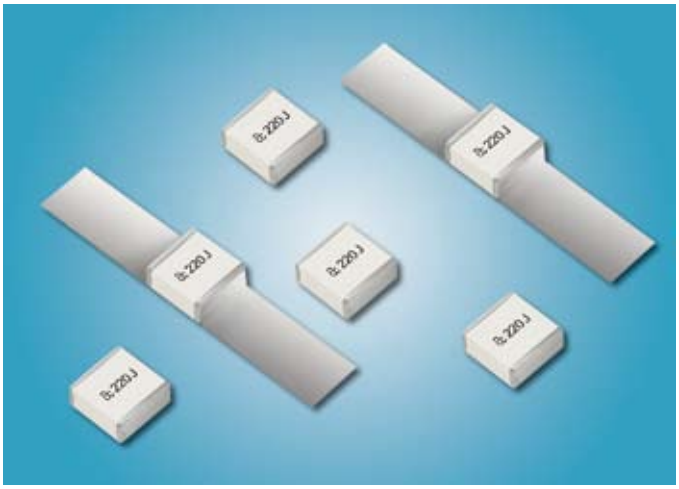
ATC 800 E Series NPO Ceramic High RF Power Multilayer Capacitors

- **Case E Size (.380" x .380")**
- **High Q**
- **Ultra Low ESR**
- **High RF Power**
- **7200 WVDC**
- **Capacitance Range 1 pF to 56 pF**
- **Ultra-Stable Performance**
- **High RF Current/Voltage**
- **High Reliability**



ATC's 800 E 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 E 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 E 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.
1 pF to 56 pF: at WVDC

ELECTRICAL AND MECHANICAL SPECIFICATIONS

QUALITY FACTOR (Q):
Greater than 10,000 (1 pF to 56 pF) @ 1 MHz.

TEMPERATURE COEFFICIENT OF CAPACITANCE (TCC):
0 ±30 PPM/°C (-55°C to +125°C)

INSULATION RESISTANCE (IR):
1 pF to 56 pF:
10^5 Megohms min. @ +25°C at rated WVDC
10^4 Megohms min. @ +125°C at rated WVDC

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

DIELECTRIC WITHSTANDING VOLTAGE (DWV):
1 pF to 56 pF: 120% 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

TERMINATION STYLE:
See Mechanical Configurations, page 3

TERMINAL STRENGTH: Terminations for chips 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.

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ATC 800 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	7200	3R3	3.3	B, C, D	7200	150	15	F, G, J, K	7200
1R1	1.1			3R6	3.6			160	16		
1R2	1.2			3R9	3.9			180	18		
1R3	1.3			4R3	4.3			200	20		
1R4	1.4			4R7	4.7			220	22		
1R5	1.5			5R1	5.1			240	24		
1R6	1.6			5R6	5.6			270	27		
1R7	1.7			6R2	6.2			300	30		
1R8	1.8			6R8	6.8			330	33		
1R9	1.9			7R5	7.5			360	36		
2R0	2.0			8R2	8.2			390	39		
2R1	2.1			9R1	9.1			430	43		
2R2	2.2			100	10	F, G, J, K		470	47		
2R4	2.4			110	11			510	51		
2R7	2.7			120	12			560	56		
3R0	3.0			130	13						

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

ATC800 E 22 0 J TN 7200 X C

- Series
- Case Size
- Capacitance Code: First 2 significant digits for capacitance. R=Decimal Point
- Indicates number of zeros following digits of capacitance in picofarads except for decimal values.
- Capacitance Tolerance
- Termination Code
- WVDC
- Laser Marking
- Packaging C - ATC Matrix Tray (Standard)

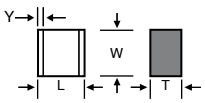
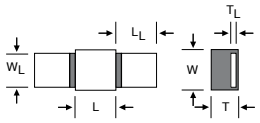
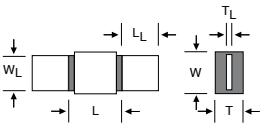
The above part number refers to a 800 E Series (case size E) 22 pF capacitor, J tolerance (±5%), 7200 WVDC, with TN termination (Tin Plated over Non-Magnetic Barrier Termination), laser marking and plastic Matrix Tray packaging.

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.

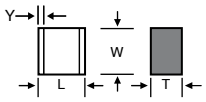
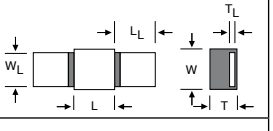
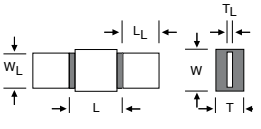
For additional information and catalogs contact your ATC representative or call direct at (631) 622-4700.

Consult factory for additional performance data.

ATC 800 E Capacitors: Mechanical Configurations

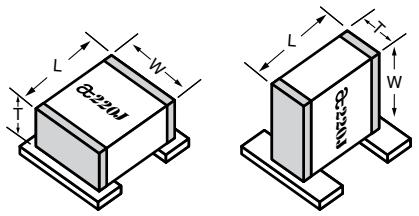
ATC SERIES & CASE SIZE	ATC TERM. CODE	CASE SIZE & TYPECASE SIZE & TYPE	OUTLINES W/T IS A TERMINATION SURFACE	BODY DIMENSIONS INCHES (mm)			LEAD AND TERMINATION DIMENSIONS AND MATERIALS	
				LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIALS
800E	T	E Solderable Nickel Barrier		.380 +.015 -.010 (9.65 +0.38 -0.25)	.380 +.015 -.010 (9.65 +0.38 -0.25)	.190 (4.83) max.	.040 (1.02) max.	***RoHS Compliant*** Tin Plated over Nickel Barrier Termination
800E	MS	E Microstrip		.380 +.035 -.010 (9.65 +0.89 -0.25)			N/A.	High Purity Silver Leads L_L = .750 (19.05) min. W_L = .350 ±.010 (8.89 ±0.25) T_L = .010 ±.005 (0.25 ±0.13) Leads are Attached with High Temperature Solder
800E	AR	E Axial Ribbon						

ATC 800 E Non-Magnetic 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
800 E	TN	E Non-Mag Solderable Barrier		.380 +.015 -.010 (9.65 +0.38 -0.25)	.380 +.015 -.010 (9.65 +0.38 -0.25)	.190 (4.83) max.	.040 (1.02) max.	***RoHS Compliant*** Tin Plated over Non-Magnetic Barrier Termination
800 E	MN	E Non-Mag Microstrip		.380 +.035 -.010 (9.65 +0.89 -0.25)			N/A.	High Purity Silver Leads L_L = .750 (19.05) min. W_L = .350 ±.010 (8.89 ±0.25) T_L = .010 ±.005 (0.25 ±0.13) Leads are Attached with High Temperature Solder.
800 E	AN	E Non-Mag Axial Ribbon						

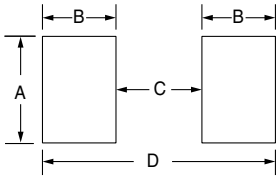
Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.

ATC 800 E Capacitors: Suggested Mounting Pad Dimensions



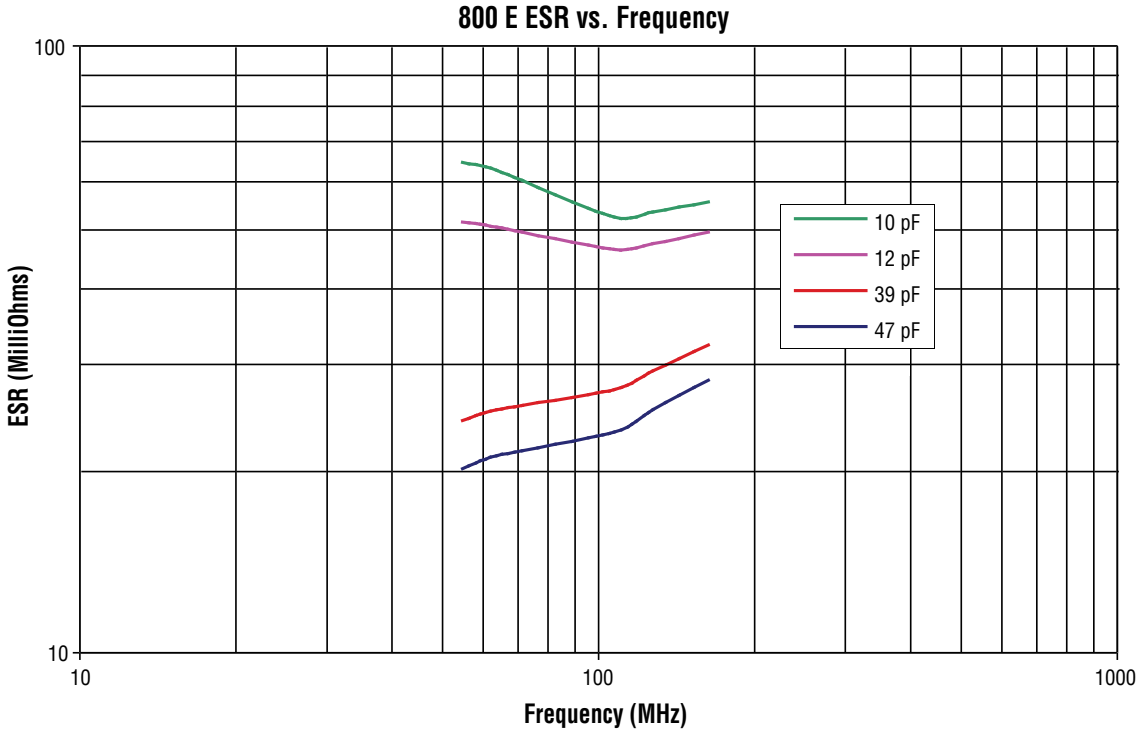
Horizontal Electrode Orientation

Vertical Electrode Orientation



Case E

	Pad Size	A Min.	B Min.	C Min.	D Min.
Vertical Mount	Normal	.205	.050	.325	.425
	High Density	.185	.030	.325	.385
Horizontal Mount	Normal	.405	.050	.325	.425
	High Density	.385	.030	.325	.385



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