

ATC 800 C Series NPO Ceramic High RF Power Multilayer Capacitors

- Case C Size (.250" x .250")
- Capacitance Range: 1 pF to 51 pF and 1000 pF to 3000 pF
- High Q
- Ultra-Stable Performance
- Low ESR/ESL
- High RF Current/Voltage
- High RF Power
- High Reliability
- 3600 WVDC
- RoHS Compliant, Pb free

ATC's 800 C Series offers superb performance in demanding high RF power applications requiring consistent and reliable operation. The combination of highly conductive metal electrode systems, optimized case geometries, and proprietary dielectrics, yields the lowest ESR. ATC's new NPO low loss rugged dielectrics are designed to provide superior heat transfer in high RF power applications. Ultra-low ESR and superior thermal performance insure that the 800 C Series products are your best choice for high RF power applications from VHF through microwave frequencies.

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

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

ENVIRONMENTAL TESTS

ATC 800 C 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.

Voltage applied.

200% of WVDC for capacitors rated at 500 volts DC or less.

120% of WVDC for capacitors rated at 1250 volts DC or less.

100% of WVDC for capacitors rated above 1250 volts DC.



ELECTRICAL AND MECHANICAL SPECIFICATIONS

QUALITY FACTOR (Q):

Greater than 5,000 (1.0 pF to 3000 pF) @ 1 MHz.

TEMPERATURE COEFFICIENT OF CAPACITANCE (TCC):

0 ±30 PPM/°C (-55°C to +125°C)

INSULATION RESISTANCE (IR):

1 pF to 51 pF; 1000 pF to 3000 pF:

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

10⁴ Megohms min. @ +125°C at rated WVDC.

Max. test voltage is 500 VDC.

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

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

250% of WVDC for capacitors rated at 500 volts DC or less for 5 seconds.

150% of WVDC for capacitors rated above 500 volts DC and ≤1250 volts DC for 5 seconds.

120% of WVDC for capacitors rated above 1250 volts DC for 5 seconds.

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:

See Mechanical Configurations, page 3.

TERMINAL STRENGTH: Terminations for chips withstand a pull of 10 lbs. min., 20 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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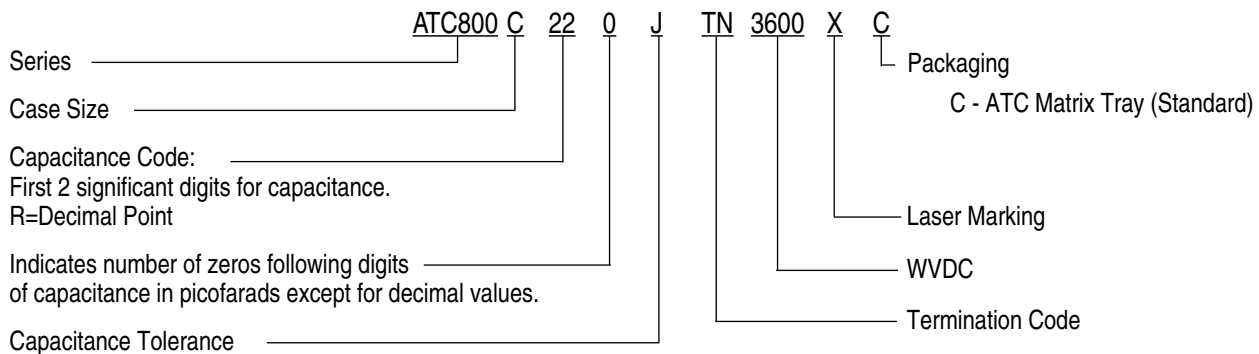
ATC # 001-1076 Rev. F; 1/11

ATC 800 C 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	3R9	3.9	B, C, D	3600	220	22	F, G, J, K	3600
1R1	1.1			4R3	4.3			240	24		
1R2	1.2			4R7	4.7			270	27		
1R3	1.3			5R1	5.1			300	30		
1R4	1.4			5R6	5.6			330	33		
1R5	1.5			6R2	6.2			360	36		
1R6	1.6			6R8	6.8			390	39		
1R7	1.7			7R5	7.5			430	43		
1R8	1.8			8R2	8.2			470	47		
1R9	1.9			9R1	9.1			510	51		
2R0	2.0	B, C, D	3600	100	10	F, G, J, K	3600	102	1000	F, G, J, K	500
2R1	2.1			110	11			112	1100		
2R2	2.2			120	12			122	1200		
2R4	2.4			130	13			152	1500		
2R7	2.7			150	15			182	1800		
3R0	3.0			160	16			222	2200		
3R3	3.3			180	18			242	2400		
3R6	3.6			200	20			272	2700		
								302	3000		

CAPACITANCE TOLERANCE							
Code	B	C	D	F	G	J	K
Tol.	±0.1 pF	±0.25 pF	±0.5 pF	±1%	±2%	±5%	±10%

ATC PART NUMBER CODE



The above part number refers to a 800 C Series (case size C) 22 pF capacitor, J tolerance (±5%), 3600 WVDC, with TN termination (RoHS Compliant, Tin Plated over Non-Magnetic Barrier Termination), laser marking and plastic Matrix Tray 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.


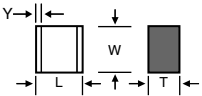
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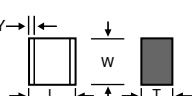
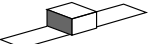
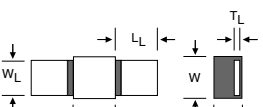

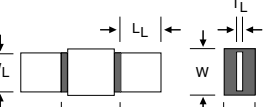
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ATC 800 C Capacitors: Mechanical Configurations

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)	OVERLAP (Y)	MATERIALS
800C	T	C  Solderable Barrier		.230 +.025 -.010 (5.84 +0.64 -0.25)	 			

Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.
 ** $W_L = .110$ (2.79) for capacitance values ≤ 680 pF; $W_L = .130$ (3.30) for capacitance values > 680 pF

ATC 800 C 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)	OVERLAP (Y)	MATERIALS
800C	TN	C  Non-Mag Solderable Barrier		.230 +.025 -.010 (5.84 +0.64 -0.25)	.250 ±.015 (6.35 ±0.38)	.175 (4.45) max.	.040 (1.02) max.	RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination
800C	MN	C  Non-Mag Microstrip		245 ±.025 (6.22 ±0.64)				High Purity Silver Leads $L_L = .500$ (12.7) min. $W_L = .240 \pm .005$ (6.10 ±.127) $T_L = .004 \pm .001$ (.102 ±.025) Leads are Attached with High Temperature Solder.
800C	AN	C  Non-Mag Axial Ribbon		245 ±.025 (6.22 ±0.64)				Silver Leads $L_L = .500$ (12.7) min. $W_L = **$ See below $T_L = .004 \pm .001$ (.102 ±.025)

Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.

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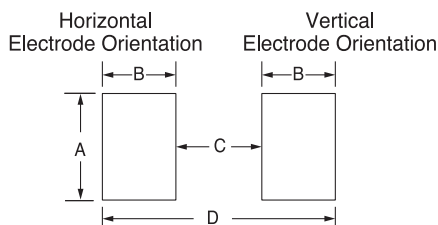
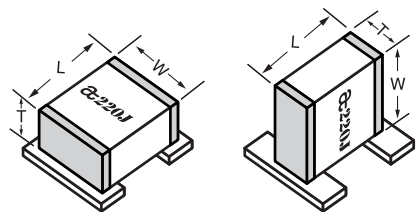
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Suggested Mounting Pad Dimensions



Case C Vertical Mount

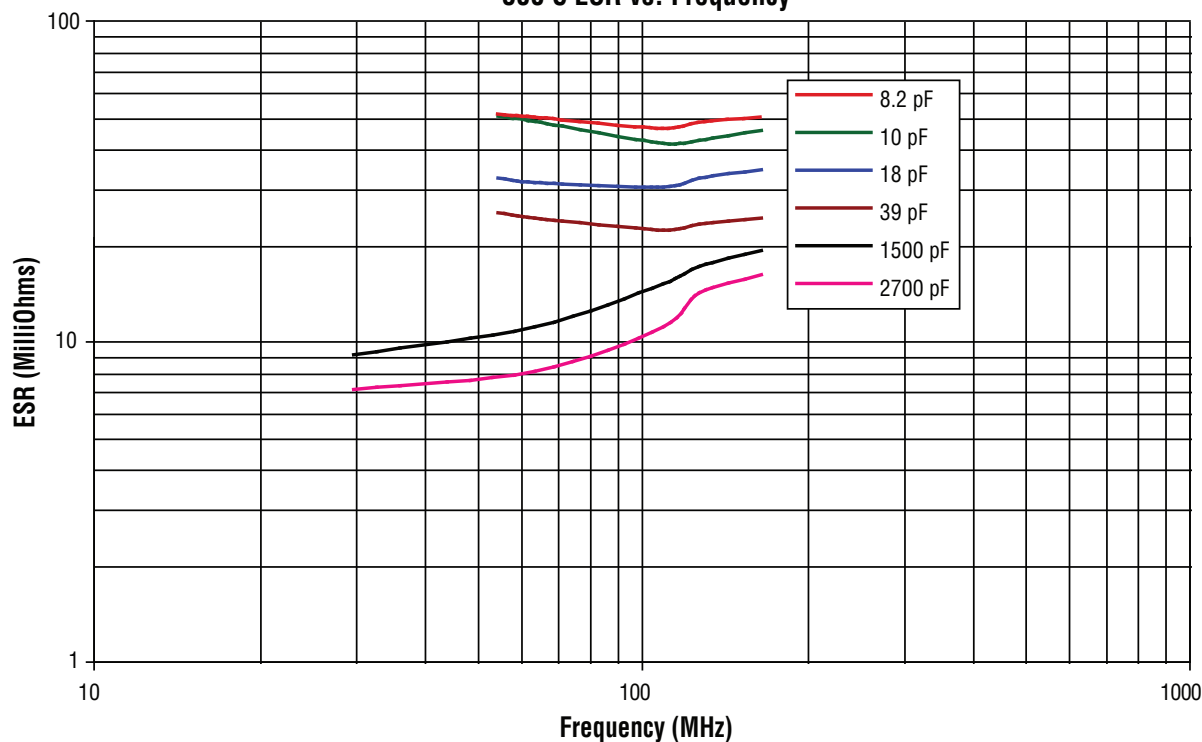
Cap Value	Pad Size	A Min.	B Min.	C Min.	D Min.
All values	Normal	.200	.050	.200	.300
	High Density	.180	.030	.200	.260

Horizontal Mount

All values	Normal	.280	.050	.200	.300
High Density	.260	.030	.200	.260	

ATC 800 C Performance Data

800 C ESR vs. Frequency



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