

RF/Microwave Capacitors

RF/Microwave C0G (NP0) Capacitors

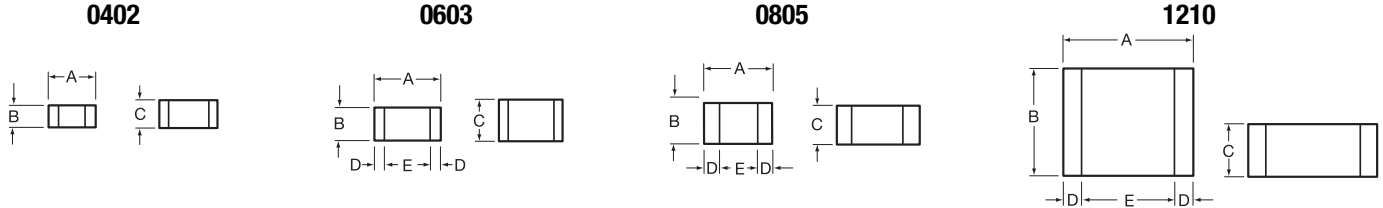
Ultra Low ESR "U" Series, C0G (NP0) Capacitors (RoHS)



GENERAL INFORMATION

"U" Series 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 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	0.010 ± 0.006 (0.25 ± 0.15)	0.014 (0.36) min
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)	0.045 (1.15mm) max	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)	0.055 (1.40mm) max	0.025 ± 0.015 (0.635 ± 0.381)	0.040 (1.02) min

HOW TO ORDER

0805 Case Size 0402 0603 0805 1210	1 Voltage Code 3 = 25V 5 = 50V 1 = 100V 2 = 200V	U 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= Plated Ni and Sn	2 Packaging Code 2 = 7" Reel 4 = 13" Reel 9 = Bulk	A Special Code A = Standard
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ELECTRICAL CHARACTERISTICS

Capacitance Values and Tolerances:

Size 0402 - 0.2 pF to 22 pF @ 1 MHz

Size 0603 - 1.0 pF to 100 pF @ 1 MHz

Size 0805 - 1.6 pF to 160 pF @ 1 MHz

Size 1210 - 2.4 pF to 1000 pF @ 1 MHz

Temperature Coefficient of Capacitance (TC):

0±30 ppm/°C (-55° to +125°C)

Insulation Resistance (IR):

10¹² Ω min. @ 25°C and rated WVDC

10¹¹ Ω min. @ 125°C and rated WVDC

Working Voltage (WVDC):

Size Working Voltage

0402 - 50, 25 WVDC

0603 - 200, 100, 50 WVDC

0805 - 200, 100 WVDC

1210 - 200, 100 WVDC

Dielectric Working Voltage (DWV):

250% of rated WVDC

Equivalent Series Resistance Typical (ESR):

0402 - See Performance Curve, page 300

0603 - See Performance Curve, page 300

0805 - See Performance Curve, page 300

1210 - See Performance Curve, page 300

Marking

Laser marking EIA J marking standard (except 0603) (capacitance code and tolerance upon request).



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CAPACITANCE RANGE

Cap (pF)	Available Tolerance	Size			
		0402	0603	0805	1210
0.2	B,C	50V	N/A	N/A	N/A
0.3	↓				
0.4	B,C				
0.5	↓				
0.6	B,C,D				
0.7	↓				
0.8	B,C,D				
0.9	↓				

Cap (pF)	Available Tolerance	Size			
		0402	0603	0805	1210
1.0	B,C,D	50V	200V	200V	200V
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				

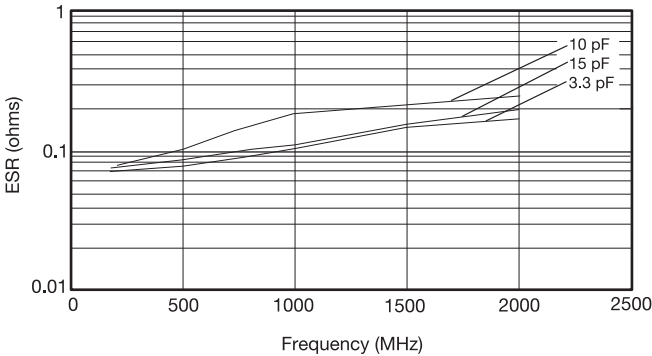
Cap (pF)	Available Tolerance	Size			
		0402	0603	0805	1210
7.5	B,C,J,K,M	50V	200V	200V	200V
8.2	↓				
9.1	B,C,J,K,M				
10	↓				
11	F,G,J,K,M				
12	↓				
13	↓				
15	↓				
18	↓				
20	↓				
22	↓				
24	↓				
27	↓				
30	↓				
33	↓				
36	↓				
39	↓				
43	↓				
47	↓				
51	↓				
56	↓				
68	↓				
75	↓				
82	↓				
91	↓				

Cap (pF)	Available Tolerance	Size			
		0402	0603	0805	1210
100	F,G,J,K,M	N/A	100V	200V	200V
110	↓		50V	↓	
120	↓		50V	200V	
130	↓		N/A	100V	
140	↓			100V	
150	↓			↓	
160	↓			100V	
180	↓			N/A	
200	↓				
220	↓				
270	↓				
300	↓				
330	↓				
360	↓				
390	↓				
430	↓				
470	↓				
510	↓				
560	↓				
620	↓				
680	↓				
750	↓				
820	↓				
910	↓				
1000	F,G,J,K,M				

ULTRA LOW ESR, “U” SERIES

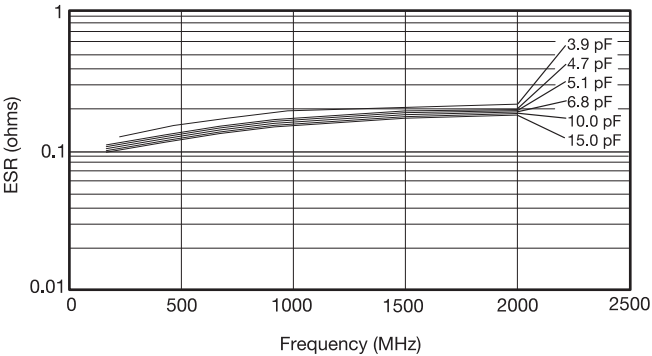
TYPICAL ESR vs. FREQUENCY

0402 “U” SERIES



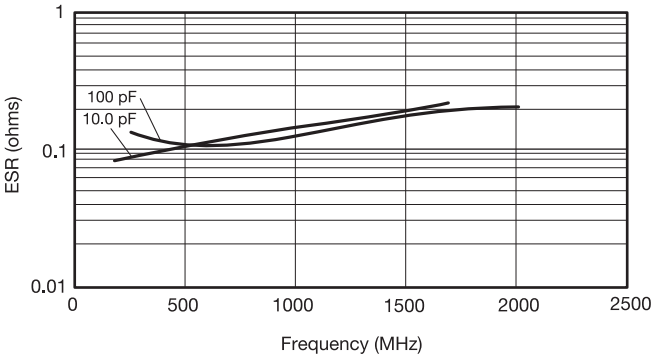
TYPICAL ESR vs. FREQUENCY

0603 “U” SERIES



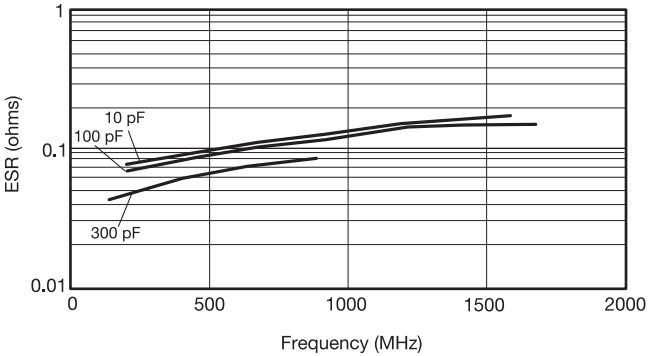
TYPICAL ESR vs. FREQUENCY

0805 “U” SERIES



TYPICAL ESR vs. FREQUENCY

1210 “U” SERIES



ESR Measured on the Boonton 34A

TYPICAL
SERIES RESONANT FREQUENCY
"U" SERIES CHIP

