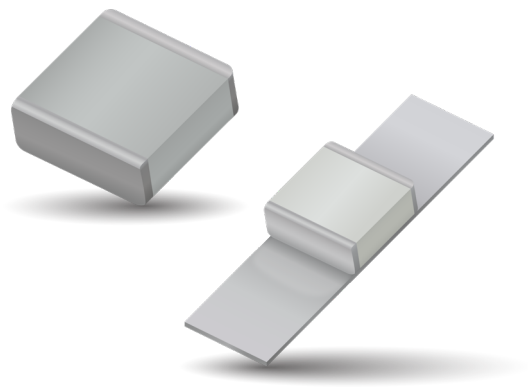
RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

800C Series NP0 Porcelain, High RF Power Ultra-Low ESR



FEATURES

- Case C Size (.250" x .250")
- High Q
- Low ESR/ESL
- High RF Power
- 3600 WVDC
- Capacitance Range: 2.2 pF to 3000 pF
- Ultra-Stable Performance
- High RF Current/Voltage
- High Reliability
- RoHS Compliant, Pb free

PACKAGING OPTIONS

Tape & Reel

Tray (180 pcs)

RoHS COMPLIANT

GENERAL DESCRIPTION

KYOCERA AVX's 800 C 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 800C Series products are your best choice for high RF power applications from VHF through microwave frequencies.

TYPICAL APPLICATIONS

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

TYPICAL CIRCUIT APPLICATIONS

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

ENVIRONMENTAL TEST

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. 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.

ENVIRONMENTAL CHARACTERISTICS

Quality Factor (Q)	Greater than 2,000 at 1 MHz (Cap Values <=10pf .0010 Max. @ 1MHz Cap Values >10pf .0005 Max. @ 1MHz)
Temperature Coefficient of Capacitance (TCC)	0 ±30 PPM/°C (-55°C to +125°C)
Insulation Resistance (IR)	2.2 pF to 3000 pF: 10^5 Megohms min. @ +25°C at rated WVDC. 10^4 Megohms min. @ +125°C at rated WVDC. Max. test voltage is 500 VDC.
Working Voltage (WVDC)	See Capacitance Values Table
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 above 500 volts DC and ≤1250 volts DC for 5 seconds. 120% of WVDC for capacitors rated above 1250 volts DC for 5 seconds.
Retrace	Less than ±(0.02% or 0.02 pF), whichever is greater.
Aging Effects	None
Piezoelectric Effects	None
Capacitance Drift	±(0.02% or 0.02 pF), whichever is greater.
Operating Temperature Range	From -55°C to +125°C (No derating of working voltage).
Termination Styles	See Mechanical Configurations
Terminal Strength	Terminations for chips withstand a pull of 10 lbs. min., 20 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor. Test per MIL-STD-202, method 211.

CAPACITANCE VALUES

CAP CODE	CAP (pF)	TOL.	RATED WVDC	CAP CODE	CAP (pF)	TOL.	RATED WVDC	CAP CODE	CAP (pF)	TOL.	RATED WVDC
2R2	2.2	B, C, D	3600	240	24	F, G, J, K	3600	241	240	F, G, J, K	1000
2R4	2.4			270	27			271	270		
2R7	2.7			300	30			301	300		
3R0	3.0			330	33			331	330		
3R3	3.3			360	36			361	360		
3R6	3.6			390	39			391	390		
3R9	3.9			430	43			431	430		
4R3	4.3			470	47			471	470		
4R7	4.7			510	51			511	510		
5R1	5.1			560	56		2500	561	560		
5R6	5.6			620	62			621	620		
6R2	6.2			680	68			681	680		
6R8	6.8			750	75			751	750		
7R5	7.5			820	82			821	820		
8R2	8.2			910	91			911	910		
9R1	9.1			101	100			102	1000		600
100	10	F, G, J. K		111	110			112	1100		
110	11			121	120			122	1200		
120	12			131	130			152	1500		
130	13			151	150			182	1800		
150	15			161	160			222	2200		
160	16			181	180			242	2400		
180	18			201	200			272	2700		500
200	20			221	220			302	3000		
220	22										

VRMS = 0.707 X WVDC
• SPECIAL VALUES, TOLERANCES AND MATCHING AVAILABLE. PLEASE CONSULT FACTORY.

HOW TO ORDER

800 C 220 J TN 3600 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
Tol.	±0.1 pF	±0.25 pF	±0.5 pF	±1%	±2%	±5%	±10%

Packaging
T = Tape and Reel, 500 pc. qty.
Surface Mount Termination Only
Please see last Column Mechanical Configuration Table for other options

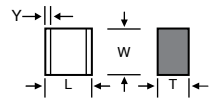
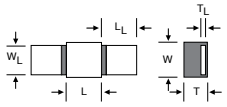
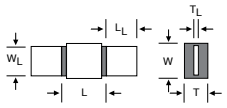
Laser Marking (Optional)

WVDC

Termination Code
Please see 2nd Column Mechanical Configuration Table

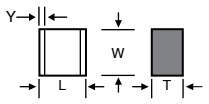
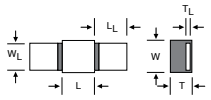
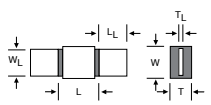
The above part number refers to a 800 C Series (case size C) 22 pF capacitor, J tolerance (±5%),3600 WVDC, with TN termination (RoHS Compliant, Tin Plated over Non-Magnetic Barrier Termination), laser marking and T&R packaging.

MECHANICAL CONFIGURATIONS

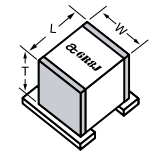
Series & Case Size	Term. Code	Case Size & Type	Outlines W/T Is A Termination Surface	Body Dimensions Inches (mm)			Lead And Termination Dimensions And Materials			
				Length (L)	Width (W)	Thickness (T)	Overlap (Y)	Materials	Pkg Type	Pkg Code
800C	T	C Solderable Barrier		230+.025 -.010 (5.84+0.64-0.25)	250 ±.015 (6.35 ±0.38)	.200 (5.08) max.	.040 (1.02) max.	RoHS Compliant Tin Plated over Nickel Barrier Termination	T&R, 250 or 500 pcs Tray, 36 or 180 pcs	T250 or T J36 or J180
800C	MS	C Microstrip		245 ±.025 (6.22 ±0.64)				High Purity Silver Leads L_L = .500 (12.7) min. W_L = .240 ±.005 (6.10 ±.127) T_L = .004 ±.001 (.102 ±.025) Leads are Attached with High Temperature Solder	Tray, 24 or 60 pcs	J24 or J60
800C	AR	C Axial Ribbon						Silver Leads L_L = .500 (12.7) min. W_L = ** See below T_L = .004 ±.001 (.102 ±.025)	Box, 24 pcs	B24

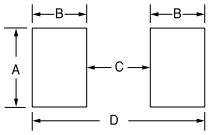
Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are RoHS compliant.
** W_L = .110 (2.79) for capacitance values ≤ 680 pF; W_L = .130 (3.30) for capacitance values > 680 pF

NON-MAGNETIC MECHANICAL CONFIGURATIONS

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			
				Length (L)	Width (W)	Thickness (T)	Overlap (Y)	Materials	Pkg Type	Pkg Code
800C	TN	C Non-Mag Solderable Barrier.		230+.025-.010 (5.84+0.64-0.25)	50 ±.015 (6.35 ±0.38)	.200 (5.08) max.	.040 (1.02) max.	RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination	T&R, 250 or 500 pcs Tray, 36 or 180 pcs	T250 or T J36 or J180
800C	MN	C Non-Mag Microstrip245		±.025 (6.22 ±0.64)				High Purity Silver Leads L_L = .500 (12.7) min. W_L = .240 ±.005 (6.10 ±.127) T_L = .004 ±.001 (.102 ±.025) Leads are Attached with High Temperature Solder	Tray, 24 or 60 pcs	J24 or J60
800C	AN	C Non-Mag Axial Ribbon		245 ±.025 (6.22 ±0.64)				Silver Leads L_L = .500 (12.7) min. W_L = ** See below T_L = .004 ±.001 (.102 ±.025)	Tray, 24 or 60 pcs	J24 or J60

SUGGESTED MOUNTING PAD DIMENSIONS





Case C Horizontal Mount					
Cap Value	**Pad Size**	**A Min.**	**B Min.**	**C Min.**	**D Min.**
All Values	Normal	.280	.050	.200	.300
	High Density	.260	.030	.200	.260

Dimensions are in inches.

PERFORMANCE DATA