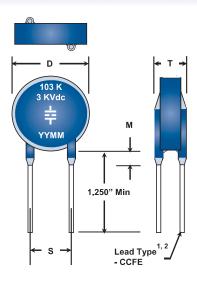
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High Voltage Radial Leaded Disc Capacitors

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





- Lead Size: D30, D40 @ 0.025" Dia (#22 AWG) [0.64 mm] D50 & larger @ 0.032" Dia (#20 AWG) [0.81mm].
- 2. Lead Finish: Solder Plate Standard / RoHS 100% Tin Plate
- 3. Order of marking may vary depending on size of capacitor.

CalRamic Technologies LLC manufactures a series of highly reliable, single layer, conformally coated, ceramic disc capacitors, designed with leaded terminals and intended for those applications where the capacitor may be exposed to higher levels of thermal and mechanical shock. These capacitors are 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, X5U and Z5U dielectric materials, which are intended for those applications where added dielectric 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.

Performance Characteristics

Smaailiantian	Dielectric Type (EIA Designation)											
Specification	NPO (COG) (N)	Y5P (P)	X7R (X)	X5R (W)	X5U (Y)	Z5U (Z)						
Material Classification	Type I, Ultra Stable, K76	Type II, Stable, K2450	Type II, Stable, K2350 Type II, Stable, K2500		Type II, Stable, K5000	Type II, Stable, K10000						
Coef of Thermal Expansion	9 x 10-6 / °C	11 x 10-4 / °C										
Density	72 g / in³											
Operating Temperature Range	-55 to +125°C	-30 to +85°C	-55 to +125°C	-55 to	+85°C	+10 to +85°C						
Aging Rate	0		-2% Max per decade ho	-3% Max per decade hour								
Temperature Coefficient	±90 PPM / °C	±10%	±1	+22 / -56%								
Voltage Coefficient	Negligible		-40% Max @ WVDC	-65% Max @ WVDC	-65% Max @ WVDC							
Capacitance Range	1.6 pF to 600 pF	52 pF to 0.020 μF 52 pF to 0.020 μF 52 pF to 0		52 pF to 0.020 μF	100 pF to 0.037 μF	200 pF to 0.077 μF						
Voltage Range	3 kVdc to 20 kVdc											
Insulation Resistance @ +25°C	100,000 MΩ or 1000 MΩ - μF, W/E is less											
Insulation Resistance @ T Max	10,000 MΩ or 100 MΩ - μF, W/E is less											
Dissipation Factor	0.1% Max 2.5% Max											
DWV	1.5 x WVDC											

General Information

- 1. Custom voltages, package sizes and capacitance values available. Contact factory.
- 2. Higher voltage parts may require further 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.
- 3. Testing of higher voltage parts before installation and / or supplemental encapsulation, may be done in a suitable, non-contaminating dielectric fluid like FC-40.
- 4. Large ceramic capacitors, even leaded devices are susceptible to damage when exposed to thermal and / or mechanical shock. Refer to Technical Bulletin AN103/AN112 for handling and installation recommendations.

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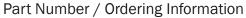
Electrical / Mechanical Characteristics

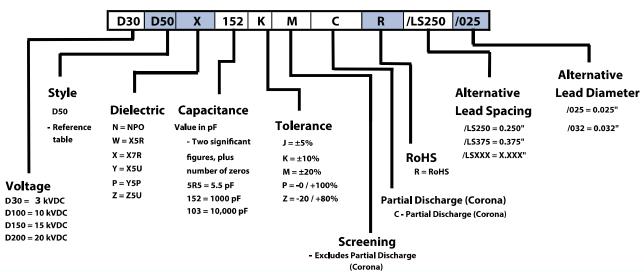
Working Voltage		Dimensions [in]			Actual Capacitance Value Range [pF]													
	Disc			T Max	M Max	NPO (N)		Y5P	(P)	X7R	X7R (X)		X5R (W)		X5U (Y)		Z5U (Z)	
	Style	D Max	S ± 0.030			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
3 KVDC	D30	0.300	0.250	0.210	0.125	8.4	21	270	630	260	600	270	630	500	1100	1000	2200	
	D40 D50	0.400	0.250	0.210	0.125 0.125	12 28	41 79	410 920	1300 2500	380 870	1200 2400	410 920	1300 2500	730 1700	2400 4600	1500 3400	4900 9600	
	D60	0.600	0.375	0.210	0.125	38	100	1300	3400	1200	3200	1300	3400	2200	6100	6000	12000	
	D70	0.700	0,500	0,210	0.125	63	160	2100	5300	2000	4900	2100	5300	3700	9600	7500	18000	
	D80	0.800	0.500	0.210	0.125	94	180	3100	6500	2900	6000	3100	6500	5500	11000	11000	22000	
	D90	0.900	0.500	0.210	0.125	110	270	3700	9100	3500	8600	3700	9100	6600	16000	13000	32000	
	D100 D120	1.000	0.500	0.210	0.125 0.125	150 200	340 530	5000 6600	11000 17000	4700 6200	10000	5000 6600	11000 17000	9000 12000	20000 30000	18000	39000 61000	
	D120	1.400	0.625	0.210	0.125	310	600	10000	20000	9600	16000 20000	10000	20000	19000	37000	24000 37000	77000	
	D30	0.300	0.250	0.250	0.125	5.1	12	160	370	150	360	160	370	300	680	600	1400	
	D40	0.400	0.250	0.250	0.125	7.3	26	250	800	230	750	250	800	440	1400	900	2900	
	D50	0.500	0.375	0.250	0.125	17	48	560	1500	520	1400	560	1500	1000	2700	2100	5600	
×	D60	0.600	0.375	0.250	0.125	23	64	760	2000	700	1800	760	2000	1400	3700	3600	7300	
	D70	0.700	0.500	0.250	0.125	38	98	1300	3000	1200	3000	1300	3000	2300	5800	4500	11000	
5 KVDC	D80 D90	0.800	0.500	0.250 0.250	0.125 0.125	57 69	110 160	1900 2200	3900 5300	1800 2100	3600 5100	1900 2200	3900 5300	3400 4000	6800 9800	6800 8100	14000 18000	
~	D100	1.000	0.500	0.250	0.125	92	200	3000	6700	2900	6300	3000	6700	5500	12000	11000	24000	
	D120	1.200	0.500	0.250	0.125	120	310	3900	10000	3800	9800	3900	10000	7200	18000	14000	37000	
	D140	1.400	0.625	0.250	0.125	190	390	6200	12900	5800	12000	6200	12000	11000	22000	22000	46000	
	D30	0,300	0.250	0,310	0.150	3.4	8	110	250	100	250	110	250	200	460	400	920	
	D40	0.400	0.250	0.310	0.150	5	17	170	530	150	510	170	530	300	980	600	1800	
7.5 kVDC	D50 D60	0.500	0.375	0.310 0.310	0.150 0.150	12 15	33 43	370 510	1000 1300	350 470	990 1200	370 510	1000	670 900	1800 2400	1400 2400	3700 4900	
	D70	0.700	0.500	0,310	0.150	25	65	830	2000	780	2000	830	2000	1500	3700	3000	7700	
	D80	0,800	0,500	0,310	0,150	37	79	1300	2500	1200	2400	1300	2500	2200	4600	4500	9200	
	D90	0.900	0.500	0.310	0.150	45	110	1500	3600	1400	3400	1500	3600	2700	6500	5400	13000	
	D100	1.000	0.500	0.310	0.150	60	130	2000	4400	1900	4300	2000	4400	3700	8000	7300	16000	
	D120	1.200	0.500	0.310	0.150	80	200	2600	5600	2500	6500	2600	5600	4800	12000	9500	24000	
	D140 D30	1,400 0,300	0,625 0,250	0,310 0,440	0,150 0,170	120 2,5	250 6	4100 84	8600 180	3800 78	8000 180	4100 84	8600 180	7400 150	15000 340	15000 300	30000 700	
	D30	0,400	0.250	0,440	0,170	3.8	12	120	390	110	370	120	390	220	720	450	1400	
	D50	0.500	0.375	0.440	0.170	8.5	24	280	820	260	740	280	820	500	1400	1000	2700	
10 KVDC	D60	0.600	0.375	0.440	0.170	12	31	380	1000	350	960	380	1000	680	1700	1800	3600	
	D70	0.700	0,500	0.440	0.170	19	48	620	1600	580	1500	620	1600	1100	2900	2300	5800	
	D80	0.800	0,500	0.440	0.170	28	58	930	1800	870	1800	930	1800	1700	3400	3400	7000	
	D90 D100	1.000	0.500	0.440 0.440	0.170 0.170	34 46	83 100	1100 1500	2700 3400	1000 1400	2500 3000	1100 1500	2700 3400	2000 2700	4900 6000	4000 5500	9800 12000	
	D120	1,200	0.500	0.440	0.170	60	160	2000	5100	1900	4800	2000	5100	3600	9400	7200	18000	
	D140	1.400	0.625	0.440	0.170	94	180	3100	6300	2900	6000	3100	6300	5600	11000	11000	22000	
15 KVDC	D30	0.300	0.250	0.545	0.175	1.6	4	55	130	52	120	55	130	100	220	200	460	
	D40	0.400	0.250	0.545	0.175	2,4	8	52	270	76	250	52	270	150	480	300	980	
	D50	0.500 0.600	0.375	0.545	0.175	5.7	16	180	510 680	180	490 630	180	510	330 450	940 1200	1200	1800 2400	
	D60 D70	0.700	0.375	0.545 0.545	0.175 0.175	7.7 12	21 34	250 410	680 1000	230 390	630 1000	250 410	680 1000	450 750	1800	1200 1500	3700	
	D80	0.800	0.500	0.545	0.175	19	40	620	1300	580	1200	620	1300	1100	3200	2300	4600	
	D90	0.900	0,500	0.545	0.175	23	55	740	1720	690	1700	740	1700	1300	3200	2700	6500	
	D100	1.000	0.500	0.545	0.175	30	69	1000	2200	950	2000	1000	2200	1800	4100	3700	8000	
	D120	1.200	0.500	0.545	0.175	40	100	1300	3440	1300	3200	1300	3400	2400	6100	4800	12000	
-	D140 D50	1.400 0.500	0.625 0.375	0.545 0.650	0.175 0.175	60 4.6	130 12	2100 150	4300 370	1900 140	3900 360	2100 150	4300 370	3700 270	7700 680	7500 500	15000 1400	
20 KVDC	D60	0,600	0,375	0,650	0.175	6,2	15	200	490	190	460	200	490	360	890	890	1700	
	D70	0.700	0,500	0.650	0.175	10	24	330	770	310	740	330	770	600	1400	1200	2900	
	D80	0.800	0.500	0.650	0.175	15	29	500	940	470	890	500	940	900	1700	1700	3400	
	D90	0.900	0.500	0.650	0.175	18	40	600	1300	560	1200	600	1300	1100	2400	2000	4800	
	D100	1.000	0.500	0.650	0.175	24	52	800	1600	760	1500	800	1600	1500	2900	2800	5100	
	D120	1.200	0.500	0.650	0.175	32 50	77	1700	2500	1000	2400	1000	2500	1900	4400	3600	9400	
	D140	1,400	0,625	0.650	0.175	50	96	1700	3100	1600	2900	1700	3000	3000	5600	5600	11000	

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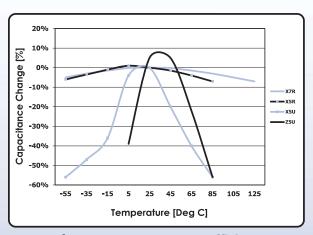
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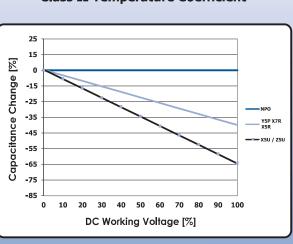




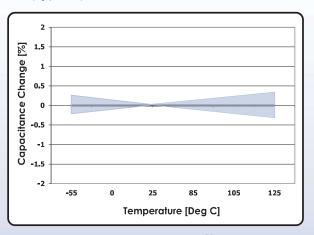
Performance Charts (Typical)



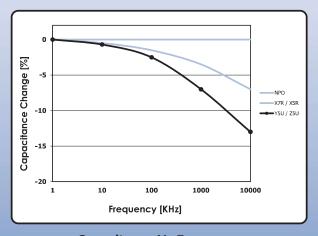
Class II Temperature Coefficient



Voltage Coefficient



NPO Temperature Coefficient



Capacitance Vs Frequency