

# ATC 200 B Series BX Ceramic Multilayer Capacitors

- Case B Size (.110" x .110")
- Capacitance Range 5000 pF to 0.1  $\mu$ F
- Low ESR/ESL
- Mid-K
- Rugged Construction
- High Reliability
- Extended WVDC Available

ATC, the industry leader, offers new improved ESR/ESL performance for the 200 B Series Capacitors. This Series exhibits high volumetric efficiency with superior IR characteristics. Ceramic construction provides a rugged, hermetic package.

Typical functional applications: Bypass, Coupling and DC Blocking.

Typical circuit applications: Switching Power Supplies and High Power Broadband Coupling.

## ENVIRONMENTAL TESTS

ATC 200 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.

### MOISTURE RESISTANCE:

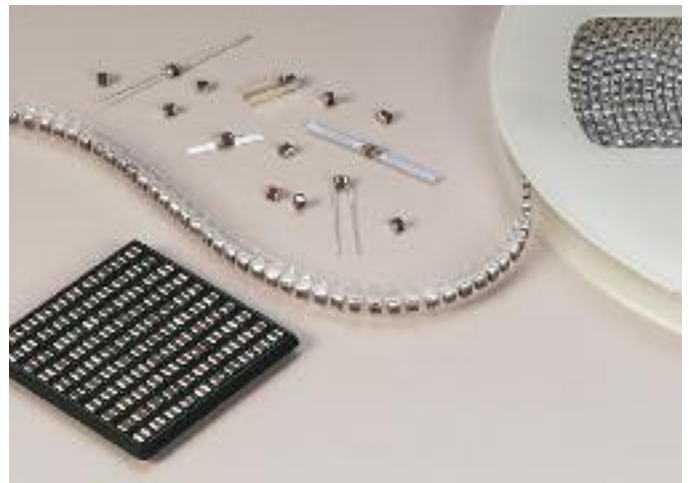
MIL-STD-202, Method 106.

### 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. 200% WVDC applied.



## ELECTRICAL AND MECHANICAL SPECIFICATIONS

**DISSIPATION FACTOR (DF):** 2.5% max. @ 1 KHz

**TEMPERATURE COEFFICIENT OF CAPACITANCE (TCC):**  $\pm 15\%$  maximum (-55°C to +125°C)

### INSULATION RESISTANCE (IR):

5000 pF to 0.1 MFd:

$10^4$  Megohms min. @ +25°C at rated WVDC.

$10^3$  Megohms min. @ +125°C at rated WVDC.

### WORKING VOLTAGE (WVDC):

See Capacitance Values Table, page 2.

### DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Case B: 250% of rated WVDC for 5 secs. (125 VDC)

**AGING EFFECTS:** 3% maximum per decade hour.

**PIEZOELECTRIC EFFECTS:** Negligible

**DIELECTRIC ABSORPTION:** 2% typical

### OPERATING TEMPERATURE RANGE:

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.



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ATC # 001-812 Rev. N, 11/15

## ATC 200 B Capacitance Values

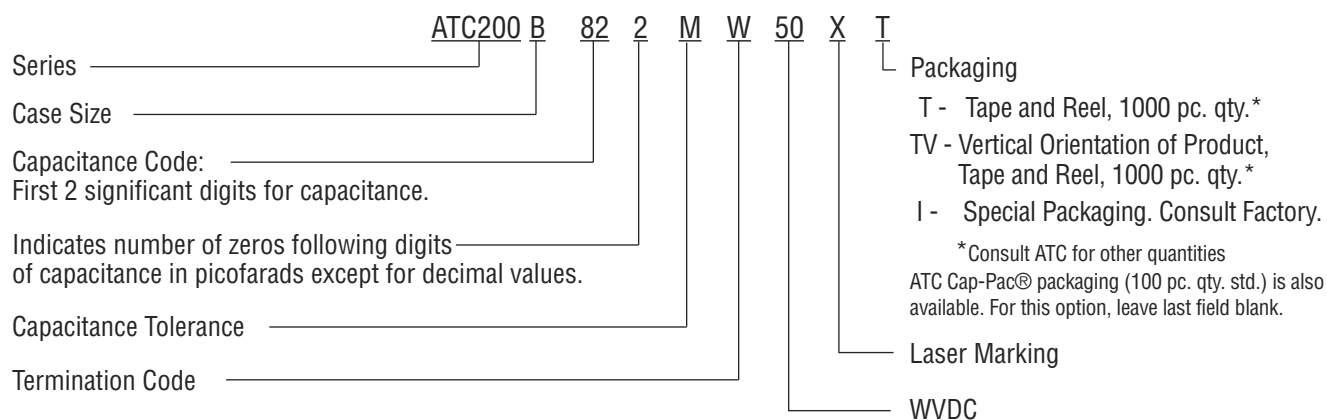
| CAP. CODE | CAP. (pF) | TOL.    | RATED WVDC | CAP. CODE | CAP. (pF) | TOL.    | RATED WVDC |
|-----------|-----------|---------|------------|-----------|-----------|---------|------------|
| 502       | 5000      | K, M, N | 50         | 273       | 27,000    | K, M, N | 50         |
| 562       | 5600      |         |            | 333       | 33,000    |         |            |
| 682       | 6800      |         |            | 393       | 39,000    |         |            |
| 822       | 8200      |         |            | 473       | 47,000    |         |            |
| 103       | 10,000    |         |            | 503       | 50,000    |         |            |
| 123       | 12,000    |         |            | 563       | 56,000    |         |            |
| 153       | 15,000    |         |            | 683       | 68,000    |         |            |
| 183       | 18,000    |         |            | 823       | 82,000    |         |            |
| 203       | 20,000    |         |            | 104       | 100,000   |         |            |
| 223       | 22,000    |         |            |           |           |         |            |

$$VRMS = 0.707 \times WVDC$$

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

| CAPACITANCE TOLERANCE |      |      |      |
|-----------------------|------|------|------|
| Code                  | K    | M    | N    |
| Tol.                  | ±10% | ±20% | ±30% |

### ATC PART NUMBER CODE



The above part number refers to a 200 B Series (case size B) 8200 pF capacitor, M tolerance (±20%), 50 WVDC, with W termination (Tin/Lead, Solder Plated over Nickel Barrier), laser marking and ATC Cap-Pac® 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.


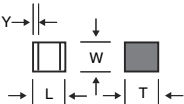

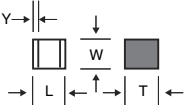

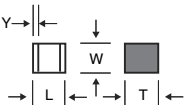

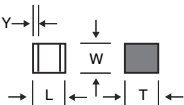

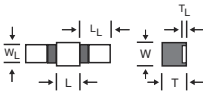

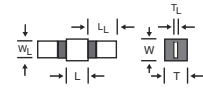

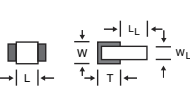

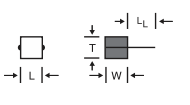

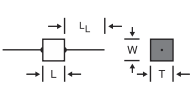
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# ATC 200 B Capacitors: Mechanical Configurations

| ATC<br>SERIES<br>& CASE<br>SIZE | ATC<br>TERM.<br>CODE | CASE SIZE<br>& TYPE  | OUTLINES<br><br>W/T IS A<br>TERMINATION SURFACE                                     | BODY DIMENSIONS<br>INCHES (mm)               |                            |                     | LEAD AND TERMINATION<br>DIMENSIONS AND MATERIALS |   |                             |                                 |  |  |
|---------------------------------|----------------------|--|---|--|----------------------------|---------------------|--|---|-----------------------------|---------------------------------|--|--|
|                                 |                      |  |   | LENGTH<br>(L)                                | WIDTH<br>(W)               | THICKNESS<br>(T)    | OVERLAP<br>(Y)                                   | MATERIALS   |                             |                                 |  |  |
| 200B                            | W                    | B<br><br>Solder Plate                 |    | .110<br>+.020 -.010<br>(2.79<br>+0.51 -0.25) | .110 ±.015<br>(2.79 ±0.38) | .102 (2.59)<br>max. | .015 (0.38)<br>±.010 (0.25)                      | Tin/Lead, Solder Plated over<br>Nickel Barrier Termination              |                             |                                 |  |  |
| 200B                            | P                    | B<br><br>Pellet                       |    | .110<br>+.035 -.010<br>(2.79<br>+0.89 -0.25) | .110 ±.015<br>(2.79 ±0.38) |                     |  | Heavy Tin/Lead Coated,<br>over Nickel Barrier Termination               |                             |                                 |  |  |
| 200B                            | T                    | B<br><br>Solderable<br>Nickel Barrier |    | .110<br>+.020 -.010<br>(2.79<br>+0.51 -0.25) | .110 ±.015<br>(2.79 ±0.38) |                     |  | <b>RoHS Compliant</b><br>Tin Plated over<br>Nickel Barrier Termination  |                             |                                 |  |  |
| 200B                            | CA                   | B<br><br>Gold Chip                    |    | .110<br>+.020 -.010<br>(2.79<br>+0.51 -0.25) | .110 ±.015<br>(2.79 ±0.38) |                     |  | <b>RoHS Compliant</b><br>Gold Plated over<br>Nickel Barrier Termination |                             |                                 |  |  |
| 200B                            | MS                   | B<br><br>Microstrip                   |    | .135 ±.015<br>(3.43 ±0.38)                   | .110 ±.015<br>(2.79 ±0.38) | .120 (3.05)<br>max. | N/A  | Length<br>( L <sub>L</sub> )  | Width<br>( W <sub>L</sub> ) | Thickness<br>( T <sub>L</sub> ) |  |  |
| 200B                            | AR                   | B<br><br>Axial Ribbon                |   |  |                            | .100 (2.54)<br>max. |  |   |                             |                                 |  |  |
| 200B                            | RR                   | B<br><br>Radial Ribbon              |  |  |                            |                     |  |   |                             |                                 |  |  |
| 200B                            | RW                   | B<br><br>Radial Wire                |  | .145 ±.020<br>(3.68 ±0.51)                   |                            |                     |  |   |                             |                                 |  |  |
| 200B                            | AW                   | B<br><br>Axial Wire                 |  |  |                            |                     |  |   |                             |                                 |  |  |

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.


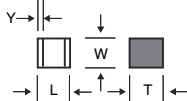

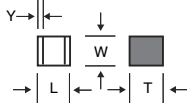

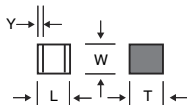

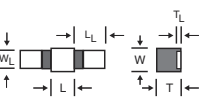

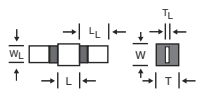

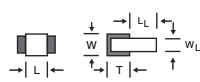

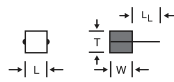

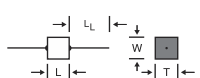
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# ATC 200 B Capacitors: Non-Magnetic Mechanical Configurations

| ATC<br>SERIES<br>& CASE<br>SIZE | ATC<br>TERM.<br>CODE | CASE SIZE<br>& TYPE  | OUTLINES<br><br>W/T IS A<br>TERMINATION SURFACE                                     | BODY DIMENSIONS<br>INCHES (mm)               |                            |                     | LEAD AND TERMINATION<br>DIMENSIONS AND MATERIALS |   |  |                                |
|---------------------------------|----------------------|--|---|--|----------------------------|---------------------|--|---|--|--------------------------------|
|                                 |                      |  |   | LENGTH<br>(L)                                | WIDTH<br>(W)               | THICKNESS<br>(T)    | OVERLAP<br>(Y)                                   | MATERIALS   |  |                                |
| 200B                            | WN                   | B<br><br>Non-Mag<br>Solder Plate            |    | .110<br>+.025 -.010<br>(2.79<br>+0.64 -0.25) | .110 ±.015<br>(2.79 ±0.38) | .102 (2.59)<br>max. | .015 (0.38)<br>±.010 (0.25)                      | Tin/Lead, Solder Plated over<br>Non-Magnetic Barrier<br>Termination             |  |                                |
| 200B                            | PN                   | B<br><br>Non-Mag<br>Pellet                  |    | .110<br>+.035 -.010<br>(2.79<br>+0.89 -0.25) | .110 ±.015<br>(2.79 ±0.38) |                     |  | Heavy Tin/Lead Coated, over<br>Non-Magnetic Barrier<br>Termination              |  |                                |
| 200B                            | TN                   | B<br><br>Non-Mag<br>Solderable Bar-<br>rier |    | .110<br>+.025 -.010<br>(2.79<br>+0.64 -0.25) | .110 ±.015<br>(2.79 ±0.38) |                     |  | <b>RoHS Compliant</b><br>Tin Plated over<br>Non-Magnetic Barrier<br>Termination |  |                                |
| 200B                            | MN                   | B<br><br>Non-Mag<br>Microstrip              |    | .135 ±.015<br>(3.43 ±0.38)                   | .110 ±.015<br>(2.79 ±0.38) | .120 (3.05)<br>max. | N/A  | Length<br>(L <sub>L</sub> )   | Width<br>(W <sub>L</sub> )               | Thickness<br>(T <sub>L</sub> ) |
| 200B                            | AN                   | B<br><br>Non-Mag<br>Axial Ribbon            |    |  |                            |                     |  | .250<br>(6.35)<br>min.  | .093 ±.005<br>(2.36<br>±0.13)            | .004 ±.001<br>(.102<br>±.025)  |
| 200B                            | FN                   | B<br><br>Non-Mag<br>Radial Ribbon           |   |  |                            |                     |  |   |  |                                |
| 200B                            | RN                   | B<br><br>Non-Mag<br>Radial Wire           |  | .145 ±.020<br>(3.68 ±0.51)                   |                            | .100 (2.54)<br>max. |  | .500<br>(12.7)<br>min.  | #26 AWG.,<br>.016 (.406) dia.<br>nominal |                                |
| 200B                            | BN                   | B<br><br>Non-Mag<br>Axial Wire            |  |  |                            |                     |  |   |  |                                |

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

Horizontal Electrode Orientation

Vertical Electrode Orientation

Case A

|                  | Pad Size     | A Min. | B Min. | C Min. | D Min. |
|------------------|--------------|--------|--------|--------|--------|
| Vertical Mount   | Normal       | .070   | .050   | .030   | .130   |
|                  | High Density | .050   | .030   | .030   | .090   |
| Horizontal Mount | Normal       | .080   | .050   | .030   | .130   |
|                  | High Density | .060   | .030   | .030   | .090   |

Dimensions are in inches.

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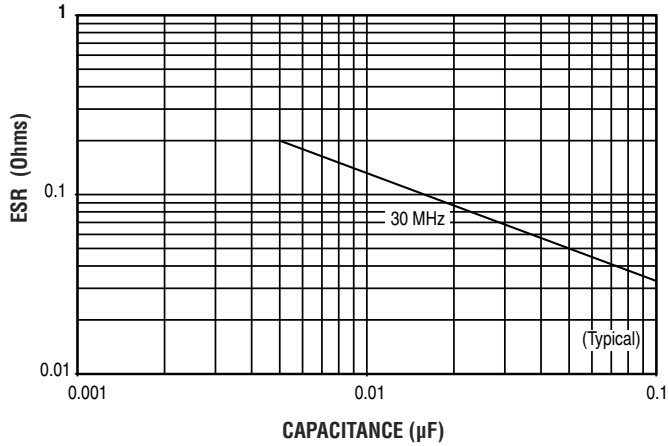
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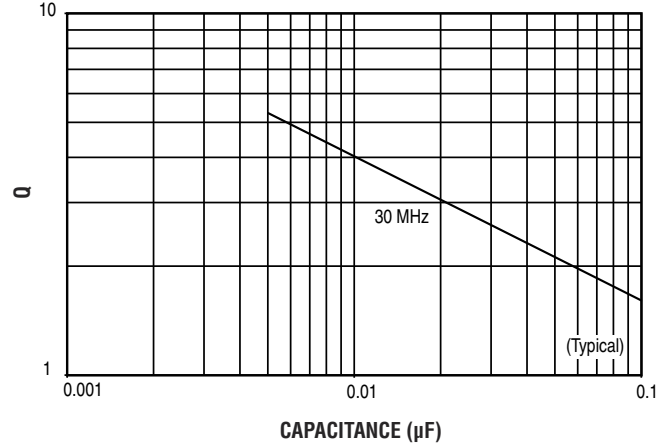
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# ATC 200 B Performance Data

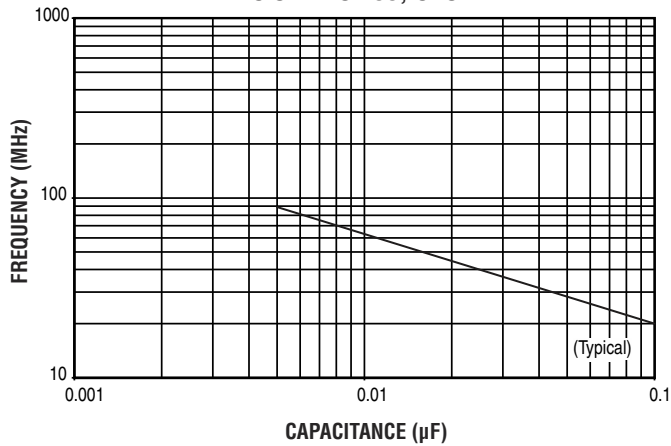
**ESR VS. CAPACITANCE  
ATC SERIES 200, CASE B**



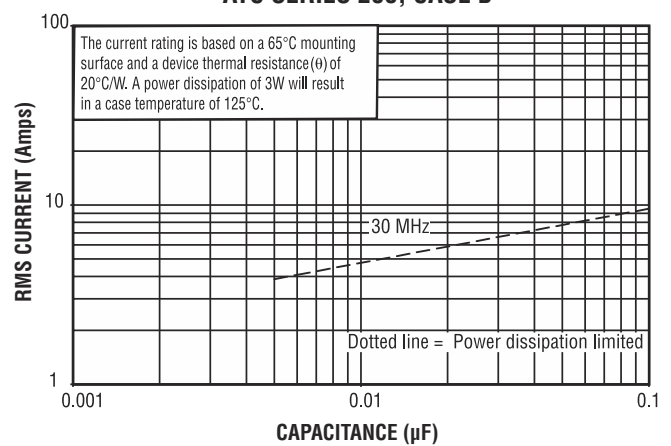
**Q VS. CAPACITANCE  
ATC SERIES 200, CASE B**



**SERIES RESONANCE VS. CAPACITANCE  
ATC SERIES 200, CASE B**



**CURRENT RATING VS. CAPACITANCE  
ATC SERIES 200, CASE B**



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