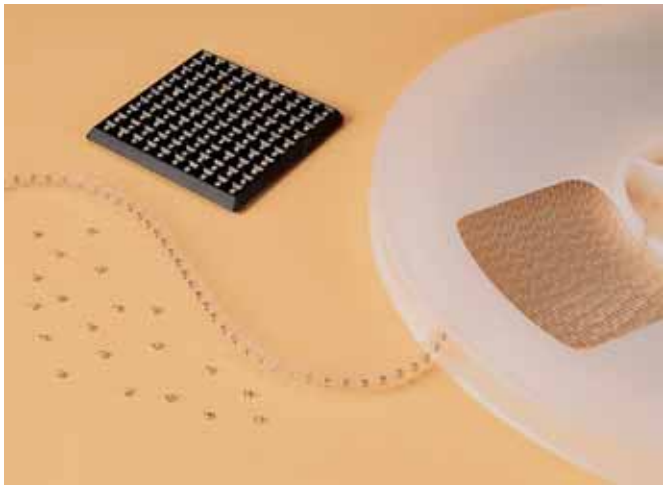
ATC 100 A Series Porcelain Superchip® Multilayer Capacitors



- **Case A Size (.055" x .055")**
- **Capacitance Range 0.1 pF to 100 pF**
- **High Q**
- **Ultra-Stable Performance**
- **Low ESR/ESL**
- **High Self-Resonance**
- **Low Noise**
- **Established Reliability (QPL)**
- **Extended WVDC up to 250 VDC**

ATC, the industry leader, offers new improved ESR/ESL performance for the 100 A Series RF/Microwave Capacitors. This is ATC's most versatile high Q, high self resonant multilayer capacitor. High density porcelain construction provides a rugged, hermetic package.

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

Typical circuit applications: Microwave/RF/IF Amplifiers, Mixers, Oscillators, Low Noise Amplifiers, Filter Networks, Timing Circuits and Delay Lines.

ENVIRONMENTAL TESTS

ATC 100 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 at 1 MHz.

TEMPERATURE COEFFICIENT OF CAPACITANCE (TCC):
+90 ±20 PPM/°C (-55°C to +125°C)

INSULATION RESISTANCE (IR):
0.1 pF to 100 pF:
10^6 Megohms min. @ +25°C at rated WVDC.
10^5 Megohms min. @ +125°C at rated WVDC.

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

DIELECTRIC WITHSTANDING VOLTAGE (DWV):
250% of rated WVDC for 5 secs. (375 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 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. Test per MIL-STD-202, method 211.

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THE ENGINEERS' CHOICE™
ISO 9001 REGISTERED

ATC 100 A Capacitance Values

CAP. CODE	CAP. (pF)	TOL.	RATED WVDC STD	RATED WVDC EXT	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC STD	RATED WVDC EXT	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC STD	RATED WVDC EXT
0R1	0.1	B	150	EXTENDED VOLTAGE 250	2R2	2.2	B, C, D	150	EXTENDED VOLTAGE 250	160	16	F, G, J, K, M	150	EXTENDED VOLTAGE 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			EXT VOLT 200
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

ATC100 A 10 0 J W 150 X C

- Series
- 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
- Termination Code
- WVDC
- Laser Marking
- Packaging
  - T - Tape and Reel, 1000 pc. qty.*
  - TV - Vertical Orientation of Product, Tape and Reel, 1000 pc. qty.*
  - C - ATC Cap-Pac®, 100 pc. qty. std.*
  - I - Special Packaging. Consult Factory.
  - *Consult ATC for other quantities

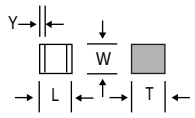
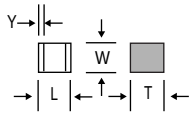
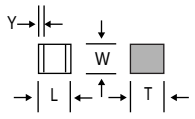
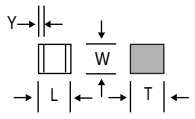
The above part number refers to a 100 A Series (case size A) 10 pF capacitor, J tolerance (±5%), 150 WVDC, with W termination (Tin/Lead, Solder Plated over Nickel Barrier), laser marking and ATC Cap-Pac® packaging.

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.

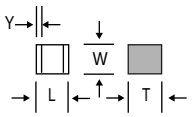
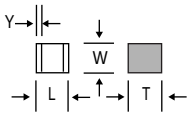
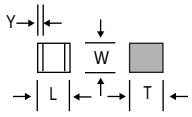
Consult factory for additional performance data.

ATC 100 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
100A	W	CDR12BG	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
100A	P	CDR12BG	A Pellet		.055 +.025 -.010 (1.40 +0.64 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +0.25 -0.13)	Heavy Tin/Lead Coated, over Nickel Barrier Termination
100A	T	N/A	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
100A	CA	CDR11BG	A Gold Chip		.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*** Gold Plated over Nickel Barrier Termination

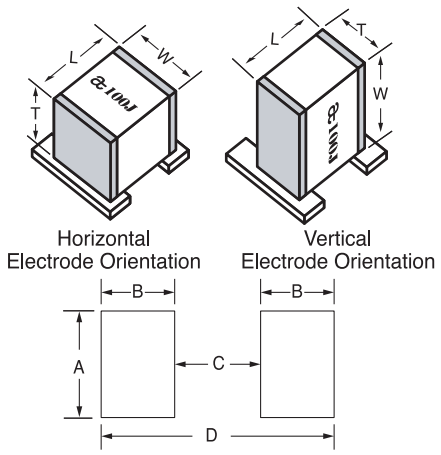
For a complete military catalog, request American Technical Ceramics document ATC 001-818.

ATC 100 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
100A	WN	Meets Require-ments	A Non-Mag Solder Plate		.055 +.025 -.010 (1.40 +0.64 -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 Non-Magnetic Barrier Termination
100A	PN	Meets Require-ments	A Non-Mag Pellet		.055 +.035 -.010 (1.40 +0.89 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010 -.005 (0.25 +0.25 -0.13)	Heavy Tin/Lead Coated, over Non-Magnetic Barrier Termination
100A	TN	Meets Require-ments	A Non-Mag Solderable Barrier		.055 +.025 -.010 (1.40 +0.64 -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

All 100 A Capacitors are available laser marked with ATC's identification, capacitance code and tolerance.

Suggested Mounting Pad Dimensions

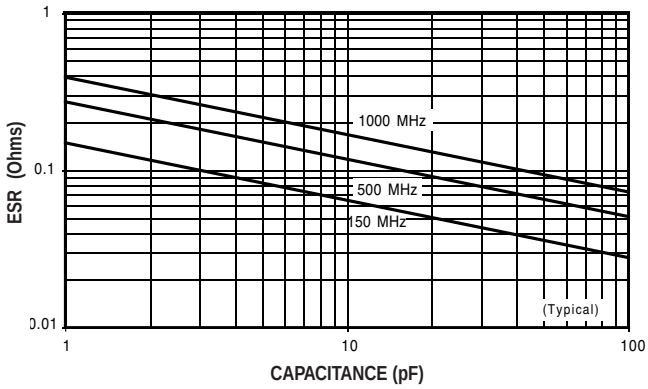


Case A

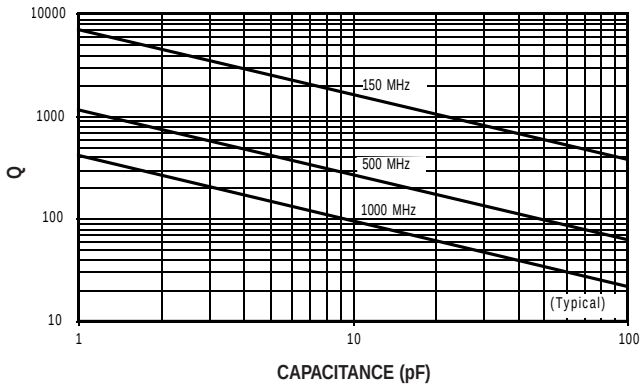
	Pad Size	A Min.	B Min.	C Min.	D Min.
Vertical Mount	Normal	.070	.050	.030	.130
	High Density	.050	.030	.030	.090
Horizontal Mount	Normal	.080	.050	.030	.130
	High Density	.060	.030	.030	.090

ATC 100 A Performance Data

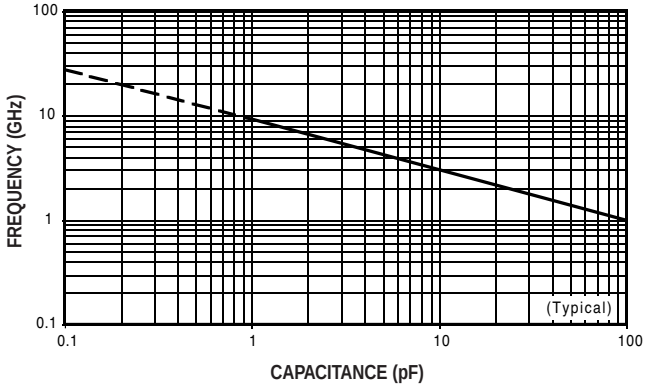
ESR VS. CAPACITANCE
ATC SERIES 100, CASE A



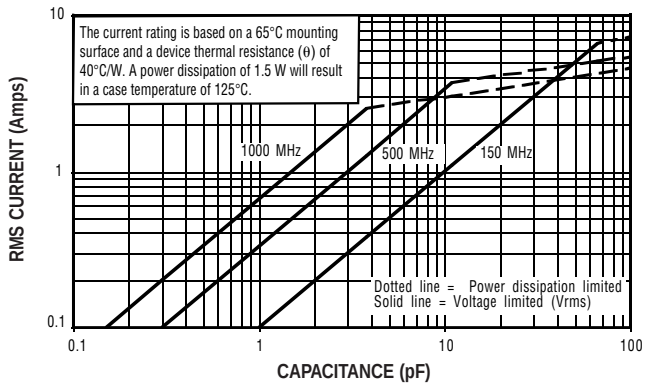
Q VS. CAPACITANCE
ATC SERIES 100, CASE A



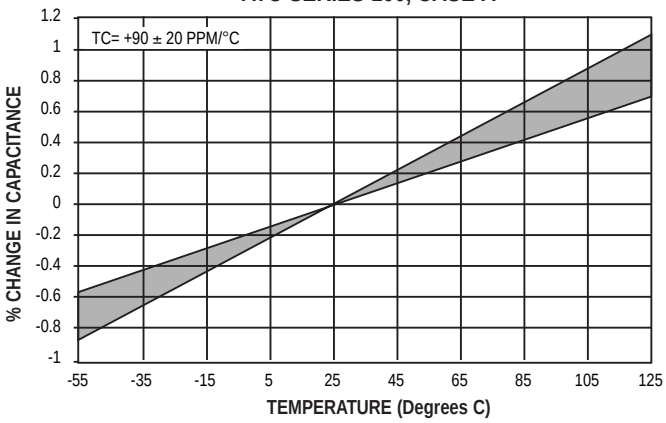
SERIES RESONANCE VS. CAPACITANCE
ATC SERIES 100, CASE A



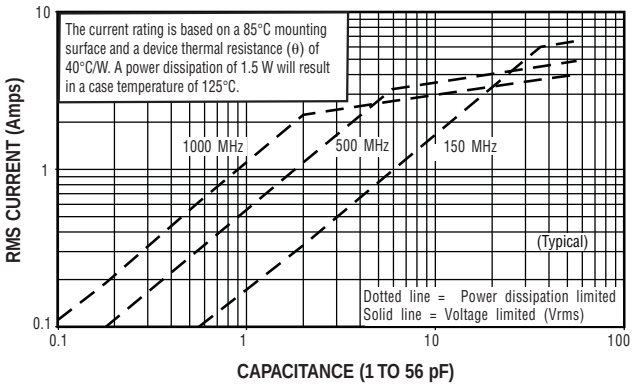
CURRENT RATING VS. CAPACITANCE
ATC SERIES 100, CASE A



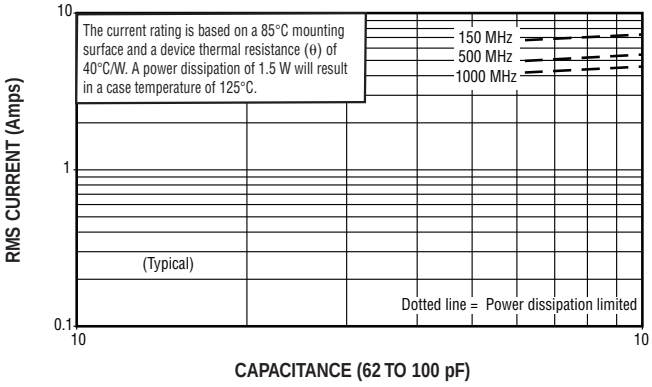
CAPACITANCE CHANGE VS. TEMPERATURE
ATC SERIES 100, CASE A



CURRENT RATING VS. CAPACITANCE
ATC SERIES 100, CASE A, EXTENDED VOLTAGE



CURRENT RATING VS. CAPACITANCE
ATC SERIES 100, CASE A, EXTENDED VOLTAGE



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