

ATC 100 B Series Porcelain Superchip® Multilayer Capacitors

- Case B Size (.110" x .110")
- Capacitance Range 0.1 pF to 1000 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 B Series RF/Microwave Capacitors. This Series is now available with extended operating temperatures up to 175°C.

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 D.C. Blocking.

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

ENVIRONMENTAL TESTS

ATC 100 B Series Capacitors are designed and manufactured to meet and exceed the requirements of EIA-198, MIL-C-55681 and MIL-C-123.

THERMAL SHOCK:

MIL-STD-202, Method 107, Condition A.

MOISTURE RESISTANCE:

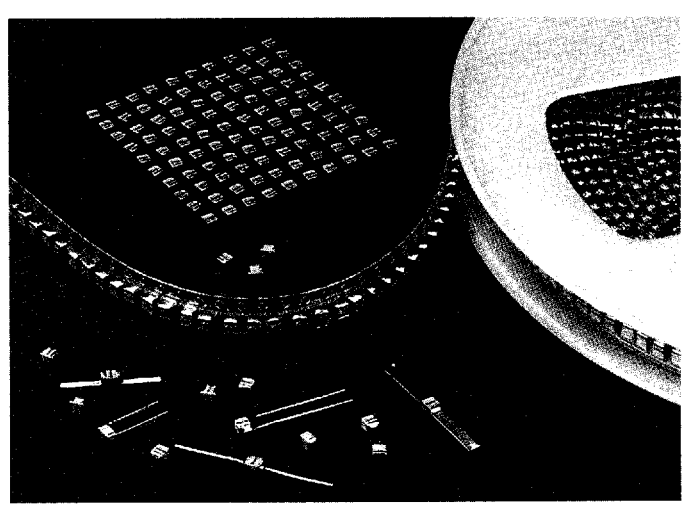
MIL-STD-202, Method 106.

LOW VOLTAGE HUMIDITY:

MIL-STD-202, Method 103, Condition A, with 1.5 Volts D.C. 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 (T.C.):

- +90 ±20 PPM/°C (-55°C to +125°C)
- +90 ±30 PPM/°C (+125°C to +175°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.

IR above +125°C is derated by one order of magnitude.

WORKING VOLTAGE (WVDC):

See Capacitance Values Table, page 2.

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Case B: 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:

0.1 to 330 pF: from -55°C to +175°C

360 to 1000 pF: from -55°C to +125°C

(No derating of working voltage).

Derate linearly to 50% WVDC @ +200°C.

TERMINATION STYLES:

Available in various surface mount and leaded styles.

See Mechanical Configurations, page 3.

TERMINAL STRENGTH: Terminations for chips and pellets withstand a pull of 5 lbs. min., 15 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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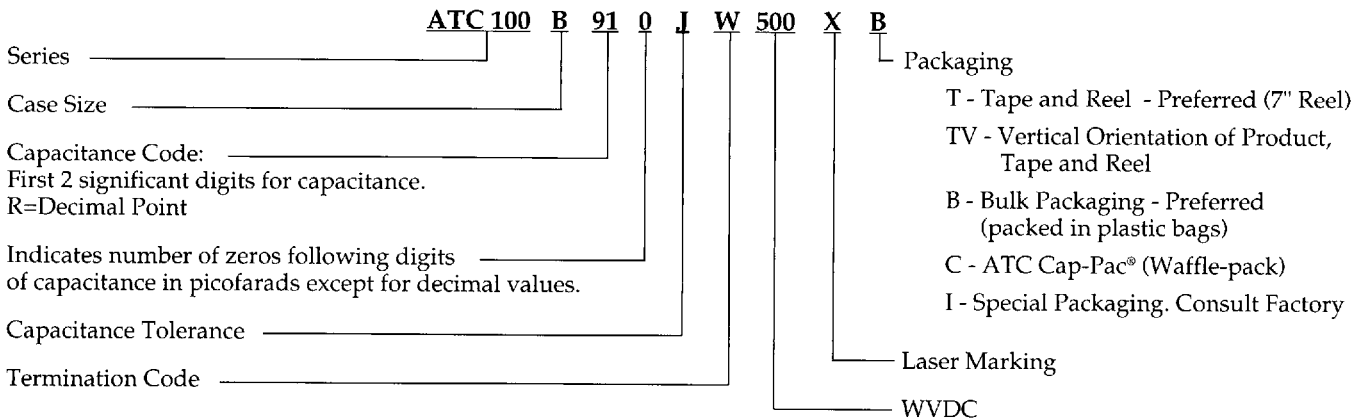
ATC 100 B Capacitance Values

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	500	2R4	2.4	B, C, D	500	200	20	F, G, J, K, M	500	151	150	F, G, J, K, M	300	
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			B, C, D	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				100			10	820			82	621			620
1R7	1.7	110			11			910	91			681	680			
1R8	1.8	F, G, J, K, M		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											

SPECIAL VALUES, TOLERANCES, HIGHER WVDC AND MATCHING AVAILABLE. PLEASE CONSULT FACTORY.
V_{RMS} = 0.707 x WVDC

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


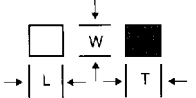

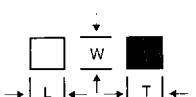

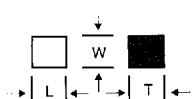

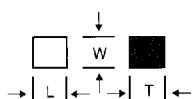
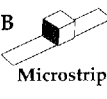
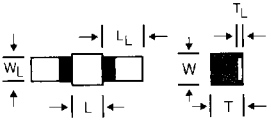
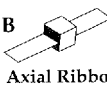
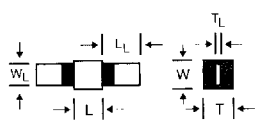

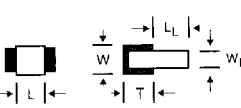

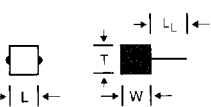

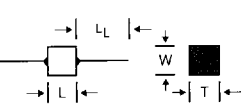


The above part number refers to a 100 B Series (case size B) 91 pF capacitor, J tolerance (±5%), 500 WVDC, with W termination (solder plate), laser marking and bulk packaging.

For additional information and catalogs contact your ATC representative or call direct at (516) 547-5700.

www.DataSheet4U.com
 Consult factory for additional performance data.

ATC 100 B Capacitors: Mechanical Configurations

ATC SERIES & CASE SIZE	ATC TERM. CODE	MIL-C-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)			
100B	W	CDR14BG	B  Solder Plate		.110 +.020 -.010 (2.79 +0.51 -.25)	.110 ±.020 (2.79 ±0.51)	.102 (2.6) max.	SOLDER PLATE Nickel barrier, solder plated. Rugged, high performance termination for lower cost, high volume, tape & reel applications.		
100B	P	CDR14BG	B  Pellet		.110 +.035 -.010 (2.79 +0.89 -.25)	.110 ±.020 (2.79 ±0.51)		BARRIER/CAP® Nickel barrier, solder plated with the addition of hot solder dip process. Solder melting temperature is 355°F, 179°C.		
100B	CA	CDR13BG	B  Gold Chip		.110 +.020 -.010 (2.79 +0.51 -.25)	.110 ±.020 (2.79 ±0.51)		UNI-TERM® NICKEL BARRIER, GOLD PLATED TERMINATIONS		
100B	C	CDR13BG	B  Chip		.110 +.020 -.010 (2.79 +0.51 -.25)	.110 ±.020 (2.79 ±0.51)		CHIP PALLADIUM SILVER TERMINATIONS		
100B	MS	CDR21BG	B  Microstrip		.135 ±.015 (3.43 ±0.38)	.110 ±.015 (2.79 ±0.38)	.100 (2.54) max.	LENGTH (L _L)	WIDTH (W _L)	THICKNESS (T _L)
100B	AR	CDR22BG	B  Axial Ribbon					.250 (6.35) min.	.093 ±.005 (2.36 ±0.13)	.004 ±.001 (.102 ±.025)
100B	RR	CDR24BG	B  Radial Ribbon					.145 ±.020 (3.68 ±0.51)	.500 (12.7) min.	#26 AWG., .016 (.406) dia. nominal
100B	RW	CDR23BG	B  Radial Wire							
100B	AW	CDR25BG	B  Axial Wire							

Additional lead styles available: Narrow Microstrip (NM), Narrow Axial Ribbon (NA) and Vertical Narrow Microstrip (H). Other lead lengths are available; consult factory. All leads are high purity silver and are attached with high temperature solder.


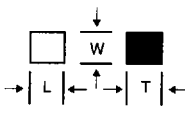

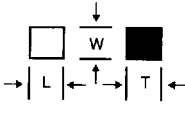

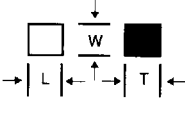

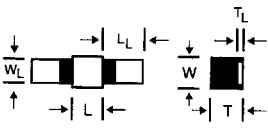

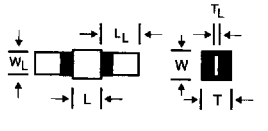

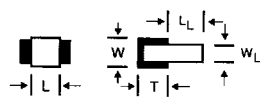

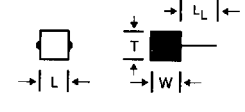

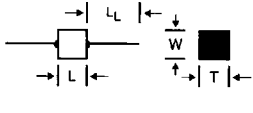
All 100 B Capacitors are available laser marked with ATC's identification, capacitance code and tolerance.

Tape and Reel packaging is available. W Termination is Recommended.

For a complete military catalog, request American Technical Ceramics document ATC 1-025.

ATC 100 B Non-Magnetic Capacitors: Mechanical Configurations

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ATC SERIES & CASE SIZE	ATC TERM. CODE	MIL-C-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)			
100B	WN	Meets Requirements	B  Non-Mag Solder Plate		.110 +0.025 -.010 (2.79 +0.64 -0.25)	.110 ±0.015 (2.79 ±0.38)	.102 (2.6) max.	NON-MAGNETIC Copper barrier, solder plated. Rugged, high performance termination for lower cost, high volume, tape & reel applications.		
100B	PN	Meets Requirements	B  Non-Mag Pellet		.110 +0.035 -.010 (2.79 +0.89 -0.25)	.110 ±0.020 (2.79 ±0.51)	.102 (2.6) max.	NON-MAGNETIC Copper barrier plated with the addition of hot solder dip process. Solder melting temperature is 355°F, 179°C.		
100B	CN	Meets Requirements	B  Non-Mag Chip		.110 +0.025 -.010 (2.79 +0.64 -0.25)	.110 ±0.015 (2.79 ±0.38)	.102 (2.6) max.	NON-MAGNETIC PALLADIUM SILVER TERMINATIONS		
100B	MN	Meets Requirements	B  Non-Mag Microstrip		.135 ±0.015 (3.43 ±0.38)	.110 ±0.015 (2.79 ±0.38)	.100 (2.54) max.	LENGTH (L _L)	WIDTH (W _L)	THICKNESS (T _L)
100B	AN	Meets Requirements	B  Non-Mag Axial Ribbon					.250 (6.35) min.	.093 ±0.005 (2.36 ±0.13)	.004 ±0.001 (.102 ±.025)
100B	FN	Meets Requirements	B  Non-Mag Radial Ribbon					.145 ±0.020 (3.68 ±0.51)	.500 (12.7) min.	#26 AWG., .016 (.406) dia. nominal
100B	RN	Meets Requirements	B  Non-Mag Radial Wire							
100B	BN	Meets Requirements	B  Non-Mag Axial Wire							

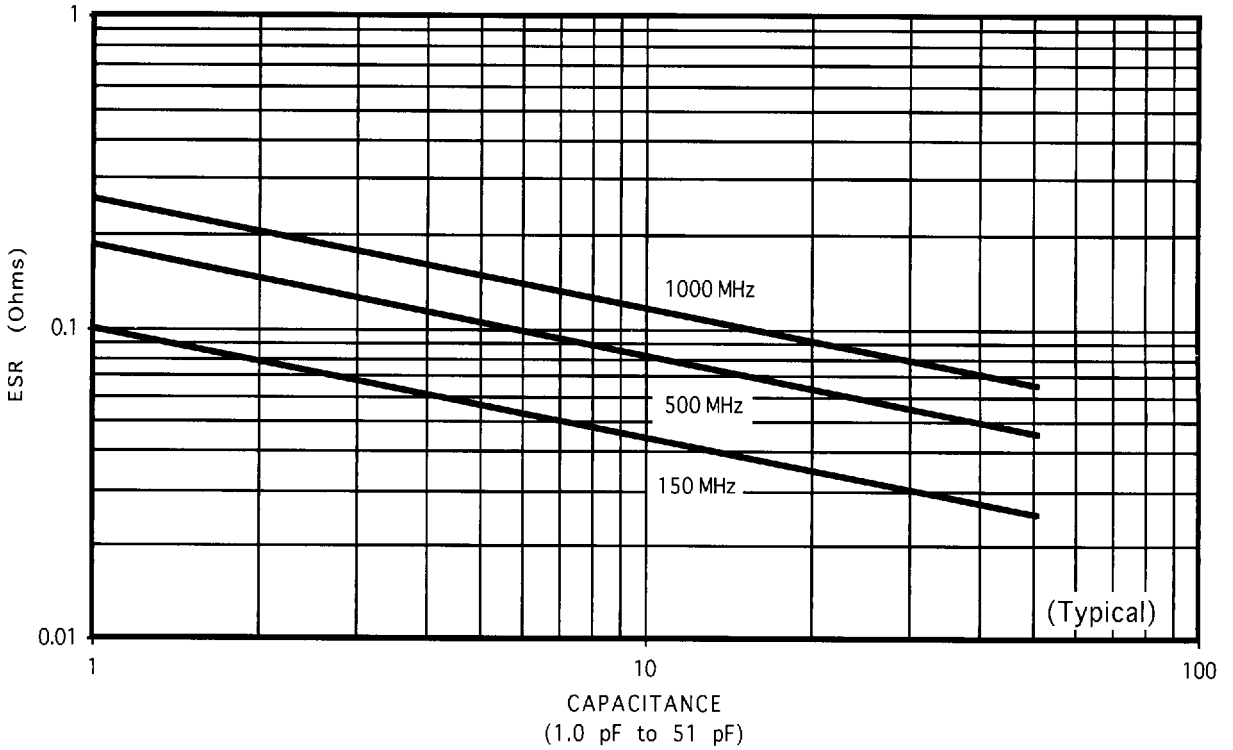
Additional lead styles available: Narrow Microstrip (DN), Narrow Axial Ribbon (GN) and Vertical Narrow Microstrip (HN). Other lead lengths are available; consult factory. All leads are high purity silver and are attached with high temperature solder.

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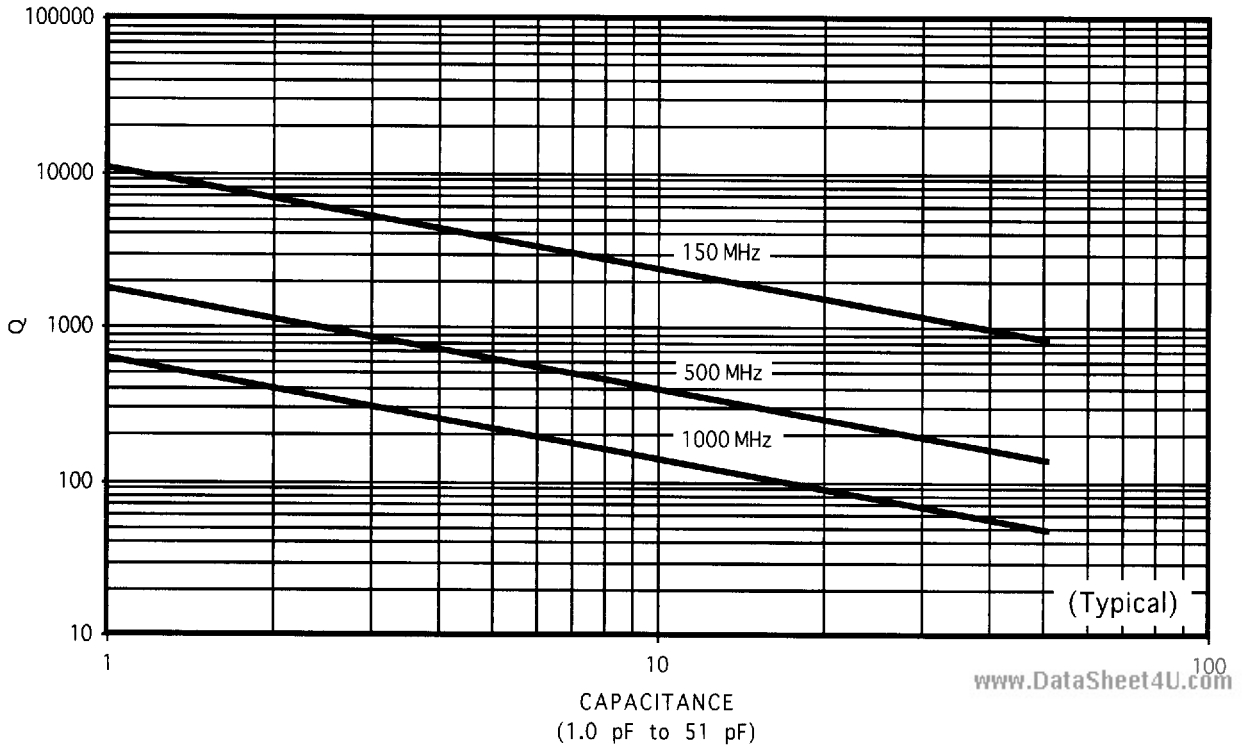
Tape and Reel packaging is available.

ATC 100 B Performance Data

ESR VS CAPACITANCE ATC SERIES 100, CASE B

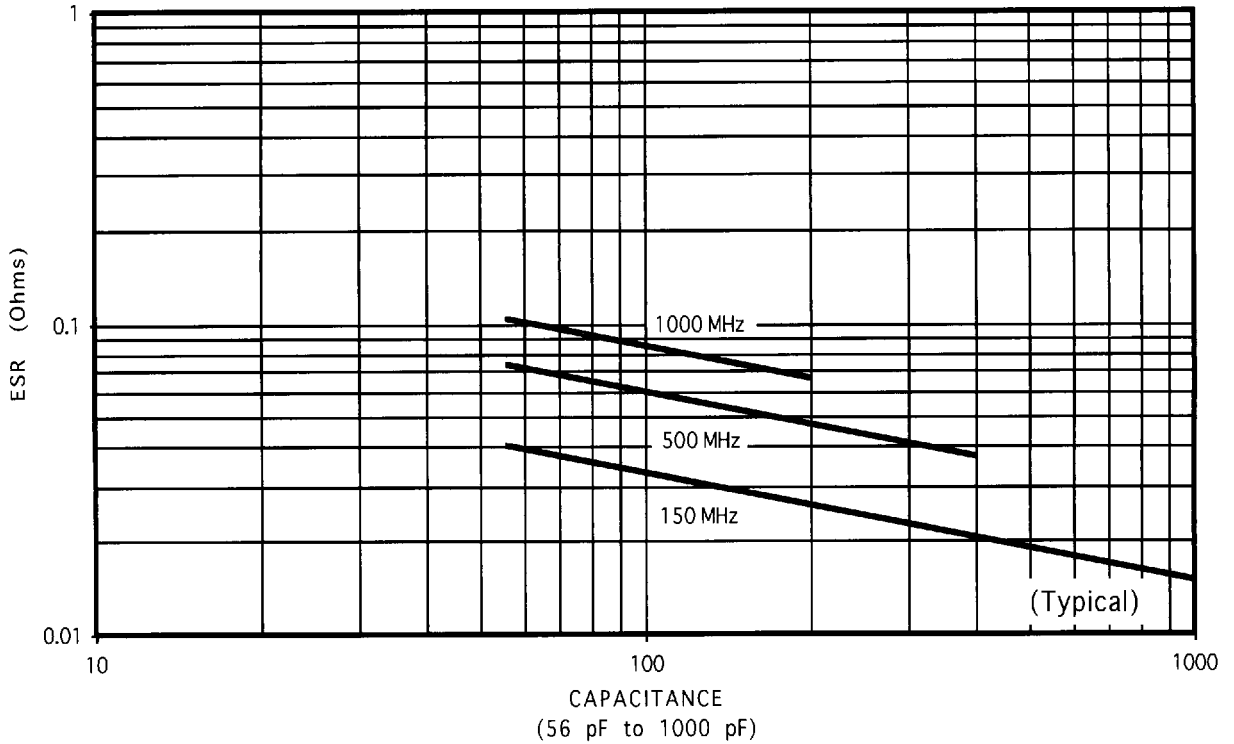


Q VS CAPACITANCE ATC SERIES 100, CASE B

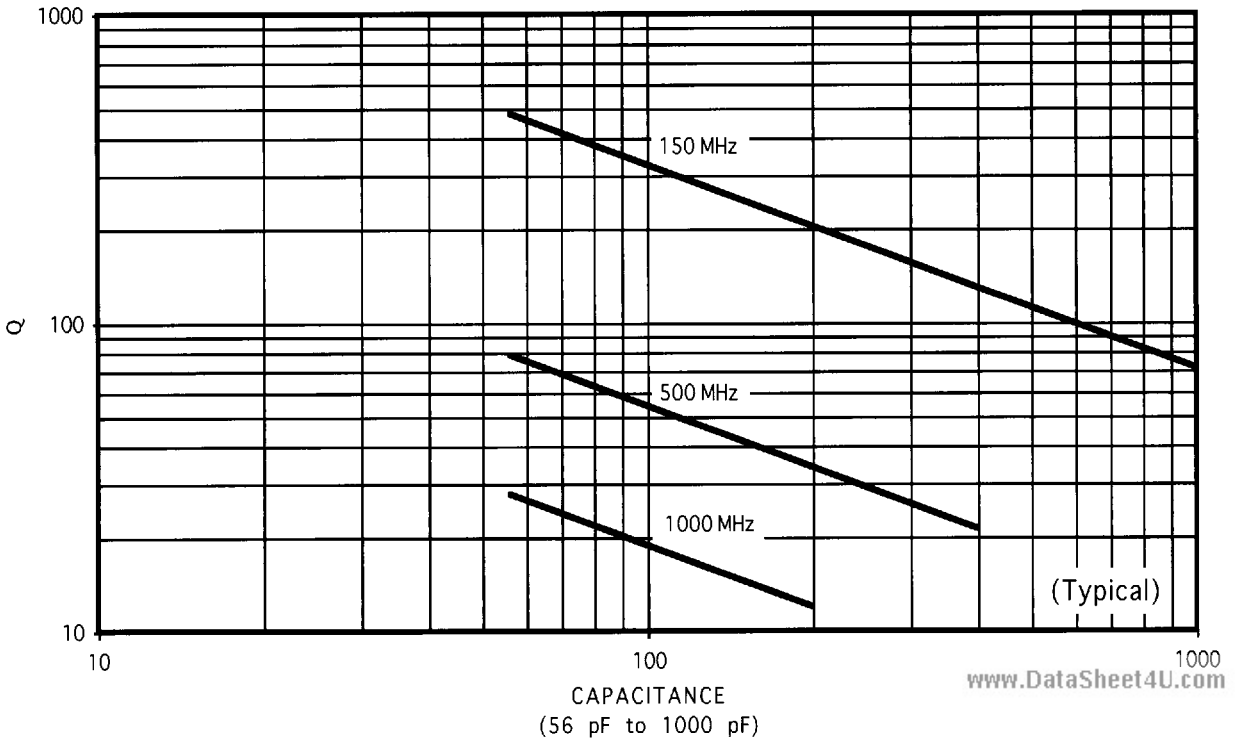


ATC 100 B Performance Data

ESR VS CAPACITANCE ATC SERIES 100, CASE B

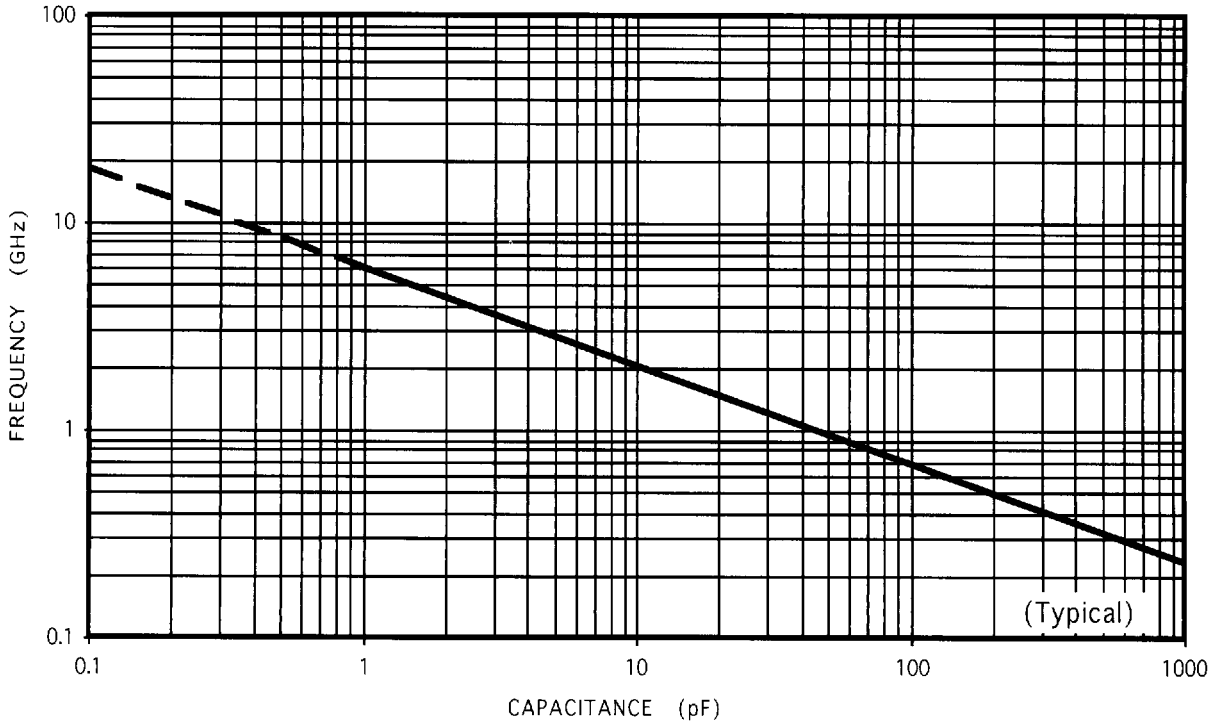


Q VS CAPACITANCE ATC SERIES 100, CASE B

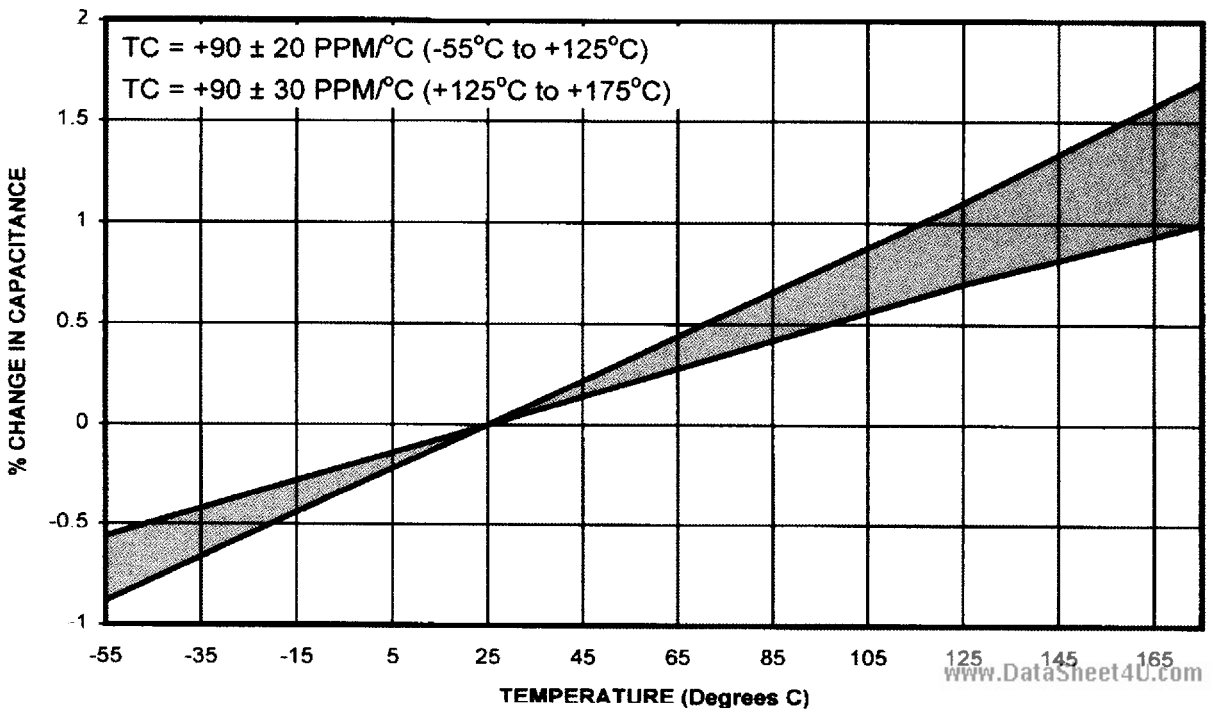


ATC 100 B Performance Data

SERIES RESONANCE VS CAPACITANCE
ATC SERIES 100, CASE B



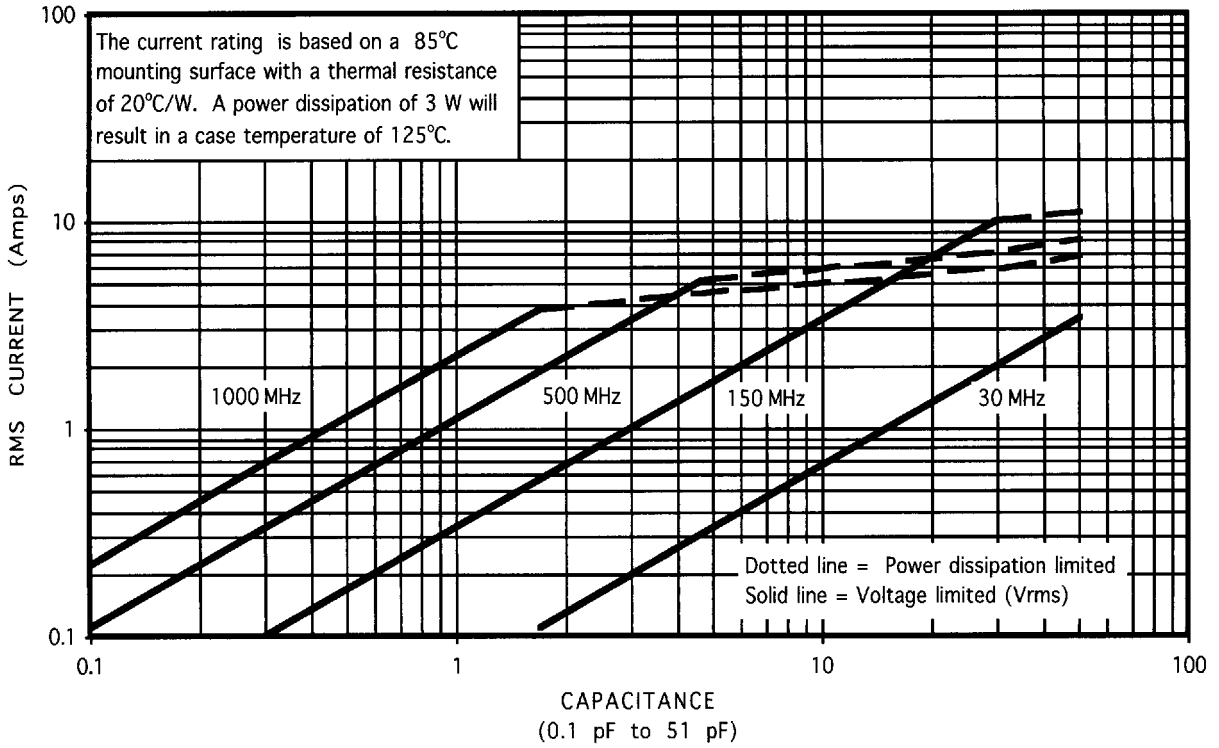
CAPACITANCE CHANGE VS TEMPERATURE
ATC SERIES 100, CASE B



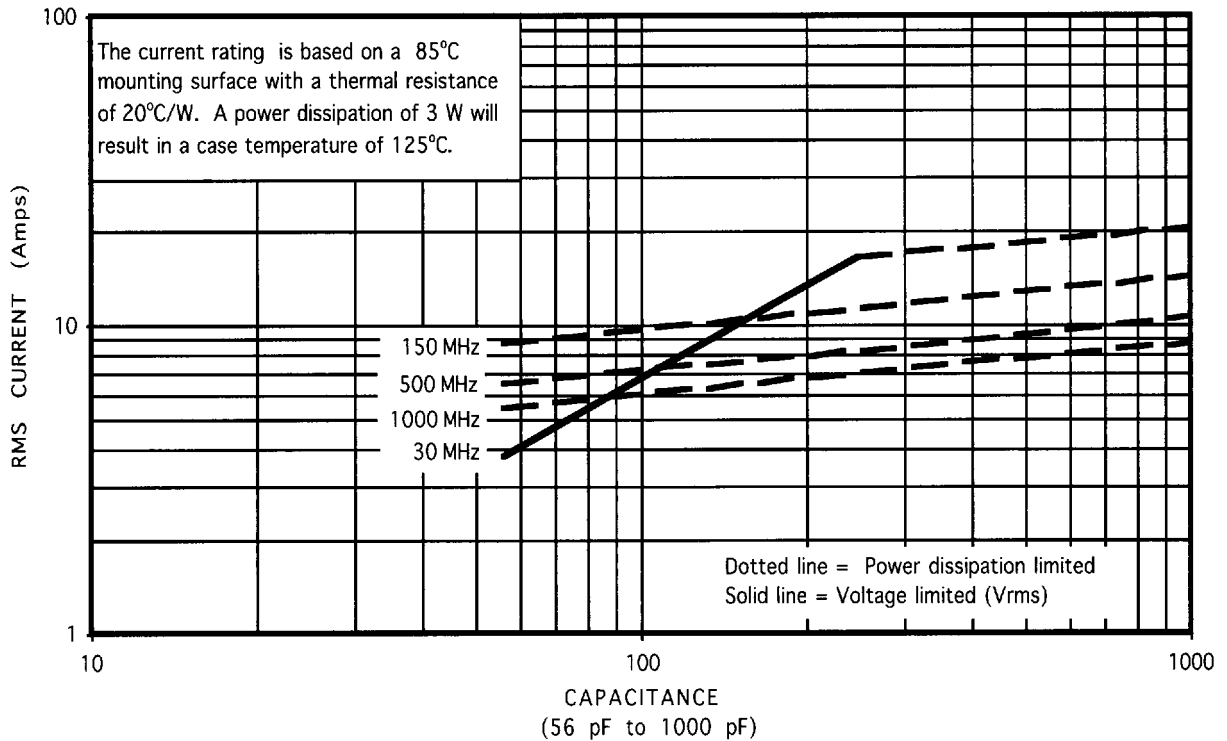
ATC 100 B Performance Data

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CURRENT RATING VS CAPACITANCE ATC SERIES 100, CASE B



CURRENT VS CAPACITANCE ATC SERIES 100, CASE B



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