ATC 800 E Series
NPO Ceramic
High RF Power Multilayer Capacitors

• Case E Size (.380” x .380”)
• Capacitance Range: 3.3 pF to 5100 pF
• High Q
• Ultra-Stable Performance
• Ultra Low ESR
• High RF Current/Voltage
• High RF Power
• High Reliability
• 7200 WVDC
• RoHS Compliant, Pb free

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 ensure 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. 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 (3.3 pF to 1000 pF) @ 1 MHz.
Greater than 5,000 (1100 pF to 5100 pF) @ 1 KHz.

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

INSULATION RESISTANCE (IR):
10^5 Megohms min. @ +25°C at rated WVDC
10^4 Megohms min. @ +125°C at rated WVDC
Max. test voltage is 500 VDC.

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

DIELECTRIC WITHSTANDING VOLTAGE (DWV):
120% of WVDC for 5 seconds.

RETRACE:
Less than ±(0.02% or 0.02 pF), whichever is greater

AGING EFFECTS:
None

PIEZOELECTRIC EFFECTS:
None

(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.
# ATC 800 E Capacitance Values

<table>
<thead>
<tr>
<th>Capacitance Code</th>
<th>Capacitance Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>B, C, D</td>
<td>±0.1 pF</td>
</tr>
<tr>
<td>F, G, J, K</td>
<td>±0.25 pF</td>
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<tr>
<td></td>
<td>±0.5 pF</td>
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<tr>
<td></td>
<td>±1%</td>
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<td></td>
<td>±2%</td>
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<td></td>
<td>±5%</td>
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<td>±10%</td>
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## Capacitance Tolerance

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<tbody>
<tr>
<td>tol</td>
<td>±0.1 pF</td>
<td>±0.25 pF</td>
<td>±0.5 pF</td>
<td>±1%</td>
<td>±2%</td>
<td>±5%</td>
<td>±10%</td>
</tr>
</tbody>
</table>

## ATC Part Number Code

- **Series**: 800
- **Case Size**: E
- **Capacitance Code**: 22
- **Capacitance Tolerance**: J
- **Termination Code**: TN
- **WVDC**: 7200
- **Packaging**: ATC Matrix Tray (Standard) Quantity varies by termination/lead style. Consult factory. For this option, leave last position blank.
- **Tape and Reel**: 250 pc. qty. Surface Mount Termination Only
- **Special Packaging**: (Consult Factory)
- **Laser Marking**:

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

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

Consult factory for additional performance data.

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www.atceramics.com
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 Non-Magnetic Capacitors: Mechanical Configurations

<table>
<thead>
<tr>
<th>ATC SERIES &amp; CASE SIZE</th>
<th>ATC TERM. CODE</th>
<th>CASE SIZE &amp; TYPE</th>
<th>OUTLINES</th>
<th>BODY DIMENSIONS INCHES (mm)</th>
<th>LEAD AND TERMINATION DIMENSIONS AND MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td>LENGTH (L)</td>
<td>WIDTH (W)</td>
</tr>
<tr>
<td>800 E</td>
<td>T</td>
<td>E</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>.380 +.015 - .010 (9.65 +0.38 -0.25)</td>
<td>.040 (1.02) max.</td>
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<td>800 E</td>
<td>MS</td>
<td>E</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>.380 +.015 - .010 (9.65 +0.38 -0.25)</td>
<td>.190 (4.83) max.</td>
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<tr>
<td>800 E</td>
<td>AR</td>
<td>E</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>.380 +.035 - .010 (9.65 +0.89 -0.25)</td>
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<td>E</td>
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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

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<tbody>
<tr>
<td></td>
<td>Normal</td>
<td>.205</td>
<td>.050</td>
<td>.325</td>
<td>.425</td>
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<tr>
<td></td>
<td>High Density</td>
<td>.185</td>
<td>.030</td>
<td>.325</td>
<td>.385</td>
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<tr>
<td></td>
<td>Horizontal Mount</td>
<td>.405</td>
<td>.050</td>
<td>.325</td>
<td>.425</td>
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<tr>
<td></td>
<td>High Density</td>
<td>.385</td>
<td>.030</td>
<td>.325</td>
<td>.385</td>
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</table>

Dimensions are in inches.
The current is based on a 65°C mounting surface and a device thermal resistance of 12°C/W. A power dissipation of 5 W will result in a case temperature of 125°C.

Dotted line = Power dissipation limit
Solid line = Voltage limit (Vrms/Xc)

TCC= 0 ±30 PPM/C

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