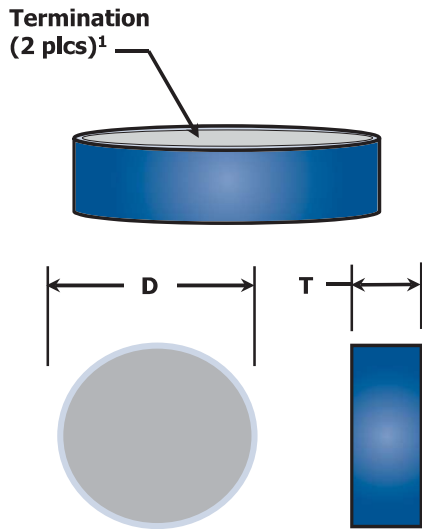


High Voltage Single Layer Bare Disc Capacitors

Military & Commercial Level Class 1 Negative TC Low Loss – 3 kVdc to 20 kVdc



1. Termination Type: 100% fired-on silver

CalRamic Technologies LLC manufactures a series of highly reliable, single layer, bare disc, negative temperature compensating, ceramic disc capacitors that deliver both very stable and predictable performance characteristics typically associated with low loss dielectrics.

These capacitors, which draw on thirty plus years of proven design and process experience, are manufactured under strict quality control guidelines and utilize a double action press to minimize gradients within the dielectric powder, producing a finished capacitor with a uniform fired ceramic density and unparalleled performance in high voltage applications. Leaded construction limits risk for damage due to exposure to mechanical and thermal stress.

Essential where low losses and tight capacitance tolerances are critical, 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

Specification	Dielectric Type			
	CR01	CR03	CR17	CR22
Material Classification	N750 (U2J)	N1500 (P3K)	N4700 (T3M)	N5600 (U3N)
Coefficient of Thermal Expansion	$11 \times 10^{-6} / ^\circ\text{C}$	$11 \times 10^{-6} / ^\circ\text{C}$	$11 \times 10^{-6} / ^\circ\text{C}$	$11 \times 10^{-6} / ^\circ\text{C}$
Density	72 g / in ³			
Operating Temperature Range	-55 to +125°C			
Aging Rate	0			
Temperature Coefficient	-750 PPM / °C ±10% Max	-1500 PPM / °C ±17% Max	-4700 PPM / °C ±52% Max	-5600 PPM / °C ±59% Max
Voltage Coefficient	-8% Max @ WVDC		-14% Max @ WVDC	
Capacitance Range	2.0 pF to 1000 pF	5.5 pF to 2700pF	29 pF to 0.014uF	34 pF to 0.017 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 @ +125°C	10,000 MΩ or 100 MΩ - μF, W/E is less			
Dissipation Factor	0.2% 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 leaded alternatives as detailed in catalog page CRT-0006.
- All parts are RoHS compliant.

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Electrical / Mechanical Characteristics

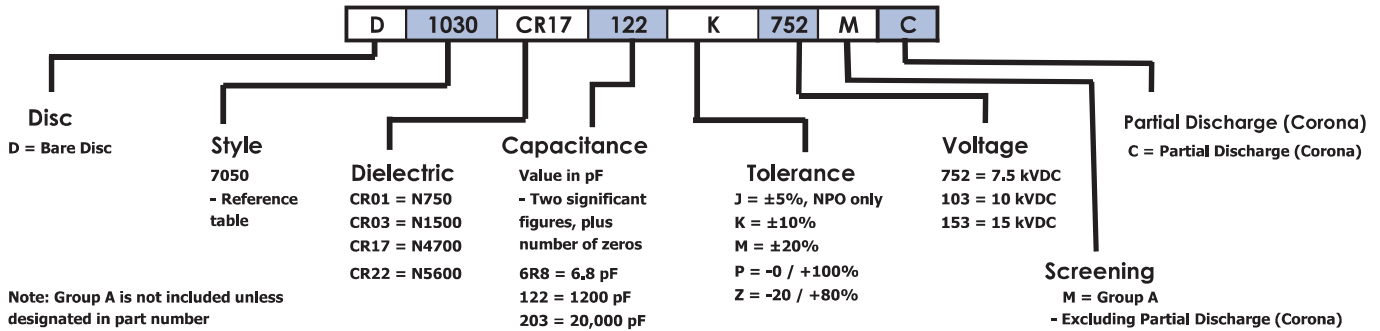
Working Voltage	Disc Style	Dimensions [in]			Capacitance Range [pF]								
		D Max	T Nom	T Max	CR01		CR03		CR17		CR22		
					Min	Max	Min	Max	Min	Max	Min	Max	
3 kVDC	D0604	0.220	0.060	0.075	14	30	37	86	190	430	230	510	
	D0704	0.245	0.060	0.075	17.0	46	46	120	230	470	280	750	
	D0804	0.275	0.060	0.075	20	63	55	170	280	910	330	1000	
	D1004	0.330	0.060	0.075	32	91	92	250	460	1300	540	1500	
	D1204	0.400	0.060	0.075	45	120	130	340	640	1700	750	2000	
	D1404	0.460	0.060	0.075	80	160	220	440	1200	2200	1400	2700	
	D1604	0.525	0.060	0.075	90	200	250	570	1300	2900	1500	3500	
	D1804	0.590	0.060	0.075	100	250	280	700	1500	3600	1700	4300	
	D2004	0.650	0.060	0.075	120	270	350	780	1600	3900	2100	4700	
	D2204	0.710	0.060	0.075	150	300	420	860	2200	4300	2500	5100	
	D2404	0.775	0.060	0.075	180	430	500	1300	2600	6100	3000	7200	
	D2404	0.840	0.060	0.075	210	480	580	1300	3000	6800	3500	8000	
	D2904	0.930	0.060	0.075	250	530	670	1400	3500	7500	4100	8900	
	D3204	1.030	0.060	0.075	320	820	880	2200	4500	11000	5300	13000	
	D3604	1.150	0.060	0.075	480	1200	1300	3300	6700	16000	7900	19000	
	5 kVDC	D0610	0.220	0.125	0.100	8	17	22	51	120	250	140	300
		D0710	0.245	0.125	0.100	10	25	29	75	140	400	170	460
		D0810	0.275	0.125	0.100	12	33	37	100	170	550	260	630
D1010		0.330	0.125	0.100	19	53	54	150	280	770	320	910	
D1210		0.400	0.125	0.100	27	74	75	200	390	1000	450	1200	
D1410		0.460	0.125	0.100	48	98	140	250	680	1400	800	1600	
D1610		0.525	0.125	0.100	54	120	150	330	760	1700	900	2000	
D1810		0.590	0.125	0.100	60	150	170	410	850	2000	1000	2500	
D2010		0.650	0.125	0.100	75	160	210	440	1000	2200	1000	2700	
D2210		0.710	0.125	0.100	90	170	250	510	1300	2500	1500	3000	
D2410		0.775	0.125	0.100	110	250	300	720	1600	3600	1800	4300	
D2610		0.840	0.125	0.100	130	280	380	800	1800	4000	2100	4800	
D2910		0.930	0.125	0.100	150	320	410	890	2100	4400	2500	5300	
D3210		1.030	0.125	0.100	190	490	530	1300	2700	7000	3200	8200	
D3610		1.150	0.125	0.100	240	550	670	1500	3500	7800	4100	9100	
D4010		1.280	0.125	0.100	300	610	820	1700	4300	8700	5000	10000	
7.5 kVDC		D0615	0.220	0.180	0.150	5.5	12	15	34	76	170	89	200
		D0715	0.245	0.180	0.150	6.7	17.0	20	52	78	260	110	310
	D0815	0.275	0.180	0.150	8	22	25	70	120	360	140	430	
	D1015	0.330	0.180	0.150	13.0	35.0	37	100	190	530	220	630	
	D1215	0.400	0.180	0.150	18	49	50	130	260	700	300	840	
	D1415	0.460	0.180	0.150	32	65	87	170	450	1270	530	1100	
	D1615	0.525	0.180	0.150	34	82	98	220	510	1100	400	1400	
	D1815	0.590	0.180	0.150	40	100	110	270	570	1400	670	1700	
	D2015	0.650	0.180	0.150	50	110	140	300	710	1600	830	1800	
	D2215	0.710	0.180	0.150	60	120	170	340	850	1700	1000	2000	
	D2415	0.775	0.180	0.150	72	170	200	480	1100	2400	1200	2900	
	D2615	0.840	0.180	0.150	85	180	230	530	1200	2600	1400	3200	
	D2915	0.930	0.180	0.150	98	200	270	580	1400	2900	1700	3600	
	D3215	1.030	0.180	0.150	130	320	350	910	1800	4600	2200	5500	
	D3615	1.150	0.180	0.150	160	360	460	1000	2300	5000	2700	6100	
	D4015	1.280	0.180	0.150	200	410	550	1100	2900	5800	3200	6800	
	10 kVDC	D0620	0.220	0.235	0.200	4	8	11	25	57	130	67	150
		D0720	0.245	0.235	0.200	5.0	13	14	39	70	200	83	220
D0820		0.275	0.235	0.200	6	18	17	53	84	270	99	300	
D1020		0.330	0.235	0.200	10	27	27	76	140	400	160	450	
D1220		0.400	0.235	0.200	14	37	37	100	200	530	230	610	
D1420		0.460	0.235	0.200	24	48	66	130	340	700	400	820	
D1620		0.525	0.235	0.200	27	62	74	160	380	900	450	1000	
D1820		0.590	0.235	0.200	30	77	83	200	430	1100	500	1200	
D2020		0.650	0.235	0.200	37	79	106	220	530	1200	620	1300	
D2220		0.710	0.235	0.200	45	82	130	250	640	1300	750	1500	
D2420		0.775	0.235	0.200	54	130	150	360	760	1700	900	2000	
D2620		0.840	0.235	0.200	63	140	180	400	930	1900	1100	2200	
D2920		0.930	0.235	0.200	73	160	210	440	1100	2200	1300	2500	
D3220		1.030	0.235	0.200	95	240	270	680	1400	3400	1600	4100	
D3620		1.150	0.235	0.200	120	270	340	740	1800	3800	2000	4600	
D4020		1.280	0.235	0.200	150	300	410	840	2200	4300	2500	5100	
15 kVDC		D0630	0.220	0.350	0.300	3	6	7.5	17	38	87	45	100
		D0730	0.245	0.350	0.300	3.5	8.5	9.7	25	47	120	55	150
	D0830	0.275	0.350	0.300	4	11	12	34	56	170	66	200	
	D1030	0.330	0.350	0.300	6.5	17.0	18	51	90	250	100	300	
	D1230	0.400	0.350	0.300	9	24	25	68	130	340	150	410	
	D1430	0.460	0.350	0.300	16	32	44	91	230	460	270	550	
	D1630	0.525	0.350	0.300	18	41	49	110	260	590	300	700	
	D1830	0.590	0.350	0.300	20	51	55	140	290	720	340	860	
	D2030	0.650	0.350	0.300	25	56	69	150	360	790	420	930	
	D2230	0.710	0.350	0.300	30	61	83	170	430	870	500	1000	
	D2430	0.775	0.350	0.300	36	87	99	240	510	1200	600	1400	
	D2630	0.840	0.350	0.300	42	93	110	260	600	1300	700	1500	
	D2930	0.930	0.350	0.300	49	100	140	290	690	1500	810	1700	
	D3230	1.030	0.350	0.300	64	160	180	440	900	2200	1100	2700	
	D3630	1.150	0.350	0.300	81	180	230	500	1200	2900	1400	3000	
	D4030	1.280	0.350	0.300	99	200	280	560	1500	2900	1700	3400	
	20 kVDC	D1040	0.330	0.460	0.400	5.8	15	16	42	79	200	99	240
		D1240	0.400	0.460	0.400	7	18	19	51	96	250	120	300
D1440		0.460	0.460	0.400	12	24	33	67	170	340	200	410	
D1640		0.525	0.460	0.400	13.0	30.0	37	83	190	440	220	520	
D1840		0.590	0.460	0.400	15	37	42	100	220	550	250	630	
D2040		0.650	0.460	0.400	19	41	52	110	270	620	310	720	
D2240		0.710	0.460	0.400	23	46	62	120	320	650	380	770	
D2440		0.775	0.460	0.400	27	65	74	170	380	920	450	1000	
D2640		0.812	0.460	0.400	32	72	92	190	450	1000	530	1100	
D2940		0.930	0.460	0.400	37	80	110	220	520	1100	610	1300	
D3240		1.030	0.460	0.400	48	120	140	340	680	1700	800	2000	
D3640		0.840	0.460	0.400	61	130	170	370	890	1800	1000	2200	
D4040	1.280	0.460	0.400	75	150	210	410	1100	2000	1300	2500		

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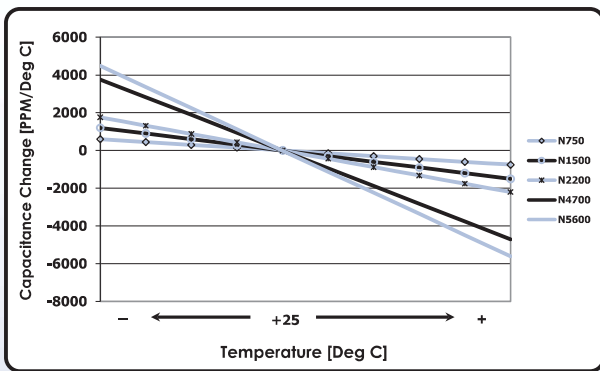
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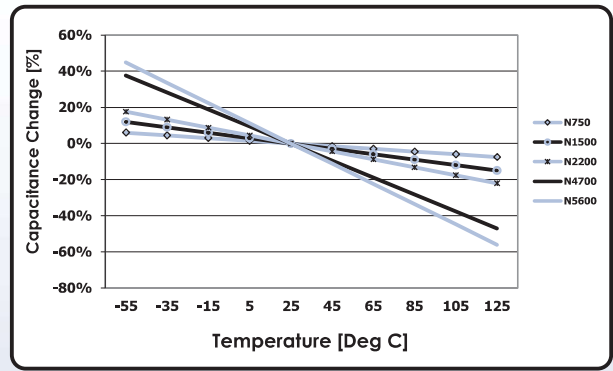
Part Number / Ordering Information



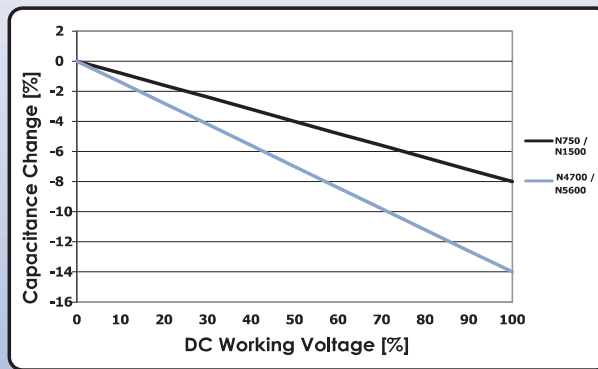
Performance Charts (Typical)



Temperature Coefficient [PPM / °C]



Temperature Coefficient [% Vs Temp]



Voltage Coefficient