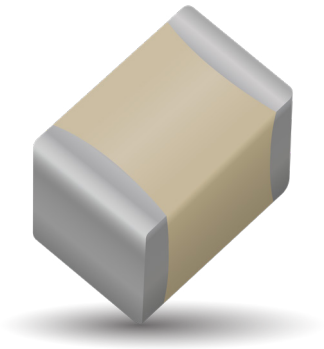
RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

700C Series NPO Porcelain and Ceramic Multilayer Capacitors



GENERAL DESCRIPTION

KYOCERA AVX, the industry leader, offers new improved ESR/ESL performance for the 700C Series RF Capacitors. This high Q multilayer capacitor is ultra-stable under high RF current and voltage applications. High density porcelain construction provides a rugged, hermetic package.

KYOCERA AVX offers an encapsulation option for applications requiring extended protection against arc-over and corona

FUNCTIONAL APPLICATIONS

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

CIRCUIT APPLICATIONS

- VHF/UHF RF Power Amplifiers
- Antenna Tuning
- Plasma Chambers
- Medical (MRI coils)

*For leaded styles only

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 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.
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., 20 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor. Test per MIL-STD-202, method 211.

FEATURES

- Case C Size (.250" x .250")
- High Q
- Low ESR/ESL
- High RF Power
- Available with Encapsulation Options*
- Capacitance Range 1 pF to 2700 pF
- Ultra-Stable Performance
- High RF Current/Voltage
- High Reliability

PACKAGING OPTIONS

Tape & Reel

Tray (180 pcs)

RoHS COMPLIANT

ELECTRICAL SPECIFICATIONS

Quality Factor (Q)	Greater than 10,000 (1.0 pF to 1000 pF) @ 1 MHz. Greater than 10,000 (1100 pF to 2700 pF) @ 1 KHz.
Temperature Coefficient of Capacitance (TCC)	0 ±30 PPM/°C (-55°C to +125°C)
Insulation Resistance (IR)	1 pF to 2700 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 at 1250 volts DC or less 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)

CAPACITANCE VALUES

CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC	CAP. CODE	CAP. (pF)	TOL.	RATED WVDC
1R0	1.0	B, C, D	2500	5R1	5.1	B, C, D	2500	390	39	F, G, J K, M	2500	301	300	F, G, J K, M	1500
1R1	1.1			5R6	5.6			430	43			331	330		
1R2	1.2			6R2	6.2			470	47			361	360		
1R3	1.3			6R8	6.8			510	51			391	390		
1R4	1.4			7R5	7.5			560	56			431	430		
1R5	1.5			8R2	8.2			620	62			471	470		
1R6	1.6			9R1	9.1			680	68			511	510		1000
1R7	1.7			100	10	F, G, J K, M		750	75			561	560		
1R8	1.8			110	11			820	82			621	620		
1R9	1.9			120	12			910	91			681	680		
2R0	2.0			130	13			101	100			751	750		
2R1	2.1			150	15			111	110			821	820		
2R2	2.2			160	16			121	120			911	910		
2R4	2.4			180	18			131	130			102	1000		
2R7	2.7			200	20			151	150			112	1100		
3R0	3.0			220	22			161	160			122	1200		
3R3	3.3			240	24			181	180			152	1500		500
3R6	3.6			270	27			201	200			182	1800		
3R9	3.9			300	30			221	220			222	2200		300
4R3	4.3			330	33			241	240			242	2400		
4R7	4.7			360	36			271	270			272	2700		

HOW TO ORDER

700 C 100 J W 2500 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.	±0.1 pF	±0.25 pF	±0.5 pF	±1%	±2%	±5%	±10%	±20%

Packaging

T = Tape and Reel, 500 pc. qty. Surface Mount Termination Only
Please see last column of mechanical configuration table for other options.

Laser Marking (Optional)

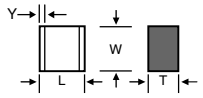
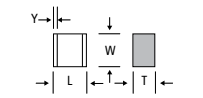
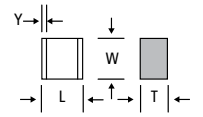
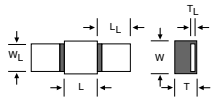
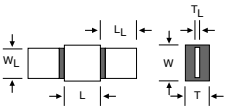
WVDC

Termination Code

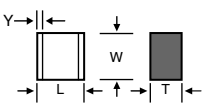
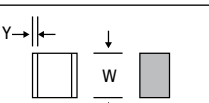
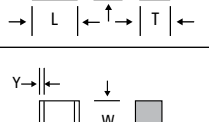
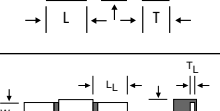
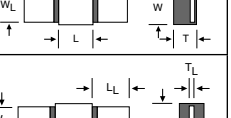
Please see 2nd Column Mechanical Configuration Table

The above part number refers to a 700C Series (case size C) 10 pF capacitor, J tolerance (±5%), 2500 WVDC, with W termination (Tin/Lead, Solder Plated over Nickel Barrier), laser marking and 500 pc T&R packaging.

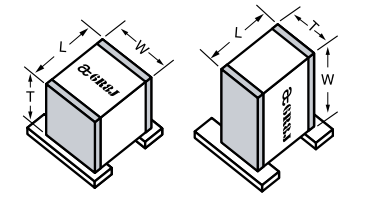
MECHANICAL CONFIGURATIONS

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
700C	W	C Solder Plate		.230+.020 -.010 (5.84+0.51-0.25)	.250 ±.015 (6.35 ±0.38)	.145 (3.68) max. for capacitance values ≤ 680 pF; .165 (4.19) max. for capacitance values > 680 pF.	.040 (1.02) max.	Tin /Lead, Solder Plated over Nickel Barrier Termination	T&R, 250 or 500 pcs Tray, 36 or 180 pcs	T250 or T J36 or J180
700C	P	C Pellet		.230+.025 -.010 (5.84+0.64-0.25)				Heavy Tin/Lead Coated, over Nickel Barrier Termination	T&R, 250 or 500 pcs Tray, 36 or 180 pcs	T250 or T J36 or J180
700C	T	C Solderable Nickel Barrier		.230+.020 -.010 (5.84+0.51-0.25)				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
700C	MS	C Microstrip		.245 ±.025 (6.22 ±0.64)			N/A	High Purity Silver Leads LL = .500 (12.7) min. WL = .240 ±.005 (6.10 ±.127) TL = .004 ±.001 (.102 ±.025) Leads are Attached with High Temperature Solder.	Tray, 24 or 60 pcs	J24 or J60
700C	AR	C Axial Ribbon							Tray, 24 or 60 pcs	J24 or J60

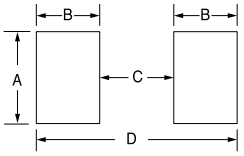
NON-MAGNETIC MECHANICAL CONFIGURATION

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			
				LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIALS	Pkg Type	Pkg Code
700C	WN	C Solder Plate		.230+.020 -.010 (5.84+0.51-0.25)	.250 ±.015 (6.35 ±0.38)	.145 (3.68) max. for capacitance values ≤ 680 pF; .165 (4.19) max. for capacitance values > 680 pF.	.040 (1.02) max.	Tin/Lead, Solder Plated over Non-Magnetic Barrier Termination	T&R, 250 or 500 pcs Tray, 36 or 180 pcs	T250 or T J36 or J180
700C	PN	C Pellet		.230+.025 -.010 (5.84+0.64-0.25)				Heavy Tin/Lead Coated, over Non-Magnetic Barrier Termination	T&R, 250 or 500 pcs Tray, 36 or 180 pcs	T250 or T J36 or J180
700C	TN	C Solderable Nickel Barrier		.230+.020 -.010 (5.84+0.51-0.25)				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
700C	MN	C Microstrip		.245 ±.025 (6.22 ±0.64)			N/A	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
700C	AN	C Axial Ribbon							Tray, 24 or 60 pcs	J24 or J60

SUGGESTED MOUNTING PAD DIMENSIONS



Case C Vertical Mount					
Cap Value	**Pad Size**	**A Min.**	**B Min.**	**C Min.**	**D Min.**
< 680 pF	Normal	.150	.050	.200	.300
	High Density	.130	.030	.200	.260
> 680 pF	Normal	.185	.050	.200	.300
	High Density	.165	.030	.200	.260



Horizontal Mount					
All Values	Normal	.280	.050	.200	.300
	High Density	.260	.030	.200	.260

PERFORMANCE DATA