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)

<table>
<thead>
<tr>
<th>Size</th>
<th>Case Size</th>
<th>0402</th>
<th>0603</th>
<th>0805</th>
<th>1210</th>
</tr>
</thead>
<tbody>
<tr>
<td>0402</td>
<td></td>
<td>0.039±0.004 (1.00±0.1)</td>
<td>0.020±0.004 (0.50±0.1)</td>
<td>0.024 (0.6) max</td>
<td>0.010 ± 0.006 (0.25 ± 0.15)</td>
</tr>
<tr>
<td>0603</td>
<td></td>
<td>0.060±0.010 (1.52±0.25)</td>
<td>0.030±0.010 (0.76±0.25)</td>
<td>0.036 (0.91) max</td>
<td>0.010 ± 0.005 (0.25 ± 0.13)</td>
</tr>
<tr>
<td>0805</td>
<td></td>
<td>0.079±0.008 (2.01±0.2)</td>
<td>0.049±0.008 (1.25±0.2)</td>
<td>0.045 (1.15mm) max</td>
<td>0.020 ± 0.010 (0.51 ± 0.25)</td>
</tr>
<tr>
<td>1210</td>
<td></td>
<td>0.126±0.008 (3.21±0.2)</td>
<td>0.098±0.008 (2.49±0.2)</td>
<td>0.055 (1.40mm) max</td>
<td>0.025 ± 0.015 (0.635 ± 0.381)</td>
</tr>
</tbody>
</table>

HOW TO ORDER

0805 1 U 100 A 2 A

Case Size 0402 0603 0805 1210

Voltage Code 3 = 25V 5 = 50V 1 = 100V 2 = 200V

Dielectric = Ultra Low ESR

Capacitance Tolerance Code
B = ±0.1pF
C = ±0.25pF
D = ±0.5pF
F = ±1%
G = ±2%
J = ±5%
K = ±10%
M = ±20%

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.

Failure Rate Code
A = Not Applicable

Termination T= Plated Ni and Sn

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

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):
10^12 Ω min. @ 25°C and rated WVDC
10^11 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).

MILITARY SPECIFICATIONS
Meets or exceeds the requirements of MIL-C-55681
The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.
RF/Microwave Capacitors
RF/Microwave C0G (NP0) Capacitors
Ultra Low ESR “U” Series, C0G (NP0) Capacitors (RoHS)

TYPICAL SERIES RESONANT FREQUENCY “U” SERIES CHIP

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

012419
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)

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

HOW TO ORDER

Case Size
LD02 = 0402
LD03 = 0603
LD05 = 0805
LD10 = 1210

Voltage Code
3 = 25V
5 = 50V
1 = 100V
2 = 200V

Dielectric = Ultra Low ESR

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.

Failure Rate Code
A = Not Applicable

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

RF/Microwave Capacitors
RF/Microwave C0G (NP0) Capacitors
Ultra Low ESR “U” Series, C0G (NP0) Capacitors (Sn/Pb)

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):
040 - See Performance Curve, page 306
0603 - See Performance Curve, page 306
0805 - See Performance Curve, page 306
1210 - See Performance Curve, page 306

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

Not RoHS Compliant

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

012521
RF/Microwave Capacitors
RF/Microwave C0G (NP0) Capacitors
Ultra Low ESR “U” Series, C0G (NP0) Capacitors (Sn/Pb)

CAPACITANCE RANGE

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.avx.com/disclaimer by reference and should be reviewed in full before placing any order.
RF/Microwave Capacitors
RF/Microwave C0G (NP0) Capacitors
Ultra Low ESR “U” Series, C0G (NP0) Capacitors (Sn/Pb)

TYPICAL
SERIES RESONANT FREQUENCY
“U” SERIES CHIP

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