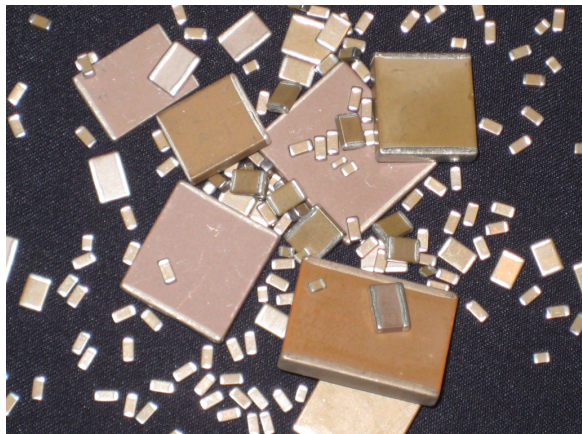


MULTILAYER CERAMIC CAPACITORS

+300 °C COG / NPO – 25 Vdc to 4.0 KVdc



Eclipse NanoMed manufactures a leading edge line of Class I COG/NPO capacitors intended for operation at temperatures from -55 to +300°C. They are characterized by a near linear temperature coefficient, are non piezoelectric, exhibit low loss, no aging and negligible performance variation due to changes in working voltage and frequency.

Our proprietary dielectric material formulations achieve “best in class” dissipation factor levels, excellent volumetric efficiency and dielectric breakdown characteristics, while maintaining stable performance attributes related to variations in time, temperature, applied voltage and frequency.

Typical applications include timing circuits, RF oscillators and precision circuitry demanded by harsh environments associated with the down-hole oil industry, aerospace / automotive engine compartments and geophysical probes.

PERFORMANCE CHARACTERISTICS

Operating Temperature Range

-55 to +300 °C

Temperature Coefficient

ΔC @ 0 ±30 ppm / °C Max, -55 to +300 °C

Test Parameters

1KHz ± 100 Hz, 1.0 ± 0.2 VRMS @ +25 °C

1 MHz ± 100 kHz, 1.0 ± 0.2 VRMS @ +25 °C

IR test voltage @ wvdc or 500 vdc w/e less

Insulation Resistance

1000 ΩF or 100 GΩ w/e less @ +25 °C

100 ΩF or 10 GΩ w/e less @ +125 °C

0.1 ΩF or 10 MΩ w/e less @ +300 °C

Dielectric Strength

2.5 x WVDC @ WVDC ≤ 200 Vdc

1.5 x WVDC @ 201 Vdc ≤ WVDC ≤ 500 Vdc

1.2 x WVDC @ WVDC >500 Vdc

Dissipation Factor

0.005% Max @ +25 °C / 1% Max @ +300 °C

1 MHz @ C ≤ 100 pF / 1 kHz @ C > 100 pF

Voltage Coefficient

Negligible

Aging Rate

None

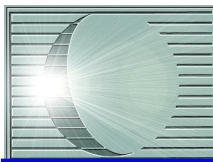
MECHANICAL DIMENSIONS

Chip Size	Length	Tol	Width	Tol	Thickness	End Band	Tol
	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)
0805	0.080 (2.030)	± 0.008 (0.203)	0.050 (1.270)	± 0.008 (0.203)	0.055 (1.40) Max	0.020 (0.508)	± 0.010 (0.254)
1005	0.100 (2.540)	± 0.010 (0.254)	0.050 (1.270)	± 0.010 (0.254)	0.055 (1.40) Max	0.020 (0.508)	± 0.010 (0.254)
1206	0.125 (3.180)	± 0.010 (0.254)	0.060 (1.520)	± 0.010 (0.254)	0.065 (1.65) Max	0.020 (0.508)	± 0.010 (0.254)
1210	0.125 (3.180)	± 0.010 (0.254)	0.100 (2.54)	± 0.010 (0.254)	0.065 (1.65) Max	0.020 (0.508)	± 0.010 (0.254)
1515	0.150 (3.810)	± 0.015 (0.380)	0.150 (3.810)	± 0.015 (0.380)	0.140 (3.55) Max	0.030 (0.760)	± 0.015 (0.380)
1805	0.180 (4.570)	± 0.015 (0.380)	0.050 (1.270)	± 0.015 (0.380)	0.055 (1.40) Max	0.020 (0.508)	± 0.010 (0.254)
1808	0.180 (4.570)	± 0.015 (0.380)	0.080 (2.030)	± 0.015 (0.380)	0.080 (2.03) Max	0.020 (0.508)	± 0.010 (0.254)
1812	0.180 (4.570)	± 0.015 (0.380)	0.125 (3.180)	± 0.015 (0.380)	0.100 (2.54) Max	0.025 (0.640)	± 0.015 (0.380)
1825	0.180 (4.570)	± 0.015 (0.380)	0.250 (6.350)	± 0.015 (0.380)	0.140 (3.56) Max	0.025 (0.640)	± 0.015 (0.380)
2020	0.200 (5.080)	± 0.015 (0.380)	0.200 (5.080)	± 0.015 (0.380)	0.180 (4.57) Max	0.025 (0.640)	± 0.015 (0.380)
2220	0.220 (5.590)	± 0.015 (0.380)	0.200 (5.080)	± 0.015 (0.380)	0.180 (4.57) Max	0.025 (0.640)	± 0.015 (0.380)
2225	0.225 (5.720)	± 0.015 (0.380)	0.250 (6.350)	± 0.015 (0.380)	0.200 (5.08) Max	0.030 (0.762)	± 0.015 (0.380)
2520	0.250 (6.350)	± 0.015 (0.380)	0.200 (5.080)	± 0.015 (0.380)	0.180 (4.57) Max	0.030 (0.762)	± 0.015 (0.380)
3333	0.330 (8.380)	± 0.017 (0.432)	0.330 (8.380)	± 0.017 (0.432)	0.200 (5.08) Max	0.030 (0.762)	± 0.015 (0.380)
3530	0.350 (8.890)	± 0.018 (0.457)	0.300 (7.620)	± 0.015 (0.380)	0.200 (5.08) Max	0.030 (0.762)	± 0.015 (0.380)
4040	0.400 (10.16)	± 0.020 (0.510)	0.400 (10.16)	± 0.020 (0.510)	0.200 (5.08) Max	0.040 (1.020)	± 0.020 (0.510)
4540	0.450 (11.43)	± 0.023 (0.584)	0.400 (10.16)	± 0.020 (0.510)	0.200 (5.08) Max	0.040 (1.020)	± 0.020 (0.510)
5550	0.550 (14.00)	± 0.028 (0.711)	0.500 (12.70)	± 0.025 (0.635)	0.200 (5.08) Max	0.040 (1.020)	± 0.020 (0.510)
6560	0.650 (16.50)	± 0.030 (0.762)	0.600 (15.20)	± 0.030 (0.762)	0.200 (5.08) Max	0.040 (1.020)	± 0.020 (0.510)
7565	0.750 (19.10)	± 0.030 (0.762)	0.650 (16.50)	± 0.030 (0.762)	0.200 (5.08) Max	0.040 (1.020)	± 0.020 (0.510)

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CAPACITANCE & VOLTAGE SELECTION

Chip Size	0805	1005	1206	1210	1515	1805	1808	1812	1825	2020	2220	2225	2520	3333	3530	4040	4540	5550	6560	7565	
Min Cap	1R0	1R0	1R0	5R0	100	5R0	5R0	100	270	100	100	150	150	470	470	101	101	101	101	101	
Working Voltage DC	25	182	182	392	822	183	332	562	183	393	333	393	563	473	104	104	154	184	274	394	564
	50	182	182	392	822	183	332	562	183	393	333	393	563	473	104	104	154	184	274	394	564
	100	182	182	392	822	183	332	562	183	393	333	393	563	473	104	104	154	184	274	394	564
	200	152	152	332	682	153	272	472	153	333	273	333	473	393	104	823	154	154	274	334	474
	250	102	102	272	562	123	222	392	123	273	253	273	393	333	683	683	124	124	224	274	394
	300	681	681	182	392	103	152	332	103	253	183	253	273	273	563	563	104	104	184	254	334
	400	331	331	102	222	682	681	182	682	183	153	183	223	183	473	473	683	823	124	184	254
	500	221	221	681	122	562	471	122	472	153	123	153	183	153	393	333	563	683	104	154	184
	600	121	121	391	821	472	271	821	332	123	103	123	153	123	333	273	473	563	823	124	154
	750	560	560	221	471	272	151	471	182	682	682	822	103	103	223	253	333	393	563	823	104
	1000	270	270	101	221	152	470	221	102	392	392	472	562	472	123	123	183	183	333	473	563
	1500	3R3	3R3	180	330	561	6R8	560	331	152	122	152	222	182	472	392	682	822	123	183	223
	2000	•	•	•	•	251	•	180	121	681	561	821	102	102	222	222	332	392	562	822	103
	3000	•	•	•	•	560	•	•	•	151	181	221	271	271	561	561	102	102	182	252	332
4000	•	•	•	•	•	•	•	•	•	560	680	820	820	181	181	271	331	471	681	821	

Note:

1. Capacitors rated for 1000 Vdc and up may require conformal coating to preclude the possibility of surface arcing.
2. Leaded configurations recommended for those larger sizes where product is more susceptible to mechanical and thermal stress. Reference leaded catalog options or contact factory for additional information.

PART NUMBER DEFINITION / ORDERING INFORMATION

4540	NU	683	J	501	P	M	W
Case Size 45 = Length (0.450") 40 = Width (0.400")	Dielectric NU = COG / NPO Ultra Stable +300 °C Rated	Capacitance Value in pF Two significant figures followed by number of zeros. ie: 683 = 68,000 pF = 0.068 µF	Tolerance J = ± 5% K = ± 10% M = ± 20% Z = +80 / -20% P = +100 / -0%	Working Voltage Value in Vdc Two significant figures followed by number of zeros. ie: 501 = 500 Vdc 102 = 1000 Vdc	Termination P = Pd / Ag S = Ag	Marking M = Marked Blank = Unmarked	Packaging W = Waffle Recommended ≥1515 Pkg Size T = Tape & Reel Blank = Bulk (Std)

APPLICATION SPECIFIC PRODUCTS

Eclipse NanoMed's experienced staff is ready to assist you with your application specific requirements. Our product is processed in a state-of-the-art facility, complete with a Class 10,000 clean room, a full service machine shop and extensive testing options, guaranteed to satisfy the most rigid requirements. Whether your application requires Industrial, Military or Automotive grade capacitors, or if your product will be exposed to even higher temperature environments, we can help.

Commercial • Military Grade • Industrial • Medical • Automotive • +300 °C High Temperature

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