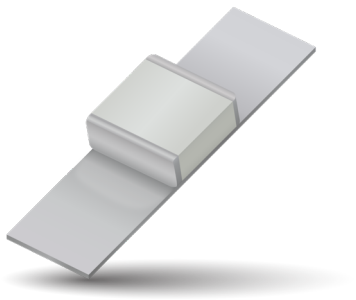
RF/Microwave Capacitors

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.

PACKAGING OPTIONS

Tape & Reel

Tray (96 pcs)

RoHS COMPLIANT

FUNCTIONAL APPLICATIONS

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

CIRCUIT APPLICATIONS

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

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.

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 85ºC 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.

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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		2500
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		111	110		3600	122	1200		
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

800 E 220 J TN 7200 X T**

Series

Case Size
See mechanical dimensions below

Capacitance
EIA Capacitance Code in pF.
First two digits = significant figures or "R" for decimal place.
Third digit = number of zeros or after "R" significant figures

Capacitance Tolerance Code

Code	B	C	D	F	G	J	K	M
Tol.	±.1 pF	±.25 pF	±.5 pF	±1%	±2%	±5%	±10%	±20%

Packaging
T = Tape and Reel, 250 pc qty. Please see last Column Mechanical Configuration Table for Box and Tray Options

Laser Marking

Voltage Rating

Termination Style Code
Please see 2nd Column Mechanical Configuration Table

**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.

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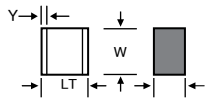
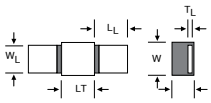
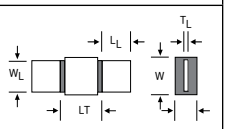
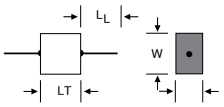
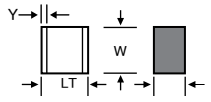
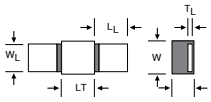
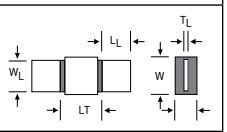
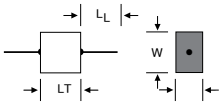
MECHANICAL CONFIGURATION

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	E Solderable Nickle Barrier		.380+.015 -.010 (9.65+0.38-0.25)	.380+.015-.010 (9.65+0.38 -0.25)	.190 (4.83) max.	.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	E Microstrip		.380+.035 -.010 (9.65+0.89-0.25)			N/A	High Purity Silver Leads L_L = .750 (19.05) min W_L = .350 ±.010 (8.89 ±0.25) T_L = .010 ±.005 (0.25 ±0.13) Leads are Attached with High Temperature Solder.	Tray, 16 or 32 pcs	J16 or J32
800E	AR	E Axial Ribbon							Tray, 16 or 32 pcs	J16 or J32
800E	AW	E Axial Wire						Silver-plated Copper Leads Dia. = .032 ±.002 (.813 ±.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	E Non-Mag Solderable Barrier		.380+.015 -.010 (9.65+0.38-0.25)	.380 ±.010 (9.65 ±0.25)	170 (4.32) max.	.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	E Non-Mag Microstrip		.380+.035-.010 (9.65+0.89-0.25)			N/A	High Purity Silver Leads L_L = .750 (19.05) min W_L = .350 ±.010 (8.89 ±0.25) T_L = .010 ±.005 (0.25 ±0.13) Leads are Attached with High Temperature Solder.	Tray, 16 or 32 pcs	J16 or J32
800E	AN	E Non-Mag Axial Ribbon							Tray, 16 or 32 pcs	J16 or J32
800E	BN	E Non-Mag Axial Wire						Silver-plated Copper Leads Dia. = .032 ±.002 (.813 ±.051) L_L = 2.25 (57.2) min.	Box, 20 pcs	B20

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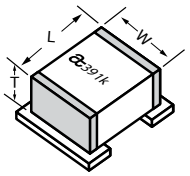
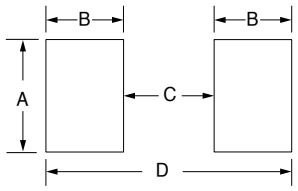
SUGGESTED MOUNTING PAD DIMENSIONS



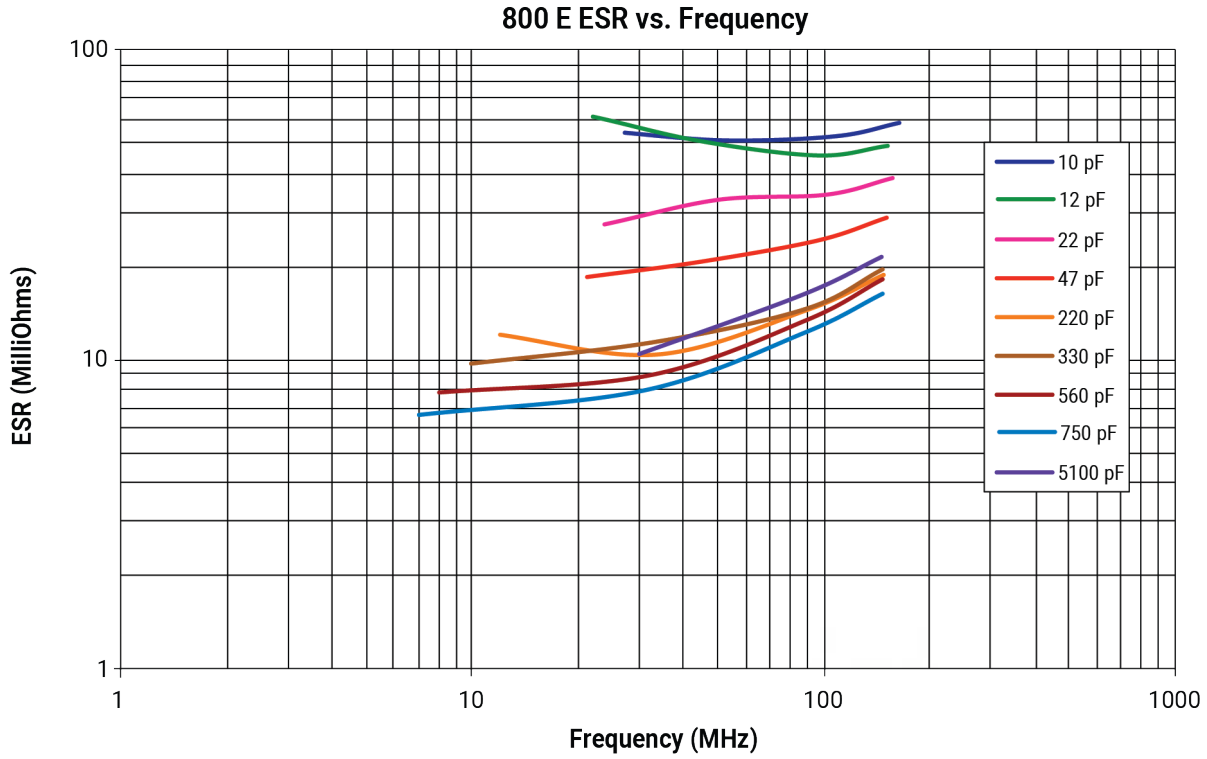
Horizontal
Electrode Orientation



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



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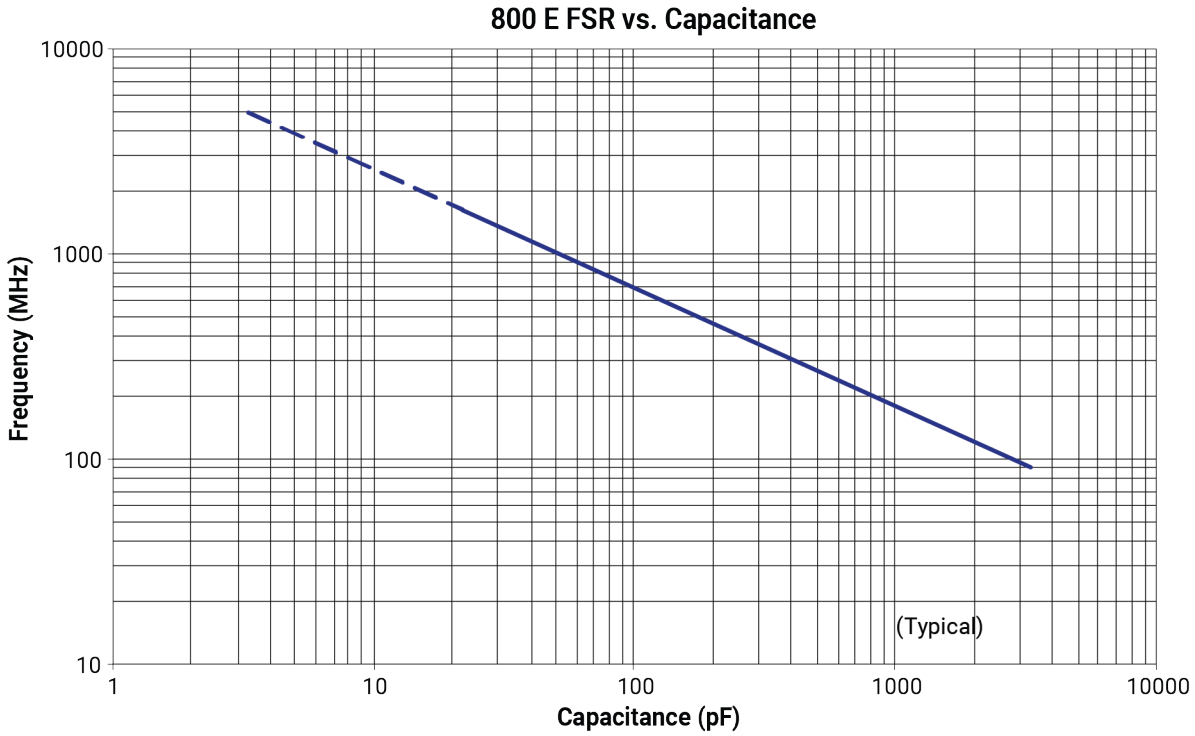

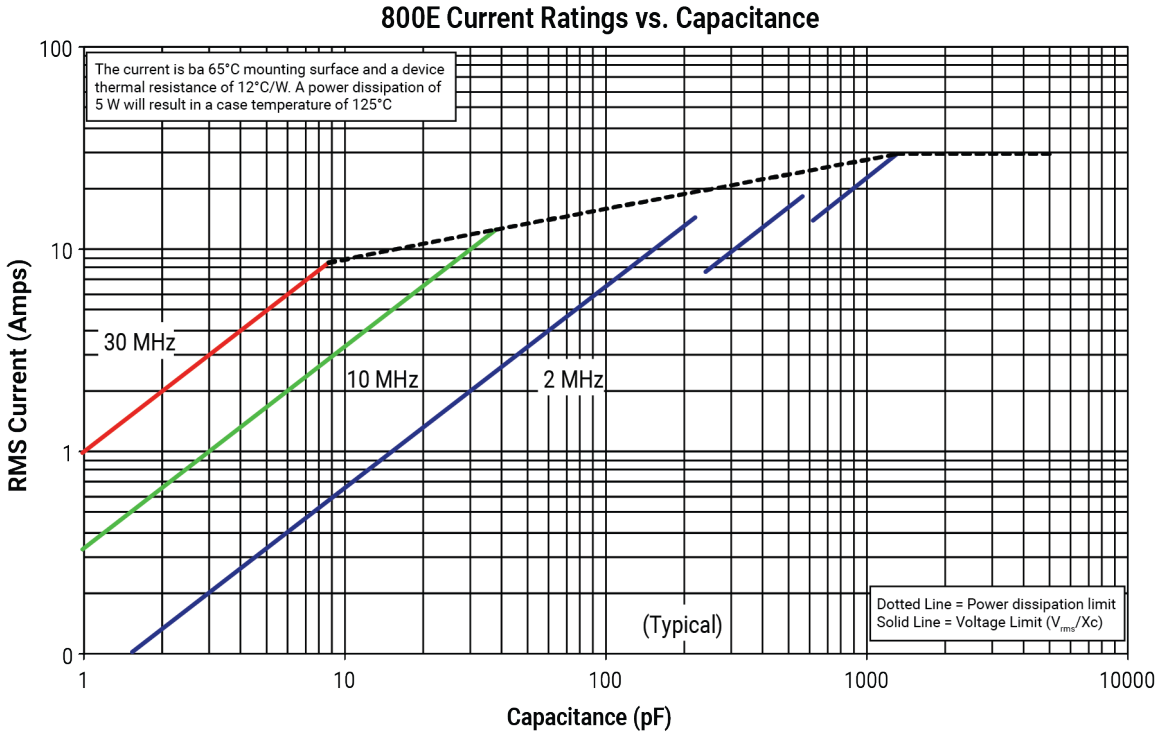

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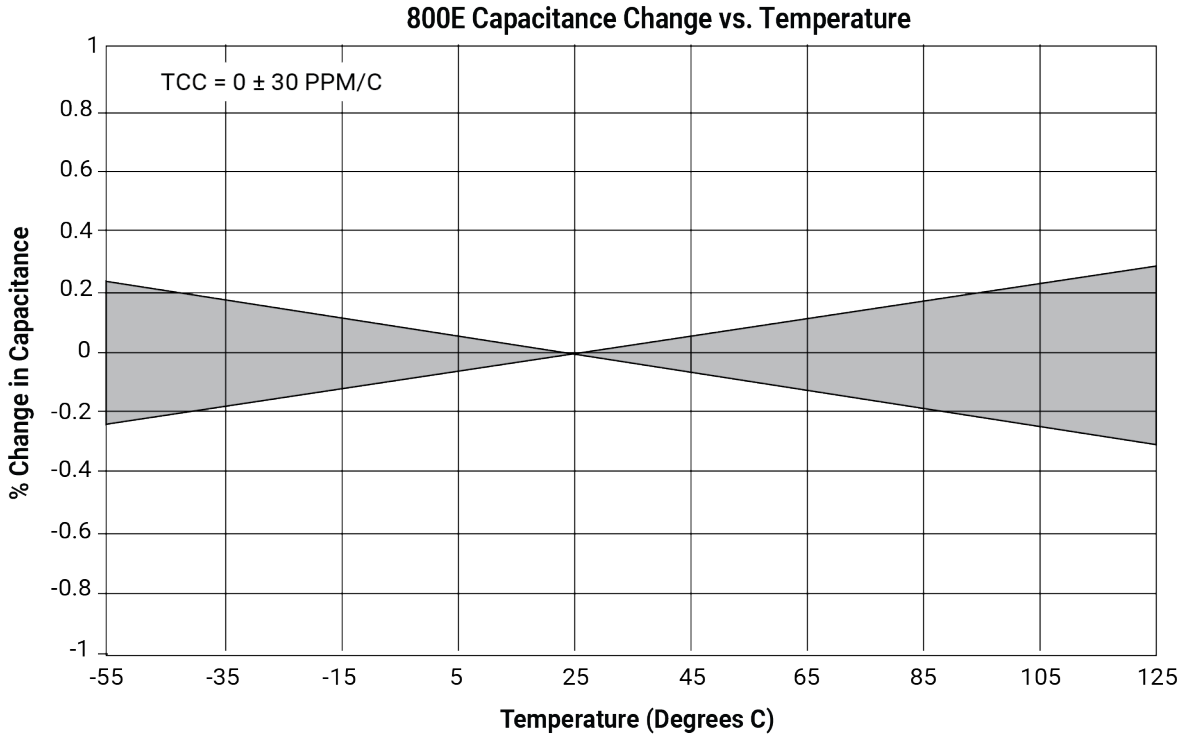
PERFORMANCE DATA