

AVX

RF/Microwave C0G (NP0) Capacitors (RoHS)



Ultra Low ESR, “U” Series, C0G (NP0) Chip Capacitors

CAPACITANCE RANGE

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

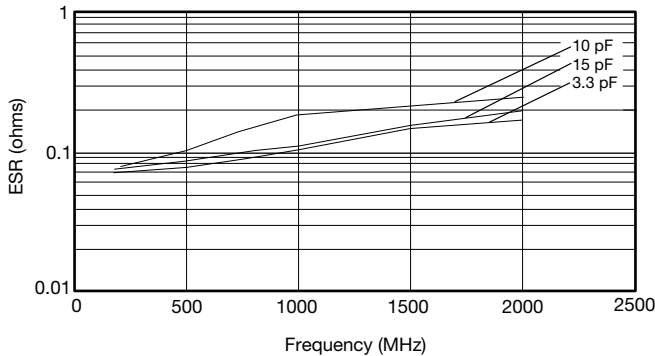
Cap (pF)	Available Tolerance	Size			
Cap (pF)	Available Tolerance	0402	0603	0805	1210
1.0	B,C,D	50V	200V	200V	200V
1.1					
1.2					
1.3					
1.4					
1.5					
1.6					
1.7					
1.8					
1.9					
2.0					
2.1					
2.2					
2.4					
2.7					
3.0					
3.3					
3.6					
3.9					
4.3					
4.7					
5.1					
5.6					
6.2	B,C,D				
6.8	B,C,J,K,M				

Cap (pF)	Available Tolerance	Size			
Cap (pF)	Available Tolerance	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	F,G,J,K,M				
11					
12					
13					
15					
18					
20					
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33					
36					
39					
43					
47					
51					
56					
68					
75					
82					
91					

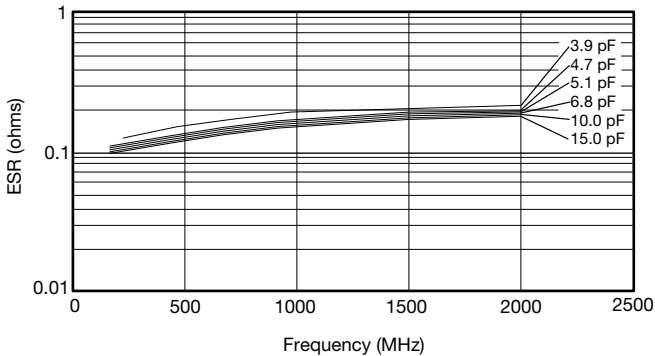
Cap (pF)	Available Tolerance	Size			
Cap (pF)	Available Tolerance	0402	0603	0805	1210
100	F,G,J,K,M	N/A	100V	200V	200V
110			50V	200V	200V
120			50V	200V	200V
130			N/A	200V	200V
140				100V	200V
150				N/A	200V
160					100V
180					N/A
200					
220					
270					
300					
330					
360					
390					
430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

ULTRA LOW ESR, “U” SERIES

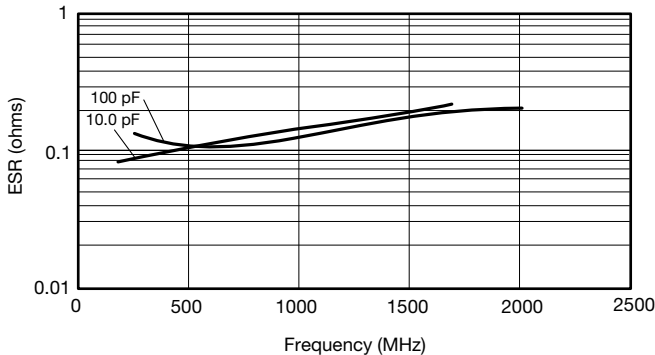
TYPICAL ESR vs. FREQUENCY
0402 “U” SERIES



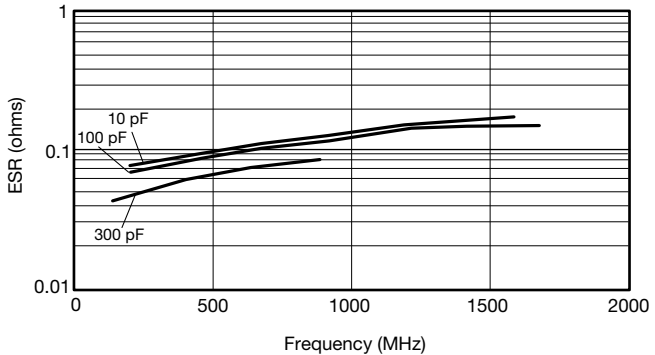
TYPICAL ESR vs. FREQUENCY
0603 “U” SERIES



TYPICAL ESR vs. FREQUENCY
0805 “U” SERIES



TYPICAL ESR vs. FREQUENCY
1210 “U” SERIES



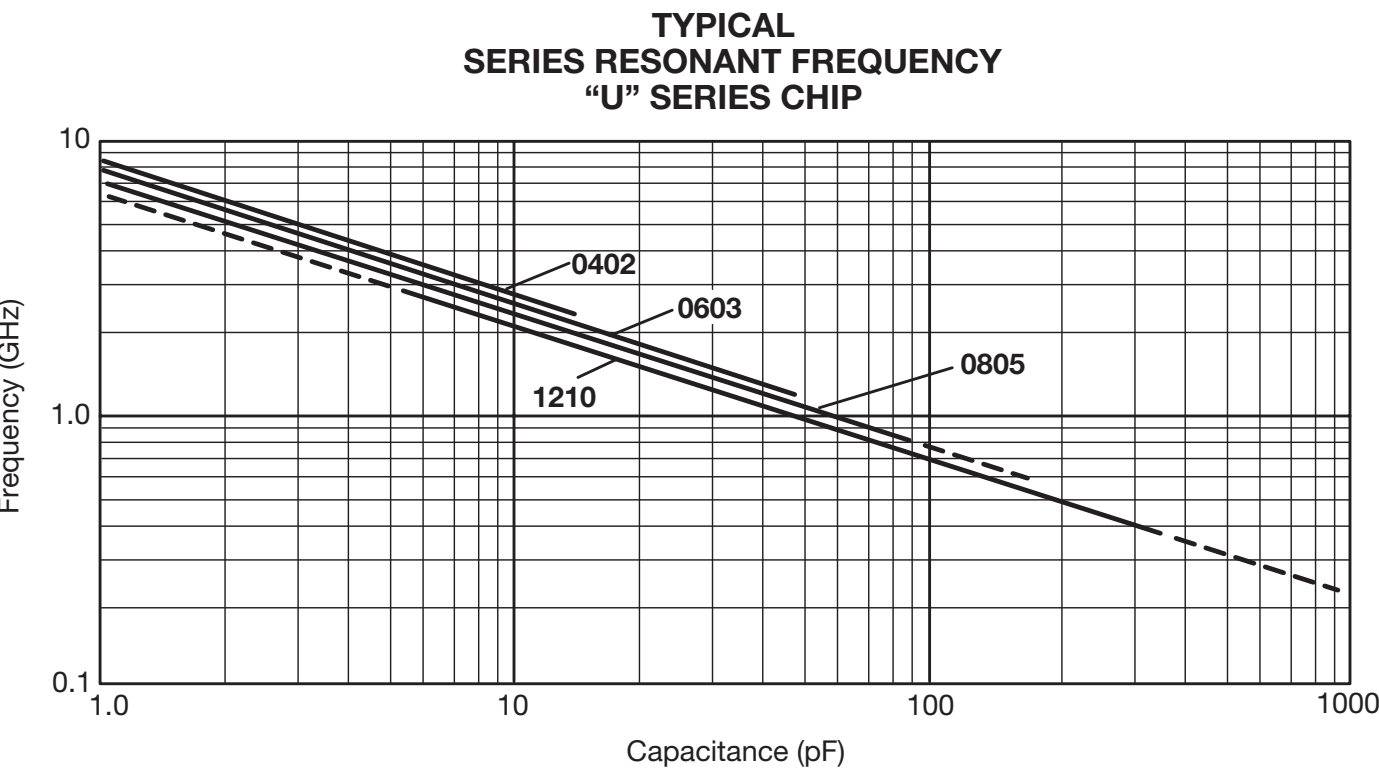
ESR Measured on the Boonton 34A



RF/Microwave C0G (NP0) Capacitors (RoHS)



Ultra Low ESR, “U” Series, C0G (NP0) Chip Capacitors



RF/Microwave C0G (NP0) Capacitors (Sn/Pb)



Ultra Low ESR, “U” Series, C0G (NP0) Chip Capacitors

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)

0402

0603

0805

1210

inches (mm)

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

LD05
Case Size
LD02 = 0402
LD03 = 0603
LD05 = 0805
LD10 = 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

B
Termination
B = 5% min lead

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

A
Special Code
A = Standard

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 130
0603 - See Performance Curve, page 130
0805 - See Performance Curve, page 130
1210 - See Performance Curve, page 130

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

MILITARY SPECIFICATIONS

Meets or exceeds the requirements of MIL-C-55681



RF/Microwave C0G (NP0) Capacitors (Sn/Pb)



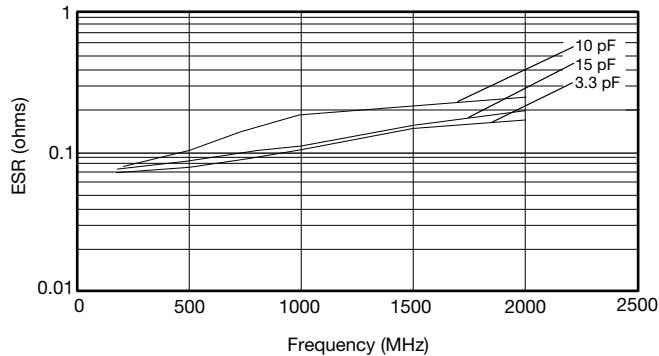
Ultra Low ESR, “U” Series, C0G (NP0) Chip Capacitors

CAPACITANCE RANGE

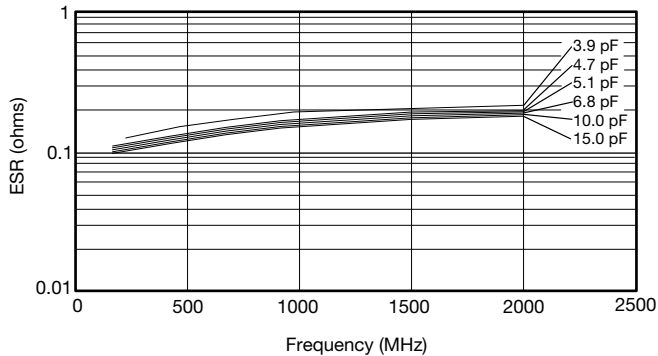
Cap (pF)	Available Tolerance	Size				Cap (pF)	Available Tolerance	Size				Cap (pF)	Available Tolerance	Size				Cap (pF)	Available Tolerance	Size			
		LD02	LD03	LD05	LD10			LD02	LD03	LD05	LD10			LD02	LD03	LD05	LD10			LD02	LD03	LD05	LD10
0.2	B,C	50V	N/A	N/A	N/A	1.0	B,C,D	50V	200V	200V	200V	7.5	B,C,J,K,M	50V	200V	200V	200V	100	F,G,J,K,M	N/A	100V	200V	200V
0.3						1.1						8.2						110					
0.4						1.2						9.1	B,C,J,K,M					120					
0.5	B,C					1.3						10	F,G,J,K,M					130					
0.6	B,C,D					1.4						11						140					
0.7						1.5						12						150					
0.8						1.6						13						160					
0.9	B,C,D					1.7						15						180					
						1.8						18						200					
						1.9						20						220					
						2.0						22						270					
						2.1						24						300					
						2.2						27						330					
						2.4						30		50V				360					
						2.7						33		N/A				390					
						3.0						36						430					
						3.3						39						470					
						3.6						43						510					
						3.9						47						560					
						4.3						51						620					
						4.7						56						680					
						5.1						68						750					
						5.6						75						820					
						6.2	B,C,D					82						910					
						6.8	B,C,J,K,M					91						1000	F,G,J,K,M				

ULTRA LOW ESR, “U” SERIES

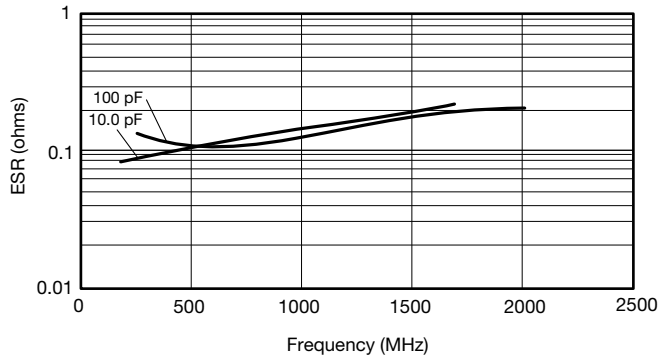
TYPICAL ESR vs. FREQUENCY
0402 “U” SERIES



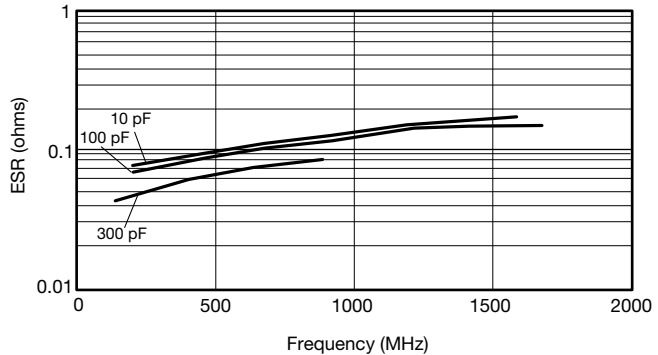
TYPICAL ESR vs. FREQUENCY
0603 “U” SERIES



TYPICAL ESR vs. FREQUENCY
0805 “U” SERIES



TYPICAL ESR vs. FREQUENCY
1210 “U” SERIES

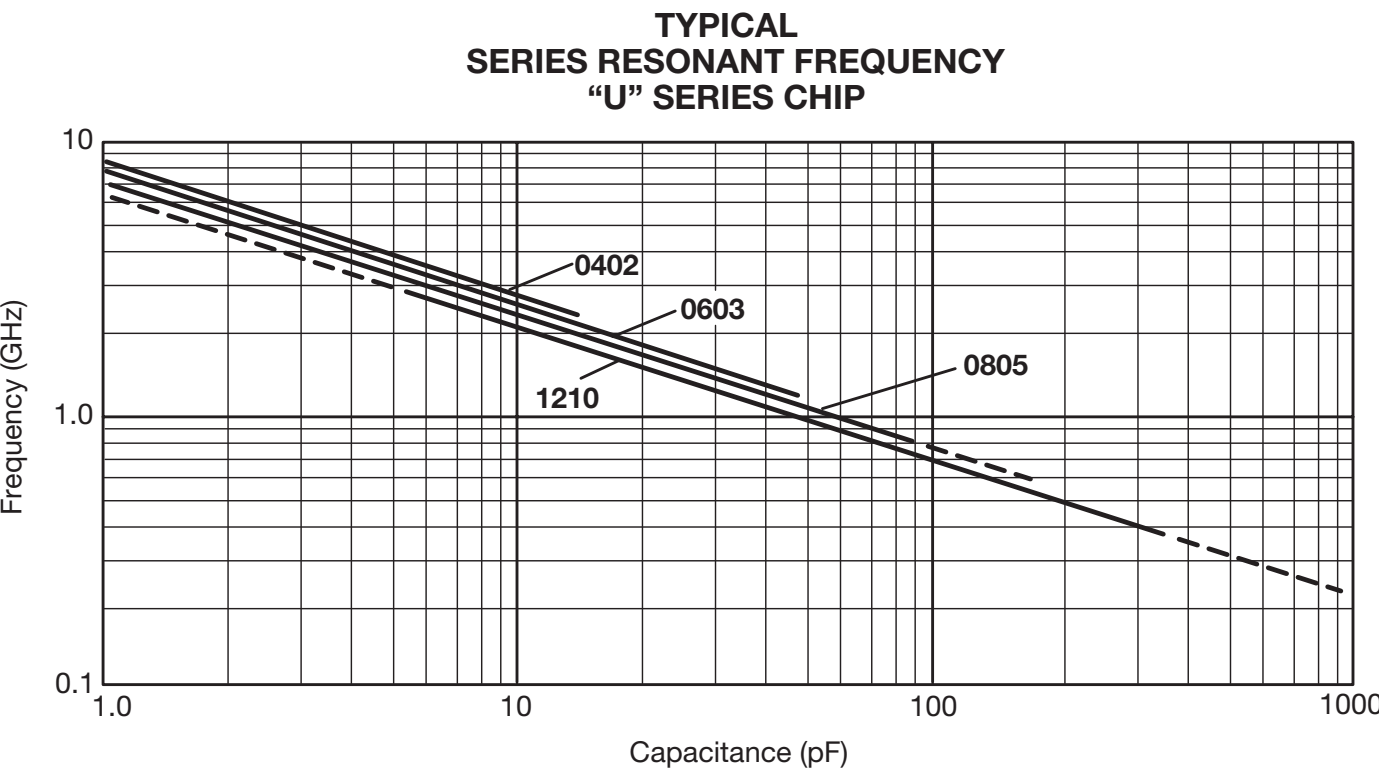


ESR Measured on the Boonton 34A

RF/Microwave C0G (NP0) Capacitors (Sn/Pb)



Ultra Low ESR, “U” Series, C0G (NP0) Chip Capacitors



AVX RF
RF/Microwave
“U” Series
Designer Kits

0402

Kit 5000 UZ			
Cap. Value pF	Tolerance	Cap. Value pF	Tolerance
0.5	B (± 0.1 pF)	4.7	B (± 0.1 pF)
1.0		5.6	
1.5		6.8	
1.8		8.2	
2.2		10.0	
2.4		12.0	
3.0	J ($\pm 5\%$)	15.0	J ($\pm 5\%$)
3.6			

***25 each of 15 values

0603

Kit 4000 UZ			
Cap. Value pF	Tolerance	Cap. Value pF	Tolerance
1.0	B (± 0.1 pF)	6.8	B (± 0.1 pF)
1.2		7.5	
1.5		8.2	
1.8		10.0	J ($\pm 5\%$)
2.0		12.0	
2.4		15.0	
2.7		18.0	
3.0		22.0	
3.3		27.0	
3.9		33.0	
4.7		39.0	
5.6		47.0	

***25 each of 24 values

0805

Kit 3000 UZ			
Cap. Value pF	Tolerance	Cap. Value pF	Tolerance
1.0	B (± 0.1 pF)	15.0	J ($\pm 5\%$)
1.5		18.0	
2.2		22.0	
2.4		24.0	
2.7		27.0	
3.0		33.0	
3.3		36.0	
3.9		39.0	
4.7		47.0	
5.6		56.0	
7.5		68.0	
8.2		82.0	
9.1	J ($\pm 5\%$)	100.0	
10.0		130.0	
12.0		160.0	

***25 each of 30 values

1210

Kit 3500 UZ			
Cap. Value pF	Tolerance	Cap. Value pF	Tolerance
2.2	B (± 0.1 pF)	36.0	J ($\pm 5\%$)
2.7		39.0	
4.7		47.0	
5.1		51.0	
6.8		56.0	
8.2		68.0	
9.1		82.0	
10.0	J ($\pm 5\%$)	100.0	
13.0		120.0	
15.0		130.0	
18.0		240.0	
20.0		300.0	
24.0		390.0	
27.0		470.0	
30.0		680.0	

***25 each of 30 values