

ATC 700 A Series NPO Porcelain and Ceramic Multilayer Capacitors

- Case A Size
(.055" x .055")
- Low ESR/ESL
- Low Noise
- Rugged
Construction
- Capacitance Range
0.1 pF to 1000 pF
- Zero TCC
- High Self-Resonance
- Established Reliability (QPL)

ATC, the industry leader, offers new improved ESR/ESL performance for the 700 A Series RF/Microwave Capacitors. The superior high self-resonance and zero TCC characteristic of this Series provide excellent performance over a broad range of RF and microwave applications requiring minimum drift. High density porcelain and ceramic constructions provide a rugged, hermetic package.

Typical functional applications: Bypass, Coupling, Tuning and DC Blocking.

Typical circuit applications: Filters, Oscillators and Timing

ENVIRONMENTAL TESTS

ATC 700 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:

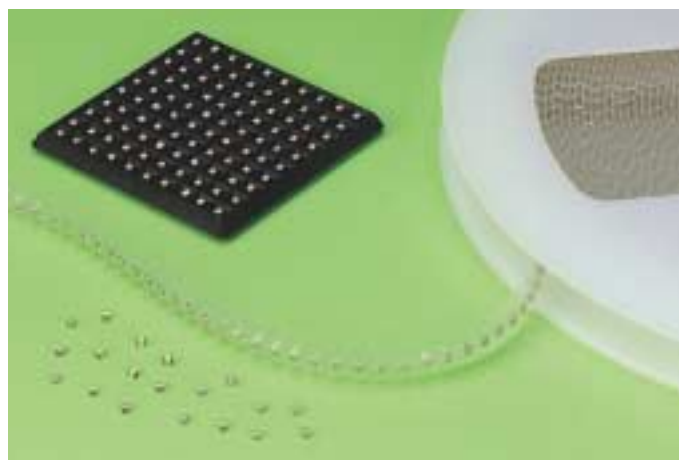
MIL-STD-202, Method 106.

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):

Greater than 10,000 (0.1 pF to 100 pF) @ 1 MHz.

Greater than 2000 (110 pF to 1000 pF) @ 1 MHz.

TEMPERATURE COEFFICIENT OF CAPACITANCE (TCC):

0 ±30 PPM/°C (-55°C to +125°C)

INSULATION RESISTANCE (IR):

0.1 pF to 470 pF:

10⁶ Megohms min. @ +25°C at rated WVDC.

10⁵ Megohms min. @ +125°C at rated WVDC.

510 pF to 1000 pF:

10⁵ Megohms min. @ +25°C at rated WVDC.

10⁴ Megohms min. @ +125°C at rated WVDC.

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

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Case A: 250% of rated WVDC for 5 secs.

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 STYLES: Available in various surface mount styles. See Mechanical Configurations, page 3.

TERMINAL STRENGTH: Terminations for chips and pellets withstand a pull of 5 lbs. min., 10 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor.

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ATC # 001-813 Rev. G 12/04

ATC 700 A Capacitance Values

CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	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	150	2R4	2.4	B, C, D	150	200	20	F, G, J, K, M	150	151	150	F, G, J, K, M	150
0R2	0.2	B, C		2R7	2.7			220	22			161	160		
0R3	0.3			3R0	3.0			240	24			181	180		
0R4	0.4			3R3	3.3			270	27			201	200		
0R5	0.5	B, C, D		3R6	3.6			300	30			221	220		
0R6	0.6			3R9	3.9			330	33			241	240		
0R7	0.7			4R3	4.3			360	36			271	270		
0R8	0.8			4R7	4.7			390	39			301	300		
0R9	0.9			5R1	5.1			430	43			331	330		
1R0	1.0			5R6	5.6			470	47			361	360		
1R1	1.1			6R2	6.2	510		51	391			390			
1R2	1.2			6R8	6.8	560		56	431			430			
1R3	1.3			7R5	7.5	620		62	471			470			
1R4	1.4			8R2	8.2	680		68	511			510			
1R5	1.5	9R1		9.1	750	75		561	560						
1R6	1.6	B, C, J, K, M		100	10	820		82	621			620			
1R7	1.7			110	11	910		91	681			680			
1R8	1.8			120	12	101		100	751			750			
1R9	1.9			130	13	111		110	821			820			
2R0	2.0			150	15	121		120	911			910			
2R1	2.1			160	16	131		130	102			1000			
2R2	2.2			180	18										

$$VRMS = 0.707 \times WVDC$$

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

Capacitance values in **bold** type indicate porcelain dielectric. All other capacitance values indicate ceramic dielectric.

ATC PART NUMBER CODE

Series ATC700 A 6R 8 J W 150 X C

Case Size _____

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 _____

Packaging
T - Tape and Reel, 1000 pc. qty., 7" Reel std.*
TV - Vertical Orientation of Product, Tape and Reel, 1000 pc. qty., 7" Reel std.*
C - ATC Cap-Pac®, 100 pc. qty. std.*
B - Bulk Packaging (packed in plastic bags)
I - Special Packaging. Consult Factory.
*Consult ATC for other quantities

Laser Marking

WVDC

Termination Code

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%

The above part number refers to a 700 A Series (case size A) 6.8 pF capacitor, J tolerance (±5%), 150 WVDC, with W termination (Tin/Lead, Solder Plated over Nickel Barrier), laser marking and ATC Cap-Pac® 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 additional performance data.

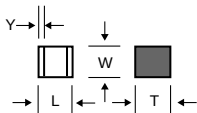
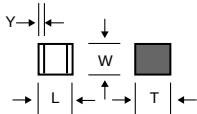
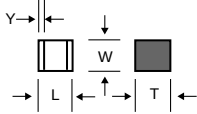
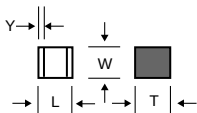
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ATC 700 A Capacitors: Mechanical Configurations

ATC SERIES & CASE SIZE	ATC TERM. CODE	MIL-PRF-55681	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)	MATERIALS
700A	W	CDR12BG	A  Solder Plate		.055 +.015 -.010 (1.4 +.38 -.25)	.055 ± .015 (1.4 ± 0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +.025 -.013)	Tin/Lead, Solder Plated over Nickel Barrier Termination
700A	P	CDR12BG	A  Pellet		.055 +.025 -.010 (1.4 +.64 -.25)	.055 ± .015 (1.4 ± 0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +.025 -.013)	Heavy Tin/Lead Coated, over Nickel Barrier Termination
700A	T	N/A	A  Lead-Free Solderable Nickel Barrier		.055 +.015 -.010 (1.4 +.38 -.25)	.055 ± .015 (1.4 ± 0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +.025 -.013)	Lead-Free and RoHS Compliant Tin Plated over Nickel Barrier Termination
700A	CA	CDR11BG	A  Gold Chip		.055 +.015 -.010 (1.4 +.38 -.25)	.055 ± .015 (1.4 ± 0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +.025 -.013)	Lead-Free and RoHS Compliant Gold Plated over Nickel Barrier Termination

For a complete military catalog, request American Technical Ceramics document ATC 001-818.

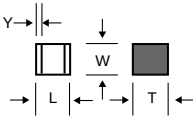
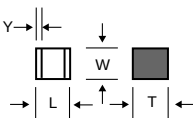
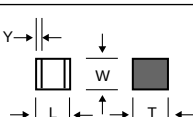
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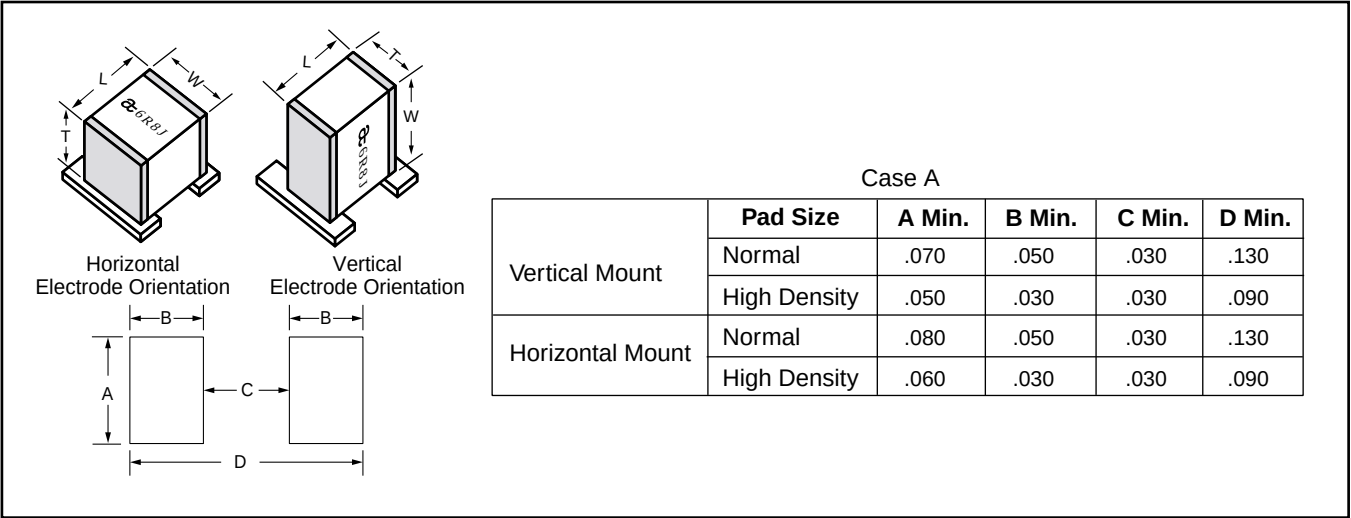
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ATC 700 A Non-Magnetic Capacitors: Mechanical Configurations

ATC SERIES & CASE SIZE	ATC TERM. CODE	MIL-PRF-55681	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)	MATERIALS
700A	WN	Meets Requirements	A  Non-Mag Solder Plate		.055 +.025 -.010 (1.4 +0.64 -.25)	.055 ±.015 (1.4 ±0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +0.25 -.013)	Tin/Lead, Solder Plated over Non-Magnetic Barrier Termination
700A	PN	Meets Requirements	A  Non-Mag Pellet		.055 +.035 -.010 (1.4 +0.89 -.25)	.055 ±.015 (1.4 ±0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +0.25 -.013)	Heavy Tin/Lead Coated, over Non-Magnetic Barrier Termination
700A	TN	Meets Requirements	A  Non-Mag Lead-Free Solderable Nickel Barrier		.055 +.025 -.010 (1.4 +0.64 -.25)	.055 ±.015 (1.4 ±0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +0.25 -.013)	Lead-Free and RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination

All 700 A Capacitors are available laser marked with ATC's identification, capacitance code and tolerance.

Suggested Mounting Pad Dimensions

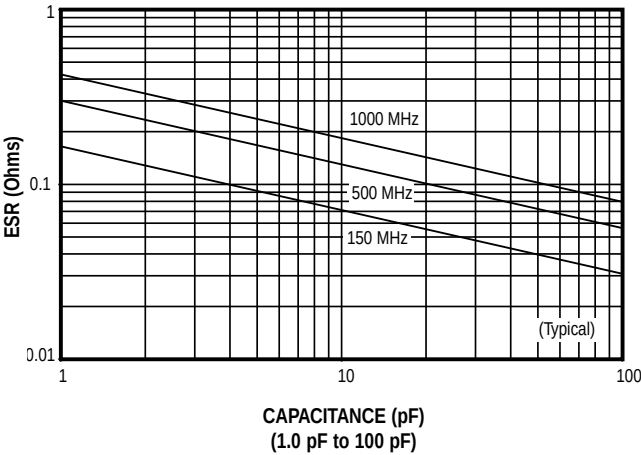


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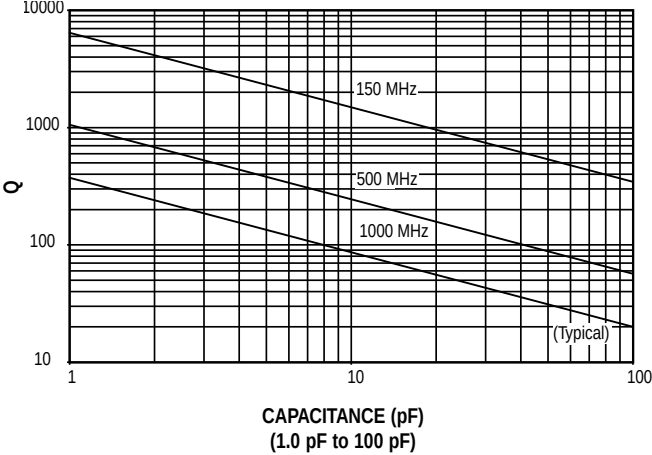
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ATC 700 A Performance Data

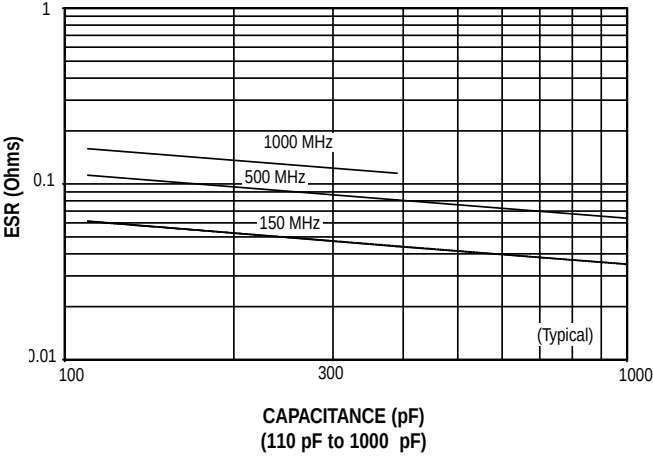
ESR VS. CAPACITANCE
ATC SERIES 700, CASE A



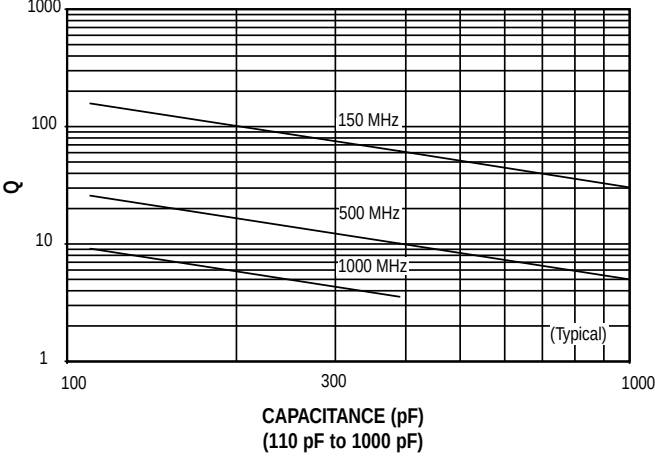
Q VS. CAPACITANCE
ATC SERIES 700, CASE A



ESR VS. CAPACITANCE
ATC SERIES 700, CASE A



Q VS. CAPACITANCE
ATC SERIES 700, CASE A



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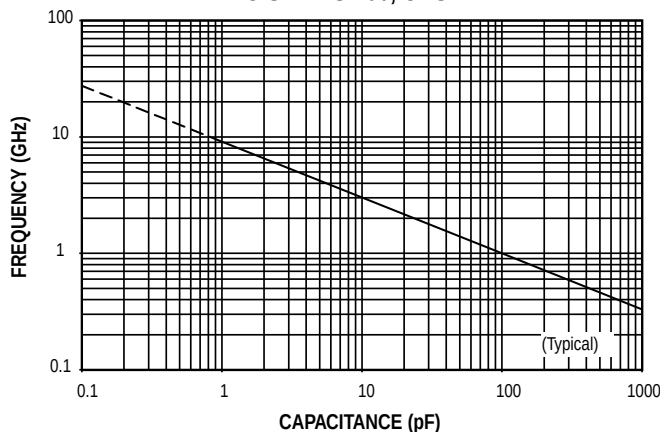
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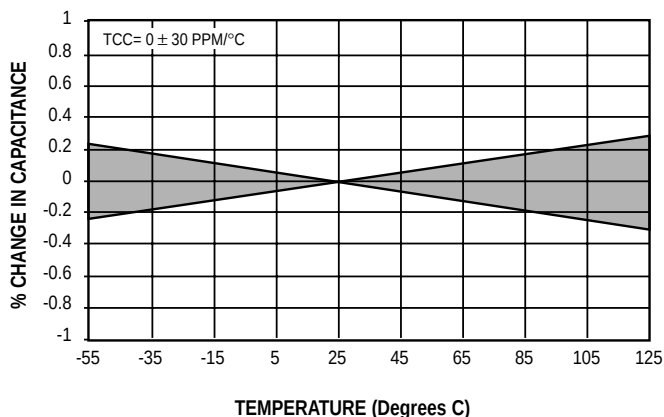
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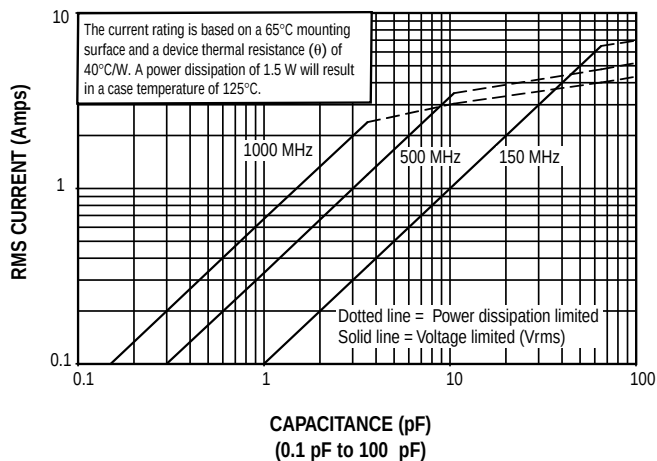
SERIES RESONANCE VS. CAPACITANCE
ATC SERIES 700, CASE A



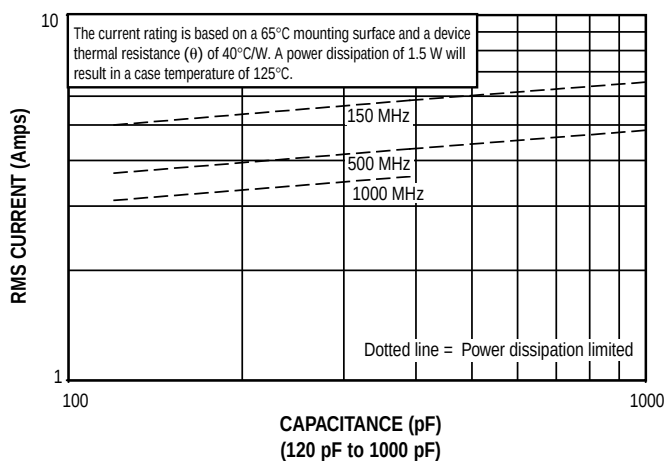
CAPACITANCE CHANGE VS. TEMPERATURE
ATC SERIES 700, CASE A



CURRENT RATING VS. CAPACITANCE
ATC SERIES 700, CASE A



CURRENT RATING VS. CAPACITANCE
ATC SERIES 700, CASE A



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