ATC 100 A Series Porcelain Superchip® Multilayer Capacitors

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

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:

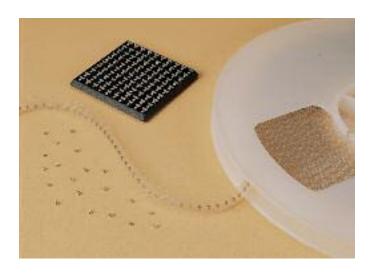
MIL-STD-202, Method 106.

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:

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

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.



TECHNICAL

ATC Europe saleseur@atceramics.com

CERAMICS



ATC 100 A Capacitance Values

CAP.	CAP.	TOL.	RATED	WVDC	CAP.	CAP.	TOL.	RATED WVDC		CAP.		TOL.	RATED WVDC	
CODE	(pF)	TOL.	STD.	EXT.	CODE	(pF)	IUL.	STD.	EXT.	CODE	(pF)	IUL.	STD.	EXT.
0R1	0.1	В			2R2	2.2				160	16			
0R2	0.2			3E	2R4	2.4			jĘ.	180	18			
0R3	0.3	B, C		TAC	2R7	2.7			TAG	200	20			
0R4	0.4	ŕ		VOLTAGE	3R0	3.0			VOLTAGE	220	22			J.
0R5	0.5				3R3	3.3				240	24			TAG
0R6	0.6			DE	3R6	3.6			DEL	270	27			VOLTAGE
0R7	0.7			EXTENDED	3R9	3.9	B, C, D		EXTENDED	300	30			
0R8	0.8			EXI	4R3	4.3		150	250 250	330	33	F, G, J, K, M		250
0R9	0.9				4R7	4.7				360	36		150	Q3
1R0	1.0		150	250	5R1	5.1				390	39			EXTENDED
1R1	1.1				5R6	5.6				430	43			CTE
1R2	1.2	B, C, D			6R2	6.2				470	47			E)
1R3	1.3	, ,		la.	6R8	6.8			100	510	51			
1R4	1.4			VOLTAGE	7R5	7.5	B, C, J, K, M		VOLTAGE	560	56			
1R5	1.5				8R2	8.2				620	62			
1R6	1.6				9R1	9.1			2/	680	68			VOLT
1R7	1.7			ED	100	10			EXTENDED	750	75	F, G, J,		7/
1R8	1.8			END	110	11				820	82 K, M	K, M		200
1R9	1.9			EXTENDED	120	12	F, G, J,		XTE	910	91			
2R0	2.0			E	130	13	K, M		E	101	100			EXT
2R1	2.1				150	15								

VRMS = 0.707 X WVDC

SPECIAL VALUES, TOLERANCES, HIGHER WVDC AND MATCHING AVAILABLE. PLEASE CONSULT FACTORY.
NOTE: EXTENDED WVDC DOES NOT APPLY TO CDR PRODUCTS.

CAPACITANCE TOLERANCE											
Code	В	C	D	F	G	J	К	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 1	50 X T Packaging
Case Size	T - Tape and Reel, 1000 pc. qty.*
Capacitance Code: First 2 significant digits for capacitance. R=Decimal Point	TV - Vertical Orientation of Product, Tape and Reel, 1000 pc. qty.* I - Special Packaging. Consult Factory. *Consult ATC for other quantities
Indicates number of zeros following digits of capacitance in picofarads except for decimal values.	ATC Cap-Pac® packaging (100 pc. qty. std.) is also available. For this option, leave last field blank.
Capacitance Tolerance—	Laser Marking
Termination Code —	WVDC

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 Tape and Reel 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 (+1-631) 622-4700.

Consult factory for additional performance data.

AMERICAN TECHNICAL CERAMICS

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ATC 100 A Capacitors: Mechanical Configurations

SERIES TE	ATC Term.	MIL-PRF- 55681	CASE SIZE	OUTLINES	ВС	DDY DIMENSION INCHES (mm)	NS	LEAD AND TERMINATION DIMENSIONS AND MATERIALS		
	CODE		& TYPE	W/T IS A Termination Surface	LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIALS	
100A	W	CDR12BG	A Solder Plate	Y→ ← ↓ <u>w</u>	.055 +.015010 (1.40 +0.38 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010005 (0.25 +0.25 -0.13)	Tin/Lead, Solder Plated over Nickel Barrier Termination	
100A	Р	CDR12BG	A Pellet	$\begin{array}{c c} Y \to \left \leftarrow & \downarrow \\ \hline & \underline{w} \\ \to \left \perp \right \leftarrow \uparrow \to \left \uparrow \right + \\ \end{array}$.055 +.025010 (1.40 +0.64 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010005 (0.25 +0.25 -0.13)	Heavy Tin/Lead Coated, over Nickel Barrier Termination	
100A	Т	N/A	A Solderable Nickel Barrier	$\begin{array}{c c} Y \to \left \leftarrow & \downarrow \\ \hline & \underline{W} \\ \to \left L \right \leftarrow \uparrow \to \left T \right \leftarrow \end{array}$.055 +.015010 (1.40 +0.38 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010005 (0.25 +0.25 -0.13)	RoHS Compliant Tin Plated over Nickel Barrier Termination	
100A	CA	CDR11BG	A Cold Chip	$\begin{array}{c c} Y \to & \downarrow & \downarrow \\ \hline & \underline{W} & \\ \to & \downarrow & \downarrow \\ & \downarrow & \downarrow \\ & \downarrow & \downarrow \\ & \downarrow & \downarrow & \uparrow \\ & \downarrow & \uparrow & \downarrow \\ & \uparrow & \downarrow & \uparrow \\ & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow \\ & \downarrow & \downarrow \\ &$.055 +.015010 (1.40 +0.38 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010005 (0.25 +0.25 -0.13)	RoHS Compliant Gold Plated over Nickel Barrier Termination	

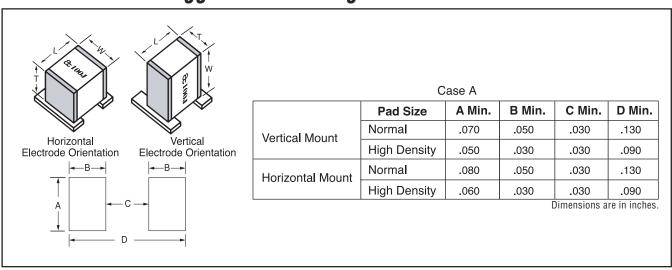
For a complete military catalog, request American Technical Ceramics document ATC 001-818.

ATC 100 A Non-Magnetic Capacitors: Mechanical Configurations

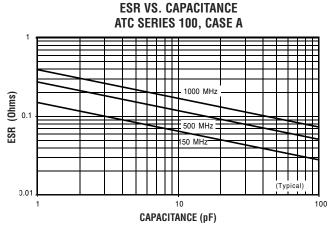
& CASE TERM	ATC	MIL-PRF-	CASE SIZE	OUTLINES	ВС	ODY DIMENSION INCHES (mm)	NS	LEAD AND TERMINATION DIMENSIONS AND MATERIALS		
	CODE	55681	& TYPE	W/T IS A Termination Surface	LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIALS	
100A	WN	Meets Require- ments	A Non-Mag Solder Plate	Y→ ← ↓ <u> </u>	.055 +.025010 (1.40 +0.64 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010005 (0.25 +0.25 -0.13)	Tin/Lead, Solder Plated over Non-Magnetic Barrier Termination	
100A	PN	Meets Require- ments	A Non-Mag	$\begin{array}{c c} Y \to \left \leftarrow & \downarrow \\ \hline & \underline{w} \\ \to \left \perp \right \leftarrow \uparrow \to \left \top \right \leftarrow \end{array}$.055 +.035010 (1.40 +0.89 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010005 (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	$\begin{array}{c c} Y \to & \downarrow & \downarrow \\ \hline & \underline{W} & \\ \to & \downarrow & \downarrow \\ & \downarrow & \downarrow \\ & \downarrow & \downarrow \\ & \downarrow & \downarrow & \uparrow \\ & \downarrow & \uparrow & \downarrow \\ & \downarrow & \uparrow & \downarrow \\ & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow & \downarrow \\ & \downarrow & \downarrow & \downarrow \\$.055 +.025010 (1.40 +0.64 -0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010 +.010005 (0.25 +0.25 -0.13)	RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination	

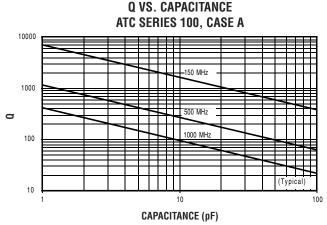
All 100 A Capacitors are available laser marked with ATC's identification, capacitance code and tolerance.

Suggested Mounting Pad Dimensions

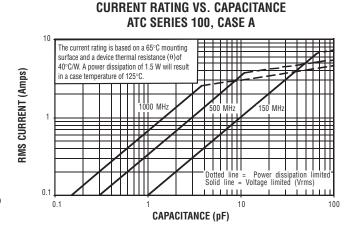


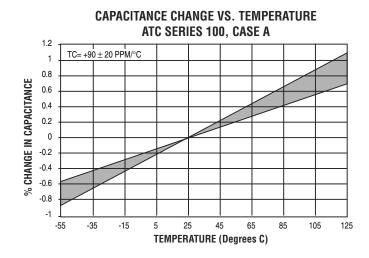
ATC 100 A Performance Data





SERIES RESONANCE VS. CAPACITANCE ATC SERIES 100, CASE A 100 100 (Typical) 100 CAPACITANCE (pF)





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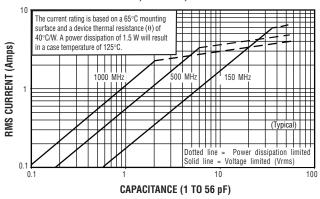
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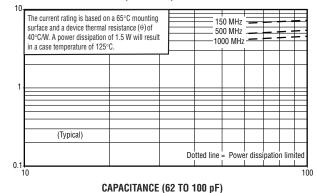
ATC 100 A Performance Data

RMS CURRENT (Amps)

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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