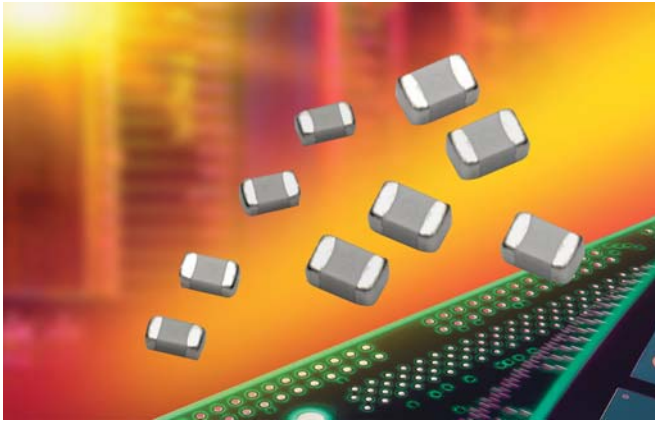


# MK Series Capacitors



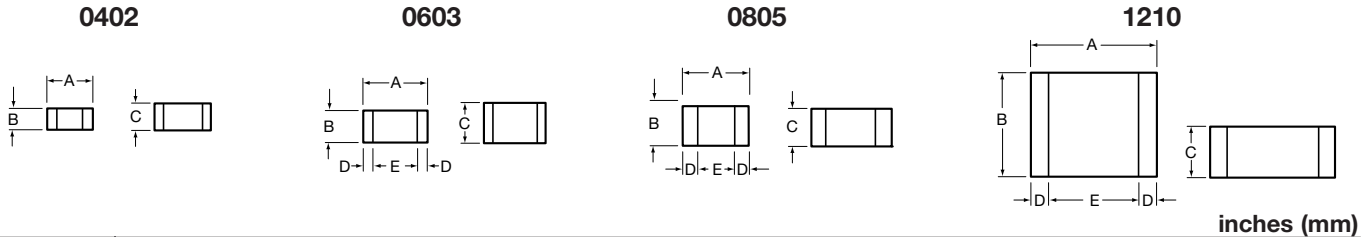
## Ultra Low ESR, C0G (NP0) Chip Capacitors



### GENERAL INFORMATION

Capacitors are C0G (NP0) chip capacitors specially designed for "Ultra" low ESR for applications in the communications market. Max ESR and effective capacitance are met on each value producing lot to lot uniformity. Sizes available are EIA chip sizes 0402, 0603, 0805, and 1210.

### DIMENSIONS: inches (millimeters)



Size	A	B	C	D	E
0402	0.039±0.004 (1.00±0.1)	0.020±0.004 (0.50±0.1)	0.024 (0.6) max	N/A	N/A
0603	0.060±0.010 (1.52±0.25)	0.030±0.010 (0.76±0.25)	0.036 (0.91) max	0.010±0.005 (0.25±0.13)	0.030 (0.76) min
0805	0.079±0.008 (2.01±0.2)	0.049±0.008 (1.25±0.2)	0.040±0.005 (1.02±0.127)	0.020±0.010 (0.51±0.254)	0.020 (0.51) min
1210	0.126±0.008 (3.2±0.2)	0.098±0.008 (2.49±0.2)	0.050±0.005 (1.27±0.127)	0.025±0.015 (0.635±0.381)	0.040 (1.02) min

### HOW TO ORDER

**MK05**  
Case Size  
MK02 = 0402  
MK03 = 0603  
MK05 = 0805  
MK10 = 1210

**V**  
Voltage Code  
3 = 25V  
5 = 50V  
1 = 100V  
2 = 200V  
V = 250V  
7 = 500V

**7**  
Dielectric = Ultra Low ESR

**100**  
Capacitance  
EIA Capacitance Code in pF.  
First two digits = significant figures or "R" for decimal place.  
Third digit = number of zeros or after "R" significant figures.

**J**  
Capacitance Tolerance Code  
B = ±0.1pF  
C = ±0.25pF  
D = ±0.5pF  
F = ±1%  
G = ±2%  
J = ±5%  
K = ±10%  
M = ±20%

**A**  
Failure Rate Code  
A = Not Applicable

**T**  
Termination  
T = 100% Tin

**2**  
Packaging Code  
2 = 7" Reel  
4 = 13" Reel  
9 = Bulk

**A**  
Special Code  
A = Standard



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## Ultra Low ESR, C0G (NP0) Chip Capacitors

### ELECTRICAL CHARACTERISTICS

#### Capacitance Values and Tolerances:

- Size MK02 - 0.2 pF to 30 pF @ 1 MHz
- Size MK03 - 0.2 pF to 120 pF @ 1 MHz
- Size MK05 - 1.0 pF to 160 pF @ 1 MHz
- Size MK10 - 1.0 pF to 1000 pF @ 1 MHz

#### Temperature Coefficient of Capacitance (TC):

0±30 ppm/°C (-55° to +125°C)

#### Insulation Resistance (IR):

- 10<sup>12</sup> Ω min. @ 25°C and rated WVDC
- 10<sup>11</sup> Ω min. @ 125°C and rated WVDC

#### Working Voltage (WVDC):

- Size Working Voltage
- MK02 - 50, 25 WVDC
- MK03 - 250, 200, 100, 50 WVDC
- MK05 - 250 WVDC
- MK10 - 500, 200, 100 WVDC

#### Dielectric Working Voltage (DWV):

250% of rated WVDC

#### Equivalent Series Resistance Typical (ESR):

- MK02 - See Performance Curve, page 203
- MK03 - See Performance Curve, page 203
- MK05 - See Performance Curve, page 203
- MK10 - See Performance Curve, page 203

#### MILITARY SPECIFICATIONS

Meets or exceeds the requirements of MIL-C-55681

### CAPACITANCE RANGE

Cap (pF)	Available		Size			
	Tolerance		MK02	MK03	MK05	MK10
0.2	B,C		50V	250V	N/A	N/A
0.3	↓		↓	↓		
0.4	B,C		↓	↓		
0.5	↓		↓	↓		
0.6	B,C,D		↓	↓		
0.7	↓		↓	↓		
0.8	↓		↓	↓		
0.9	B,C,D		↓	↓		

Cap (pF)	Available		Size			
	Tolerance		MK02	MK03	MK05	MK10
1.0	B,C,D		50V	250V	250V	500V
1.1	↓		↓	↓	↓	↓
1.2	↓		↓	↓	↓	↓
1.3	↓		↓	↓	↓	↓
1.4	↓		↓	↓	↓	↓
1.5	↓		↓	↓	↓	↓
1.6	↓		↓	↓	↓	↓
1.7	↓		↓	↓	↓	↓
1.8	↓		↓	↓	↓	↓
1.9	↓		↓	↓	↓	↓
2.0	↓		↓	↓	↓	↓
2.1	↓		↓	↓	↓	↓
2.2	↓		↓	↓	↓	↓
2.4	↓		↓	↓	↓	↓
2.7	↓		↓	↓	↓	↓
3.0	↓		↓	↓	↓	↓
3.3	↓		↓	↓	↓	↓
3.6	↓		↓	↓	↓	↓
3.9	↓		↓	↓	↓	↓
4.3	↓		↓	↓	↓	↓
4.7	↓		↓	↓	↓	↓
5.1	↓		↓	↓	↓	↓
5.6	↓		↓	↓	↓	↓
6.2	B,C,D		↓	↓	↓	↓
6.8	B,C,J,K,M		↓	↓	↓	↓

Cap (pF)	Available		Size			
	Tolerance		MK02	MK03	MK05	MK10
7.5	B,C,J,K,M		50V	250V	250V	500V
8.2	↓		↓	↓	↓	↓
9.1	B,C,J,K,M		↓	↓	↓	↓
10	↓		↓	↓	↓	↓
11	↓		↓	↓	↓	↓
12	↓		↓	↓	↓	↓
13	↓		↓	↓	↓	↓
15	↓		↓	↓	↓	↓
18	↓		↓	↓	↓	↓
20	↓		↓	↓	↓	↓
22	↓		↓	↓	↓	↓
24	↓		↓	↓	↓	↓
27	↓		↓	↓	↓	↓
30	↓		↓	↓	↓	↓
33	↓		↓	↓	↓	↓
36	↓		↓	↓	↓	↓
39	↓		↓	↓	↓	↓
43	↓		↓	↓	↓	↓
47	↓		↓	↓	↓	↓
51	↓		↓	↓	↓	↓
56	↓		↓	↓	↓	↓
68	↓		↓	↓	↓	↓
75	↓		↓	↓	↓	↓
82	↓		↓	↓	↓	↓
91	↓		↓	↓	↓	↓

Cap (pF)	Available		Size			
	Tolerance		MK02	MK03	MK05	MK10
100	F,G,J,K,M		N/A	100V	250V	500V
110	↓		↓	↓	↓	↓
120	↓		↓	↓	↓	↓
130	↓		↓	↓	↓	↓
140	↓		↓	↓	↓	↓
150	↓		↓	↓	↓	↓
160	↓		↓	↓	↓	↓
180	↓		↓	↓	↓	↓
200	↓		↓	↓	↓	↓
220	↓		↓	↓	↓	↓
270	↓		↓	↓	↓	↓
300	↓		↓	↓	↓	↓
330	↓		↓	↓	↓	↓
360	↓		↓	↓	↓	↓
390	↓		↓	↓	↓	↓
430	↓		↓	↓	↓	↓
470	↓		↓	↓	↓	↓
510	↓		↓	↓	↓	↓
560	↓		↓	↓	↓	↓
620	↓		↓	↓	↓	↓
680	↓		↓	↓	↓	↓
750	↓		↓	↓	↓	↓
820	↓		↓	↓	↓	↓
910	↓		↓	↓	↓	↓
1000	F,G,J,K,M		↓	↓	↓	↓



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