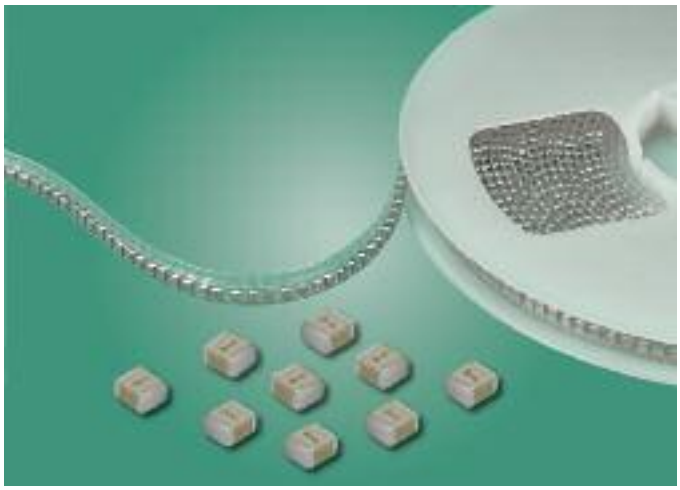
ATC 800 A Series NPO Ceramic, High RF Power Ultra-Low ESR Multilayer Capacitors



- **Case A Size (.055" x .055")**
- **Rugged, reliable NPO dielectric**
- **Case optimized for highest self resonant frequency**
- **Capacitance Range 0.1 pF to 100 pF**
- **Lowest ESR**
- **Capable of highest RF Power**
- **RoHS Compliant / Lead Free**

ATC's 800 A Series offers superb performance in demanding high RF power applications requiring consistent and reliable operation. The combination of highly conductive metal electrode systems, optimized case geometries, and proprietary dielectrics, yields the lowest ESR. ATC's new NPO low loss rugged dielectrics are designed to provide superior heat transfer in high RF power applications. Ultra-low ESR and superior thermal performance insure that the 800 A Series products are your best choice for high RF power applications from UHF through microwave frequencies.

Typical applications: UHF and Microwave Communications Systems, Wireless Communications, Public Safety Radio, Telecom, WiMAX, and Satellite Systems.

Typical circuit applications: High RF Power Filter Networks, Combiners, Couplers, Matching Networks, Output Coupling, Antenna Coupling, and DC Blocking and Bypassing.

ENVIRONMENTAL TESTS

ATC 800 A Series Capacitors are designed and manufactured to meet and exceed the requirements of EIA-198, MIL-PRF-55681 and MIL-PRF-123.

THERMAL SHOCK:
MIL-STD-202, Method 107, Condition A

MOISTURE RESISTANCE:
MIL-STD-202, Method 106

LOW VOLTAGE HUMIDITY:
MIL-STD-202, Method 103, Condition A, with 1.5 Volts DC applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours min.

LIFE TEST:
MIL-STD-202, Method 108, for 2000 hours, at 125°C
200% WVDC applied

ELECTRICAL AND MECHANICAL SPECIFICATIONS

QUALITY FACTOR (Q): > 2000 @ 1 MHz

TEMPERATURE COEFFICIENT OF CAPACITANCE (TCC):
0 ±30 PPM/°C (-55°C to +125°C)

INSULATION RESISTANCE (IR):
0.1 pF to 100 pF:
10^5 Megohms min. @ +25°C at rated WVDC
10^4 Megohms min. @ +125°C at rated WVDC

WORKING VOLTAGE (WVDC):
See Capacitance Values Table, page 2

DIELECTRIC WITHSTANDING VOLTAGE (DWV):
Case A: 250% of rated WVDC for 5 secs. (625 VDC)

RETRACE: Less than ±(0.02% or 0.02 pF), whichever is greater

AGING EFFECTS: None

PIEZOELECTRIC EFFECTS: None
(No capacitance variation with voltage or pressure)

CAPACITANCE DRIFT: ±(0.02% or 0.02 pF), whichever is greater

OPERATING TEMPERATURE RANGE:
From -55°C to +125°C (No derating of working voltage)

TERMINATION STYLE: RoHS Compliant and Solder Plate
See Mechanical Configurations, page 3

TERMINAL STRENGTH: Terminations for chips withstand a pull of 5 lbs. min., 10 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor. Test per MIL-STD-202, method 211.

ATC 800 A Capacitance Values

CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC
0R1	0.1	B	250	2R2	2.2	B, C, D	250	160	16	F, G, J, K, M	250
0R2	0.2			2R4	2.4			180	18		
0R3	0.3	B, C		2R7	2.7			200	20		
0R4	0.4			3R0	3.0			220	22		
0R5	0.5	B, C, D		3R3	3.3			240	24		
0R6	0.6			3R6	3.6			270	27		
0R7	0.7			3R9	3.9			300	30		
0R8	0.8			4R3	4.3			330	33		
0R9	0.9			4R7	4.7			360	36		
1R0	1.0			5R1	5.1			390	39		
1R1	1.1			5R6	5.6			430	43		
1R2	1.2			6R2	6.2			470	47		
1R3	1.3			6R8	6.8	B, C, J, K, M		510	51		
1R4	1.4			7R5	7.5			560	56		
1R5	1.5			8R2	8.2			620	62		
1R6	1.6			9R1	9.1			680	68		
1R7	1.7			100	10	F, G, J, K, M		750	75		
1R8	1.8			110	11			820	82		
1R9	1.9			120	12			910	91		
2R0	2.0			130	13			101	100		
2R1	2.1			150	15						

VRMS = 0.707 X WVDC

SPECIAL VALUES, TOLERANCES, HIGHER WVDC AND MATCHING AVAILABLE. PLEASE CONSULT FACTORY.

CAPACITANCE TOLERANCE

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

ATC PART NUMBER CODE

ATC800 A 10 0 J T 250 X T

- Series — ATC800
- Case Size — A
- Capacitance Code: First 2 significant digits for capacitance. R=Decimal Point — 10
- Indicates number of zeros following digits of capacitance in picofarads except for decimal values. — 0
- Capacitance Tolerance — J
- Termination Code — T
- WVDC — 250
- Laser Marking — X
- Packaging — T
  - T - Tape & Reel: 500 and 4000 pc. qty. std.*
  - TV - Vertical Orientation of Product, Tape & Reel: 500 and 4000 pc. qty. std.*
  - I - Special Packaging. Consult Factory.
  - *Consult ATC for other quantities

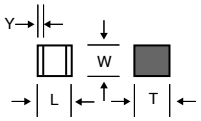
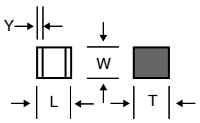
The above part number refers to a 800 A Series (case size A) 10 pF capacitor, J tolerance (±5%), 150 WVDC, with T termination (Tin Plated over Nickel Barrier, RoHS Compliant), laser marking and tape and reel packaging.

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 arefree to use either in specifying or procuring parts from American Technical Ceramics.

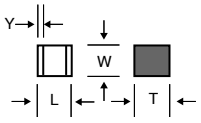
For additional information and catalogs contact your ATC representative or call direct at (+1-631) 622-4700.

Consult factory for additional performance data.

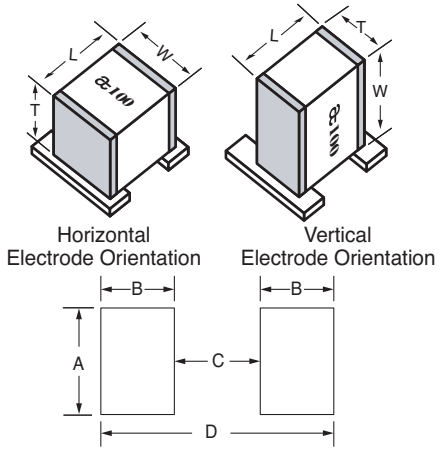
ATC 800 A Capacitors: Mechanical Configurations

ATC SERIES & CASE SIZE	ATC TERM. CODE	CASE SIZE & TYPE	OUTLINES W/T IS A TERMINATION SURFACE	BODY DIMENSIONS Inches (mm)			LEAD AND TERMINATION DIMENSIONS AND MATERIALS	
				LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIAL
800A	T	A Solderable Nickel Barrier		.055 +.015 -.010 (1.40 +0.38 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +0.25 -0.13)	***RoHS Compliant*** Tin Plated over Nickel Barrier Termination
800A	W	A Solder Plate		.055 +.015 -.010 (1.40 +0.38 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +0.25 -0.13)	Tin/Lead Solder Plated over Nickel Barrier Termination

ATC 800 A Non-Magnetic Capacitors: Mechanical Configurations

ATC SERIES & CASE SIZE	ATC TERM. CODE	CASE SIZE & TYPE	OUTLINES W/T IS A TERMINATION SURFACE	BODY DIMENSIONS Inches (mm)			LEAD AND TERMINATION DIMENSIONS AND MATERIALS	
				LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIAL
800A	TN	A Non-Mag Solderable Barrier		.055 +.015 -.010 (1.40 +0.38 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +0.25 -0.13)	***RoHS Compliant*** Tin Plated over Non-Magnetic Barrier Termination

Suggested Mounting Pad Dimensions

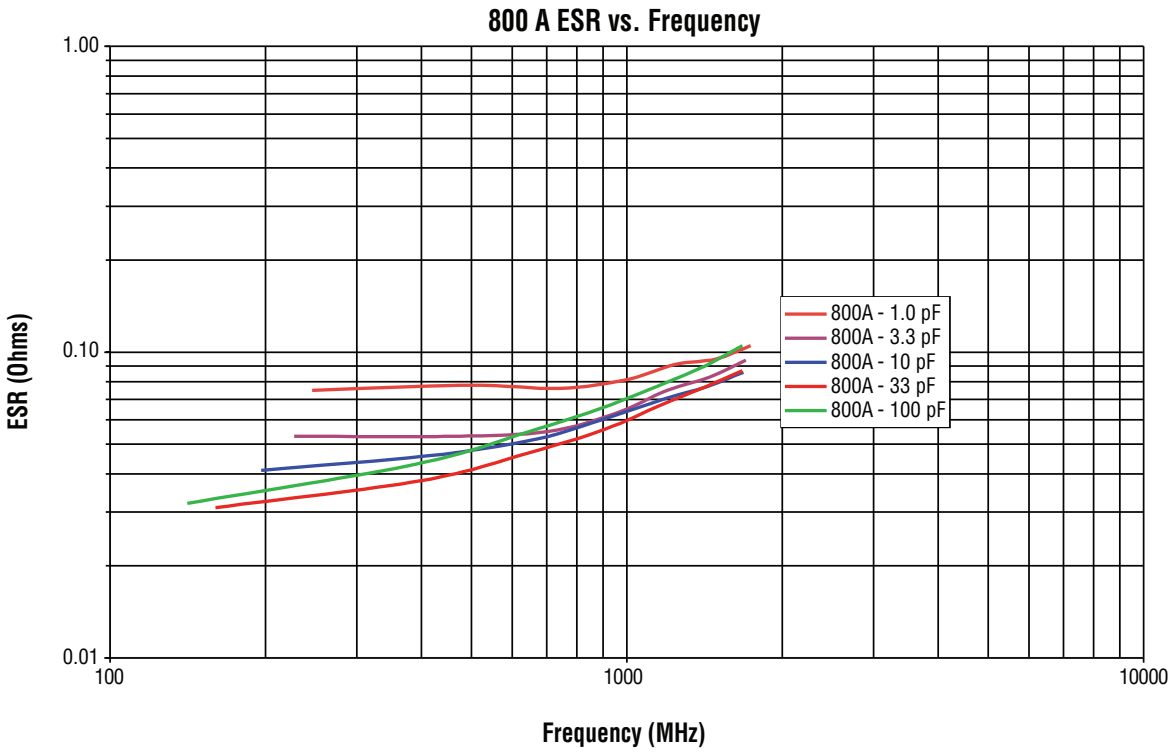


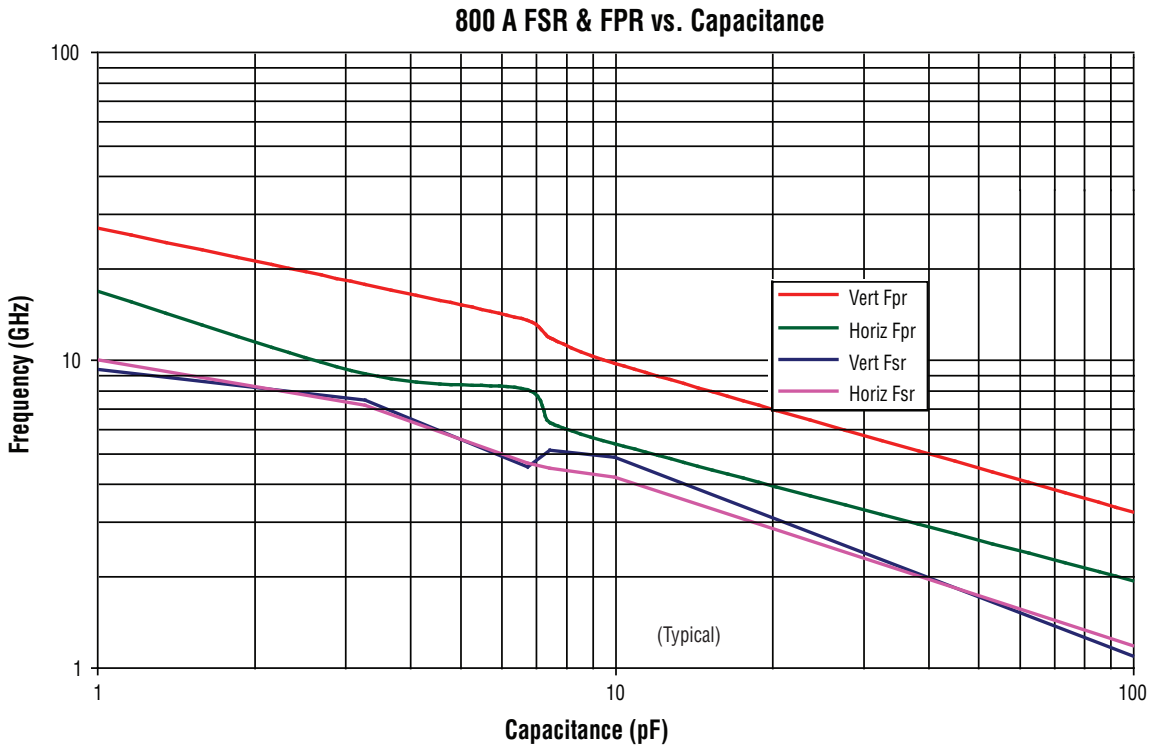
Case A

	Pad Size	A Min.	B Min.	C Min.	D Min.
Vertical Mount	Normal	.070	.050	.030	.130
	High Density	.050	.030	.030	.090
Horizontal Mount	Normal	.080	.050	.030	.130
	High Density	.060	.030	.030	.090

Dimensions are in inches.

ATC 800 A Performance Data

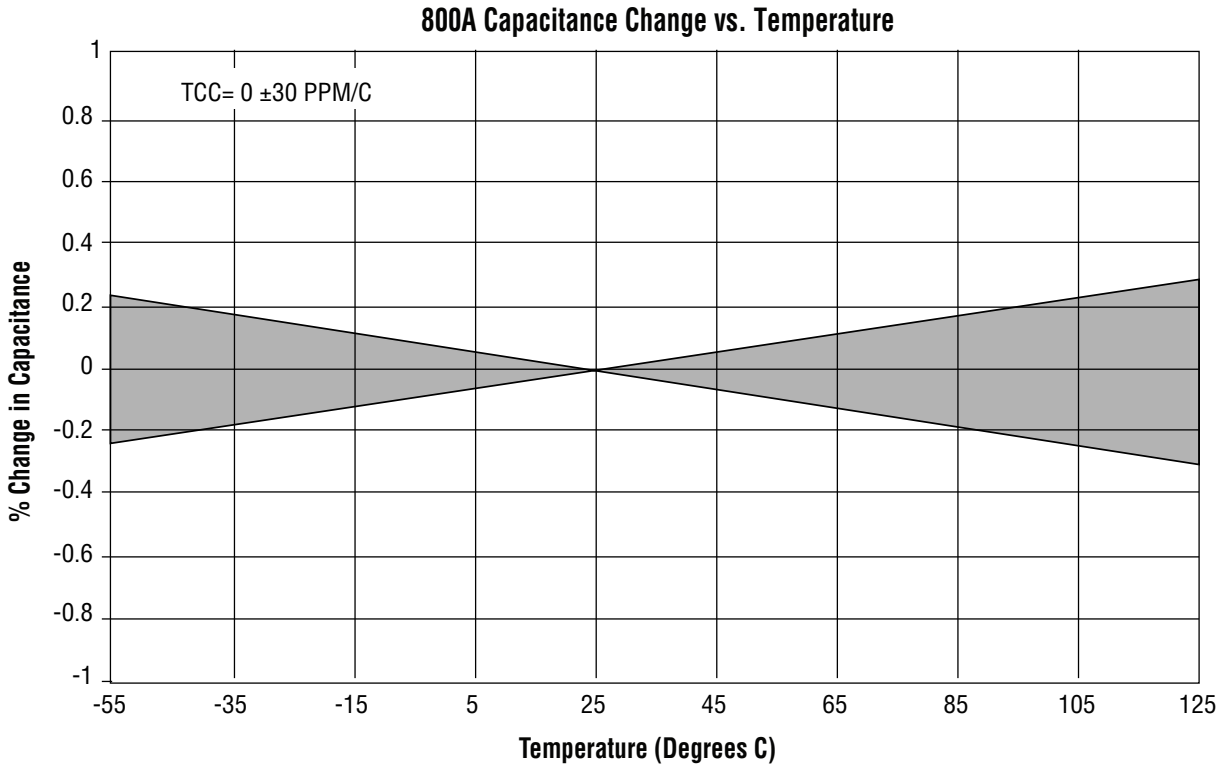




ATC 800 A Series Data Sheet Test Condition Description

Capacitors horizontally mounted in series microstrip configuration on 23.3-mil thick Rogers RO4350® softboard, 52-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.

ATC 800 A Performance Data



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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.

Как с нами связаться

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