less			
Dissipation Factor	0.1% Max	2.5% Max		
DWV	1.5 x WVDC			

1. Standard inspection and Group A testing, when required, is performed in accordance with applicable requirements of MIL-PRF-49467, DSCC 87125, DSCC 89087 and NASA GSFC S-311-15C.
2. Special testing including 100% Partial Discharge (Corona) is available upon request.
3. Custom voltages, package sizes and capacitance values available. Contact factory.
4. Higher voltage parts may require encapsulation to prevent surface arc over and breakdown. When required, parts should first be cleaned and oven dried at +85°C. Silicone rubbers or a suitable epoxy may be used and de-airing of encapsulates is recommended.
5. Testing of higher voltage parts before installation and / or application of supplemental encapsulation, may be done in a suitable, non-contaminating dielectric fluid like FC-40.
6. Large ceramic capacitors are susceptible to damage when exposed to thermal and / or mechanical shock. Ensure care is taken while handling and during installation, or consider selecting a leaded alternative.

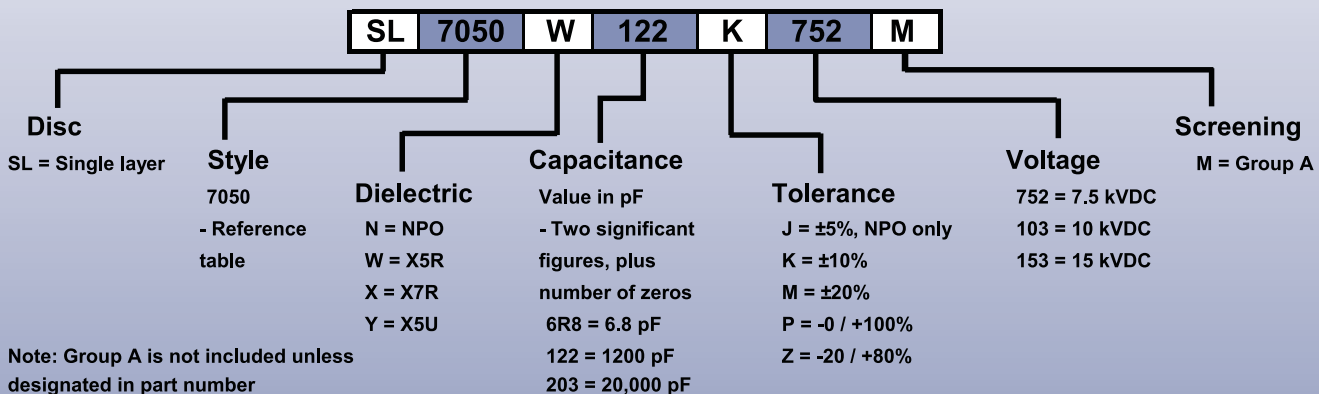
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Electrical / Mechanical Characteristics

Working Voltage	Style	Dimensions [in]				Capacitance Range [pF]							
		L ± 0.010	W ± 0.010	T Max	T Nom	NPO		X5R		X7R		X5U	
						Min	Max	Min	Max	Min	Max	Min	Max
3 kVDC	3408	0.340	0.080	0.075	0.060	6.8	8.1	230	275	200	240	460	550
	5625	0.560	0.250	0.075	0.060	35	42	1200	1400	1000	1200	2400	2900
	5439	0.540	0.390	0.075	0.060	53	64	1800	2200	1600	1900	3600	4300
	7050	0.700	0.500	0.075	0.060	88	106	3000	3600	2600	3100	6000	7100
	100100	1.000	1.000	0.075	0.060	250	300	8500	10200	7500	9000	17000	20000
5 kVDC	3408	0.340	0.080	0.125	0.100	4	5	140	170	120	150	270	340
	5625	0.560	0.250	0.125	0.100	21	26	700	870	620	7700	1400	1700
	5439	0.540	0.390	0.125	0.100	32	39	1100	1300	940	1200	2100	2600
	7050	0.700	0.500	0.125	0.100	52	65	1800	2200	1500	1900	3500	4400
	100100	1.000	1.000	0.125	0.100	150	184	5000	6200	4400	5500	10000	12400
7.5 kVDC	3408	0.340	0.080	0.180	0.150	•	•	•	•	•	•	•	•
	5625	0.560	0.250	0.180	0.180	14	17	470	580	410	500	940	1200
	5439	0.540	0.390	0.180	0.180	21	26	700	870	620	760	1400	1700
	7050	0.700	0.500	0.180	0.180	35	43	1200	1400	100	1300	2300	2900
	100100	1.000	1.000	0.180	0.180	100	120	3400	4100	2900	3600	6700	8200
10 kVDC	3408	0.340	0.080	0.235	0.200	•	•	•	•	•	•	•	•
	5625	0.560	0.250	0.235	0.200	11	13	350	430	310	380	710	870
	5439	0.540	0.390	0.235	0.200	16	19	530	650	470	570	1100	1300
	7050	0.700	0.500	0.235	0.200	26	32	880	1100	780	950	1800	2200
	100100	1.000	1.000	0.235	0.200	75	92	2500	3100	2200	2700	5000	6200
15 kVDC	3408	0.340	0.080	0.350	0.300	•	•	•	•	•	•	•	•
	5625	0.560	0.250	0.350	0.300	7	8.5	240	290	210	250	470	580
	5439	0.540	0.390	0.350	0.300	11	13	350	430	310	380	710	870
	7050	0.700	0.500	0.350	0.300	17	21	590	720	520	630	1200	1400
	100100	1.000	1.000	0.350	0.300	50	60	1700	2100	1500	1800	3400	4100
20 kVDC	3408	0.340	0.080	0.460	0.400	•	•	•	•	•	•	•	•
	5625	0.560	0.250	0.460	0.400	5.2	6.4	180	220	160	190	350	430
	5439	0.540	0.390	0.460	0.400	7.9	9.6	270	330	230	290	530	650
	7050	0.700	0.500	0.460	0.400	13	16	440	540	390	470	880	1100
	100100	1.000	1.000	0.460	0.400	37	46	1300	1500	1100	1400	2500	3100

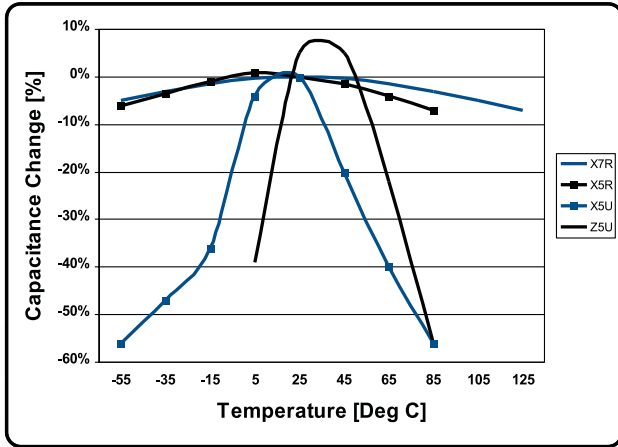
Part Number / Ordering Information



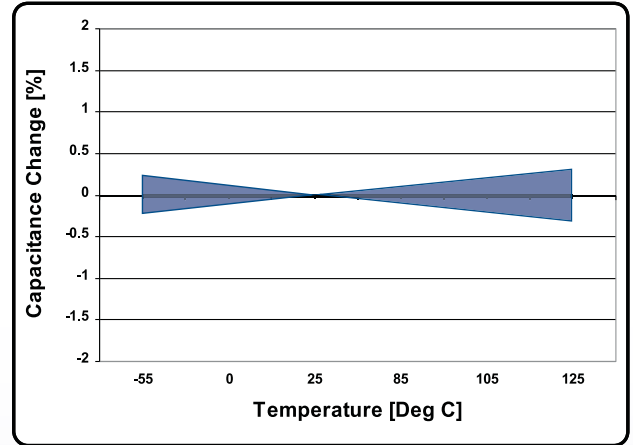
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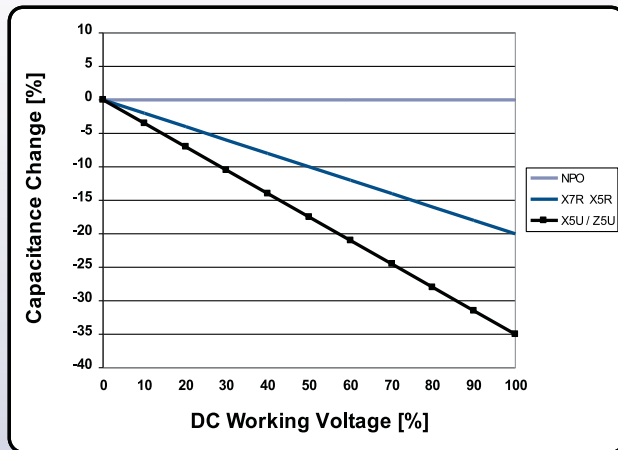
Performance Charts (Typical)



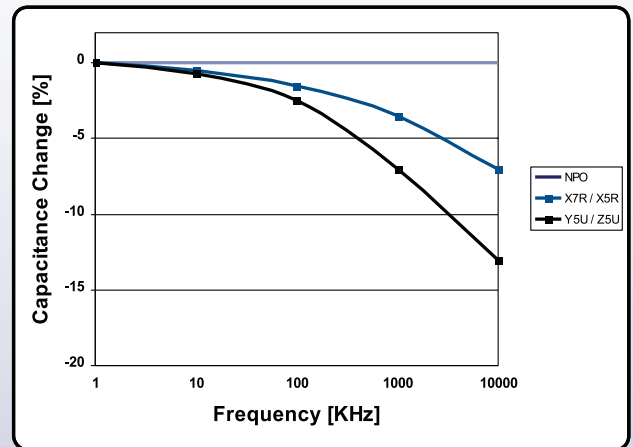
Class II Temperature Coefficient



NPO Temperature Coefficient



Voltage Coefficient



Capacitance Vs Frequency