

# RF/Microwave Capacitors

## RF/Microwave COG (NP0) Capacitors

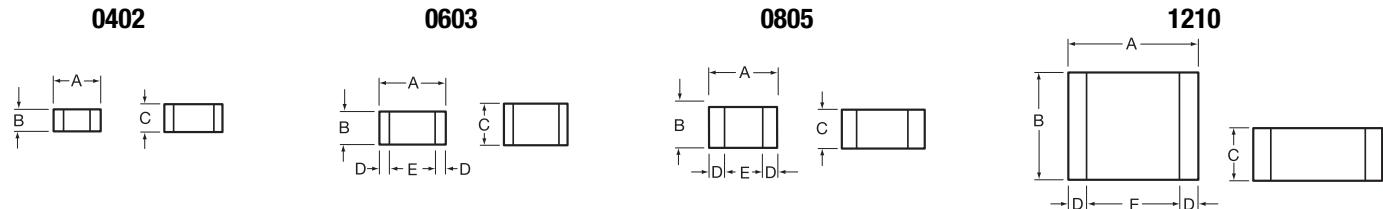
### Ultra Low ESR "U" Series, COG (NP0) Capacitors (RoHS)



#### GENERAL INFORMATION

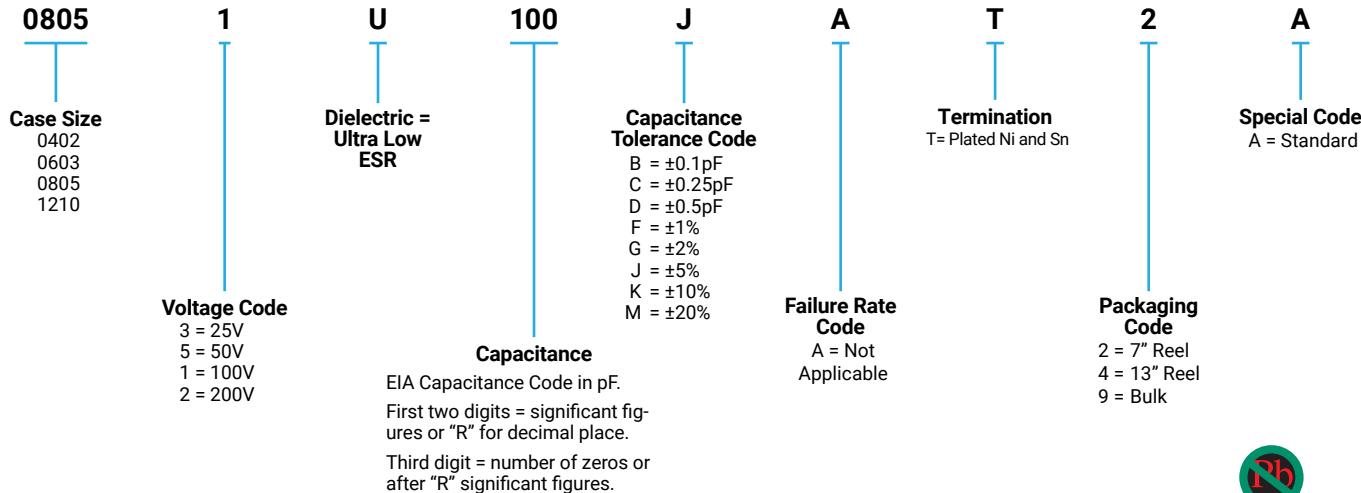
"U" Series capacitors are COG (NP0) chip capacitors specially designed for "Ultra" low ESR for applications in the communications market. Max ESR and effective capacitance are met on each value producing lot to lot uniformity. Sizes available are EIA chip sizes 0402, 0805, and 1210.

#### DIMENSIONS: inches (millimeters)



Size	A	B	C	D	E
0402	$0.039 \pm 0.004$ (1.00 ± 0.1)	$0.020 \pm 0.004$ (0.50 ± 0.1)	0.024 (0.6) max	$0.010 \pm 0.006$ (0.25 ± 0.15)	0.014 (0.36) min
0603	$0.060 \pm 0.010$ (1.52 ± 0.25)	$0.030 \pm 0.010$ (0.76 ± 0.25)	0.036 (0.91) max	$0.010 \pm 0.005$ (0.25 ± 0.13)	0.030 (0.76) min
0805	$0.079 \pm 0.008$ (2.01 ± 0.2)	$0.049 \pm 0.008$ (1.25 ± 0.2)	0.045 (1.15mm) max	$0.020 \pm 0.010$ (0.51 ± 0.254)	0.020 (0.51) min
1210	$0.126 \pm 0.008$ (3.2 ± 0.2)	$0.098 \pm 0.008$ (2.49 ± 0.2)	0.055 (1.40mm) max	$0.025 \pm 0.015$ (0.635 ± 0.381)	0.040 (1.02) min

#### HOW TO ORDER



#### 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):

$0 \pm 30$  ppm/ $^{\circ}$ C (-55° to +125° C)

##### Insulation Resistance (IR):

$10^{12}$   $\Omega$  min. @ 25°C and rated WVDC

$10^{11}$   $\Omega$  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					

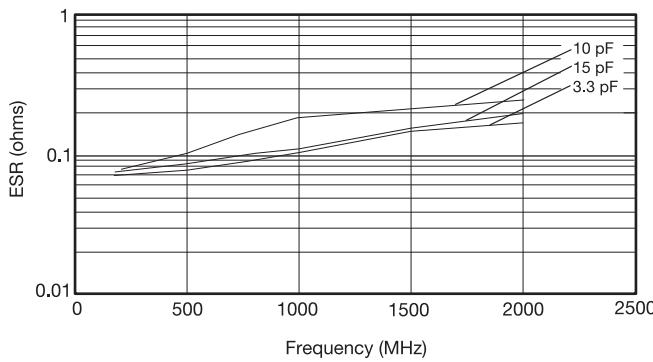
Cap (pF)	Available Tolerance	Size			
		0402	0603	0805	1210
1.0	B,C,D	50V	200V	200V	200V
1.1					
1.2					
1.3					
1.4					
1.5					
1.6					
1.7					
1.8					
1.9					
2.0					
2.1					
2.2					
2.4					
2.7					
3.0					
3.3					
3.6					
3.9					
4.3					
4.7					
5.1					
5.6					
6.2	B,C,D				
6.8	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	F,G,J,K,M				
11					
12					
13					
15					
18					
20					
22					
24					
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30					
33					
36					
39					
43					
47					
51					
56					
68					
75					
82					
91					

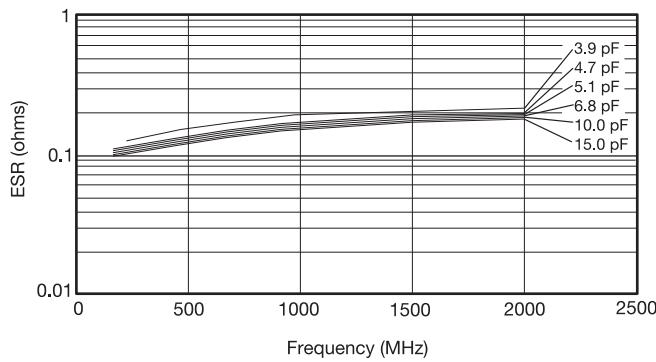
Cap (pF)	Available Tolerance	Size			
		0402	0603	0805	1210
100	F,G,J,K,M	N/A	100V	200V	200V
110			50V	50V	
120			N/A	200V	100V
130				100V	N/A
140					
150					
160					
180					
200					
220					
270					
300					
330					
360					
390					
430					
470					
510					
560					
620					
680					
750	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

#### ULTRA LOW ESR, "U" SERIES

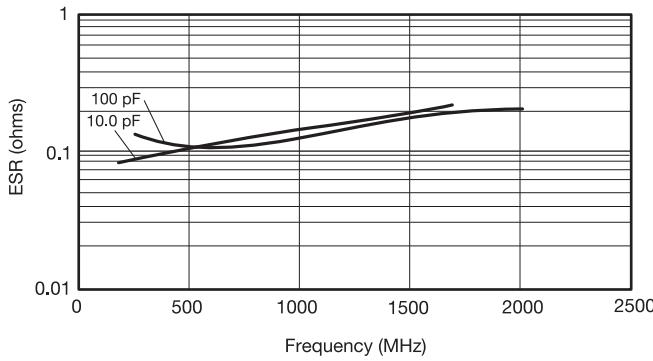
TYPICAL ESR vs. FREQUENCY  
0402 "U" SERIES



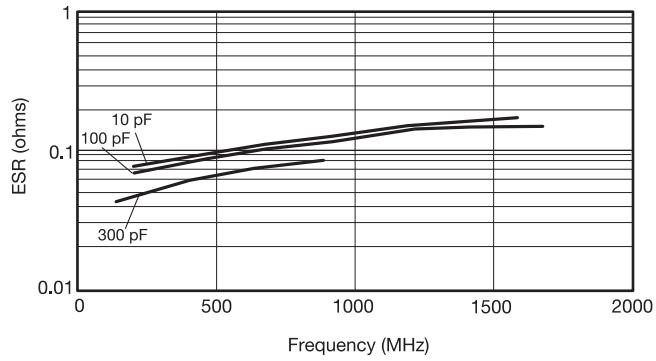
TYPICAL ESR vs. FREQUENCY  
0603 "U" SERIES



TYPICAL ESR vs. FREQUENCY  
0805 "U" SERIES



TYPICAL ESR vs. FREQUENCY  
1210 "U" SERIES



ESR Measured on the Boonton 34A



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at [www.kyocera-avx.com/disclaimer/](http://www.kyocera-avx.com/disclaimer/) by reference and should be reviewed in full before placing any order.

**TYPICAL  
SERIES RESONANT FREQUENCY  
"U" SERIES CHIP**

