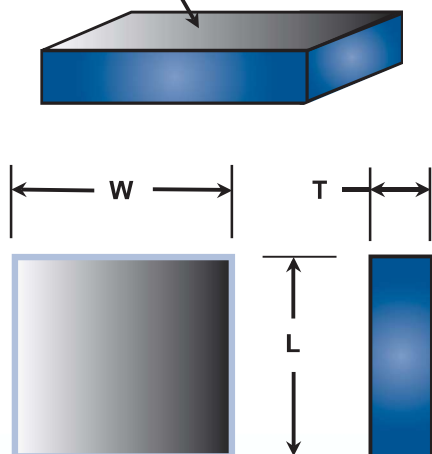


High Voltage Single Layer Bare Rectangular Capacitors

Military & Commercial Level Class 1 & Class 2 Dielectric – 3 kVdc to 20 kVdc



Termination
(2 plcs)¹



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) (N)	X7R (X)	X5R (W)	X5U (Y)
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	± 90 PPM / °C	$\pm 15\%$		+22 / -56%
Voltage Coefficient	Negligible	-20% Max @ WVDC		-35% Max @ WVDC
Capacitance Range	4.0 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			

General Information

- 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.
- Special testing including 100% Partial Discharge (Corona) is available upon request.
- Custom voltages, package sizes and capacitance values available. Contact factory.
- 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.
- 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.
- 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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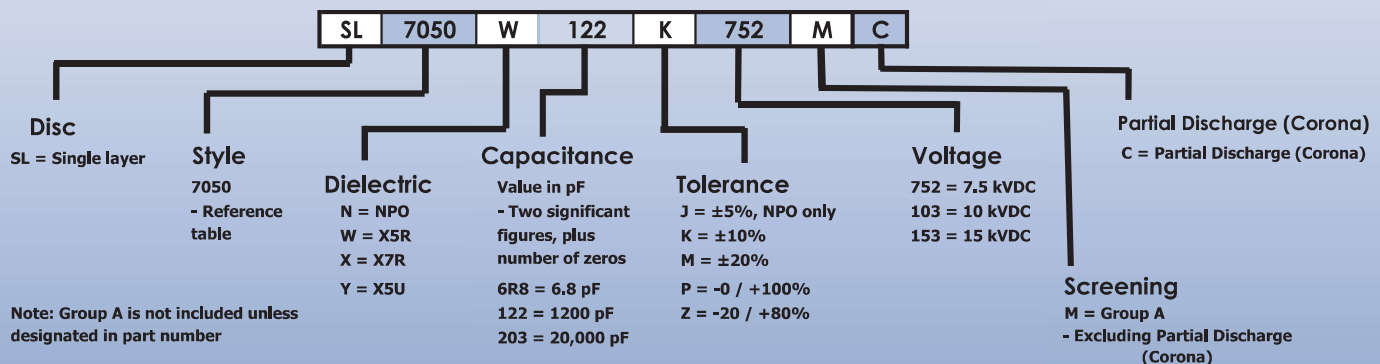
Military & Commercial Level Class 1 & Class 2 Dielectric – 3 kVdc to 20 kVdc

Electrical / Mechanical Characteristics

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

• Other sizes & voltages available upon request

Part Number / Ordering Information



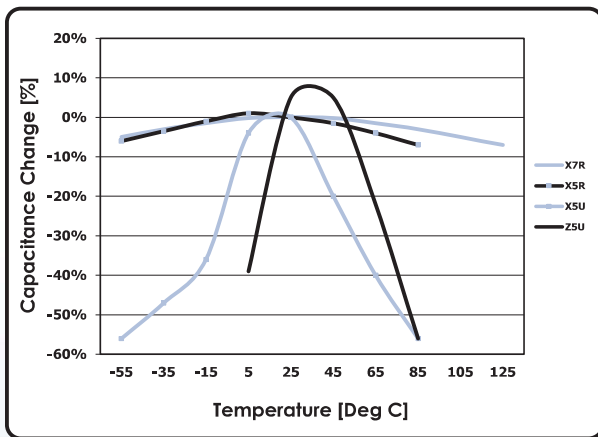
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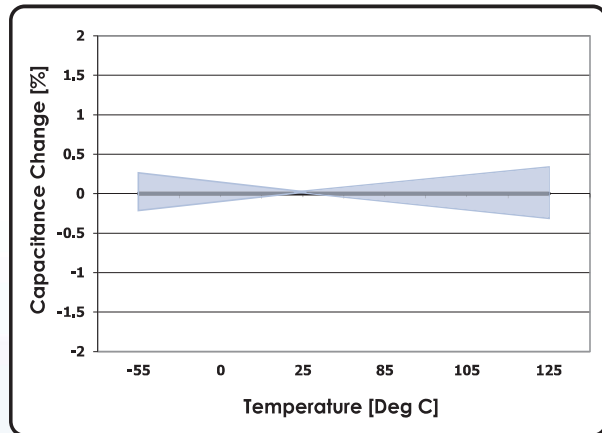


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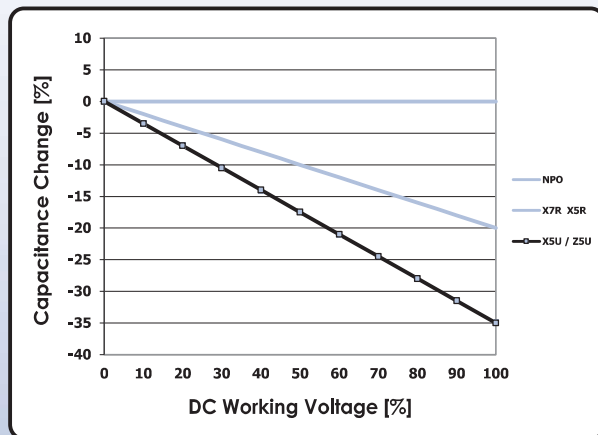
Performance Charts (Typical)



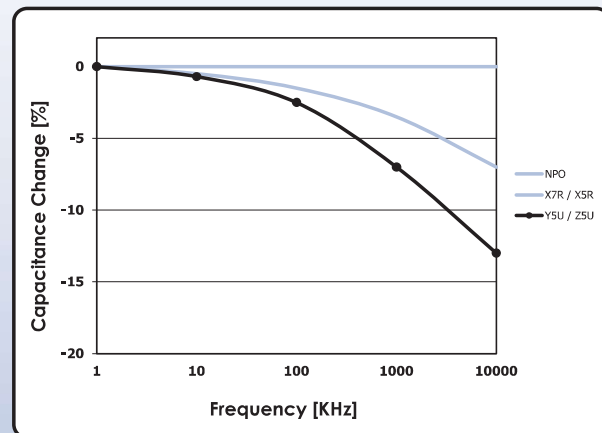
Class II Temperature Coefficient



NPO Temperature Coefficient



Voltage Coefficient



Capacitance Vs Frequency