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



Features:

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

Applications:

- Cellular Base Stations
- Broadband Wireless Services
- Satellite Communications
- Subscriber-based Wireless Devices
- WiFi (802.11)
- WiMAX (802.16)

Circuit Applications:

- Filter Networks
- High Q Frequency Sources
- Matching Networks
- Tuning, Coupling, Bypass and DC Blocking

ATC 600 SERIES OVERVIEW

ATC Series	ATC Case Size	EIA Case Size
600	**L**	**0402**
600	S	0603
600	F	0805

Electrical Specifications

Capacitance:	0.1 to 27 pF
Tolerances:	See Cap Value Chart
Working Voltage (WVDC):	200 V
Quality Factor (Q):	> 2000 @ 1 MHz
Operating Temperature Range:	-55°C to +125°C (no derating of working voltage)
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 x WVDC for 5 seconds
Aging:	None
Piezo Effects:	None

Mechanical Specifications

Terminations:	T = Tin Plated over Nickel Barrier* (Standard) TN = Tin Plated over Non-Magnetic Barrier* W = Tin/Lead Solder Plated over Nickel Barrier
Solderability:	Solder coverage > 90% of end termination
Terminal Strength:	2 lbs. typ., 1 lb. min.

Environmental Specifications

Life Test:	2000 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

Military Approval

DSCC Drawing Number 05003

* RoHS Compliant

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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ISO 9001 REGISTERED COMPANY

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Rev L, 1/11

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Capacitance Values*

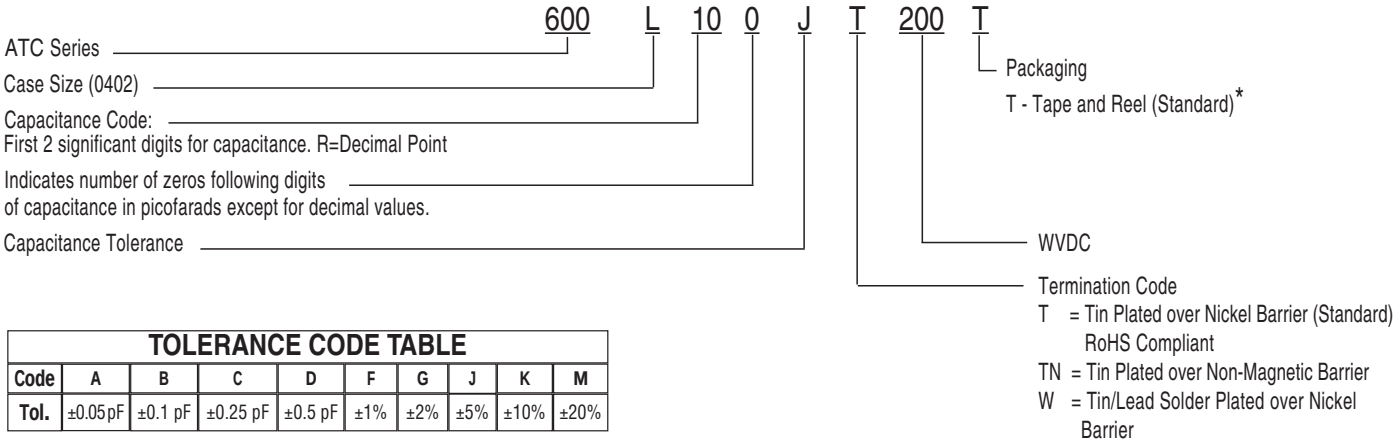
Value (pF)	Cap Code	Tolerances
0.1	0R1	A, B
0.2	0R2	A, B
0.3	0R3	A, B, C
0.4	0R4	A, B, C
0.5	0R5	A, B, C
0.6	0R6	A, B, C
0.7	0R7	A, B, C
0.8	0R8	A, B, C
0.9	0R9	A, B, C
1.0	1R0	A, B, C, D
1.1	1R1	A, B, C, D
1.2	1R2	A, B, C, D
1.3	1R3	A, B, C, D
1.5	1R5	A, B, C, D

Value (pF)	Cap Code	Tolerances
1.6	1R6	A, B, C, D
1.8	1R8	A, B, C, D
2.0	2R0	A, B, C, D
2.2	2R2	A, B, C, D
2.4	2R4	A, B, C, D
2.7	2R7	A, B, C, D
3.0	3R0	A, B, C, D
3.3	3R3	A, B, C, D
3.6	3R6	A, B, C, D
3.9	3R9	A, B, C, D
4.3	4R3	A, B, C, D
4.7	4R7	A, B, C, D
5.1	5R1	A, B, C, D
5.6	5R6	A, B, C, D

Value (pF)	Cap Code	Tolerances
6.2	6R2	A, B, C, D
6.8	6R8	B, C, J, K
7.5	7R5	B, C, J, K
8.2	8R2	B, C, J, K
9.1	9R1	B, C, J, K
10	100	F, G, J, K, M
11	110	F, G, J, K, M
12	120	F, G, J, K, M
15	150	F, G, J, K, M
18	180	F, G, J, K, M
20	200	F, G, J, K, M
22	220	F, G, J, K, M
24	240	F, G, J, K, M
27	270	F, G, J, K, M

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

ATC Part Number Code



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%

*10,000 pieces on 7" reel, 4000 pieces on 7" reel and 500 pieces on prototype reel. Consult ATC for other options.

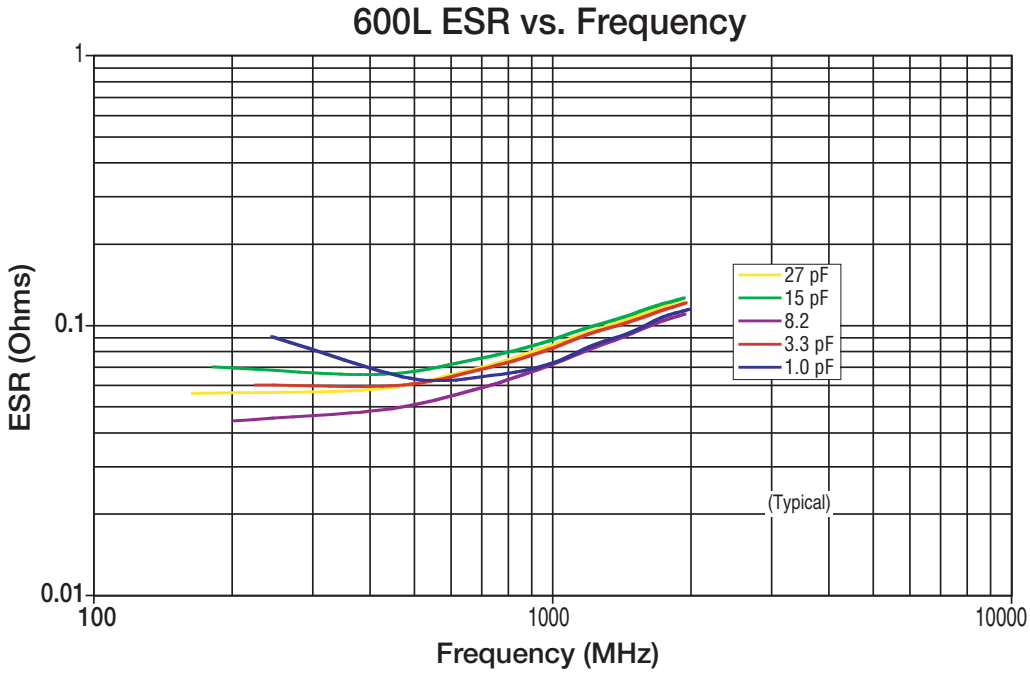
The above part number refers to a 600L Series (case size L) 10 pF capacitor, J tolerance (±5%), 200 WVDC, with T termination (Tin Plated over Nickel Barrier, RoHS Compliant), Tape and Reel packaging.

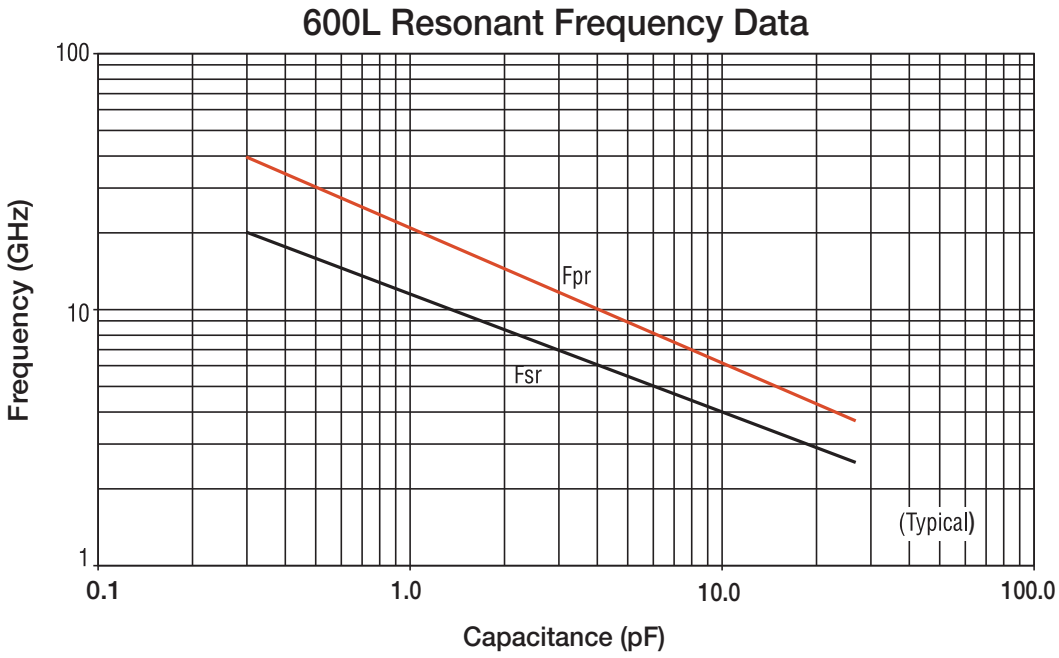
ATC accepts orders for our parts using designations ***with*** or ***without*** the "ATC" prefix. Both methods of defining the part number are equivalent, i.e., part numbers referenced with the "ATC" prefix are interchangeable to parts referenced without the "ATC" prefix. Customers are free to use either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

For additional information and catalogs contact your ATC representative or call direct at (+1-631) 622-4700.

Consult factory for 500 piece reels for prototyping.

Consult factory for additional performance data.





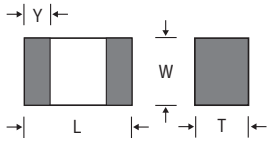
ATC 600L Series Data Sheet Test Condition Description

Capacitors mounted in series microstrip configuration on 10-mil thick Rogers RO4350® softboard, 22-mils 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.

softboard,

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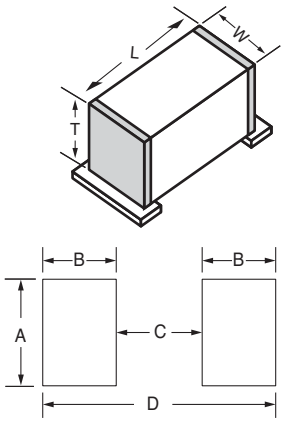
Outline Dimensions



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

Inches (mm)

Suggested Mounting Pad Dimensions



Case Sizes L, S and F

Case Size	A Min.	B Min.	C Min.	D Min.
0402 (1005)	.0275 (0.70)	.0354 (0.90)	.0157 (0.40)	.0866 (2.20)
0603 (1608)	.0393 (1.00)	.0433 (1.10)	.0236 (0.60)	.110 (2.80)
0805 (2012)	.0590 (1.50)	.0512 (1.30)	.0236 (0.60)	.1259 (3.20)

Inches (mm)

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 36T	DK0036T RoHS Compliant	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 37T	DK0037T RoHS Compliant	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 38T	DK0038T RoHS Compliant	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, Catalog & Application Notes, **Visit: www.atceramics.com**

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