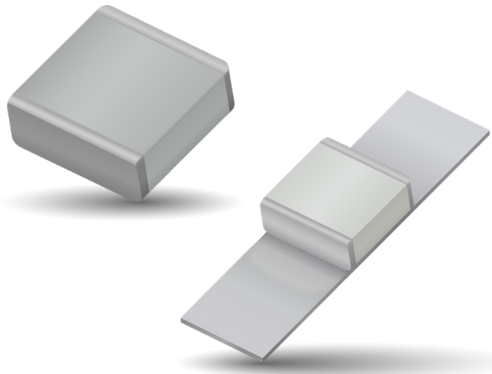


# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

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



## GENERAL DESCRIPTION

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. AVX's new NP0 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

<b>Thermal Shock</b>	MIL-STD-202, Method 107, Condition A.
<b>Moisture Resistance</b>	MIL-STD-202, Method 106.
<b>Low Voltage Humidity</b>	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.
<b>Life Test</b>	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.

## 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)



## ENVIRONMENTAL CHARACTERISTICS

<b>Quality Factor (Q)</b>	Greater than 5,000 (2.2 pF to 1000 pF) @ 1 MHz. Greater than 5,000 (1100 pF to 3000 pF) @ 1 KHz.
<b>Temperature Coefficient of Capacitance (TCC)</b>	0 ±30 PPM/°C (-55°C to +125°C)
<b>Insulation Resistance (IR)</b>	2.2 pF to 3000 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.
<b>Working Voltage (WVDC)</b>	See Capacitance Values Table
<b>Dielectric Withstanding Voltage (DWV)</b>	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.
<b>Retrace</b>	Less than ±(0.02% or 0.02 pF), whichever is greater.
<b>Aging Effects</b>	None
<b>Piezoelectric Effects</b>	None
<b>Capacitance Drift</b>	±(0.02% or 0.02 pF), whichever is greater.
<b>Operating Temperature Range</b>	From -55°C to +125°C (No derating of working voltage).
<b>Termination Styles</b>	See Mechanical Configurations
<b>Terminal Strength</b>	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.

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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
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			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						
100	10	F, G, J, K	3600	111	110	F, G, J, K	2500	112	1100	F, G, J, K	600
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		
200	20			221	220			302	3000		
220	22										

## 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%

**Termination Code** ————  
 Please see 2nd Column Mechanical Configuration Table  
**WVDC** ————  
**Laser Marking (Optional)** ————  
**Packaging** ————  
 T = Tape and Reel, 500 pc. qty.  
 Surface Mount Termination Only  
 Please see last Column Mechanical Configuration Table for other options

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.



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at [www.avx.com/disclaimer/](http://www.avx.com/disclaimer/) by reference and should be reviewed in full before placing any order.

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## MECHANICAL CONFIGURATIONS

AVX Series & Case Size	AVX 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	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	Microstrip		245 ±.025 (6.22 ±0.64)				High Purity Silver Leads $L_L = .500$ (12.7) min. $W_L = .240 \pm .005$ (6.10 ±.127) $T_L = .004 \pm .001$ (.102 ±.025) Leads are Attached with High Temperature Solder	Tray, 24 or 60 pcs	J24 or J60
800C	AR	Axial Ribbon		245 ±.025 (6.22 ±0.64)				Silver Leads $L_L = .500$ (12.7) min. $W_L = **$ See below $T_L = .004 \pm .001$ (.102 ±.025)	Tray, 24 or 60 pcs	J24 or J60

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  $\leq 680$  pF;  $W_L = .130$  (3.30) for capacitance values  $> 680$  pF

## NON-MAGNETIC MECHANICAL CONFIGURATIONS

AVX Series & Case Size	AVX 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	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	Non-Mag Microstrip245		±.025 (6.22 ±0.64)				High Purity Silver Leads $L_L = .500$ (12.7) min. $W_L = .240 \pm .005$ (6.10 ±.127) $T_L = .004 \pm .001$ (.102 ±.025) Leads are Attached with High Temperature Solder	Tray, 24 or 60 pcs	J24 or J60
800C	AN	Non-Mag Axial Ribbon		245 ±.025 (6.22 ±0.64)				Silver Leads $L_L = .500$ (12.7) min. $W_L = **$ See below $T_L = .004 \pm .001$ (.102 ±.025)	Tray, 24 or 60 pcs	J24 or J60

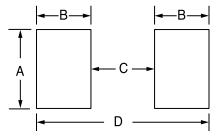
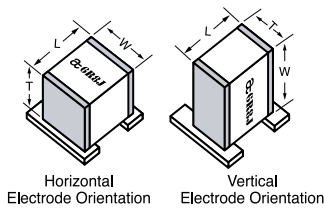
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## SUGGESTED MOUNTING PAD DIMENSIONS



Case C Vertical Mount					
Cap Value	Pad Size	A Min.	B Min.	C Min.	D Min.
All Values	Normal	.200	.050	.200	.300
	High Density	.180	.030	.200	.260

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

