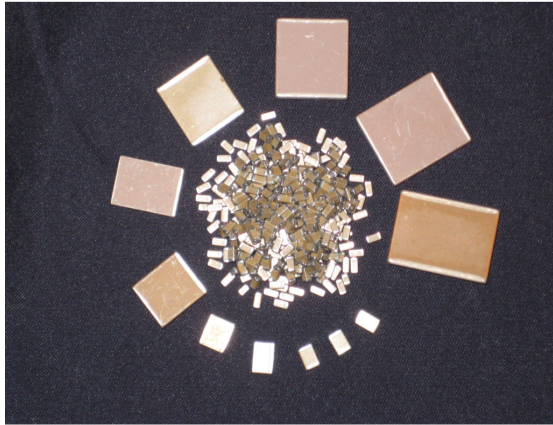


MULTILAYER CERAMIC CAPACITORS

COG / NPO High Reliability – 25 Vdc to 5.0 KVdc



COG (NPO) Dielectrics are considered to be “ultra stable” ceramics that fall into the category of Class I dielectrics as defined by EIA-198. 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 precision timing circuits, RF oscillators and other precision circuitry requiring low loss, stable performance.

PERFORMANCE CHARACTERISTICS

Operating Temperature Range
-55 to +125°C

Insulation Resistance
1000 ΩF or 100 GΩ w/e less @ +25°C
100 ΩF or 10 GΩ w/e less @ +125°C

Dissipation Factor
0.005% Max @ +25°C &
1 MHz @ C ≤ 100 pF / 1 kHz @ C > 100 pF

Temperature Coefficient
ΔC @ 0 ±30 ppm / °C Max, -55 to +125°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

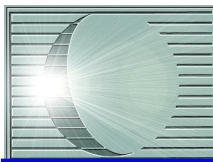
Voltage Coefficient
Negligible

Test Parameters
1KHz ± 100 Hz, 1.0 ± 0.2 VRMS @ +25°C
1 MHz ± 100 kHz, 1.0 ± 0.2 VRMS @ +25°C

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)



MULTILAYER CERAMIC CAPACITORS

COG / NPO High Reliability – 25 Vdc to 5.0 KVdc

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	560	560	560	820	820	101	101	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	182	182	392	822	183	332	562	183	393	333	393	563	473	104	104	154	184	274	394	564
	250	182	182	392	822	183	332	562	183	393	333	393	563	473	104	104	154	184	274	394	564
	300	182	182	392	822	183	332	562	183	393	333	393	563	473	104	104	154	184	274	394	564
	400	152	152	332	682	153	272	472	153	333	273	333	473	393	104	823	154	154	254	334	474
	500	102	102	272	562	123	222	392	123	273	253	273	393	333	823	683	124	124	224	274	394
	600	681	681	182	392	103	152	332	103	223	183	223	333	273	683	563	104	104	184	254	334
	750	391	391	182	252	822	821	222	822	183	153	183	253	223	393	473	823	823	124	184	274
	1000	221	221	561	122	562	471	122	472	153	123	183	183	153	473	393	563	683	104	154	184
	1500	680	680	221	471	272	151	471	182	682	682	822	103	103	223	223	333	393	563	823	104
	2000	270	270	151	221	152	560	221	102	562	392	472	562	472	123	123	183	183	333	473	563
	3000	3R3	3R3	180	330	561	6R8	560	331	152	122	152	222	182	472	392	682	822	123	183	223
	4000	•	•	•	•	251	•	180	121	681	681	821	102	102	222	222	332	392	562	822	103
5000	•	•	•	•	121	•	•	250	331	391	471	561	471	122	122	182	182	332	472	562	

Note:

1. Capacitors rated for 1000 Vdc and up may require conformal coating to preclude the possibility of surface arcing.
2. Group A test sequence and limits comply with the requirements of MIL-PRF-49467 and MIL-PRF-55681, where applicable.
3. 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

1812	N7	103	K	501	P	H	M	W
Case Size		Capacitance		Working Voltage		Hi Rel		Packaging
18 = Length (0.180") 12 = Width (0.125")		Value in pF Two significant figures followed by number of zeros. ie: 103 = 10,000 pF = 0.010 μF		Value in Vdc Two significant figures followed by number of zeros. ie: 501 = 500 Vdc 102 = 1000 Vdc		Group A Insp		W = Waffle Recommended ≥1515 Pkg Size T = Tape & Reel Blank = Bulk (Std)
	Dielectric		Tolerance		Termination		Marking	
	N7 = COG / NPO Ultra Stable	B = ±0.10 pF (<10 pF) C = ±0.25 pF (<10 pF) D = ±0.50 pF (<10 pF) F = ±1% G = ±2%	J = ± 5% K = ±10% M = ±20% Z = +80 / -20% P = +100 / -0%		P = Pd / Ag S = Ag N = Ni barrier/100% Sn		M = Marked Blank = Unmarked	

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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