ATC 600S Series
Ultra-Low ESR, High Q Microwave Capacitors

Features:

- **Lowest ESR in Class – Typically 75 mΩ @ 1 GHz**
- Highest Working Voltage in class – 250V
- Standard EIA Sizes: 0603 – NPO
- High Self Resonance Frequencies
- Laser Marking Available

Applications:

- Cellular Base Station Equipment
- High Q Frequency Sources
- Broadband Wireless Services
- Satcom Equipment
- Point-to-Point/Point-to-MultiPoint Radio

Circuit Applications:

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

Electrical Specifications

Capacitance:	0.1 to 100 pF
Tolerances:	See Cap Value Chart
Working Voltage (WVDC):	250 V
FSR: **FPR:** **ESR:**	See Graphs, page 3
Temperature coefficient of Capacitance (TCC):	0 ± 30 ppm/°C, -55°C to +125°C
Insulation Resistance:	10^5 MΩ min. at +25°C at rated WVDC 10^4 MΩ min. at +125°C at rated WVDC
Dielectric Withstanding Voltage (DWV):	2.5 × WVDC min. for 5 seconds
Aging:	None
Piezo Effects:	None

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

Mechanical Specifications

Termination Material:	Tin over nickel barrier
Solderability:	Solder coverage > 90% of end termination
Terminal Strength:	4 lbs. Typ., 2 lbs. min.

Environmental Specifications

Life Test:	1000 hours, +125°C at 2X WVDC
Thermal Shock:	5 cycles, -55°C to +125°C
Moisture Resistance:	240 hours, 85% Relative Humidity at +85°C

ISO 9000 REGISTERED COMPANY

THE ENGINEERS' CHOICE™

WWW.ATCERAMICS.COM

AMERICAN TECHNICAL CERAMICS

COMPONENT AND CUSTOM INTEGRATED PACKAGING SOLUTIONS FOR RF, MICROWAVE AND TELECOMMUNICATIONS

ATC North America
631-622-4700
sales@atceramics.com

ATC Europe
+46 8 6800410
sales@atceramics-europe.com

ATC Asia
631-622-4700
sales@atceramics-asia.com

ATC 600S Series Ultra-Low ESR, High Q Microwave Capacitors

Capacitance Values*

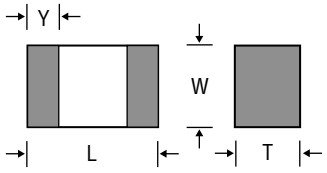
Value (pF)	Cap Code	Marking	Tolerances
0.1	0R1	A9	A, B
0.2	0R2	H9	A, B
0.3	0R3	M9	A, B, C
0.4	0R4	d9	A, B, C
0.5	0R5	f9	A, B, C
0.6	0R6	m9	A, B, C
0.7	0R7	n9	A, B, C
0.8	0R8	t9	A, B, C
0.9	0R9	g9	A, B, C
1.0	1R0	A0	A, B, C
1.1	1R1	B0	A, B, C, D
1.2	1R2	C0	A, B, C, D
1.3	1R3	D0	A, B, C, D
1.5	1R5	E0	A, B, C, D
1.6	1R6	F0	A, B, C, D
1.8	1R8	G0	A, B, C, D
2.0	2R0	H0	A, B, C, D
2.2	2R2	J0	A, B, C, D
2.4	2R4	K0	A, B, C, D

Value (pF)	Cap Code	Marking	Tolerances
2.7	2R7	L0	A, B, C, D
3.0	3R0	M0	A, B, C, D
3.3	3R3	N0	A, B, C, D
3.6	3R6	P0	A, B, C, D
3.9	3R9	Q0	A, B, C, D
4.3	4R3	R0	A, B, C, D
4.7	4R7	S0	A, B, C, D
5.1	5R1	T0	A, B, C, D
5.6	5R6	U0	A, B, C, D
6.2	6R2	V0	A, B, C, D
6.8	6R8	W0	B, C, J, K, M
7.5	7R5	X0	B, C, J, K, M
8.2	8R2	Y0	B, C, J, K, M
9.1	9R1	Z0	B, C, J, K, M
10	100	A1	F, G, J, K, M
11	110	B1	F, G, J, K, M
12	120	C1	F, G, J, K, M
15	150	E1	F, G, J, K, M
18	180	G1	F, G, J, K, M

Value (pF)	Cap Code	Marking	Tolerances
20	200	H1	F, G, J, K, M
22	220	J1	F, G, J, K, M
24	240	K1	F, G, J, K, M
27	270	L1	F, G, J, K, M
30	300	M1	F, G, J, K, M
33	330	N1	F, G, J, K, M
36	360	P1	F, G, J, K, M
39	390	Q1	F, G, J, K, M
43	430	R1	F, G, J, K, M
47	470	S1	F, G, J, K, M
51	510	T1	F, G, J, K, M
56	560	U1	F, G, J, K, M
62	620	V1	F, G, J, K, M
68	680	W1	F, G, J, K, M
75	750	X1	F, G, J, K, M
82	820	Y1	F, G, J, K, M
91	910	Z1	F, G, J, K, M
100	101	A2	F, G, J, K, M

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

Outline Dimensions



S (0603)	L: .060 ± .006 (1.52 ± .15) W: .032 ± .006 (.81 ± .15)	T: .027 + .005/-.003 (.69 + .13/-.08) Y: .014 ± .006 (.36 ± .15)

ATC Part Number Code

ATC 600 S 0R 2 B T 250 * T

- Series
- Case Size (0603)
- Capacitance Code: First 2 significant digits for capacitance. R=Decimal Point
- Indicates number of zeros following digits of capacitance in picofarads except for decimal values.
- Capacitance Tolerance
- WVDC
- Termination Code: T = Tin over Nickel Barrier; Consult Factory for alternate termination style
- * = No Marking (Standard); X = Laser Marking (Optional)
- Packaging: T - Tape and Reel (Standard); V - Vertical Tape and Reel (Optional)

TOLERANCE CODE TABLE

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

The above part number refers to a 600S Series (case size S) 0.2 pF capacitor,B tolerance (±0.1pF), 250 WVDC, with T termination (Tin over 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

ATC North America 631-622-4700 sales@atceramics.com

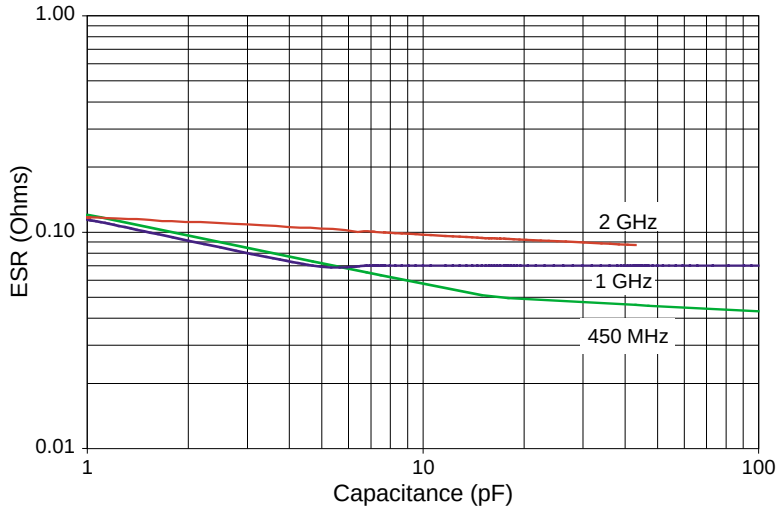
ATC Europe +46 8 6800410 sales@atceramics-europe.com

ATC Asia 631-622-4700 sales@atceramics-asia.com

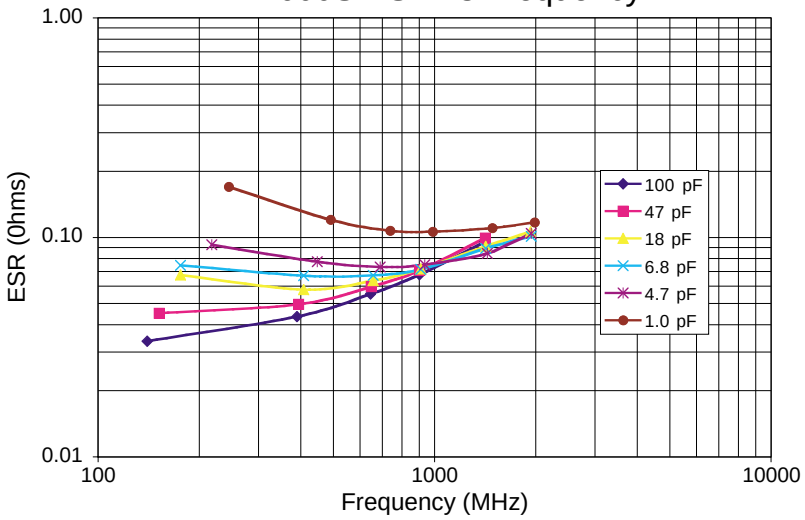
ATC 600S Series Ultra-Low ESR, High Q Microwave Capacitors

Typical Performance Data

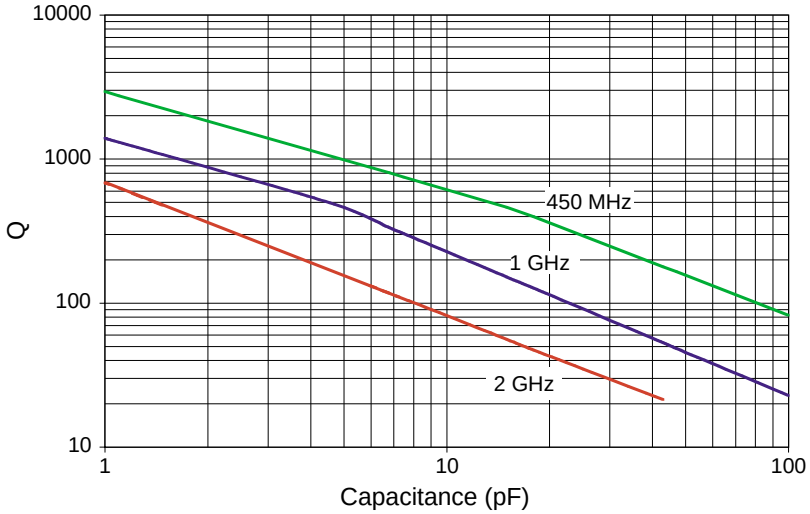
600S ESR vs Capacitance



600S ESR vs Frequency

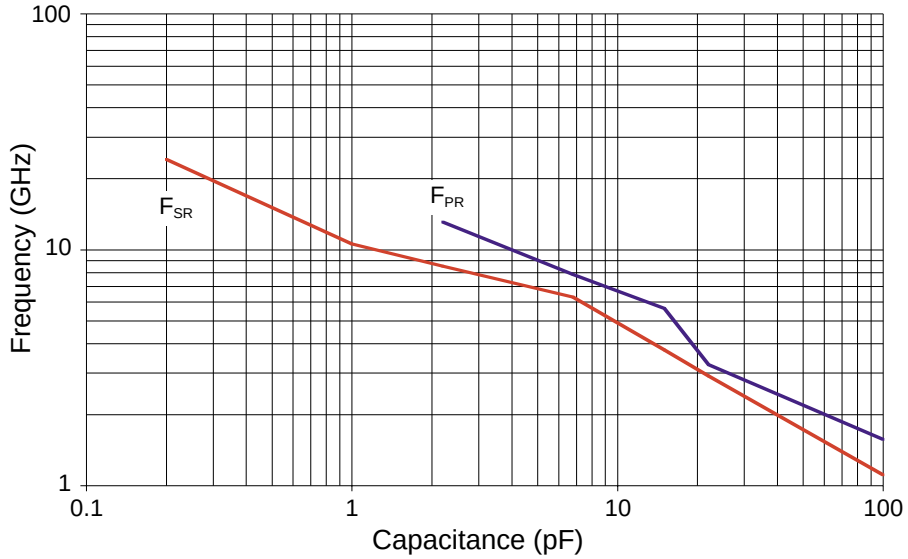


600S Q vs Capacitance



ATC 600S Series Ultra-Low ESR, High Q Microwave Capacitors

600S Resonance Frequency Data



ATC 600 Series Data Sheet Test Condition Description

Capacitors horizontally mounted on 13.3-mil thick Rogers RO4350® softboard, 29-mil wide, 1/2 oz. Cu traces.
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.

ATC Multilayer Capacitor *Design Kits: 600S Series*

Each Kit contains a selection of popular chip capacitor values for circuit prototyping.

Kit #	Item #	Description	Cap. Value Range (pF)	Cap. Values (pF)	Tol. (pF)	Price
Kit 25	DK0025	600S Series Ultra-low ESR, High Q 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 26	DK0026	600S Series Ultra-low ESR, High Q 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 27	DK0027	600S Series Ultra-low ESR, High Q 16 different values, 15 pcs. min. per value	10 to 100	10, 12, 15, 18, 20, 22, 24, 27, 30, 33, 39, 47, 56, 68, 82, 100	±5%	$90.00

For a complete listing of ATC's Multilayer Capacitor Design Kits, request ATC #001-910.

Mail Orders: One Norden Lane
Huntington Station, N.Y. 11746-2142
Phone Orders: 631-622-4700
Fax Orders: 631-622-4748
Online Orders: www.atceramics.com
e-mail: sales@atceramics.com

ATC # 001-924; Rev E. 6/02