

RF/Microwave C0G (NP0) Capacitors (RoHS)



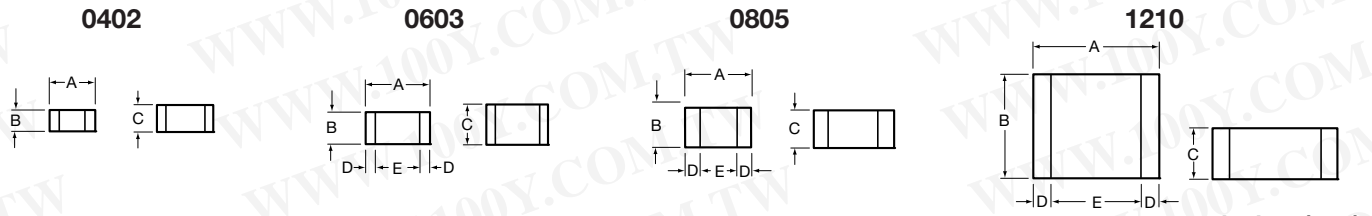
Ultra Low ESR, "U" Series, C0G (NP0) Chip Capacitors

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

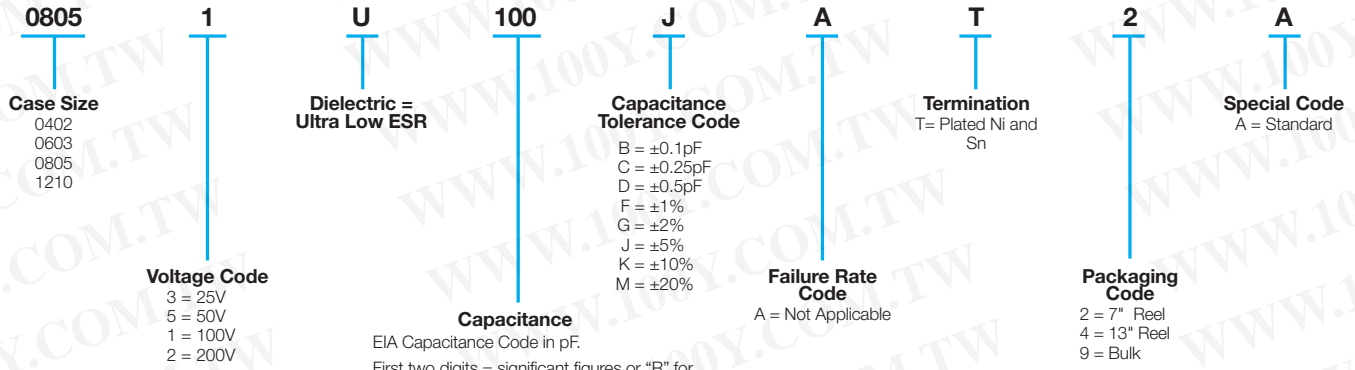
are met on each value producing lot to lot uniformity. Sizes available are EIA chip sizes 0402, 0603, 0805, and 1210.

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±0.255)	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



NOTE: Contact factory for availability of Termination and Tolerance Options for Specific Part Numbers.

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 9
- 0603 - See Performance Curve, page 9
- 0805 - See Performance Curve, page 9
- 1210 - See Performance Curve, page 9

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

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
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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	B,C,D	↓	↓	↓	↓
0.6	B,C,D	↓	↓	↓	↓
0.7	↓	↓	↓	↓	↓
0.8	↓	↓	↓	↓	↓
0.9	B,C,D	↓	↓	↓	↓

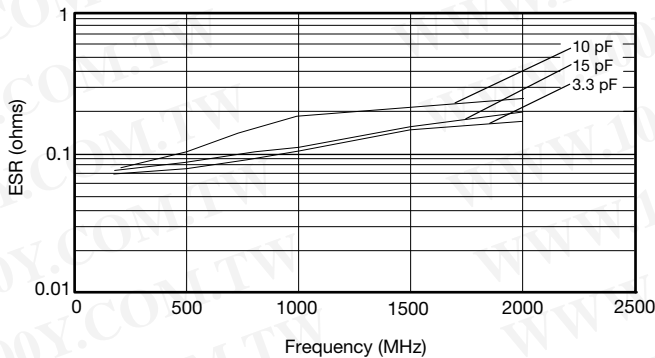
Cap (pF)	Available Tolerance	Size			
		0402	0603	0805	1210
1.0	B,C,D	50V	200V	200V	200V
1.1	↓	↓	↓	↓	↓
1.2	↓	↓	↓	↓	↓
1.3	↓	↓	↓	↓	↓
1.4	↓	↓	↓	↓	↓
1.5	↓	↓	↓	↓	↓
1.6	↓	↓	↓	↓	↓
1.7	↓	↓	↓	↓	↓
1.8	↓	↓	↓	↓	↓
1.9	↓	↓	↓	↓	↓
2.0	↓	↓	↓	↓	↓
2.1	↓	↓	↓	↓	↓
2.2	↓	↓	↓	↓	↓
2.4	↓	↓	↓	↓	↓
2.7	↓	↓	↓	↓	↓
3.0	↓	↓	↓	↓	↓
3.3	↓	↓	↓	↓	↓
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	↓	↓	↓	↓	↓
27	↓	↓	↓	↓	↓
30	↓	↓	↓	↓	↓
33	↓	↓	↓	↓	↓
36	↓	↓	↓	↓	↓
39	↓	↓	↓	↓	↓
43	↓	↓	↓	↓	↓
47	↓	↓	↓	↓	↓
51	↓	↓	↓	↓	↓
56	↓	↓	↓	↓	↓
68	↓	↓	↓	↓	↓
75	↓	↓	↓	↓	↓
82	↓	↓	↓	↓	↓
91	↓	↓	↓	↓	↓

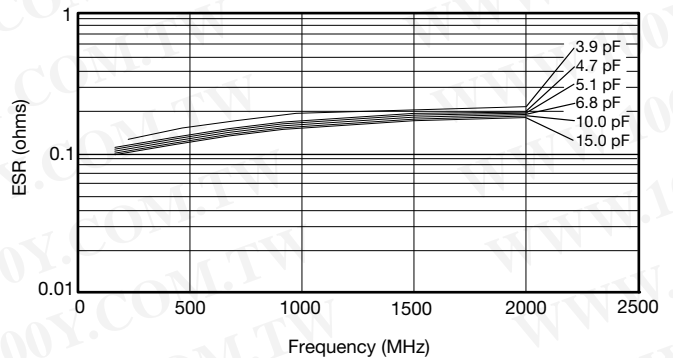
Cap (pF)	Available Tolerance	Size			
		0402	0603	0805	1210
100	F,G,J,K,M	N/A	100V	200V	200V
110	↓	↓	50V	↓	↓
120	↓	↓	50V	↓	↓
130	↓	↓	50V	↓	↓
140	↓	↓	N/A	↓	↓
150	↓	↓	↓	↓	↓
160	↓	↓	↓	↓	↓
180	↓	↓	↓	↓	↓
200	↓	↓	↓	↓	↓
220	↓	↓	↓	↓	↓
270	↓	↓	↓	↓	↓
300	↓	↓	↓	↓	↓
330	↓	↓	↓	↓	↓
360	↓	↓	↓	↓	↓
390	↓	↓	↓	↓	↓
430	↓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

ULTRA LOW ESR, "U" SERIES

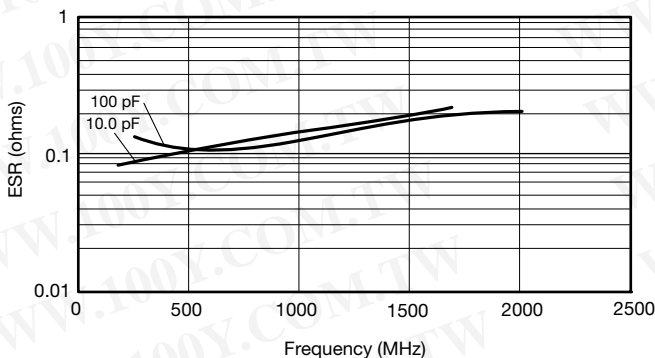
TYPICAL ESR vs. FREQUENCY
0402 "U" SERIES



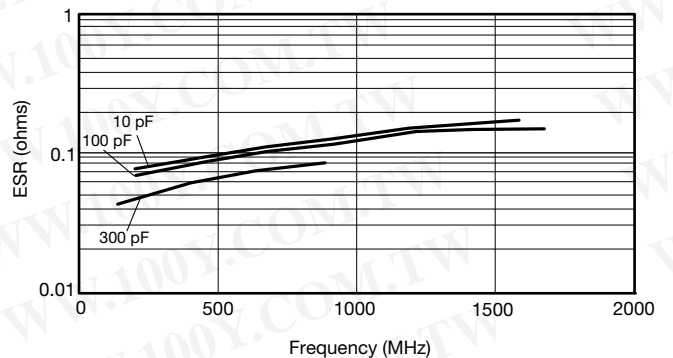
TYPICAL ESR vs. FREQUENCY
0603 "U" SERIES



TYPICAL ESR vs. FREQUENCY
0805 "U" SERIES



TYPICAL ESR vs. FREQUENCY
1210 "U" SERIES



ESR Measured on the Boonton 34A

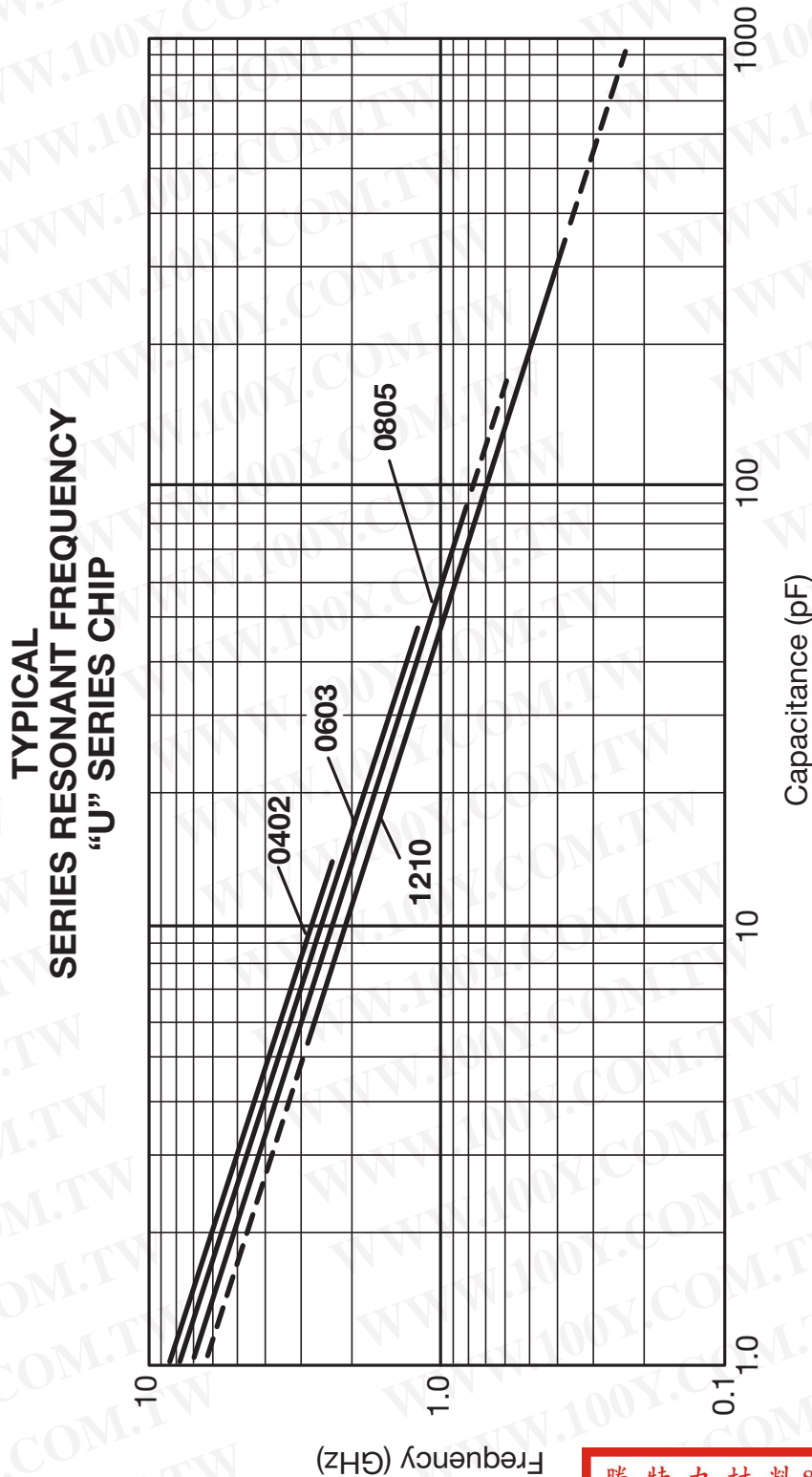


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RF/Microwave C0G (NP0) Capacitors (Sn/Pb)



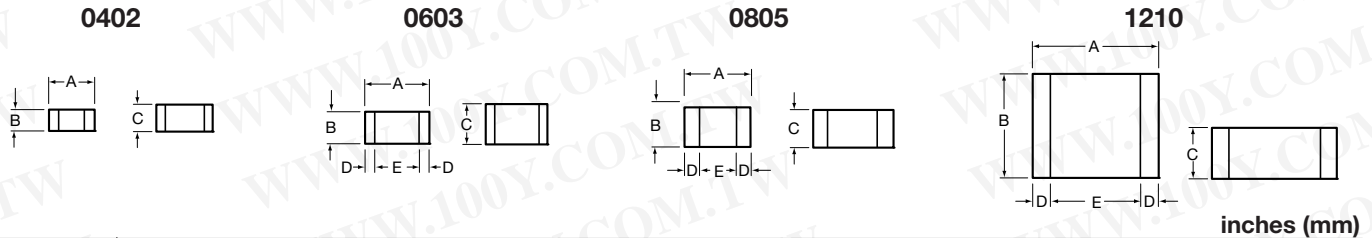
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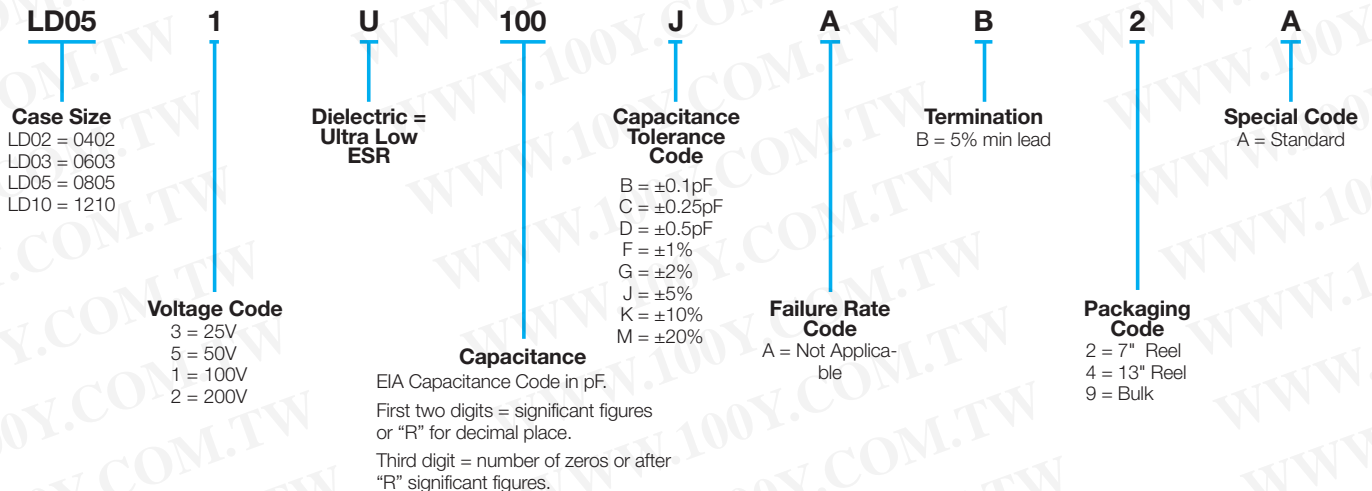
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HOW TO ORDER



ELECTRICAL CHARACTERISTICS

Not RoHS Compliant

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

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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 12
- 0603 - See Performance Curve, page 12
- 0805 - See Performance Curve, page 12
- 1210 - See Performance Curve, page 12

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

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Designer Kits

Communication Kits "U" Series



"U" SERIES KITS

0402

Kit 5000 UZ			
Cap. Value pF	Tolerance	Cap. Value pF	Tolerance
0.5	B ($\pm 0.1\text{pF}$)	4.7	B ($\pm 0.1\text{pF}$)
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 ($\pm 0.1\text{pF}$)	6.8	B ($\pm 0.1\text{pF}$)	
1.2		7.5		
1.5		8.2		
1.8		J ($\pm 5\%$)	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 ($\pm 0.1\text{pF}$)	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		100.0			
10.0		J ($\pm 5\%$)		130.0	J ($\pm 5\%$)
12.0				160.0	

***25 each of 30 values

1210

Kit 3500 UZ					
Cap. Value pF	Tolerance	Cap. Value pF	Tolerance		
2.2	B ($\pm 0.1\text{pF}$)	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	J ($\pm 5\%$)
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

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