

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)

ATC, the industry leader, is announcing 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.

Self-encapsulating porcelain construction provides a rugged, hermetic package without the need or liability of external encapsulants.

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:

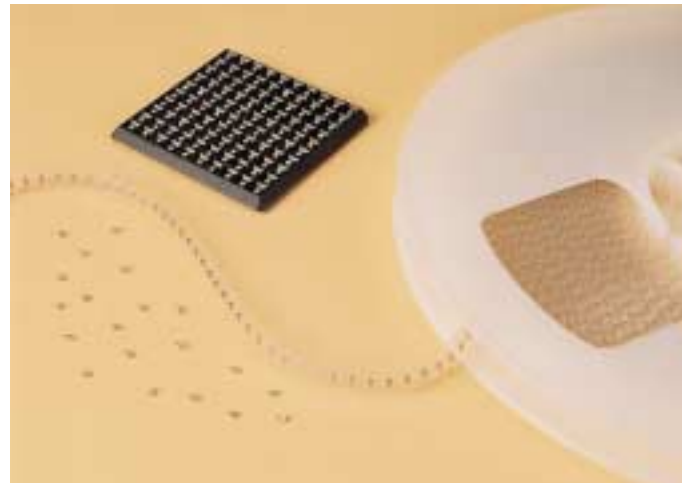
MIL-STD-202, Method 106.

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:

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

10⁹ 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. (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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ATC 100 A Capacitance Values

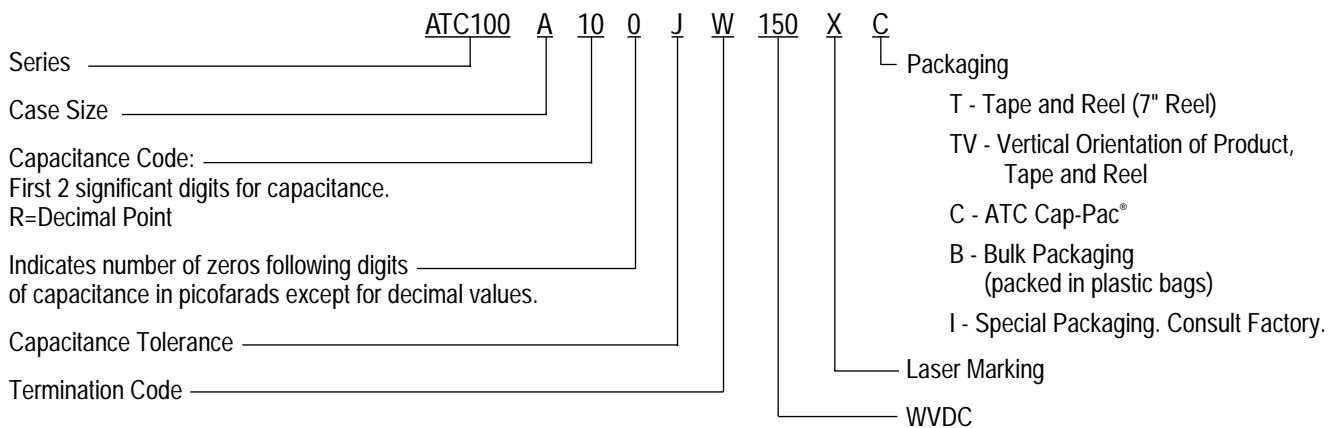
CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC
0R1	0.1	B	150	2R2	2.2	B, C, D	150	160	16	F, G, J, K, M	150
0R2	0.2			2R4	2.4			180	18		
0R3	0.3	B, C		2R7	2.7			200	20		
0R4	0.4			3R0	3.0			220	22		
0R5	0.5	B, C, D		3R3	3.3			240	24		
0R6	0.6			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	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	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




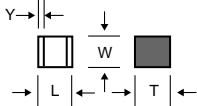

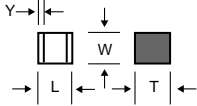

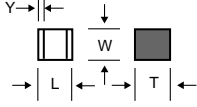
The above part number refers to a 100 A Series (case size A) 10 pF capacitor, J tolerance (±5%), 150 WVDC, with W termination (solder plate), laser marking and ATC Cap-Pac® packaging.

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.


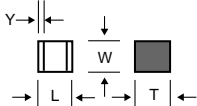

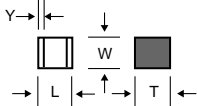
ATC 100 A Capacitors: Mechanical Configurations

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 (1.4 +0.38 - 0.25)	.055 ±.015 (1.4 ±0.38)	.057 (1.45) max.	.010 +.010 - .005 (0.25 +0.25 - 0.13)	SOLDER PLATE Nickel barrier, solder plated. Rugged, high performance termination for lower cost, high volume, tape & reel applications.
100A	P	CDR12BG	A  Pellet		.055 +.025 -.010 (1.4 +0.64 - 0.25)	.055 ±.015 (1.4 ±0.38)	.057 (1.45) max.	.010 +.010 - .005 (0.25 +0.25 - 0.13)	BARRIER/CAP® Nickel barrier, solder plated with the addition of hot solder dip process. Solder melting temperature is 355°F, 179°C.
100A	CA	CDR11BG	A  Gold Chip		.055 +.015 -.010 (1.4 +0.38 - 0.25)	.055 ±.015 (1.4 ±0.38)	.057 (1.45) max.	.010 +.010 - .005 (0.25 +0.25 - 0.13)	UNI-TERM® NICKEL BARRIER, GOLD PLATED TERMINATIONS

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

* Replaces C Termination

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 Requirements	A  Non-Mag Solder Plate		.055 +.035 -.010 (1.4 +0.89 - 0.25)	.055 ±.015 (1.4 ±0.38)	.057 (1.45) max. .057 (1.45) max.	.010 +.010 - .005 (0.25 +0.25 - 0.13)	NON-MAGNETIC Copper barrier, solder plated. Rugged, high performance termination for lower cost, high volume, tape & reel applications.
100A	PN	Meets Requirements	A  Non-Mag Pellet		.055 +.035 -.010 (1.4 +0.89 - 0.25)	.055 ±.015 (1.4 ±0.38)	.057 (1.45) max.	.010 +.010 - .005 (0.25 +0.25 - 0.13)	NON-MAGNETIC Copper barrier, solder plated with the addition of hot solder dip process. Solder melting temperature is 355°F, 179°C.

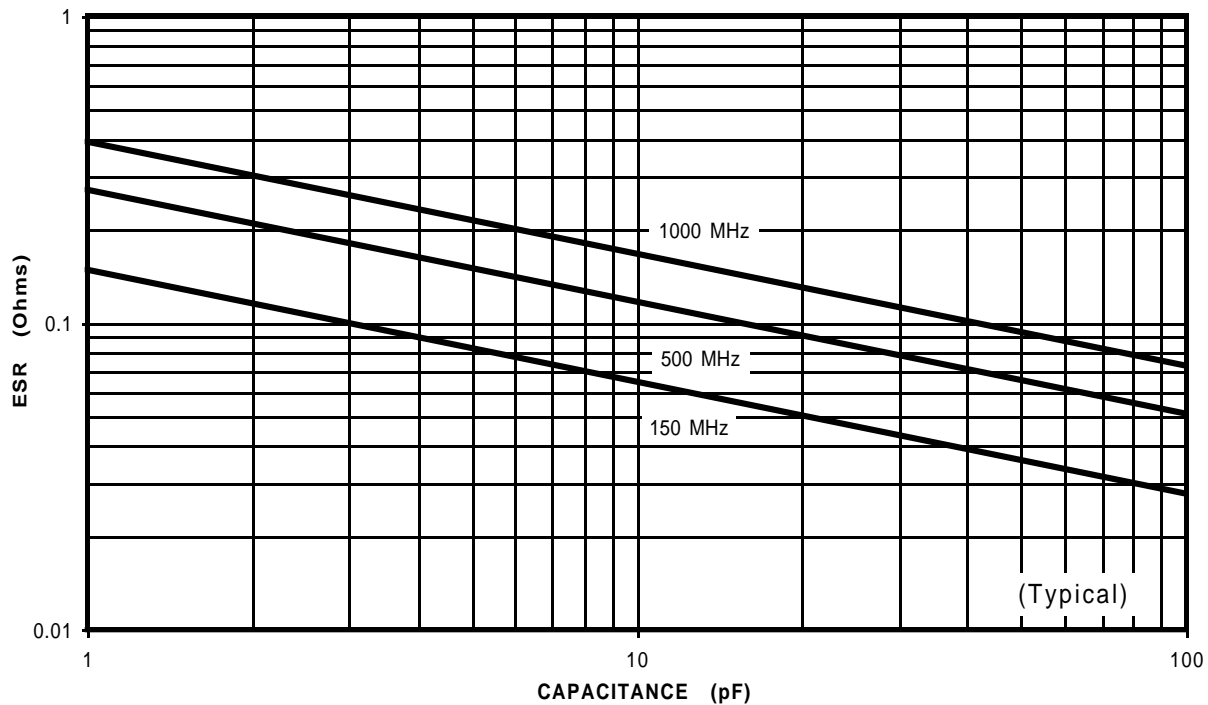
All 100 A Capacitors are available laser marked with ATC's identification, capacitance code and tolerance.

Tape and Reel packaging is available.

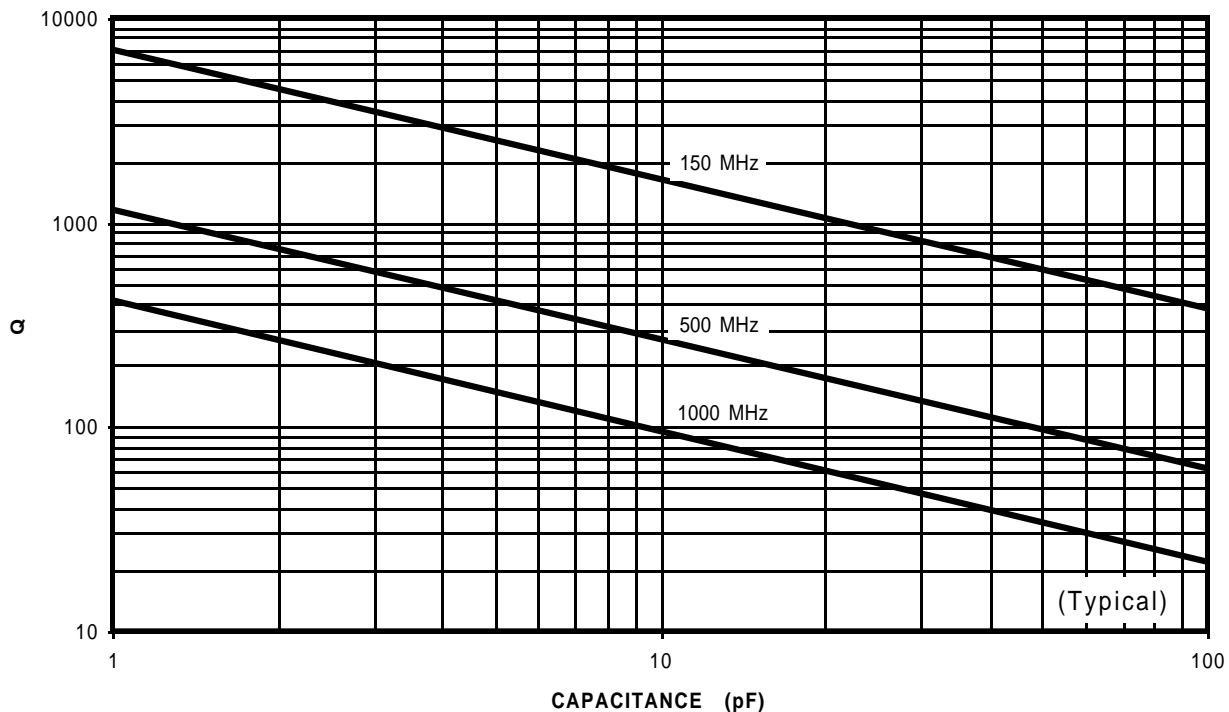
* Replaces CN Termination

ATC 100 A Performance Data

ESR VS. CAPACITANCE ATC SERIES 100, CASE A

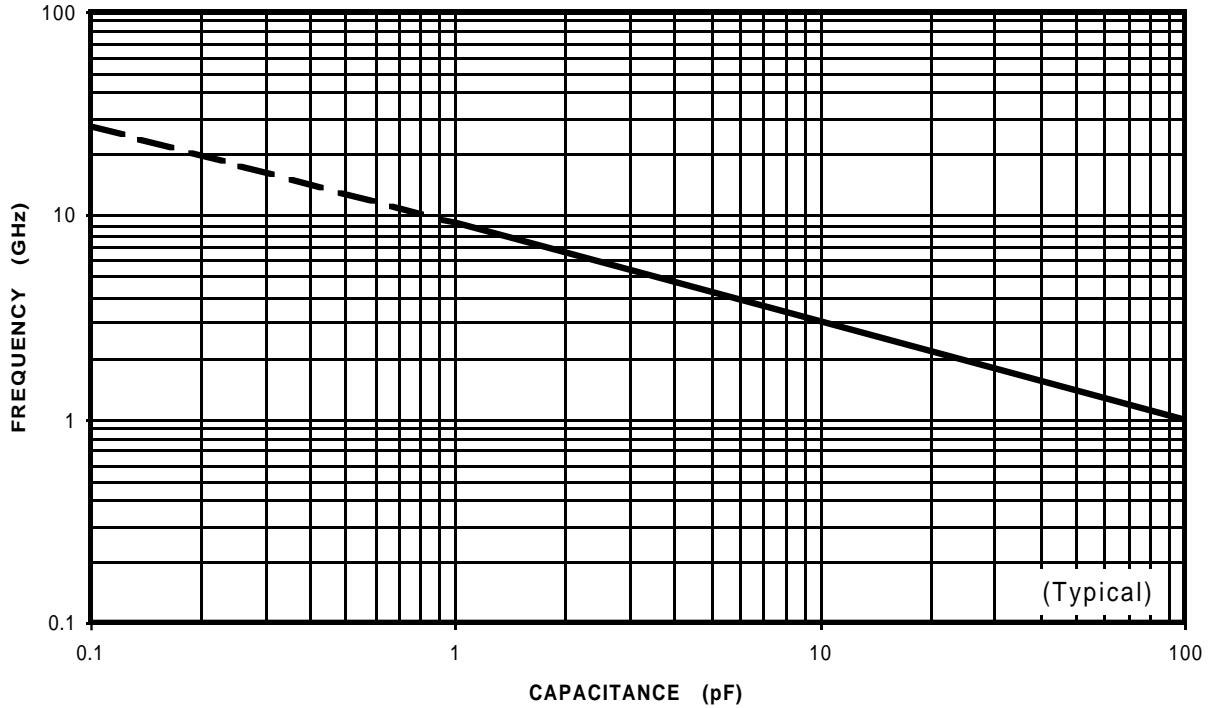


Q VS CAPACITANCE ATC SERIES 100, CASE A

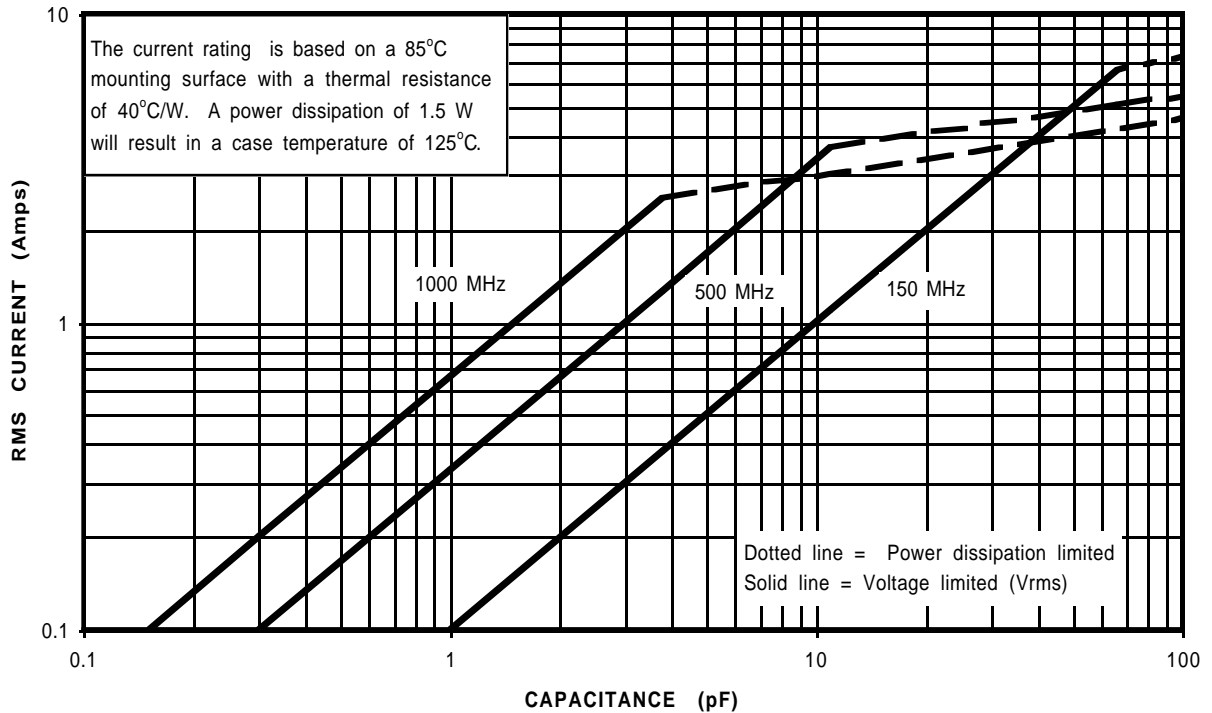


ATC 100 A Performance Data

**SERIES RESONANCE VS CAPACITANCE
ATC SERIES 100, CASE A**

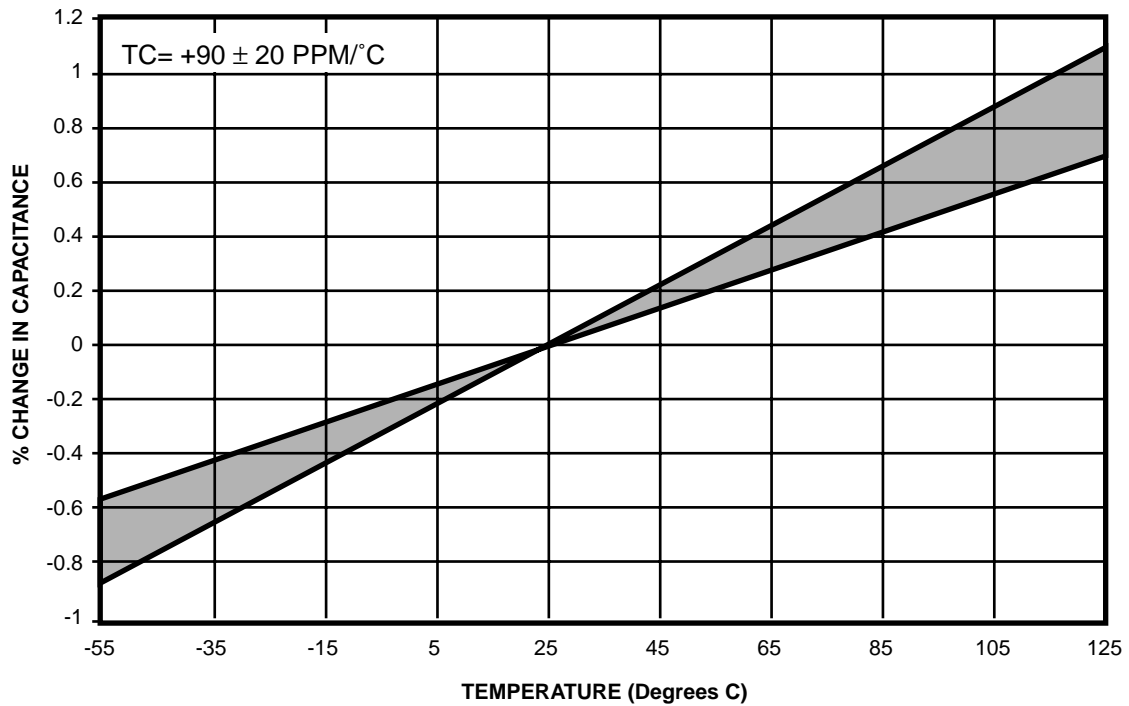


**CURRENT RATING VS CAPACITANCE
ATC SERIES 100, CASE A**



ATC 100 A Performance Data

CAPACITANCE CHANGE VS TEMPERATURE
ATC SERIES 100, CASE A



Notes



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