

ATC 100 E Series Porcelain High RF Power Multilayer Capacitors

- Case E Size (.380" x .380")
- High Q
- Low ESR/ESL
- High RF Power
- Capacitance Range 1 pF to 5100 pF
- Ultra-Stable Performance
- High RF Current/Voltage
- High Reliability

ATC, the industry leader, is announcing new improved ESR/ESL performance for the 100 E Series RF Capacitors. This high Q multilayer capacitor is ultra-stable under high RF current and voltage applications.

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

Typical functional applications: Bypass, Coupling, Tuning, Impedance Matching and D.C. Blocking.

Typical circuit applications: HF/RF Power Amplifiers, Transmitters, Antenna Tuning, Plasma Chambers and Medical (MRI coils).

ENVIRONMENTAL TESTS

ATC 100 E 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:

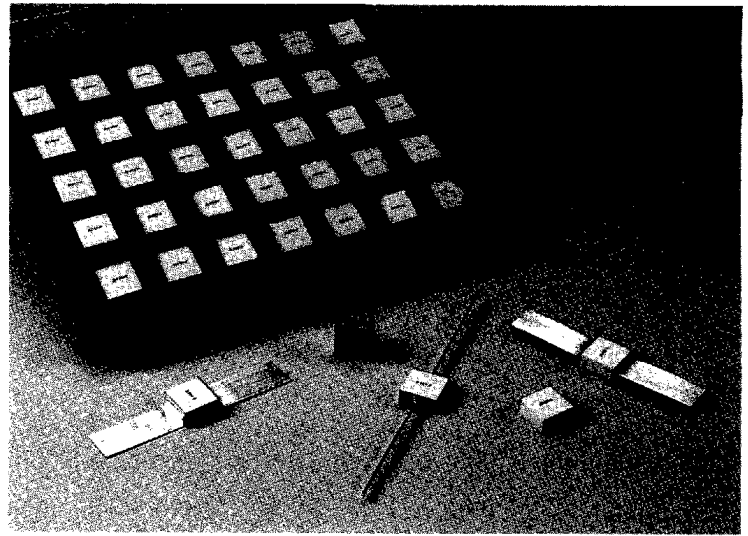
MIL-STD-202, Method 106.

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. Voltage applied.



ELECTRICAL AND MECHANICAL SPECIFICATIONS

QUALITY FACTOR (Q):

Greater than 10,000 (1 pF to 1000 pF) @ 1 MHz.
Greater than 10,000 (1100 pF to 5100 pF) @ 1 KHz.

TEMPERATURE COEFFICIENT OF CAPACITANCE (T.C.):

+90 ±30 PPM/°C (-55°C to +125°C)

INSULATION RESISTANCE (IR):

1 pF to 5100 pF:
10⁵ Megohms min. @ +25°C at 500 VDC.
10⁴ Megohms min. @ +125°C at 500 VDC.

WORKING VOLTAGE (WVDC):

See Capacitance Values Table, page 2.

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

* See page 2.

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 and leaded styles.
See Mechanical Configurations, page 3.

TERMINAL STRENGTH: Terminations for chips and pellets withstand a pull of 10 lbs. min., 25 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor. Test per MIL-STD-202, method 211.

ATC 100 E Capacitance Values

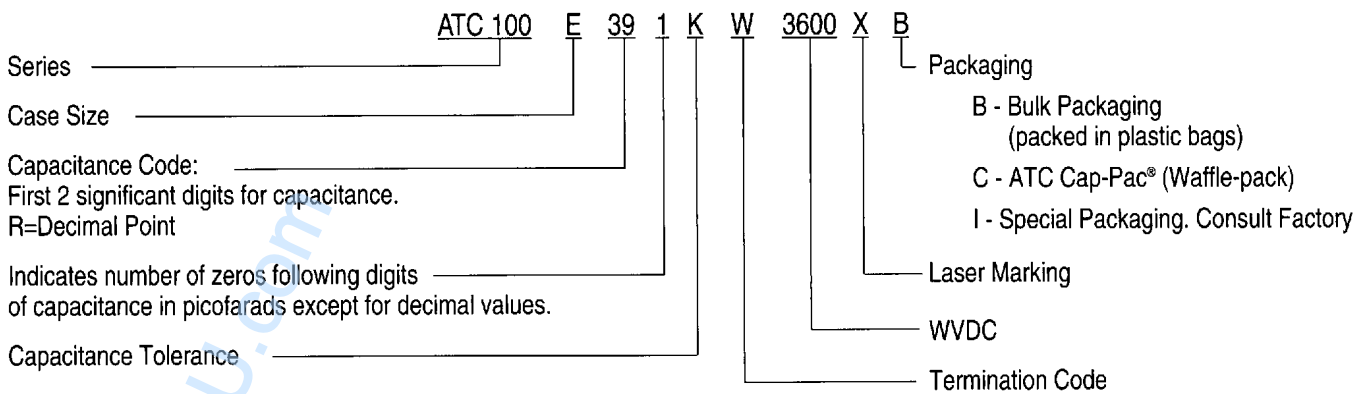
CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC
1R0	1.0	B, C, D	3600	180	18	F, G, J, K, M	3600	331	330	F, G, J, K, M	3600
1R2	1.2			220	22			391	390		3600
1R5	1.5			270	27			471	470		2500
1R8	1.8			330	33			561	560		2500
2R2	2.2			390	39			681	680		2500
2R7	2.7			470	47			821	820		1000
3R3	3.3			560	56			102	1000		
3R9	3.9			680	68			122	1200		
4R7	4.7			820	82			152	1500		
5R6	5.6			101	100			182	1800		500
6R8	6.8	121	120	222	2200						
8R2	8.2	151	150	272	2700						
100	10	F, G, J, K, M		181	180			332	3300		
120	12			221	220			472	4700		
150	15			271	270			512	5100		

SPECIAL VALUES, TOLERANCES, HIGHER WVDC AND MATCHING AVAILABLE. PLEASE CONSULT FACTORY.
VRMS = 0.707 x WVDC

- * DWV: 1 pF to 680 pF: 120% of rated WVDC for 5 secs.
- 820 pF to 2200 pF: 150% of rated WVDC for 5 secs.
- 2700 pF to 5100 pF: 250% of rated WVDC for 5 secs.

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


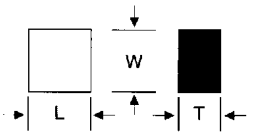

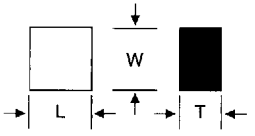

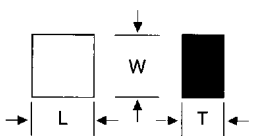

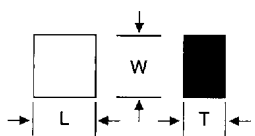

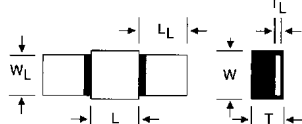



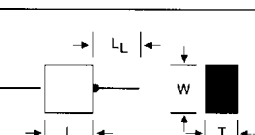

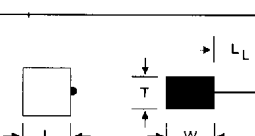


The above part number refers to a 100 E Series (case size E) 390 pF capacitor, K tolerance (±10%), 3600 WVDC, with W termination (solder plate), laser marking and bulk packaging.

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

Consult factory for additional performance data.


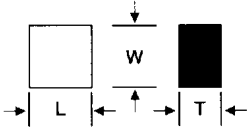

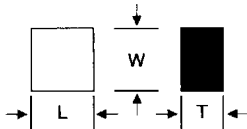

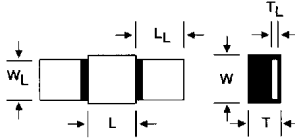

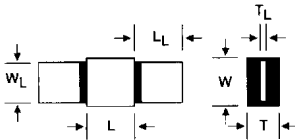

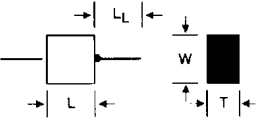
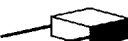
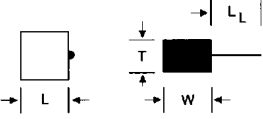
ATC 100 E Capacitors: Mechanical Configurations

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)			
100E	W	E  Solder Plate		.380 +.015 -.010 (9.65 +0.38 -0.25)	.380 ±.010 (9.65 ±0.25)	.170 (4.32) max.	SOLDER PLATE Nickel barrier, solder plated. Rugged, high performance termination for lower cost, high volume applications.		
100E	P	E  Pellet		.380 +.080 -.010 (9.65 +2.03 -0.25)			BARRIER/CAP® Nickel barrier, solder plated with the addition of hot solder dip process. Solder melting temperature is 355°F, 179°C.		
100E	CA	E  Gold Chip		.380 +.015 -.010 (9.65 +0.38 -0.25)			UNI-TERM® NICKEL BARRIER, GOLD PLATED TERMINATIONS		
100E	C	E  Chip		.380 +.015 -.010 (9.65 +0.38 -0.25)			CHIP PALLADIUM SILVER TERMINATIONS		
100E	MS	E  Microstrip		.380 +.035 -.010 (9.65 +0.89 -0.25)			.380 ±.010 (9.65 ±0.25)	.170 (4.32) max.	High Purity Silver Leads $L_L = .750$ (19.05) min. $W_L = .350 \pm .010$ (8.89 ±0.25) $T_L = .010 \pm .005$ (0.25 ±0.13) Leads are Attached with High Temperature Solder.
100E	AR	E  Axial Ribbon							Silver-plated Copper Leads Dia. = $.032 \pm .002$ (.813 ±.051) $L_L = 2.25$ (57.2) min.
100E	AW	E  Axial Wire							Silver-plated Copper Leads Dia. = $.032 \pm .002$ (.813 ±.051) $L_L = 1.0$ (25.4) min.
100E	RW	E  Radial Wire							

Custom lead styles and lengths are available; consult factory.

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

ATC 100 E Capacitors: Non-Magnetic Mechanical Configurations

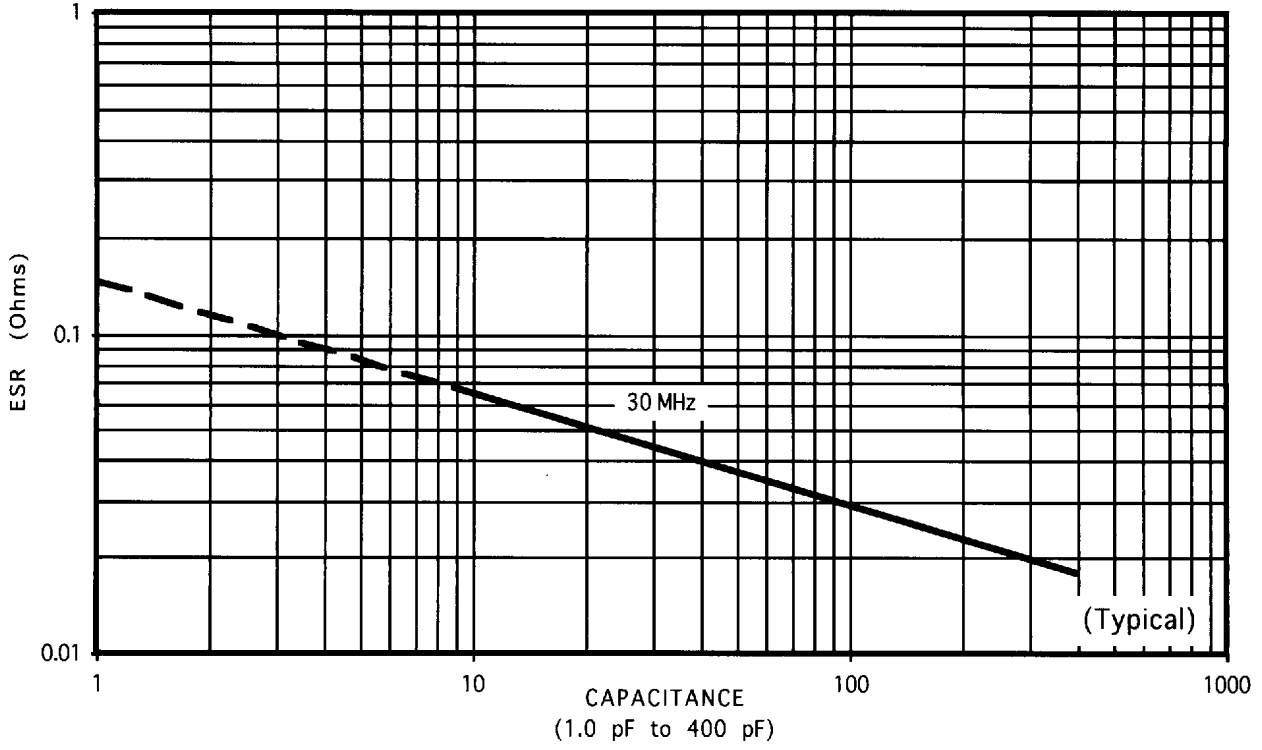
ATC SERIES & CASE SIZE	ATC TERM. CODE	CASE SIZE & TYPE	OUTLINES W/T IS A TERMINATION SURFACE	BODY DIMENSIONS Inches (mm)			LEAD AND TERMINATION DIMENSIONS AND MATERIALS		
				LENGTH (L)	WIDTH (W)	THICKNESS (T)			
100E	PN	E  Pellet		.380 +.080 -.010 (9.65 +2.03 -0.25)	.380 ±.010 (9.65 ±0.25)	.170 (4.32) max.	NON-MAGNETIC Palladium Silver Terminations with the addition of hot solder dip process. Solder melting temperature is 355°F, 179°C.		
100E	CN	E  Non-Mag Chip		.380 +.015 -.010 (9.65 +0.38 -0.25)			NON-MAGNETIC PALLADIUM SILVER TERMINATIONS		
100E	MN	E  Microstrip		.380 +.035 -.010 (9.65 +0.89 -0.25)			.380 ±.010 (9.65 ±0.25)	.170 (4.32) max.	High Purity Silver Leads $L_L = .750$ (19.05) min. $W_L = .350 \pm .010$ (8.89 ±0.25) $T_L = .010 \pm .005$ (0.25 ±0.13) Leads are Attached with High Temperature Solder.
100E	AN	E  Axial Ribbon							Silver-plated Copper Leads Dia. = $.032 \pm .002$ (.813 ±.051) $L_L = 2.25$ (57.2) min.
100E	BN	E  Axial Wire							Silver-plated Copper Leads Dia. = $.032 \pm .002$ (.813 ±.051) $L_L = 1.0$ (25.4) min.
100E	RN	E  Radial Wire							

Custom lead styles and lengths are available; consult factory.

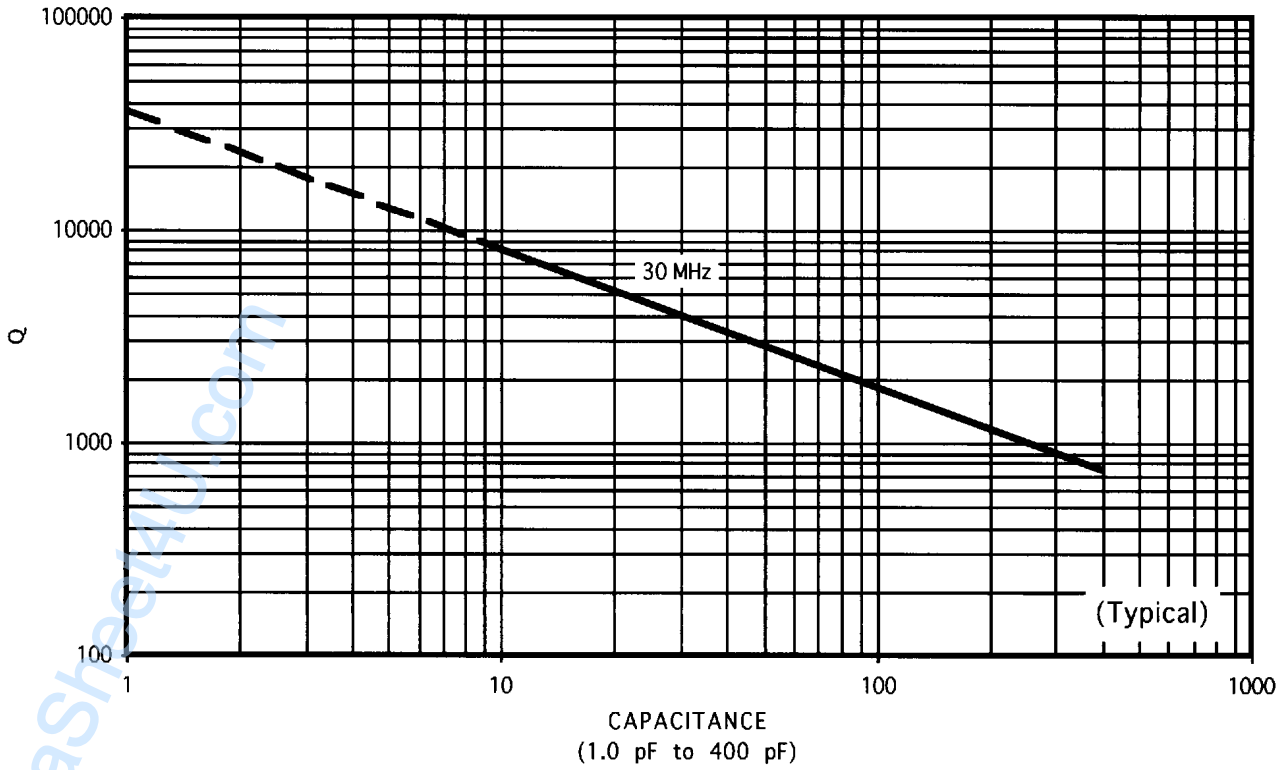
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ATC 100 E Performance Data

ESR VS CAPACITANCE ATC SERIES 100, CASE E



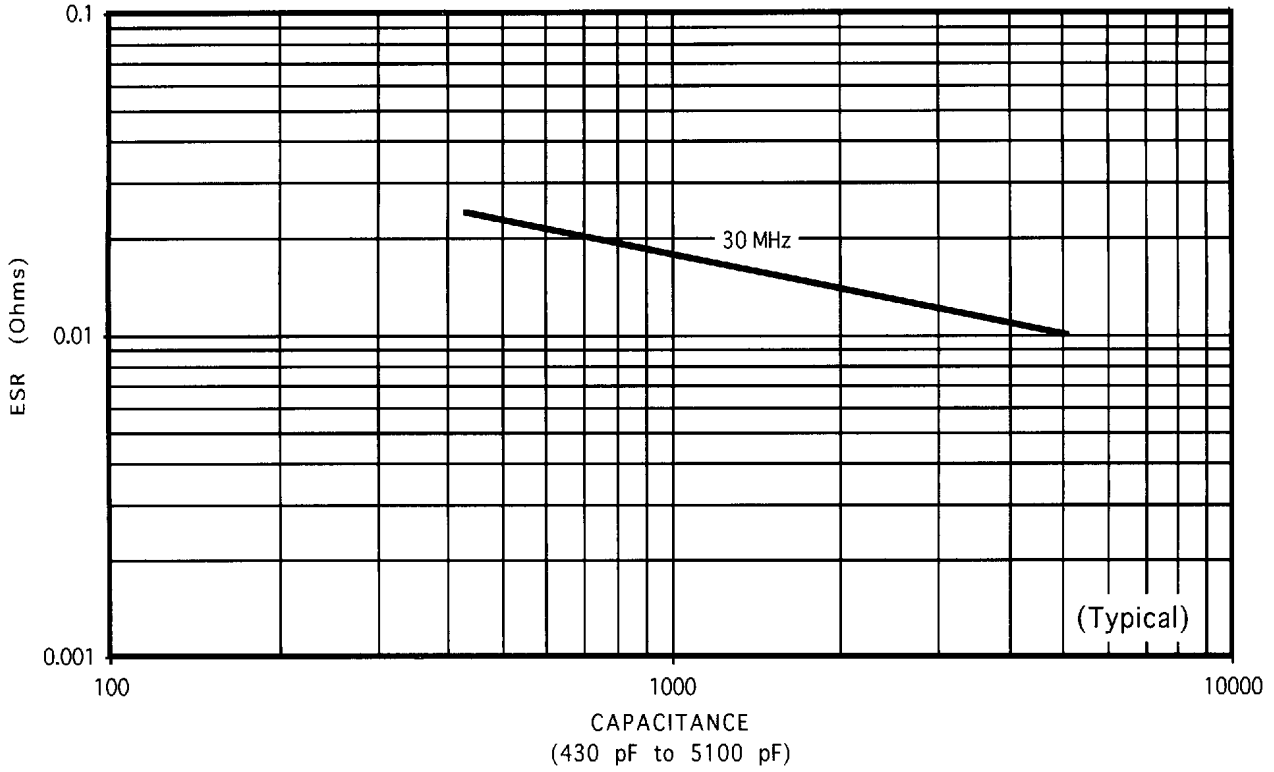
Q VS CAPACITANCE ATC SERIES 100, CASE E



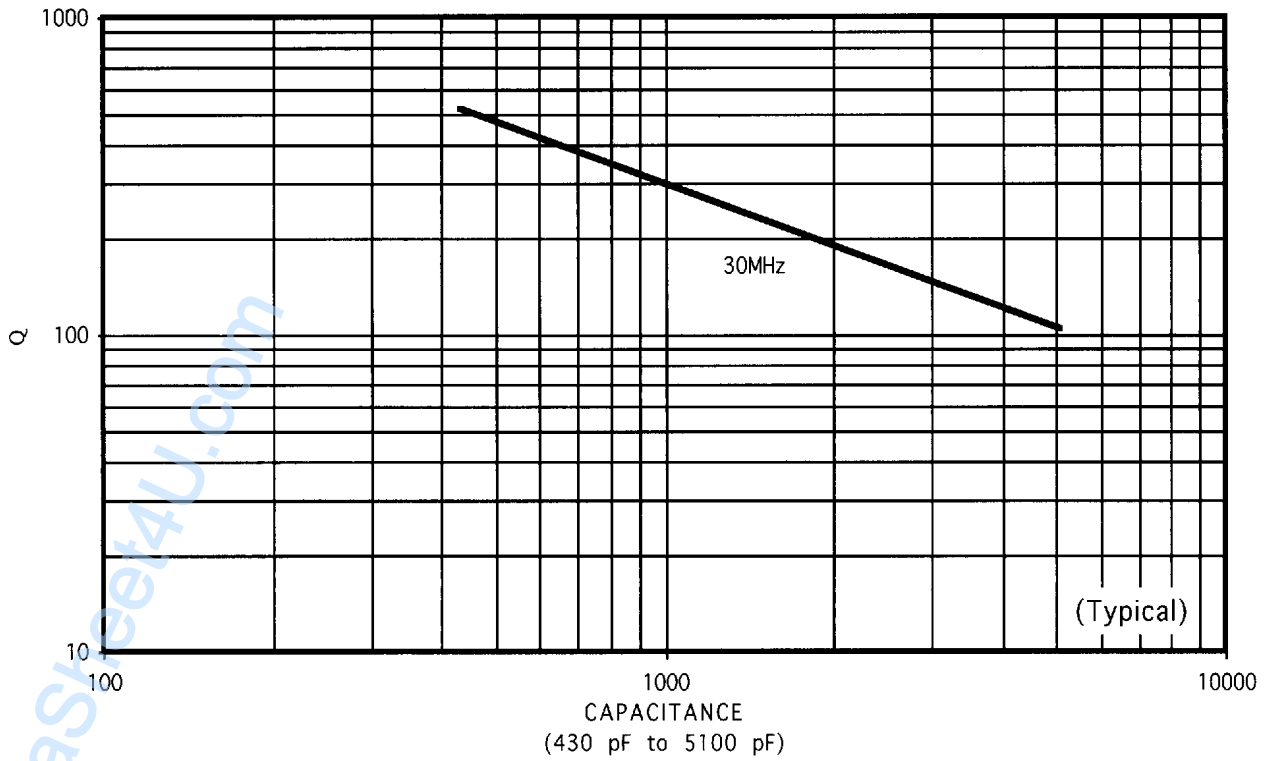
www.DataSheet4U.com

ATC 100 E Performance Data

ESR VS CAPACITANCE
ATC SERIES 100, CASE E



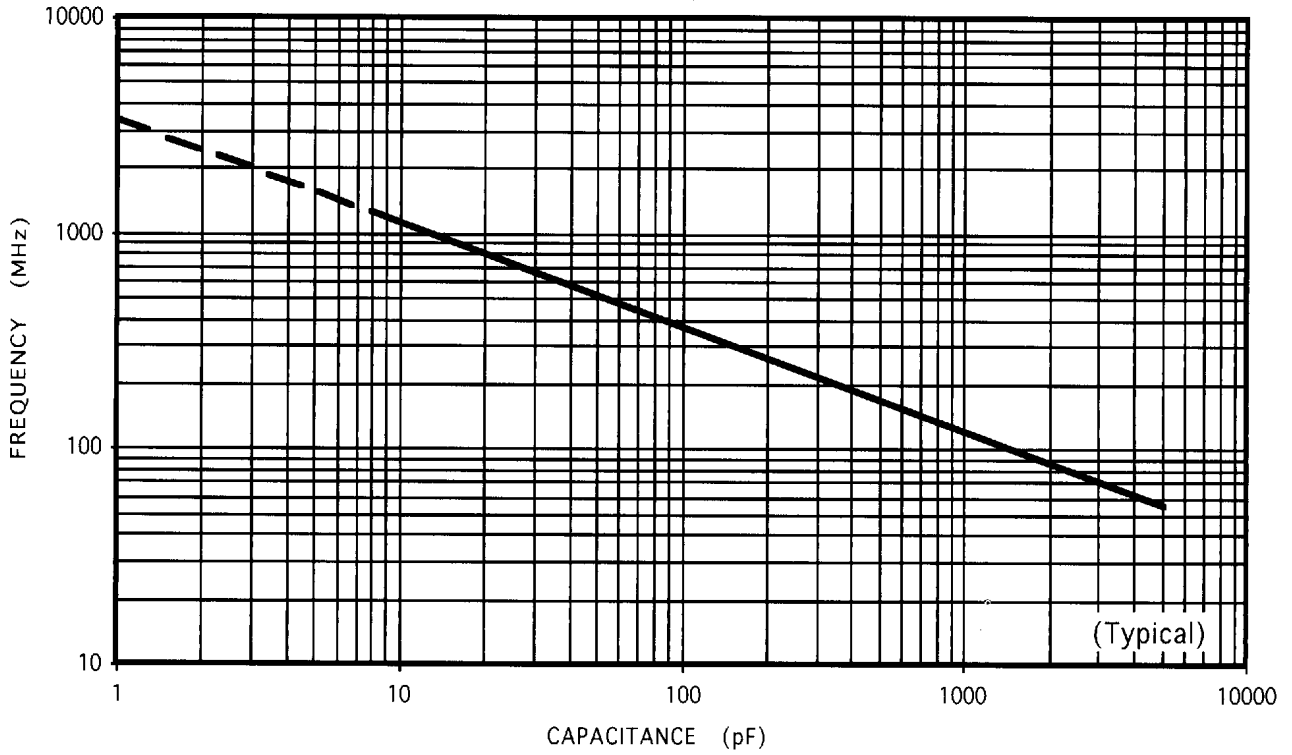
Q VS CAPACITANCE
ATC SERIES 100, CASE E



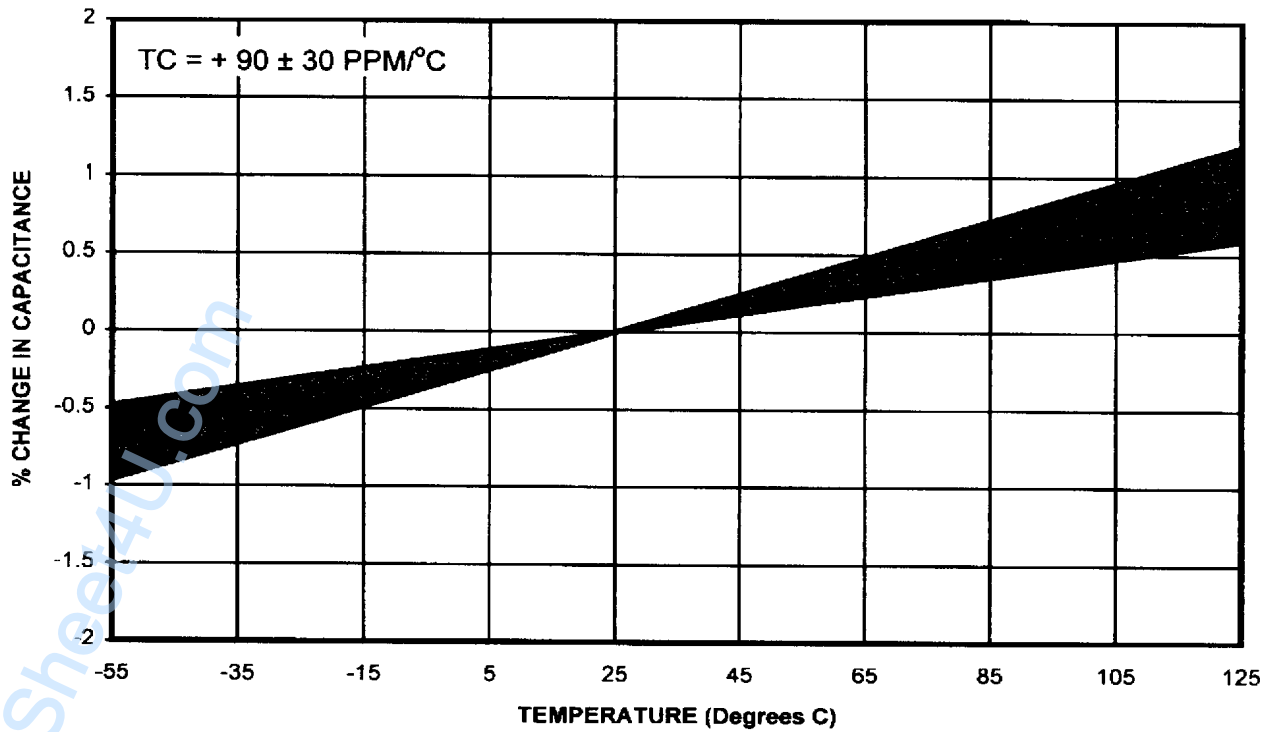
www.DataSheet4U.com

ATC 100 E Performance Data

SERIES RESONANCE VS CAPACITANCE
ATC SERIES 100, CASE E

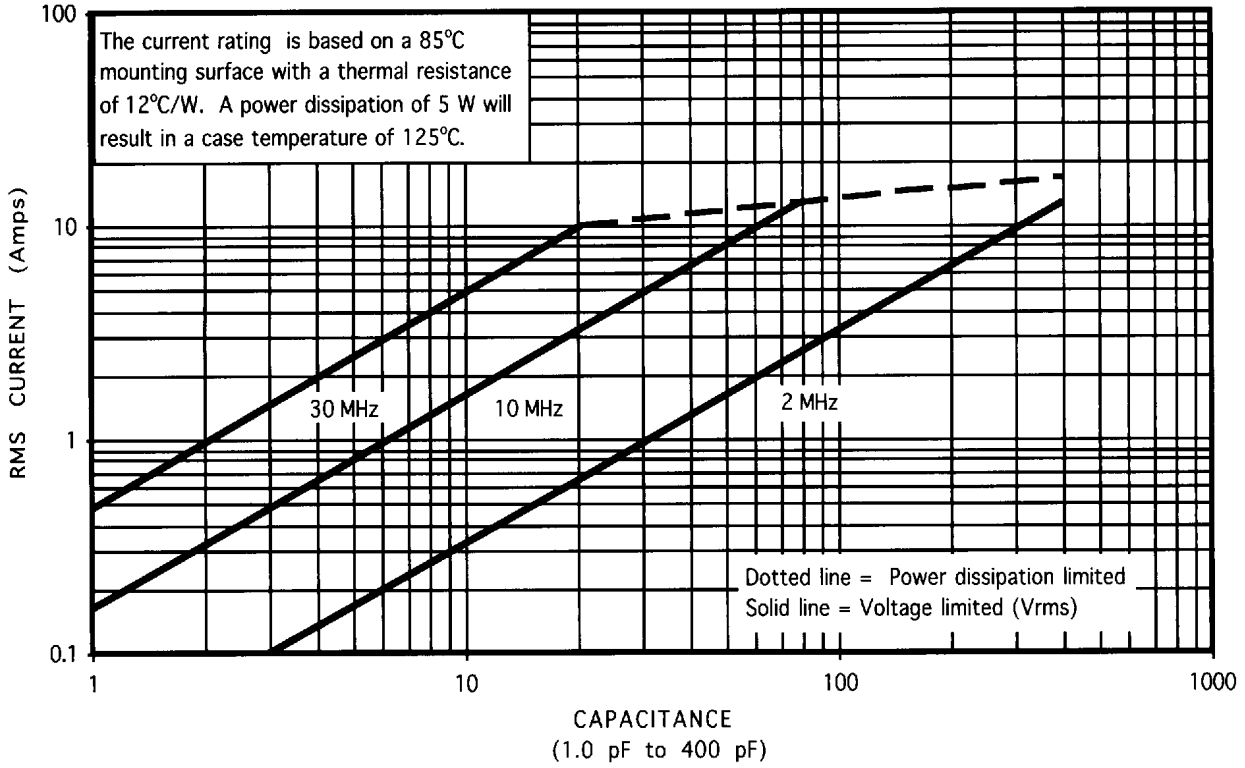


CAPACITANCE CHANGE VS TEMPERATURE
ATC SERIES 100, CASE E

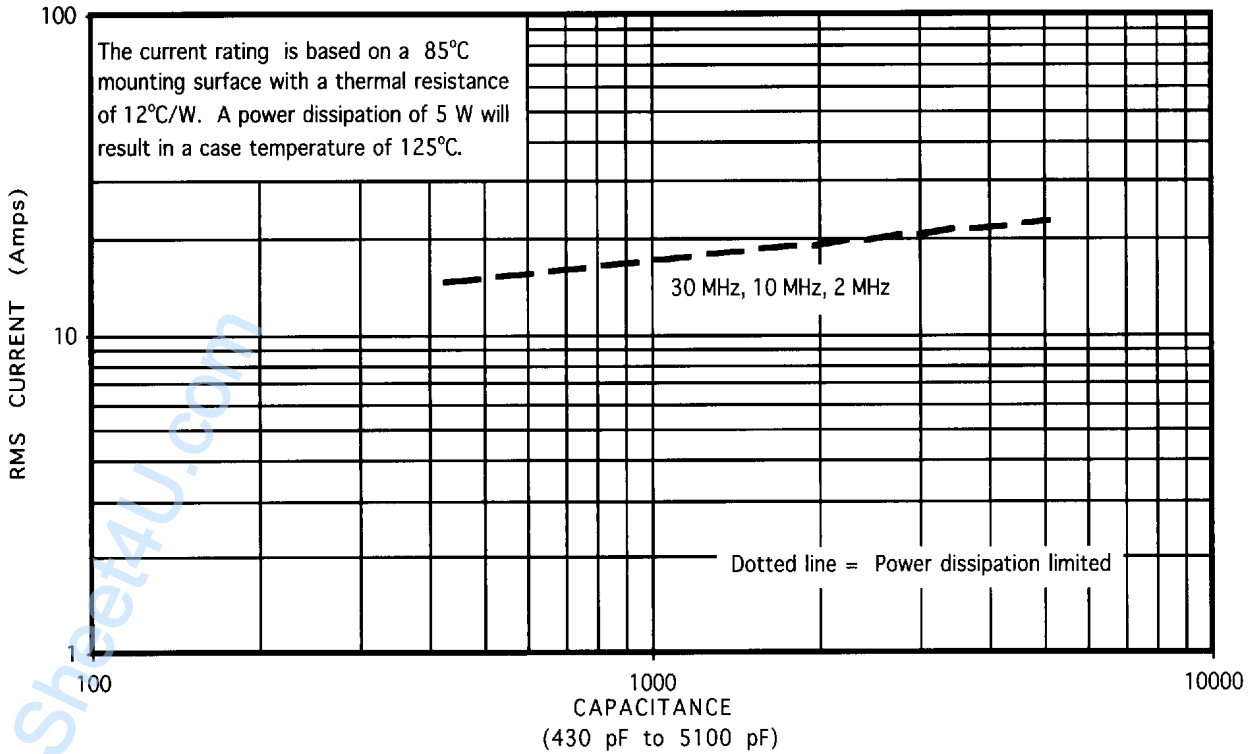


ATC 100 E Performance Data

CURRENT RATING VS CAPACITANCE
ATC SERIES 100, CASE E



CURRENT RATING VS CAPACITANCE
ATC SERIES 100, CASE E



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