

# ATC 600L Series Ultra-Low ESR, NPO RF & Microwave Capacitors

## Features:

- **Lowest ESR in Class**
- Highest Working Voltage in Class – 200V
- Standard EIA Size: 0402
- Laser Marked (Optional)
- High Self Resonance Frequencies

## Applications:

- Cellular Base Station Equipment
- High Q Frequency Sources
- Broadband Wireless Services
- Satcom Equipment
- Point-to-Point/Point-to-MultiPoint Radio
- Subscriber-based Wireless Devices
- 802.11 Applications
- Bluetooth

## Circuit Applications:

- Filter Networks
- Matching Networks
- Tuning, Coupling, Bypass and DC Blocking



### ATC 600 SERIES OVERVIEW

ATC Series	ATC Case Size	EIA Case Size
<b>600</b>	<b>L</b>	<b>0402</b>
600	S	0603
600	F	0805

### Electrical Specifications

<b>Capacitance:</b>	0.1 to 27 pF
<b>Tolerances:</b>	See Cap Value Chart
<b>Working Voltage (WVDC):</b>	200 V
<b>Temperature coefficient of Capacitance (TCC):</b>	0 ± 30 ppm/°C, -55°C to +125°C
<b>Insulation Resistance:</b>	10 <sup>5</sup> MΩ min. at +25°C at rated WVDC 10 <sup>4</sup> MΩ min. at +125°C at rated WVDC
<b>Dielectric Withstanding Voltage (DWV):</b>	2.5 × WVDC min. for 5 seconds
<b>Aging:</b>	None
<b>Piezo Effects:</b>	None

### Mechanical Specifications

<b>Terminations:</b>	T = Lead-Free Solderable Nickel Barrier (Standard) W = Tin/Lead Solderable Nickel Barrier
<b>Solderability:</b>	Solder coverage > 90% of end termination
<b>Terminal Strength:</b>	2 lbs. typ., 1 lb. min.

### Environmental Specifications

<b>Life Test:</b>	2000 hours, +125°C at 2X WVDC
<b>Thermal Shock:</b>	5 cycles, -55°C to +125°C
<b>Moisture Resistance:</b>	240 hours, 85% Relative Humidity at +85°C

ATC 600 Series Capacitors are designed and manufactured to meet and exceed the requirements of EIA-198, MIL-PRF-55681 and MIL-PRF-123.



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COMPONENT AND CUSTOM INTEGRATED PACKAGING SOLUTIONS  
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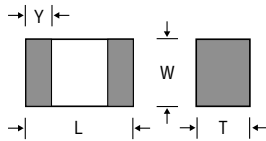
# ATC 600L Series Ultra-Low ESR, NPO RF & Microwave Capacitors

## Capacitance Values\*

Value (pF)	Cap Code	Marking	Tolerances	Value (pF)	Cap Code	Marking	Tolerances	Value (pF)	Cap Code	Marking	Tolerances
0.1	0R1	A9	A, B	1.6	1R6	F0	A, B, C, D	6.2	6R2	V0	A, B, C, D
0.2	0R2	H9	A, B	1.8	1R8	G0	A, B, C, D	6.8	6R8	W0	B, C, J, K, M
0.3	0R3	M9	A, B, C	2.0	2R0	H0	A, B, C, D	7.5	7R5	X0	B, C, J, K, M
0.4	0R4	d9	A, B, C	2.2	2R2	J0	A, B, C, D	8.2	8R2	Y0	B, C, J, K, M
0.5	0R5	f9	A, B, C	2.4	2R4	K0	A, B, C, D	9.1	9R1	Z0	B, C, J, K, M
0.6	0R6	m9	A, B, C	2.7	2R7	L0	A, B, C, D	10	100	A1	F, G, J, K, M
0.7	0R7	n9	A, B, C	3.0	3R0	M0	A, B, C, D	11	110	B1	F, G, J, K, M
0.8	0R8	t9	A, B, C	3.3	3R3	N0	A, B, C, D	12	120	C1	F, G, J, K, M
0.9	0R9	g9	A, B, C	3.6	3R6	P0	A, B, C, D	15	150	E1	F, G, J, K, M
1.0	1R0	A0	A, B, C	3.9	3R9	Q0	A, B, C, D	18	180	G1	F, G, J, K, M
1.1	1R1	B0	A, B, C, D	4.3	4R3	R0	A, B, C, D	20	200	H1	F, G, J, K, M
1.2	1R2	C0	A, B, C, D	4.7	4R7	S0	A, B, C, D	22	220	J1	F, G, J, K, M
1.3	1R3	D0	A, B, C, D	5.1	5R1	T0	A, B, C, D	24	240	K1	F, G, J, K, M
1.5	1R5	E0	A, B, C, D	5.6	5R6	U0	A, B, C, D	27	270	L1	F, G, J, K, M

\*Non-standard values and custom tolerances are available upon request.

## Outline Dimensions



<b>L (0402)</b>	L: .040 ± .004 (1.02 ± 0.1)	T: .024 max. (0.60 max.)
	W: .020 ± .004 (.51 ± 0.1)	Y: .010 ± .006 (0.25 ± 0.15)

*inches (mm)*

## ATC Part Number Code

ATC Series 600 Case Size (0402) L Capacitance Code: 10 0 Indicates number of zeros following digits of capacitance in picofarads except for decimal values. Capacitance Tolerance J

T 200 \* T

Packaging  
 T - Tape and Reel (Standard)\*  
 \* = No Marking  
 X = Laser Marked (Optional, Consult ATC)  
 WVDC  
 Termination Code  
 T = Lead-Free Solderable Nickel Barrier (Standard)  
 W = Tin/Lead Solderable Nickel Barrier

TOLERANCE CODE TABLE									
Code	A	B	C	D	F	G	J	K	M
Tol.	±0.05 pF	±0.1 pF	±0.25 pF	±0.5 pF	±1%	±2%	±5%	±10%	±20%

\*10,000 pieces on 7" reel and 500 pieces on prototype reel. Consult ATC for other options.

The above part number refers to a 600L Series (case size L) 10 pF capacitor, J tolerance (±5%), 200 WVDC, with T termination (Lead-Free Solderable Nickel Barrier), and Tape and Reel packaging.

ATC accepts orders for our parts using designations **with** or **without** the "ATC" prefix. Both methods of defining the part number are equivalent, i.e., part numbers referenced with the "ATC" prefix are interchangeable to parts referenced without the "ATC" prefix. Customers are free to use either in specifying or procuring parts from American Technical Ceramics.

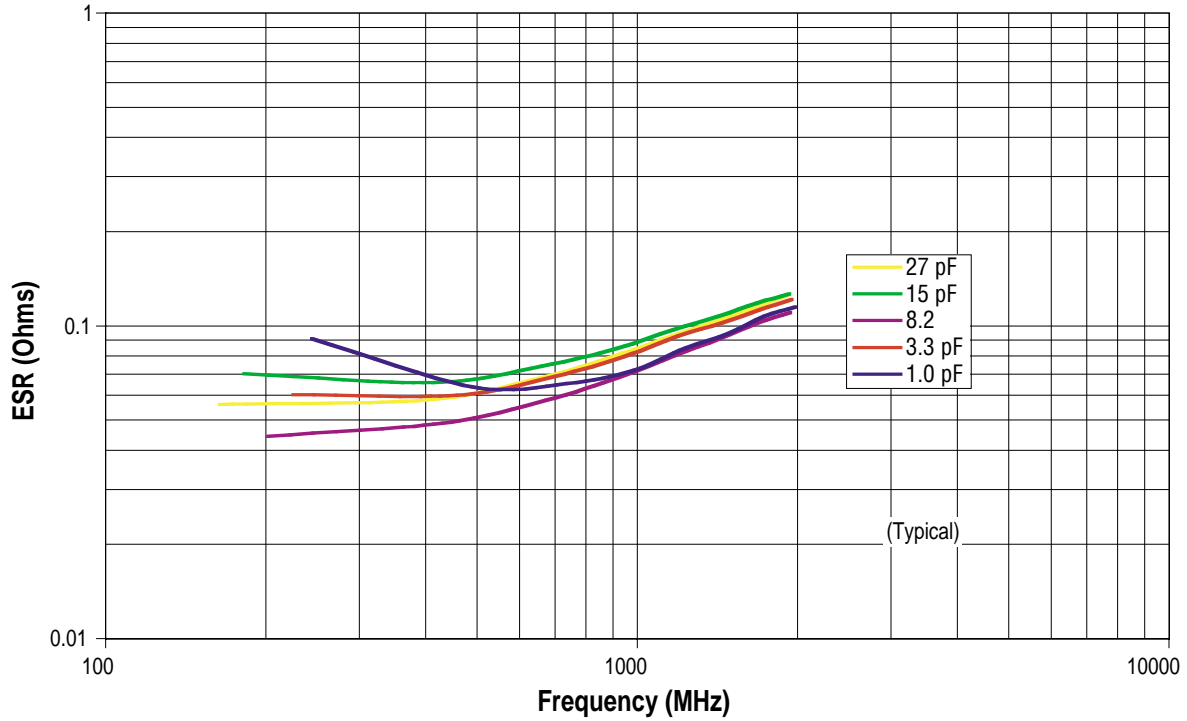
For additional information and catalogs contact your ATC representative or call direct at (631) 622-4700.  
 Consult factory for 500 piece reels for prototyping.  
 Consult factory for additional performance data.

## AMERICAN TECHNICAL CERAMICS

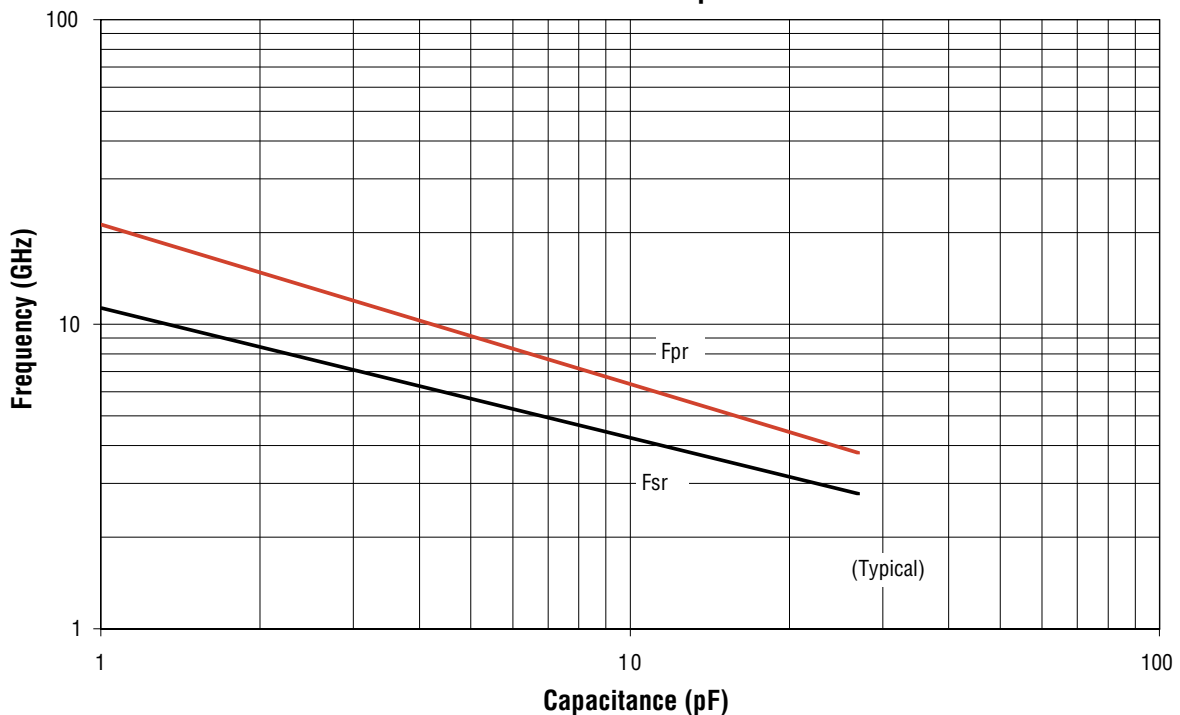
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# ATC 600L Series Ultra-Low ESR, NPO RF & Microwave Capacitors

## 600L ESR vs Frequency



## 600L Fsr & Fpr



### ATC 600L Series Data Sheet Test Condition Description

Capacitors mounted in series microstrip configuration on 10-mil thick Rogers RO4350<sup>®</sup> softboard;  
Trace is 22-mils wide, 1/2 oz. Cu.

**FSR** = lowest frequency at which S11 response, referenced at capacitor edge, crosses real axis on Smith Chart.

**FPR** = lowest frequency at which there is a notch in S21 magnitude response.

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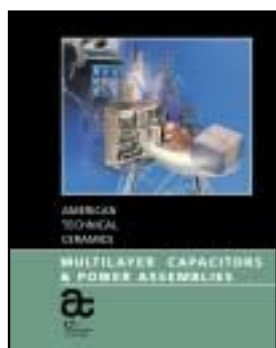
# ATC 600L Series Ultra-Low ESR, NPO RF & Microwave Capacitors

**Design Kits** Each Kit contains a selection of standard capacitor values for circuit prototyping.

Kit #	Item #	Description	Cap. Value Range (pF)	Cap. Values (pF)	Tol. (pF)	Price
Kit 36	DK0036	600L Series Ultra-low ESR, High Q Microwave Capacitors 16 different values, 15 pcs. min. per value	0.1 to 2.0	0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2, 1.5	±0.1	\$90.00
				1.6, 1.8, 2.0	±0.25	
Kit 37	DK0037	600L Series Ultra-low ESR, High Q Microwave Capacitors 16 different values, 15 pcs. min. per value	1.0 to 10	1.0, 1.2, 1.5, 1.8, 2.0, 2.2, 2.4, 2.7, 3.0, 3.3	±0.1	\$90.00
				3.9, 4.7, 5.6, 6.8, 8.2	±0.25	
				10	±5%	
Kit 38	DK0038	600L Series Ultra-low ESR, High Q Microwave Capacitors 8 different values, 15 pcs. min. per values	10 to 27	10, 12, 15, 18, 20, 22, 24, 27	±5%	\$50.00

For Online Kit Orders, Catalogs & Application Notes, visit: [www.atceramics.com](http://www.atceramics.com)

## Other ATC Products Catalogs



Multilayer Capacitors & Power Assemblies



Inductor Products



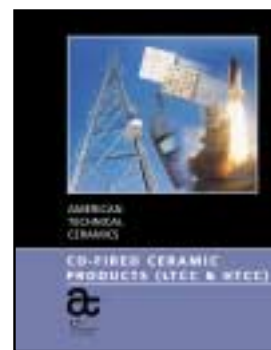
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