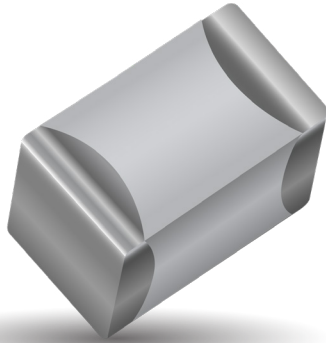


# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 200B Series BX Ceramic



#### FEATURES

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

#### GENERAL DESCRIPTION

KYOCERA AVX, 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.

#### PACKAGING OPTIONS



Tape & Reel



Vertical Orientation  
Tape & Reel



Cap-Pak®  
(100 pcs)

#### ELECTRICAL SPECIFICATIONS

|  |  |
|--|--|
| <b>Temperature Coefficient (TCC)</b>         | $\pm 15\%$ maximum (-55°C to +125°C)   |
| <b>Capacitance Range</b>                     | 510 pF to 0.01 $\mu$ F   |
| <b>Operating Temperature</b>                 | From -55°C to +125°C<br>(No derating of working voltage).  |
| <b>Dissipation Factor</b>                    | 2.5% max. @ 1 KHz  |
| <b>Insulation Resistance (IR)</b>            | 5000 pF to 0.1 MFd:<br>10 <sup>4</sup> Megohms min. @ +25°C at rated WVDC.<br>10 <sup>3</sup> Megohms min. @ +125°C at rated WVDC. |
| <b>Dielectric Absorption</b>                 | 2% Typical   |
| <b>Working Voltage (WVDC)</b>                | See Capacitance Values table   |
| <b>Dielectric Withstanding Voltage (DWV)</b> | Case B: 250% of rated WVDC for 5 secs.   |
| <b>Aging Effects</b>                         | 3% maximum per decade hour.  |
| <b>Piezoelectric Effects</b>                 | Negligible   |
| <b>Capacitance Drift</b>                     | $\pm$ (0.02% or 0.02 pF), whichever is greater   |

#### ENVIRONMENTAL CHARACTERISTICS

|                             |   |
|-----------------------------|---|
| <b>Thermal Shock</b>        | MIL-STD-202, Method 107, Condition A.   |
| <b>Moisture Resistance</b>  | MIL-STD-202, Method 106.  |
| <b>Low Voltage Humidity</b> | 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.   |
| <b>Life Test</b>            | MIL-STD-202, Method 108, for 2000 hours, at 125°C. 200% WVDC applied.   |
| <b>Termination Styles</b>   | Available in various surface mount styles. See Mechanical Configurations, page 3  |
| <b>Terminal Strength</b>    | 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 |

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## CAPACITANCE VALUES

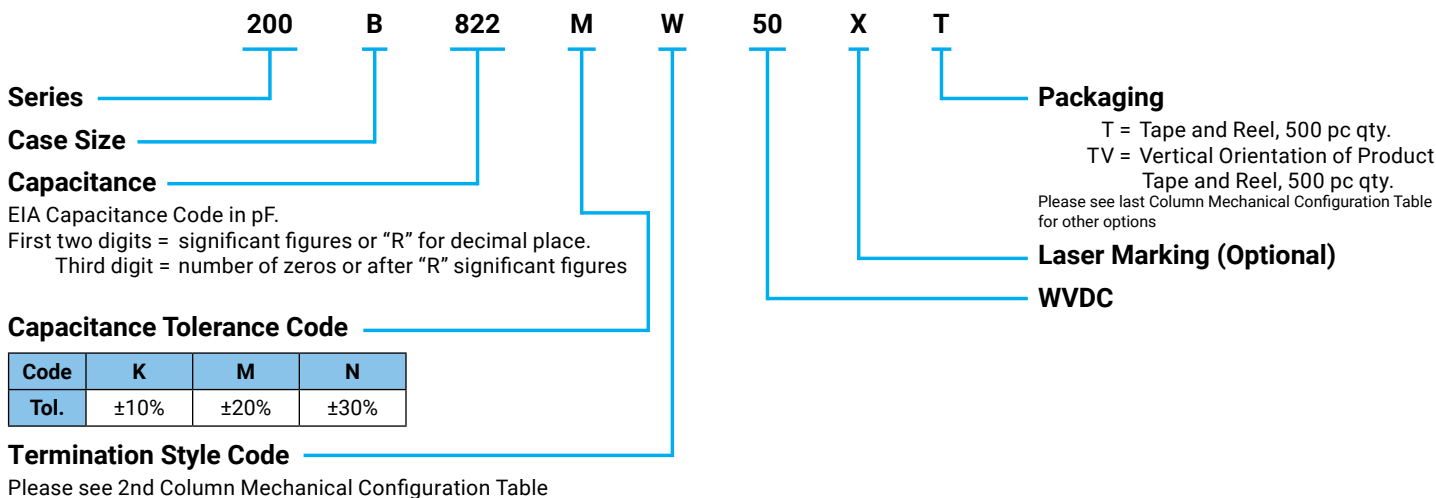
| CAP. CODE | CAP. (pF) | TOL.    | RATED WVDC |         | CAP. CODE | CAP. (pF) | TOL.    | RATED WVDC |         |
|-----------|-----------|---------|------------|---------|-----------|-----------|---------|------------|---------|
|           |           |         | STD        | EXT.*   |           |           |         | STD        | EXT.*   |
| 502       | 5000      | K, M, N | 50         | VOLTAGE | 273       | 27,000    | K, M, N | 50         | VOLTAGE |
| 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    |         | EXTENDED   | 100     | 683       | 68,000    |         | EXTENDED   |         |
| 183       | 18,000    |         |            |         | 823       | 82,000    |         |            |         |
| 203       | 20,000    |         |            |         | 104       | 100,000   |         |            |         |
| 223       | 22,000    |         |            |         |           |           |         |            |         |

VRMS = 0.707 x WVDC

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

\* Extended WVDC offering meets X7R characteristics

## HOW TO ORDER



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 KYOCERA AVX Cap-Pac® packaging.

# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 200B Series BX Ceramic



#### MECHANICAL CONFIGURATION

| SERIES & CASE SIZE | TERM. CODE | CASE SIZE & TYPE               | OUTLINES W/T IS A TERMINATION SURFACE | BODY DIMENSIONS INCHES (mm)            |                            |                            | LEAD AND TERMINATION DIMENSIONS AND MATERIALS |  |                                    | Pkg Type           | Pkg Code  |                          |
|--------------------|------------|--------------------------------|---------------------------------------|--|----------------------------|----------------------------|---|--|------------------------------------|--------------------|---|--------------------------|
|                    |            |                                |                                       | LENGTH (L)                             | WIDTH (W)                  | THICKNESS (T)              | OVERLAP (Y)                                   | MATERIALS  |                                    |                    |   |                          |
| 200B               | W          | B<br>Solder Plate              |                                       | .110 +.020 -.010<br>(2.79 +0.51 -0.25) | .110 ±.015<br>(2.79 ±0.38) | .102 (2.59)<br>max.        | .015 (0.38)<br>±.010 (0.25)<br>max.           | Tin/Lead, Solder Plated over Nickel Barrier Termination    |                                    |                    | T&R, 1000 or 500 pcs Vertical T&R, 1000 pcs or 500 pcs Cap Pac, 100 pcs | T1K or T TV1K or TV C100 |
| 200B               | P          | B<br>Pellet                    |                                       | .110 +.035 -.010<br>(2.79 +0.89 -0.25) | .110 ±.015<br>(2.79 ±0.38) | .102 (2.59)                |   | Heavy Tin/Lead Coated, over Nickel Barrier Termination     |                                    |                    | T&R, 1000 or 500 pcs Vertical T&R, 1000 pcs or 500 pcs Cap Pac, 100 pcs | T1K or T TV1K or TV C100 |
| 200B               | T          | B<br>Solderable Nickel Barrier |                                       | .110 +.020 -.010<br>(2.79 +0.51 -0.25) | .110 ±.015<br>(2.79 ±0.38) | .102 (2.59)                |   | RoHS Compliant Tin Plated over Nickel Barrier Termination  |                                    |                    | T&R, 1000 or 500 pcs Vertical T&R, 1000 pcs or 500 pcs Cap Pac, 100 pcs | T1K or T TV1K or TV C100 |
| 200B               | CA         | B<br>Gold Chip                 |                                       | .110 +.020 -.010<br>(2.79 +0.51 -0.25) | .110 ±.015<br>(2.79 ±0.38) | .102 (2.59)                |   | RoHS Compliant Gold Plated over Nickel Barrier Termination |                                    |                    | T&R, 1000 or 500 pcs Vertical T&R, 1000 pcs or 500 pcs Cap Pac, 100 pcs | T1K or T TV1K or TV C100 |
| 200B               | MS         | B<br>Microstrip                |                                       | .135 ±.015<br>(3.43 ±0.38)             | .110 ±.015<br>(2.79 ±0.38) | .120 (3.05)<br>max.        | N/A   | Length (LL)  | Width (WL)                         | Thickness (TL)     | Cap Pac, 20 pcs   | C20                      |
| 200B               | AR         | B<br>Axial Ribbon              |                                       |  |                            | .250 (6.35)<br>min.        |   | .093 ±.005<br>(2.36 ± 0.13)                                | .004 ±.001<br>(.102 ± .025)        | Box, 20 or 100 pcs | B20 or B100   |                          |
| 200B               | RR         | B<br>Radial Ribbon             |                                       |  |                            | .100 (2.54)<br>max.        |   | Box, 20 or 100 pcs   | B20 or B100                        |                    |   |                          |
| 200B               | RW         | B<br>Radial Wire               |                                       |  |                            | .145 ±.020<br>(3.68 ±0.51) |   | .500 (12.7)  | #26 AWG., .016 (.406) dia. nominal | Box, 20 or 100 pcs | B20 or B100   |                          |
| 200B               | AW         | B<br>Axial Wire                |                                       |  |                            |                            |   |  |                                    | Box, 20 or 100 pcs | B20 or B100   |                          |

# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 200B Series BX Ceramic



#### NON-MECHANICAL CONFIGURATION

| SERIES & CASE SIZE | TERM. CODE | MIL-PRF-55681 | CASE SIZE & TYPE                | OUTLINES W/T IS A TERMINATION SURFACE | BODY DIMENSIONS INCHES (mm)               |                            |                            | LEAD AND TERMINATION DIMENSIONS AND MATERIALS |   |  | Pkg Type  | Pkg Code                          |   |   |  |                       |
|--------------------|------------|---------------|---------------------------------|---------------------------------------|---|----------------------------|----------------------------|---|---|--|---|-----------------------------------|---|---|--|-----------------------|
|                    |            |               |                                 |                                       | LENGTH (L)                                | WIDTH (W)                  | THICKNESS (T)              | OVERLAP (Y)                                   | MATERIALS                                   |  |   |                                   |   |   |  |                       |
| 200B               | WN         | Meets Rqmts.  | B<br>Non-Mag Solder Plate       |                                       | .110+0.025<br>-0.10 (2.79<br>+0.64 -0.25) | .110 ±0.15<br>(2.79 ±0.38) |                            |   |   | Tin/Lead, Solder Plated over<br>Non-Magnetic Barrier Termination | T&R, 1000 or<br>500 pcs<br>Vertical T&R,<br>1000 pcs or<br>500 pcs<br>Cap Pac,<br>100 pcs | T1K or T<br>TV1K or<br>TV<br>C100 |   |   |  |                       |
| 200B               | PN         | Meets Rqmts.  | B<br>Non-Mag Pellet             |                                       | .110+0.035<br>-0.10 (2.79<br>+0.89 -0.25) | .110 ±0.15<br>(2.79 ±0.38) |                            |   |   |  | .102 (2.59)<br>max..  | .015 (0.38)<br>±.010 (0.25)       | Heavy Tin/Lead, Coated over<br>Non-Magnetic Barrier Termination       | T&R, 1000 or<br>500 pcs<br>Vertical T&R,<br>1000 pcs or<br>500 pcs<br>Cap Pac,<br>100 pcs | T1K or T<br>TV1K or<br>TV<br>C100        |                       |
| 200B               | TN         | Meets Rqmts.  | B<br>Non-Mag Solderable Barrier |                                       | .110+0.025<br>-0.10 (2.79<br>+0.64 -0.25) | .110 ±0.15<br>(2.79 ±0.38) |                            |   |   |  |   |                                   | RoHS Compliant<br>Tin Plated over<br>Non-Magnetic Barrier Termination | T&R, 1000 or<br>500 pcs<br>Vertical T&R,<br>1000 pcs or<br>500 pcs<br>Cap Pac,<br>100 pcs | T1K or T<br>TV1K or<br>TV<br>C100        |                       |
| 200B               | MN         | Meets Rqmts.  | B<br>Non-Mag Microstrip         |                                       |   |                            | .120 (3.05)<br>max.        | N/A   | Length (LL)<br>Width (WL)<br>Thickness (TL) |  | Cap Pac,<br>20 pcs  | C20                               |   |   |  |                       |
| 200B               | AN         | Meets Rqmts.  | B<br>Non-Mag Axial Ribbon       |                                       |   |                            | .135 ±0.15<br>(3.43 ±0.38) |   |   |  |   | .250<br>(6.35)<br>min.            | .093 ± .005<br>(2.36 ± 0.13)  | .004 ± .001<br>(.102 ± .025)  | Box, 20 or<br>100 pcs                    | B20 or<br>B100        |
| 200B               | FN         | Meets Rqmts.  | B<br>Non-Mag Radial Ribbon      |                                       |   |                            |                            |   |   |  | .110 ±0.15<br>(2.79 ±0.38)  |                                   |   |   | Box, 20 or<br>100 pcs                    | B20 or<br>B100        |
| 200B               | RN         | Meets Rqmts.  | B<br>Non-Mag Axial Wire         |                                       |   |                            |                            |   |   |  | Box, 20 or<br>100 pcs   | B20 or<br>B100                    |   |   |  |                       |
| 200B               | BN         | Meets Rqmts.  | B<br>Non-Mag RadialWire         |                                       |   |                            |                            |   |   |  | .145 ±0.020<br>(3.68 ±0.51)   |                                   |   | .500<br>(12.7)<br>min.  | #26 AWG.,<br>.016 (.406) dia.<br>nominal | Box, 20 or<br>100 pcs |

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.