ATC 100 A Series
Porcelain Superchip®
Multilayer Capacitors

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

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.


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:

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:

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:
10^6 Megohms min. @ +25°C at rated WVDC.
10^5 Megohms min. @ +125°C at rated WVDC.

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

DIELECTRIC WITHSTANDING VOLTAGE (DWV):
Case A: 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.
**ATC 100 A Capacitance Values**

**CAPACITANCE TOLERANCE**

<table>
<thead>
<tr>
<th>Code</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>G</th>
<th>J</th>
<th>K</th>
<th>M</th>
</tr>
</thead>
<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>
<td>±20%</td>
</tr>
</tbody>
</table>

**ATC PART NUMBER CODE**

- **Series**: 100
- **Case Size**: A
- **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**: W
- **包装**
  - **T**: Tape and Reel, 1000 pc. qty.*
  - **TV**: Vertical Orientation of Product, Tape and Reel, 1000 pc. qty.*
- **I**: Special Packaging, Consult Factory.

*Consult ATC for other quantities
ATC Cap-Pac® Packaging (100 pc. qty. standard) is also available. For this option, leave last field blank.

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 Tape and Reel packaging.

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

Consult factory for additional performance data.
## ATC 100 A Capacitors: Mechanical Configurations

<table>
<thead>
<tr>
<th>ATC SERIES &amp; CASE SIZE</th>
<th>ATC TERM. CODE</th>
<th>MIL-PRF-55681</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>
<td></td>
<td></td>
<td></td>
<td>LENGTH (L)</td>
<td>WIDTH (W)</td>
</tr>
<tr>
<td>100A</td>
<td>W</td>
<td>CDR12BG</td>
<td>A Solder Plate</td>
<td></td>
<td>.055 +.015 - .010 (1.40 +.038 -0.25)</td>
<td>.055 ±.015 (1.40 ±0.38)</td>
</tr>
<tr>
<td>100A</td>
<td>P</td>
<td>CDR12BG</td>
<td>A Pellet</td>
<td></td>
<td>.055 +.025 - .010 (1.40 +.64 -0.25)</td>
<td>.055 ±.015 (1.40 ±0.38)</td>
</tr>
<tr>
<td>100A</td>
<td>T</td>
<td>N/A</td>
<td>A Solderable Nickel Barrier</td>
<td></td>
<td>.055 +.015 - .010 (1.40 +.38 -0.25)</td>
<td>.055 ±.015 (1.40 ±0.38)</td>
</tr>
<tr>
<td>100A</td>
<td>CA</td>
<td>CDR11BG</td>
<td>A Gold Chip</td>
<td></td>
<td>.055 +.015 - .010 (1.40 +.38 -0.25)</td>
<td>.055 ±.015 (1.40 ±0.38)</td>
</tr>
</tbody>
</table>

For a complete military catalog, request American Technical Ceramics document ATC 001-818.
### ATC 100 A Non-Magnetic Capacitors: Mechanical Configurations

<table>
<thead>
<tr>
<th>ATC SERIES &amp; CASE SIZE</th>
<th>ATC TERM. CODE</th>
<th>MIL-PRF-55681</th>
<th>CASE SIZE &amp; TYPE</th>
<th>OUTLINES W/T IS A TERMINATION SURFACE</th>
<th>BODY DIMENSIONS Inches (mm)</th>
<th>LEAD AND TERMINATION DIMENSIONS AND MATERIALS</th>
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</thead>
<tbody>
<tr>
<td>100A</td>
<td>WN</td>
<td>Meets Require-ments</td>
<td>A Non-Mag Solder Plate</td>
<td>Y-</td>
<td>.055</td>
<td>.055 ±.015</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W/ T</td>
<td>+.025 -.010</td>
<td>(1.40 +0.64 -0.25)</td>
</tr>
<tr>
<td>100A</td>
<td>PN</td>
<td>Meets Require-ments</td>
<td>A Non-Mag Pellet</td>
<td>Y-</td>
<td>.055</td>
<td>.055 ±.015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W/ T</td>
<td>+.035 -.010</td>
<td>(1.40 +0.89 -0.25)</td>
</tr>
<tr>
<td>100A</td>
<td>TN</td>
<td>Meets Require-ments</td>
<td>A Non-Mag Solderable Barrier</td>
<td>Y-</td>
<td>.055</td>
<td>.055 ±.015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W/ T</td>
<td>+.025 -.010</td>
<td>(1.40 +0.64 -0.25)</td>
</tr>
</tbody>
</table>

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

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### Suggested Mounting Pad Dimensions

<table>
<thead>
<tr>
<th>Case</th>
<th>Pad Size</th>
<th>A Min.</th>
<th>B Min.</th>
<th>C Min.</th>
<th>D Min.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal</td>
<td>.070</td>
<td>.050</td>
<td>.030</td>
<td>.130</td>
</tr>
<tr>
<td></td>
<td>High Density</td>
<td>.050</td>
<td>.030</td>
<td>.030</td>
<td>.090</td>
</tr>
<tr>
<td>Vertical Mount</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horizontal Mount</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>.080</td>
<td>.050</td>
<td>.030</td>
<td>.130</td>
<td></td>
</tr>
<tr>
<td>High Density</td>
<td>.060</td>
<td>.030</td>
<td>.030</td>
<td>.090</td>
<td></td>
</tr>
</tbody>
</table>

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sales@atceramics-asia.com

www.atceramics.com
ATC 100 A Performance Data

**ESR VS. CAPACITANCE**
ATC SERIES 100, CASE A

**Q VS. CAPACITANCE**
ATC SERIES 100, CASE A

**SERIES RESONANCE VS. CAPACITANCE**
ATC SERIES 100, CASE A

**CURRENT RATING VS. CAPACITANCE**
ATC SERIES 100, CASE A

**CAPACITANCE CHANGE VS. TEMPERATURE**
ATC SERIES 100, CASE A

The current rating is based on a 65°C mounting surface and a device thermal resistance of 40°C/W. A power dissipation of 1.5 W will result in a case temperature of 125°C.

Dotted line = Power dissipation limited
Solid line = Voltage limited (Vrms)

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