



**THE DATASHEET OF  
08051U510GAT2A**



# RF/Microwave Automotive C0G (NP0) Capacitors (RoHS), AEC Q200 Qualified



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

### GENERAL INFORMATION

Automotive "U" Series capacitors are C0G (NP0) chip capacitors specially designed for "Ultra" low ESR for applications in the automotive market. Max ESR and effective capacitance

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

### DIMENSIONS: inches (millimeters)

0402

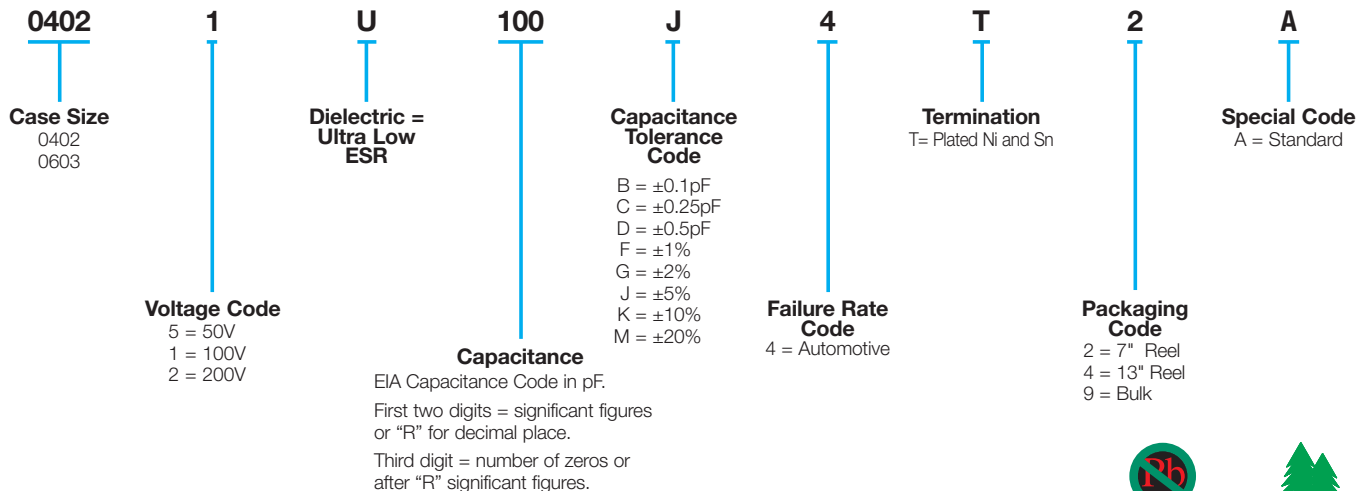
0603



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

inches (mm)

### 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

#### 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  
0402 - 100, 50, 25 WVDC  
0603 - 200, 100, 50 WVDC

#### Dielectric Working Voltage (DWV):

250% of rated WVDC

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

0402 - See Performance Curve, page 234  
0603 - See Performance Curve, page 234

#### Automotive Specifications

Meets or exceeds the requirements of AEC Q200



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### CAPACITANCE RANGE

Cap (pF)	Available Tolerance	Size	
		0402	0603
0.2	B,C	100V	N/A
0.3	↓ B,C	↓	↓
0.4			
0.5	B,C	↓	↓
0.6	B,C,D	↓	↓
0.7	↓ B,C,D	↓	↓
0.8			
0.9	B,C,D	↓	↓

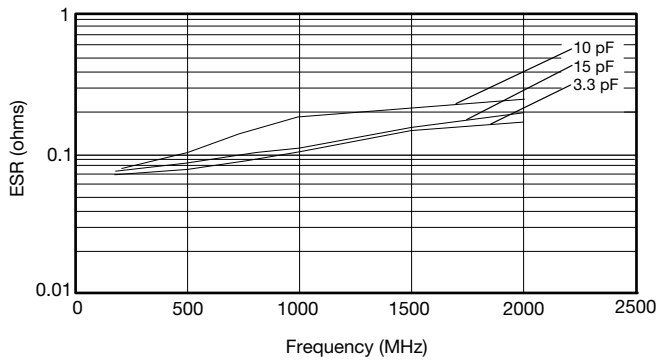
Cap (pF)	Available Tolerance	Size	
		0402	0603
1.0	B,C,D	100V	200V
1.1	↓	↓	↓
1.2			
1.3	↓	↓	↓
1.4			
1.5	↓	↓	↓
1.6			
1.7	↓	↓	↓
1.8			
1.9	↓	↓	↓
2.0			
2.1	↓	↓	↓
2.2			
2.4	↓	↓	↓
2.7			
3.0	↓	↓	↓
3.3			
3.6	↓	↓	↓
3.9			
4.3	↓	↓	↓
4.7			
5.1	↓	↓	↓
5.6			
6.2	B,C,D	↓	↓
6.8	B,C,J,K,M	↓	↓

Cap (pF)	Available Tolerance	Size	
		0402	0603
7.5	B,C,J,K,M	100V	200V
8.2	↓	↓	↓
9.1			
10	B,C,J,K,M	100V	200V
11	↓	↓	↓
12			
13	↓	↓	↓
15			
18	↓	↓	↓
20			
22	↓	↓	↓
24			
27	↓	↓	↓
30			
33	↓	↓	↓
36			
39	↓	↓	↓
43			
47	↓	↓	↓
51			
56	↓	↓	↓
68			
75	↓	↓	↓
82			
91	↓	↓	↓

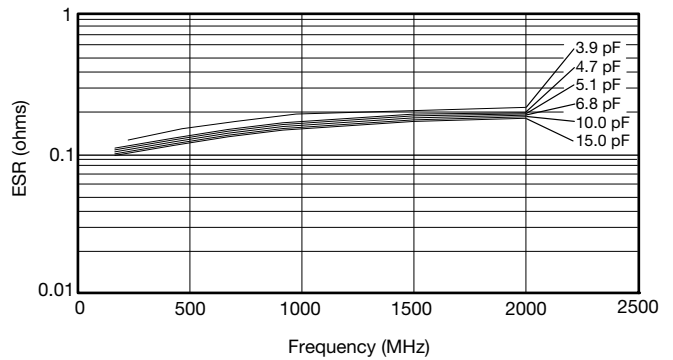
Cap (pF)	Available Tolerance	Size	
		0402	0603
100	F,G,J,K,M	N/A	100V
110	↓	↓	↓
120			
130	↓	↓	↓
140			
150	↓	↓	↓
160			
180	↓	↓	↓
200			
220	↓	↓	↓
270			
300	↓	↓	↓
330			
360	↓	↓	↓
390			
430	↓	↓	↓
470			
510	↓	↓	↓
560			
620	↓	↓	↓
680			
750	↓	↓	↓
820			
910	↓	↓	↓
1000			

### ULTRA LOW ESR, “U” SERIES

TYPICAL ESR vs. FREQUENCY  
0402 “U” SERIES



TYPICAL ESR vs. FREQUENCY  
0603 “U” SERIES

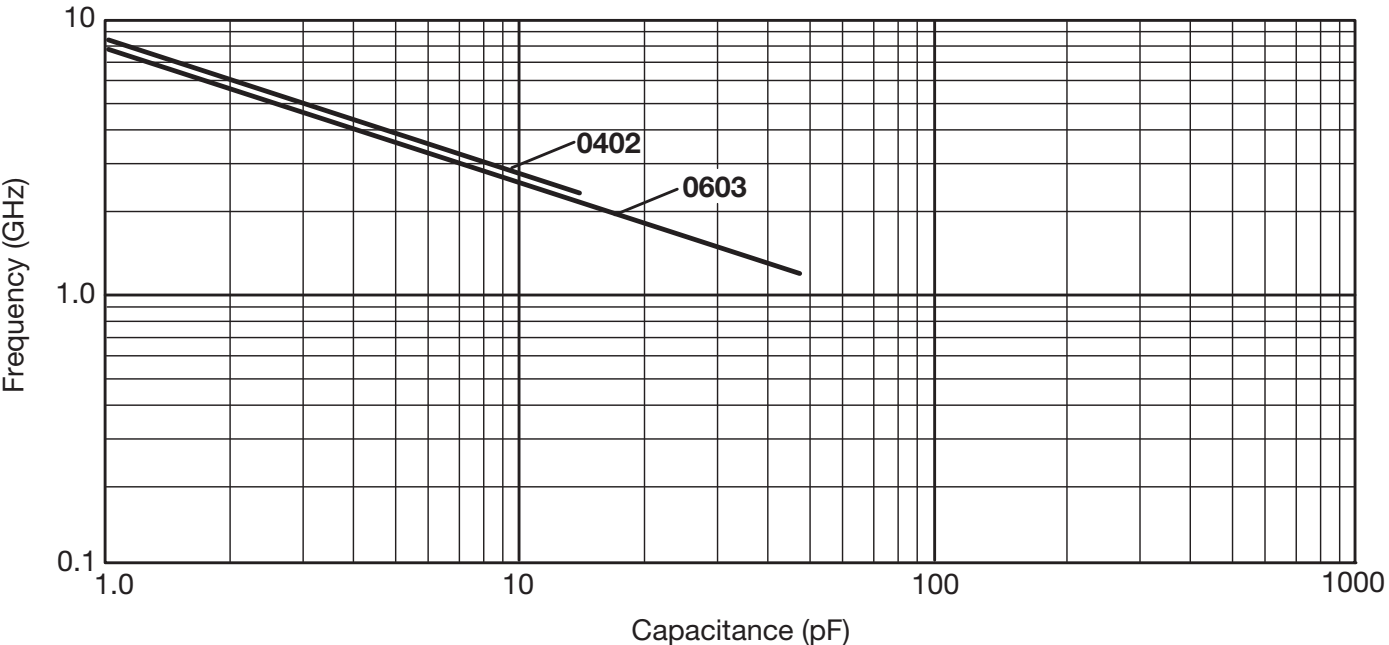


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TYPICAL  
SERIES RESONANT FREQUENCY  
"U" SERIES CHIP



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