

# High Reliability Chip - COG/NPO - 16Vdc to 10kVdc

A range of MLC chip capacitors in Ultra stable EIA Class I COG/NPO, dielectric with special testing for long term reliability. They are designed for optimum reliability; burned in at elevated voltage and temperature, and 100% physically and electrically inspected to ascertain conformance to strict performance criteria. Units may be tested in accordance with MIL-PRF-55681, MIL-PRF-123, MIL-PRF-49467 or customer SCD.

Designed for surface mount application with nickel barrier terminations making them suitable for solder wave and reflow solder board attachment as well as vapor phase attachment for part sizes 2225 or smaller. Silver-palladium terminations are also available for hybrid use with conductive epoxy.

COG/NPO chips are used in precision circuitry requiring Class I stability and exhibit linear temperature coefficient, low loss and stable electrical properties with time, voltage and frequency.

They find application for High Reliability use such as medical implanted devices, aerospace, airborne and military use as well as consumer uses requiring safety margins not attainable with commercial products.

Standard EIA case sizes and available C/V values are listed below - special sizes, thicknesses and other voltage ratings are available; please contact the Sales Office for information.

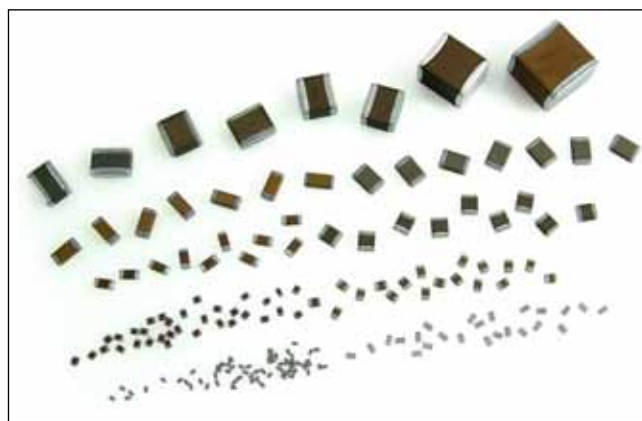


## Capacitance and voltage selection for popular chip sizes

Size	0402	0504	0603	0805	1206	1206	1210	1515	1808		1812		1825	
<b>Min cap.</b>	0R3	0R5	0R3	0R5	0R5	3R0	5R0	3R0	5R0	5R0	100	100	150	150
<b>Tmax</b> inches: mm:	0.024 0.61	0.044 1.12	0.035 0.89	0.054 1.37	0.054 1.37	0.064 1.63	0.065 1.63	0.130 3.02	0.065 1.63	0.080* 2.03	0.065 1.63	0.100* 2.54	0.080 2.03	0.140* 3.56
<b>16V</b>	81	152	102	392	562	103	223	393	223	273	473	473	104	104
<b>25V</b>	181	152	102	392	562	123	223	393	223	273	473	473	104	104
<b>50V</b>	181	152	102	392	562	123	223	333	183	223	393	393	104	104
<b>100V</b>	101	821	561	222	332	682	123	273	123	183	273	273	683	823
<b>200V</b>	101	561	331	152	222	392	822	223	822	103	153	273	473	683
<b>250V</b>	390	391	271	102	152	272	562	183	562	682	123	183	273	473
<b>300V</b>	•	•	•	681	681	182	392	123	392	472	822	123	223	273
<b>400V</b>	•	•	•	681	561	152	392	822	392	472	822	103	183	183
<b>500V</b>	•	•	•	681	561	152	392	682	392	392	822	103	183	183
<b>600V</b>	•	•	•	•	•	122	392	682	392	392	822	103	183	183
<b>800V<sup>†</sup></b>	•	•	•	•	•	102	222	472	222	222	472	682	123	153
<b>1kV<sup>†</sup></b>	•	•	•	•	•	681	152	392	152	152	332	562	822	123
<b>1.5kV<sup>†</sup></b>	•	•	•	•	•	271	681	222	681	102	152	222	392	682
<b>2kV<sup>†</sup></b>	•	•	•	•	•	151	391	122	391	391	821	122	222	392
<b>3kV<sup>†</sup></b>	•	•	•	•	•	•	•	561	181	181	391	561	102	182
<b>4kV<sup>†</sup></b>	•	•	•	•	•	•	•	•	•	•	•	•	391	681
<b>5kV<sup>†</sup></b>	•	•	•	•	•	•	•	•	•	•	•	•	221	471
<b>6kV<sup>†</sup></b>	•	•	•	•	•	•	•	•	•	•	•	•	•	•
<b>7kV<sup>†</sup></b>	•	•	•	•	•	•	•	•	•	•	•	•	•	•
<b>8kV<sup>†</sup></b>	•	•	•	•	•	•	•	•	•	•	•	•	•	•
<b>9kV<sup>†</sup></b>	•	•	•	•	•	•	•	•	•	•	•	•	•	•
<b>10kV<sup>†</sup></b>	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Note: † Units rated above 800V may require conformal coating to preclude arcing over chip surface. Maximum voltage for MIL-PRF-123 tested parts is 1kV.

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**Note:** Maximum capacitance values are shown below as 3 digit code: 2 significant figures followed by the no. of zeros e.g. 183 = 18,000pF.

## Capacitance and voltage selection for popular chip sizes

2020	2221	2225		2520	3333	3530	4040	4540	5440	5550	6560	7565	Size
270	270	270	270	390	390	390	390	390	390	390	560	101	<b>Min cap.</b>
0.180 4.57	0.080 2.03	0.080 2.03	0.150* 3.81	0.180 4.57	0.250 6.35	0.250 6.35	0.300 7.62	0.300 7.62	0.300 7.62	0.300 7.62	0.300 7.62	0.300 7.62	inches: <b>Tmax</b> mm:
683	104	124	124	104	184	184	334	334	334	394	684	824	<b>16V</b>
683	104	124	124	104	184	184	334	334	334	394	684	824	<b>25V</b>
683	104	124	124	104	154	184	274	334	274	394	564	824	<b>50V</b>
563	683	823	104	823	124	154	224	274	224	274	474	564	<b>100V</b>
473	393	473	823	683	104	104	184	184	184	224	394	474	<b>200V</b>
393	223	273	563	563	823	104	154	184	184	224	394	474	<b>250V</b>
333	183	273	473	473	823	823	154	154	154	184	334	394	<b>300V</b>
223	183	273	273	333	563	563	124	124	124	154	274	334	<b>400V</b>
153	183	273	273	183	473	473	823	104	104	124	224	274	<b>500V</b>
153	183	273	273	183	393	393	683	823	823	124	184	274	<b>600V</b>
103	103	153	223	123	333	333	563	683	683	104	154	184	<b>800V<sup>†</sup></b>
103	822	123	183	123	273	273	473	563	563	823	124	184	<b>1kV<sup>†</sup></b>
682	392	562	103	822	183	183	333	393	393	563	823	124	<b>1.5kV<sup>†</sup></b>
392	182	272	562	472	153	153	223	273	333	473	683	823	<b>2kV<sup>†</sup></b>
182	821	122	272	222	682	682	153	183	183	273	393	473	<b>3kV<sup>†</sup></b>
681	331	471	102	102	272	272	562	682	822	103	153	223	<b>4kV<sup>†</sup></b>
391	221	331	681	561	182	182	392	472	472	682	103	123	<b>5kV<sup>†</sup></b>
•	•	•	•	•	152	152	272	332	332	472	822	822	<b>6kV<sup>†</sup></b>
•	•	•	•	•	•	821	152	182	182	272	392	472	<b>7kV<sup>†</sup></b>
•	•	•	•	•	•	•	102	122	122	182	272	392	<b>8kV<sup>†</sup></b>
•	•	•	•	•	•	•	•	821	102	122	222	272	<b>9kV<sup>†</sup></b>
•	•	•	•	•	•	•	•	681	821	122	182	222	<b>10kV<sup>†</sup></b>

Note: † Units rated above 800V may require conformal coating to preclude arcing over chip surface  
Maximum voltage for MIL-PRF-123 tested parts is 1kV

**Should be ordered as Novacap parts.**

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