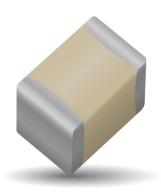
### **RF/Microwave Capacitors**

### **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

· Impedance Matching

Coupling

· DC Blocking

Tuning

#### **CIRCUIT APPLICATIONS**

- VHF/UHF RF Power Amplifiers
   Plasma Chambers
- Antenna Tuning
- 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





(180 pcs)

Tape & Reel

**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 <sup>5</sup> Megohms min. @ +25°C at rated WVDC. 10 <sup>4</sup> 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)				

## **RF/Microwave Capacitors**

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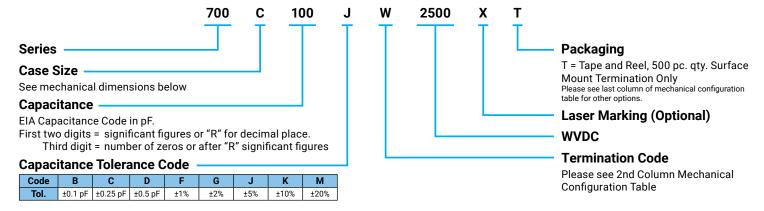




#### **CAPACITANCE VALUES**

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			5R1	5.1			390	39			301	300			
1R1	1.1				5R6	5.6			430	43			331	330		
1R2	1.2			6R2	6.2	1		470	47			361	360		1500	
1R3	1.3			6R8	6.8	B, C, D		510	51			391	390		1500	
1R4	1.4			7R5	7.5			560	56			431	430	1		
1R5	1.5			8R2	8.2			620	62			471	470			
1R6	1.6			9R1	9.1			680	68			511	510			
1R7	1.7			100	10	2500	750	75		ĺ	561	560	] [			
1R8	1.8			110	11		2500	820	82			621	620	F, G, J K, M	1000	
1R9	1.9			120	12			910	91			681	680			
2R0	2.0	B, C, D	2500	130	13			101	100	F, G, J K, M	2500	751	750			
2R1	2.1			150	15			111	110	] 17, 171	rx, ivi	821	820			
2R2	2.2			160	16			121	120			911	910			
2R4	2.4	] !		180 18 F, G, J	180 18 F, G		131	130			102	1000				
2R7	2.7			200	20	K, M		151	150			112	1100			
3R0	3.0			220	22			161	160			122	1200	500		
3R3	3.3			240	24			181	180			152	1500		500	
3R6	3.6			270	27			201	200			182	1800		500	
3R9	3.9			300	30			221	220			222	2200			
4R3	4.3			330	33			241	240			242	2400		300	
4R7	4.7			360	36			271	270			272	2700			

#### **HOW TO ORDER**



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.

# **RF/Microwave Capacitors RF/Microwave Multilayer Capacitors (MLC)**



# 700C Series NPO Porcelain and Ceramic Multilayer Capacitors

#### **MECHANICAL CONFIGURATIONS**

SERIES		CASE SIZE	OUTLINES		Y DIMENSION NCHES (mm)	s		LEAD AND TERMINA DIMENSIONS AND MAT						
& CASE SIZE	TERM. CODE	& TYPE	W/T IS A TERMINATION SURFACE	LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIALS	Pkg Type	Pkg Code				
700C	W	C Solder Plate	Y→  ←	.230+.020010 (5.84+0.51-0.25)				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	Р	C Pellet	Y→   ← ↓ W	.230+.025010 (5.84+0.64-0.25)	.250 ±.015 ≤ (6.35 ±0.38) .10	.145 (3.68) max. for	.040 (1.02) max.	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	Т	C Solderable Nickel Barrier	$\begin{array}{c c} Y \rightarrow & \longleftarrow & \longrightarrow & \longleftarrow \\ \hline & W & & \longleftarrow \\ \rightarrow & L & \longleftarrow & \uparrow \rightarrow & \uparrow & \uparrow & \longleftarrow \\ \end{array}$	.2001.020 .010		.250 ±.015 (6.35 ±0.38)	.250 ±.015 (6.35 ±0.38)				capacitance values ≤ 680 pF; .165 (4.19) max. for capacitance		RoHS Compliant Tin Plated over Nickel Barrier Termination	T&R, 250 or 500 pcs Tray, 36 or 180 pcs
700C	MS	C Microstrip	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		.245 ±.025		values > 680 pF.		High Purity Silver Leads LL = .500 (12.7) min. WL = .240 ±.005	Tray, 24 or 60 pcs	J24 or J60			
700C	AR	C Axial Ribbon	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				N/A	(6.10 ±.127) TL = .004 ±.001 (.102 ±.025) Leads are Attached with High Temperature Solder.	Tray, 24 or 60 pcs	J24 or J60				

#### NON-MAGNETIC MECHANICAL CONFIGURATION

SERIES	TERM.	CASE SIZE	OUTLINES W/T IS A	BODY DIMENSIONS INCHES (mm)				LEAD AND TERMIN DIMENSIONS AND M									
& CASE SIZE	CODE	& TYPE	PE   TERMINATION SURFACE   LENGTH   WIDTH   THICKNESS   OVE		OVERLAP (Y)	MATERIALS	Pkg Type	Pkg Code									
700C	WN	C Solder Plate	Y→  ←	.230+.020010 (5.84+0.51-0.25)				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	$\begin{array}{c c} Y \to & \downarrow & \downarrow \\ \hline & & w \\ \to & \downarrow & \downarrow & \uparrow \to \uparrow \uparrow \downarrow \leftarrow \end{array}$	.230+.025010 (5.84+0.64-0.25)	.250 ±.015 (6.35 ±0.38)	.145 (3.68) max. for capacitance values ≤ 680 pF; .165 (4.19) max. for capacitance values	.040 (1.02) max.	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	$\begin{array}{c c} Y \rightarrow & \downarrow & \downarrow \\ \hline & W & \hline \\ \rightarrow & L & \leftarrow \uparrow \rightarrow & \uparrow & \uparrow \leftarrow \end{array}$	.230+.020010 (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	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	.245 ±.025									> 680 pF.	N/A	High Purity Silver Leads L <sub>L</sub> = .500 (12.7) min. W <sub>L</sub> = .240 ±.005	Tray, 24 or 60 pcs	J24 or J60
700C	AN	C Axial Ribbon	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(6.22 ±0.64)			N/A	(6.10 ±.127)  T <sub>L</sub> = .004 ±.001  (.102 ±.025)  Leads are Attached with High Temperature Solder.	Tray, 24 or 60 pcs	J24 or J60							

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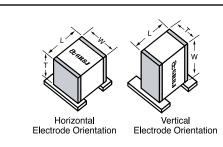
# **RF/Microwave Capacitors**

# **RF/Microwave Multilayer Capacitors (MLC)**

### 700C Series NPO Porcelain and Ceramic Multilayer Capacitors



#### 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			
•		•	•					

	<b>-</b> B		<b> </b> B <b></b>
1			
A		<b></b> C	
<u>+</u>	•	 — D —	

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

#### **PERFORMANCE DATA**

