ATC 100 B Series
Porcelain Superchip®
Multilayer Capacitors

• Case B Size (.110" x .110")
• Capacitance Range 0.1 pF to 1000 pF
• High Q
• Ultra-Stable Performance
• Low ESR/ESL
• High Self-Resonance
• Extended WVDC up to 1500 VDC
• Low Noise
• Established Reliability (QPL)

ATC, the industry leader, offers new improved ESR/ESL performance for the 100 B Series RF/Microwave Capacitors. This Series is now available with extended operating temperatures up to 175°C. 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 B 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.
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.

THEMECAL 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)
+90 ±30 PPM/°C (+125°C to +175°C)

INSULATION RESISTANCE (IR):
0.1 pF to 470 pF:
10^6 Megohms min. @ +25°C at rated WVDC.
510 pF to 1000 pF:
10^5 Megohms min. @ +125°C at rated WVDC.
IR above +125°C is derated by one order of magnitude.

WORKING VOLTAGE (WVDC): See Capacitance Values Table, page 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 at 1250 volts DC or less for 5 seconds.
120% of WVDC for capacitors rated above 1250 Volts DC for 5 seconds.
Test voltage is applied 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:
Standard WVDC:
0.1 to 330 pF: from -55°C to +175°C
360 to 1000 pF: from -55°C to +125°C
Extended WVDC:
0.1 to 1000 pF: from -55°C to +125°C
(No derating of working voltage).

TERMINATION STYLES:
Available in various surface mount and leaded styles.
See Mechanical Configurations, page 3.

TERMINAL STRENGTH: Terminations for chips and pellets withstand a pull of 5 lbs. min., 15 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor. Test per MIL-STD-202, method 211.

ATC # 001-807 Rev. T, 2/20
### ATC 100 B Capacitance Values

**ATC 100 B Capacitance Values**

VRMS = 0.707 X WVDC

- SPECIAL VALUES, TOLERANCES, HIGHER WVDC AND MATCHING AVAILABLE.
- ENCAPSULATION OPTION AVAILABLE. PLEASE CONSULT FACTORY.

**NOTE:** EXTENDED WVDC DOES NOT APPLY TO CDR PRODUCTS.

### ATC Part Number Code

- **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**

### 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>

The above part number refers to a 100 B Series (case size B) 91 pF capacitor, J tolerance (±5%), 500 WVDC, with W termination (Ti/Lead, Solder Plated over Nickel Barrier), laser marking and 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 (631) 622-4700. Consult factory for additional performance data.
# ATC 100 B 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>OUTLINE</th>
<th>BODY DIMENSIONS INCHES (mm)</th>
<th>LEAD AND TERMINATION DIMENSIONS AND MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>100B W</td>
<td>CDR14BG</td>
<td></td>
<td>B Solder Plate</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>LENGTH (L) 110 ±.020 - .010 (2.79 ± 0.51 - 0.25)</td>
<td>Tin/Lead, Solder Plated over Nickel Barrier Termination</td>
</tr>
<tr>
<td>100B P</td>
<td>CDR14BG</td>
<td></td>
<td>B Pellet</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>LENGTH (L) 110 ±.035 - .010 (2.79 ± 0.89 - 0.25)</td>
<td>Heavy Tin/Lead Coated, over Nickel Barrier Termination</td>
</tr>
<tr>
<td>100B T</td>
<td>N/A</td>
<td></td>
<td>B Solderable Nickel Barrier</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>LENGTH (L) 110 ±.035 - .010 (2.79 ± 0.89 - 0.25)</td>
<td>RoHS Compliant, Tin Plated over Nickel Barrier Termination</td>
</tr>
<tr>
<td>100B CA</td>
<td>CDR13BG</td>
<td></td>
<td>B Gold Chip</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>LENGTH (L) 110 ±.020 - .010 (2.79 ± 0.51 - 0.25)</td>
<td>RoHS Compliant, Gold Plated over Nickel Barrier Termination</td>
</tr>
<tr>
<td>100B MS</td>
<td>CDR21BG</td>
<td></td>
<td>B Microstrip</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>LENGTH (L) 110 ±.020 - .010 (2.79 ± 0.51 - 0.25)</td>
<td>Length (L), Thickness (T)</td>
</tr>
<tr>
<td>100B AR</td>
<td>CDR22BG</td>
<td></td>
<td>B Axial Ribbon</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>LENGTH (L) 110 ±.020 - .010 (2.79 ± 0.51 - 0.25)</td>
<td>.135 ±.015 (3.43 ±0.38)</td>
</tr>
<tr>
<td>100B RR</td>
<td>CDR24BG</td>
<td></td>
<td>B Radial Ribbon</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>LENGTH (L) 110 ±.020 - .010 (2.79 ± 0.51 - 0.25)</td>
<td>.110 ±.015 (2.79 ±0.38)</td>
</tr>
<tr>
<td>100B RW</td>
<td>CDR23BG</td>
<td></td>
<td>B Radial Wire</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>LENGTH (L) 110 ±.020 - .010 (2.79 ± 0.51 - 0.25)</td>
<td>.145 ±.020 (3.68 ±0.51)</td>
</tr>
<tr>
<td>100B AW</td>
<td>CDR25BG</td>
<td></td>
<td>B Axial Wire</td>
<td>W/T IS A TERMINATION SURFACE</td>
<td>LENGTH (L) 110 ±.020 - .010 (2.79 ± 0.51 - 0.25)</td>
<td>.500 (12.7)</td>
</tr>
</tbody>
</table>

Additional lead styles available: Narrow Microstrip (NM), Narrow Axial Ribbon (NA) and Vertical Narrow Microstrip (H). Other lead lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are RoHS compliant. For a complete military catalog, request American Technical Ceramics document ATC 001-818.
## ATC 100 B Non-Magnetic Capacitors: Mechanical Configurations

### Table: Lead and Termination Dimensions and Materials

<table>
<thead>
<tr>
<th>ATC SERIES 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>
</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>100B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.110 ± .025 - .010 (2.79 ± 0.64 - 0.25)</td>
<td>110 ± .015 (2.79 ± 0.38)</td>
</tr>
<tr>
<td>100B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.110 ± .025 - .010 (2.79 ± 0.64 - 0.25)</td>
<td>110 ± .015 (2.79 ± 0.38)</td>
</tr>
<tr>
<td>100B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.110 ± .025 - .010 (2.79 ± 0.64 - 0.25)</td>
<td>110 ± .015 (2.79 ± 0.38)</td>
</tr>
<tr>
<td></td>
<td>Meets Require-</td>
<td></td>
<td></td>
<td></td>
<td>.135 ± .015 (3.43 ± 0.38)</td>
<td>.120 (3.05) max.</td>
</tr>
<tr>
<td></td>
<td>ments</td>
<td></td>
<td></td>
<td></td>
<td>.110 ± .015 (2.79 ± 0.38)</td>
<td>.102 (2.59) max.</td>
</tr>
<tr>
<td></td>
<td>Meets Require-</td>
<td></td>
<td></td>
<td></td>
<td>.145 ± .020 (3.68 ± 0.51)</td>
<td>.145 ± .020 (3.68 ± 0.51)</td>
</tr>
</tbody>
</table>

Additional lead styles available: Narrow Microstrip (DN), Narrow Axial Ribbon (GN) and Vertical Narrow Microstrip (HN). Other lead lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are RoHS compliant.

## Suggested Mounting Pad Dimensions

### Diagram: Suggested Mounting Pad Dimensions

---

**American Technical Ceramics**

ATC North America
sales@atceramics.com

ATC Europe
saleseur@atceramics.com

ATC Asia
sales@atceramics-asia.com

www.atceramics.com
ATC 100 B Performance Data

ESR VS. CAPACITANCE
ATC SERIES 100, CASE B

Q VS. CAPACITANCE
ATC SERIES 100, CASE B

SERIES RESONANCE VS. CAPACITANCE
ATC SERIES 100, CASE B

CAPACITANCE CHANGE VS. TEMPERATURE
ATC SERIES 100, CASE B
Sales of ATC products are subject to the terms and conditions contained in American Technical Ceramics Corp. Terms and Conditions of Sale (ATC document #001-992 Rev. B; 12/05). Copies of these terms and conditions will be provided upon request. They may also be viewed on ATC’s website at www.atceramics.com/productfinder/default.asp. Click on the link for Terms and Conditions of Sale.

ATC has made every effort to have this information as accurate as possible. However, no responsibility is assumed by ATC for its use, nor for any infringements of rights of third parties which may result from its use. ATC reserves the right to revise the content or modify its product without prior notice.

© 1996 American Technical Ceramics Corp. All Rights Reserved

ATC # 001-807 Rev. T, 2/20

ATC 100 B Performance Data

**CURRENT RATING VS. CAPACITANCE**

**ATC SERIES 100, CASE B**

- The current rating is based on a 65°C mounting surface and a device thermal resistance (h) of 20°C/W. A power dissipation of 3W will result in a case temperature of 125°C.

**CURRENT RATING VS. CAPACITANCE**

**ATC SERIES 100, CASE B**

- The current rating is based on a 65°C mounting surface and a device thermal resistance (h) of 20°C/W. A power dissipation of 3W will result in a case temperature of 125°C.

**CURRENT RATING VS. CAPACITANCE**

**ATC SERIES 100, CASE B, EXTENDED VOLTAGE**

- The current rating is based on a 65°C mounting surface and a device thermal resistance (h) of 20°C/W. A power dissipation of 3W will result in a case temperature of 125°C.