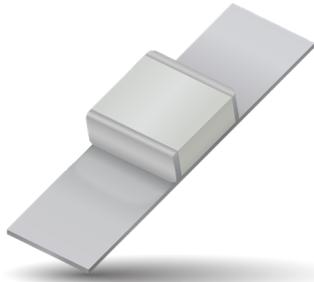


RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

800E Series NPO Ceramic High RF Power Multilayer Capacitors



FEATURES

- Case E Size (.380" x .380")
- Capacitance Range 3.3 pF to 5100 pF
- Ultra Low ESR
- High Q
- High RF Power
- Ultra-Stable Performance
- High RF Current/Voltage
- High Reliability

GENERAL DESCRIPTION

KYOCERA AVX'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. KYOCERA AVX'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.

FUNCTIONAL APPLICATIONS

- Bypass
- Impedance Matching
- Coupling
- DC Blocking
- Tuning

CIRCUIT APPLICATIONS

- HF/RF Power Amplifiers
- Plasma Chambers
- Transmitters
- Medical (MRI coils)
- Antenna Tuning

ENVIRONMENTAL CHARACTERISTICS

| | |
|-----------------------------|---|
| 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 VDC applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours |
| 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 |
| Termination Styles | Available in various surface mount and leaded styles. See Mechanical Configurations |
| Terminal Strength | Terminations for chips and pellets 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. |

PACKAGING OPTIONS



Tape & Reel



Tray
(96 pcs)



ELECTRICAL SPECIFICATIONS

| | |
|--|--|
| Temperature Coefficient (TCC) | 0 ±30 PPM/°C (-55°C to +125°C) |
| Capacitance Range | 3.3 pF to 5100 pF |
| Operating Temperature | -55°C to +125°C |
| Quality Factor | Greater than 5,000 (3.3 pF to 1000 pF) @ 1 MHz. Greater than 5,000 (1100 pF to 5,100 pF) @ 1 KHz. |
| Insulation Resistance (IR) | Max Test Voltage is 500 VDC 10 ⁵ Megohms min. @ 25°C at 500 VDC 10 ⁴ Megohms min. @ 125°C at 500 VDC |
| Working Voltage (WVDC) | See Capacitance Values table |
| Dielectric Withstanding Voltage (DWV) | 120% of WVDC for 5 seconds |
| Aging Effects | None |
| Piezoelectric Effects | None |
| Capacitance Drift | ± (0.02% or 0.02 pF), whichever is greater |
| Retrace | Less than ±(0.02% or 0.02 pF), whichever is greater. |

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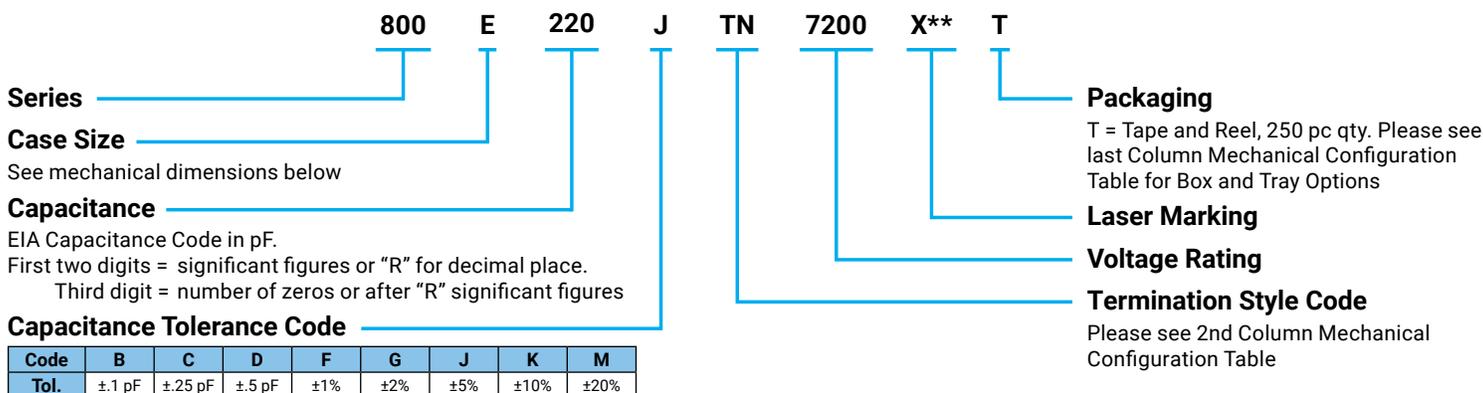
CAPACITANCE VALUES

| Cap. Code | Cap. (pF) | Tol. | Rated WVDC | Cap. Code | Cap. (pF) | Tol. | Rated WVDC | Cap. Code | Cap. Code | Tol. | Rated WVDC |
|-----------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|------------|
| 3R3 | 3.3 | B, C, D | 7200 | 360 | 36 | F, G, J, K | 7200 | 391 | 390 | F, G, J, K | 3600 |
| 3R6 | 3.6 | | | 390 | 39 | | | 431 | 430 | | |
| 3R9 | 3.9 | | | 430 | 43 | | | 471 | 470 | | |
| 4R3 | 4.3 | | | 470 | 47 | | | 511 | 510 | | |
| 4R7 | 4.7 | | | 510 | 51 | | | 561 | 560 | | |
| 5R1 | 5.1 | | | 560 | 56 | | | 621 | 620 | | |
| 5R6 | 5.6 | | | 620 | 62 | | | 681 | 680 | | |
| 6R2 | 6.2 | | | 680 | 68 | | | 751 | 750 | | |
| 6R8 | 6.8 | | | 750 | 75 | | | 821 | 820 | | |
| 7R5 | 7.5 | | | 820 | 82 | | | 911 | 910 | | |
| 8R2 | 8.2 | | | 910 | 91 | | | 102 | 1000 | | |
| 9R1 | 9.1 | | | 101 | 100 | | | 112 | 1100 | | |
| 100 | 10 | F, G, J, K | 7200 | 111 | 110 | F, G, J, K | 3600 | 122 | 1200 | F, G, J, K | 2500 |
| 110 | 11 | | | 121 | 120 | | | 132 | 1300 | | |
| 120 | 12 | | | 131 | 130 | | | 152 | 1500 | | |
| 130 | 13 | | | 151 | 150 | | | 162 | 1600 | | |
| 150 | 15 | | | 161 | 160 | | | 182 | 1800 | | |
| 160 | 16 | | | 181 | 180 | | | 202 | 2000 | | |
| 180 | 18 | | | 201 | 200 | | | 222 | 2200 | | |
| 200 | 20 | | | 221 | 220 | | | 242 | 2400 | | |
| 220 | 22 | | | 241 | 240 | | | 272 | 2700 | | |
| 240 | 24 | | | 271 | 270 | | | 302 | 3000 | | |
| 270 | 27 | | | 301 | 300 | | | 332 | 3300 | | |
| 300 | 30 | | | 331 | 330 | | | 392 | 3900 | | |
| 330 | 33 | | | 361 | 360 | | | 472 | 4700 | | |
| | | | | | | | | 512 | 5100 | | |

VRMS = 0.707 X WVDC

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

HOW TO ORDER



**Optional

The above part number refers to a 800 E Series (case size E) 22 pF capacitor, J tolerance (±5%), 7200 WVDC, with TN termination (Tin Plated over Non-Magnetic Barrier Termination), laser marking and Tape and Reel Packaging. Add "D" instead of "X" for double-sided marking.

MECHANICAL CONFIGURATION

| Series & Case Size | Term. Code | Case Size & Type | Outline W/T is a Termination Surface | Body Dimensions inches (mm) | | | Lead and Termination Dimensions and Material | | Pkg Type | Pkg Code | | | | | | |
|--------------------|------------|---------------------------|---|------------------------------------|-----------|---------------|---|--|---------------------------------------|-----------------|------------------------------------|------------------------|--|--|-----------------------|------------|
| | | | | Length (L) | Width (W) | Thickness (T) | Overlap (Y) | Materials | | | | | | | | |
| 800E | T | Solderable Nickel Barrier | | .380+.015-.010 (9.65+0.38-0.25) | | | .040 (1.02) max. | RoHS Compliant Tin Plated over Nickel Barrier Termination | T&R, 250 pcs Tray, 24 or 96 pcs | T J24 or J96 | | | | | | |
| 800E | MS | Microstrip | | | | | | | | | .380+.015-.010 (9.65+0.38-0.25) | .190 (4.83) max. | N/A | High Purity Silver Leads $L_L = .750$ (19.05) min $W_L = .350 \pm .010$ (8.89 \pm 0.25) $T_L = .010 \pm .005$ (0.25 \pm 0.13) Leads are Attached with High Temperature Solder. | Tray, 16 or 32 pcs | J16 or J32 |
| 800E | AR | Axial Ribbon | | | | | | | | | | | | | | |
| 800E | AW | Axial Wire | | | | | | | | | .380+.035-.010 (9.65+0.89-0.25) | N/A | Silver-plated Copper Leads Dia. = $.032 \pm .002$ (.813 \pm .051) $L_L = 2.25$ (57.2) min. | Box, 20 pcs | B20 | |

Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.

NON MECHANICAL CONFIGURATION

| Series & Case Size | Term. Code | Case Size & Type | Outline W/T is a Termination Surface | Body Dimensions inches (mm) | | | Lead and Termination Dimensions and Material | | Pkg Type | Pkg Code | | | | | | |
|--------------------|------------|----------------------------|---|------------------------------------|-----------|---------------|---|--|------------------------------------|-----------------|--------------------------------------|--------------------|--|--|--------------------|------------|
| | | | | Length (L) | Width (W) | Thickness (T) | Overlap (Y) | Materials | | | | | | | | |
| 800E | TN | Non-Mag Solderable Barrier | | .380+.015-.010 (9.65+0.38-0.25) | | | .040 (1.02) max. | RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination | T&R, 250 pcs Tray, 24 or 96 pcs | T J24 or J96 | | | | | | |
| 800E | MN | Non-Mag Microstrip | | | | | | | | | .380 \pm .010 (9.65 \pm 0.25) | 170 (4.32) max. | N/A | High Purity Silver Leads $L_L = .750$ (19.05) min $W_L = .350 \pm .010$ (8.89 \pm 0.25) $T_L = .010 \pm .005$ (0.25 \pm 0.13) Leads are Attached with High Temperature Solder. | Tray, 16 or 32 pcs | J16 or J32 |
| 800E | AN | Non-Mag Axial Ribbon | | | | | | | | | | | | | | |
| 800E | BN | Non-Mag Axial Wire | | | | | | | | | .380+.035-.010 (9.65+0.89-0.25) | N/A | Silver-plated Copper Leads Dia. = $.032 \pm .002$ (.813 \pm .051) $L_L = 2.25$ (57.2) min. | Box, 20 pcs | B20 | |

Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.

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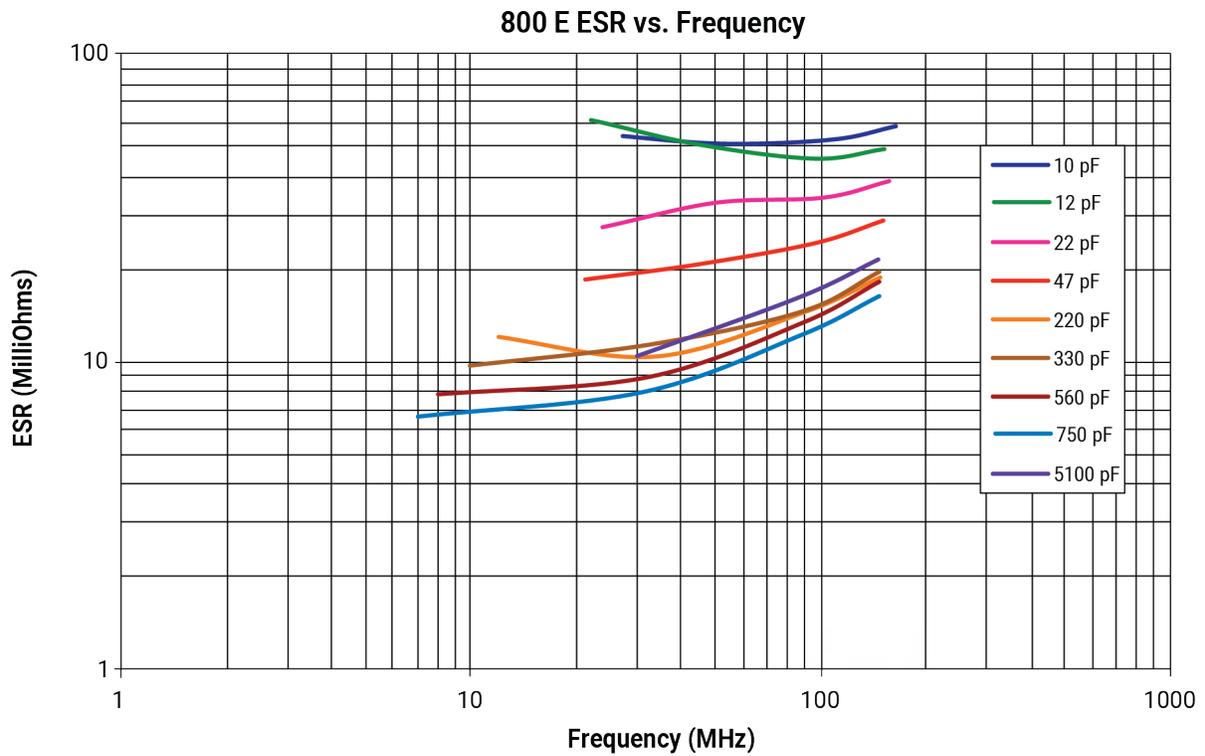
SUGGESTED MOUNTING PAD DIMENSIONS

Horizontal
Electrode Orientation

| Mount Type | Case E | | | | |
|------------------|--------------|--------|--------|--------|--------|
| | Pad Size | A Min. | B Min. | C Min. | D Min. |
| Horizontal Mount | Normal | .405 | .050 | .325 | .425 |
| | High Density | .383 | .030 | .325 | .385 |

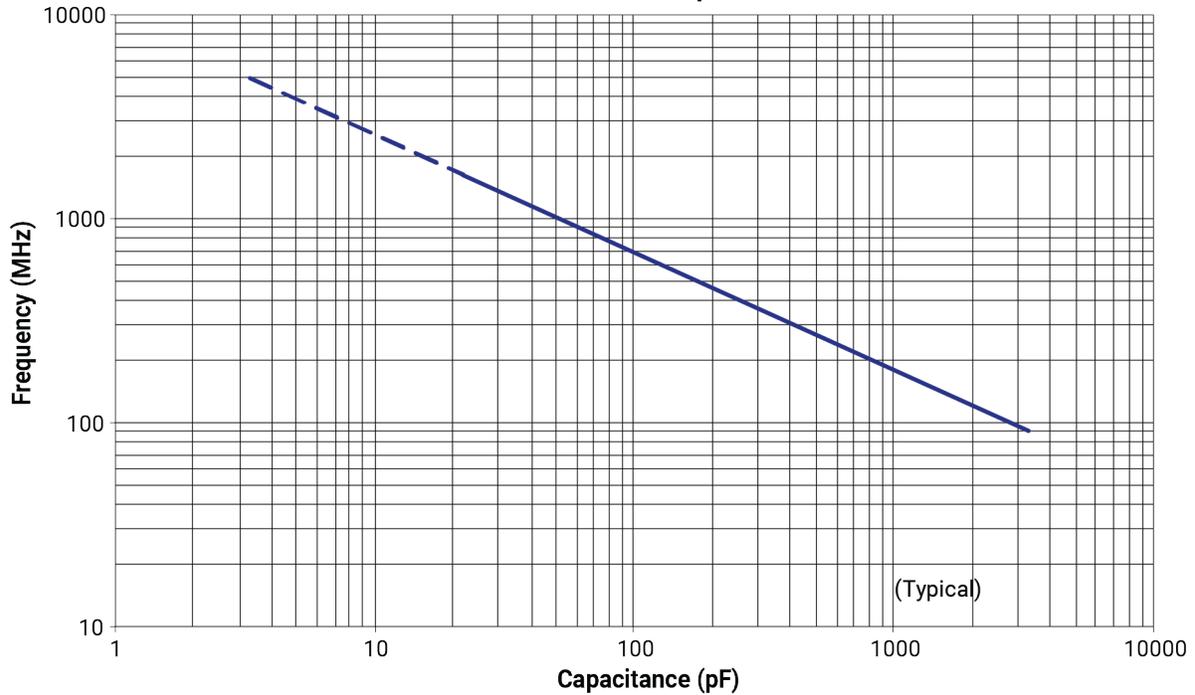
Dimensions are in inches.

PERFORMANCE DATA

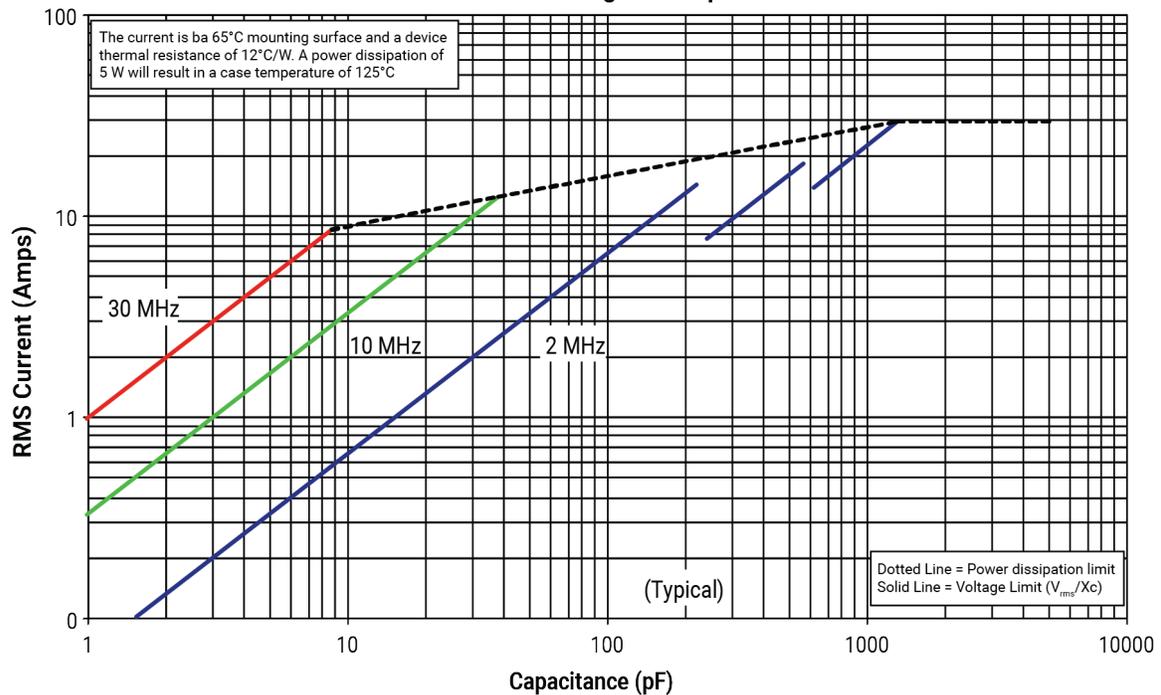


PERFORMANCE DATA

800 E FSR vs. Capacitance



800E Current Ratings vs. Capacitance



PERFORMANCE DATA

