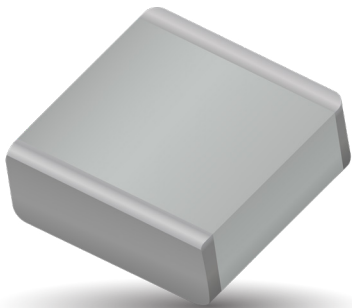


# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 800R Series NPO Ceramic Ultra-Low ESR Multilayer Capacitors



## GENERAL DESCRIPTION

AVX's 800 R Series offers superb performance in demanding high RF power applications requiring consistent and reliable operation. The combination of optimized case geometry, highly conductive electrode formulations and proprietary dielectrics, yields the lowest ESR and superior heat transfer. 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 R Series products are your best choice for high RF power applications from UHF through microwave frequencies.

## TYPICAL APPLICATIONS

- Homeland Security/Public Safety Radio (APCO-25)
- WiMAX/LTE\*
- Satellite Systems
- Microwave Communications
- Digital HD FM Transmitters
- Avionics
- Digital HDTV Transmitters
- Medical Electronics

## TYPICAL CIRCUIT APPLICATIONS

- High RF Power Filter Networks
- Matching Networks
- Output Coupling
- DC Blocking
- Combiners
- Couplers
- Antenna Coupling
- Bypassing

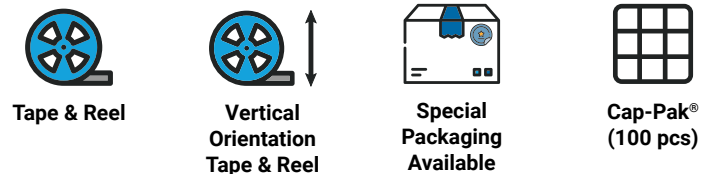
## ENVIRONMENTAL TEST

<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 D.C. 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 200% WVDC applied

## FEATURES

- Case R Size (.070" x .090")
- Rugged, reliable NPO dielectric
- Optimized for highest self resonant frequency
- Capacitance Range 1 pF to 100 pF
- Capable of highest RF Power
- RoHS Compliant / Lead-Free
- Optimized for lowest ESR and superior heat transfer

## PACKAGING OPTIONS



## ENVIRONMENTAL CHARACTERISTICS

<b>Quality Factor (Q)</b>	> 2,000 @ 1 MHz
<b>Temperature Coefficient of Capacitance (TCC)</b>	0 ±30 PPM/°C (-55°C to +125°C)
<b>Insulation Resistance (IR)</b>	1 pF to 100 pF: 10 <sup>5</sup> Megohms min. @ +25°C at rated WVDC 10 <sup>4</sup> Megohms min. @ +125°C at rated WVDC
<b>Working Voltage (WVDC)</b>	500 WVDC
<b>Dielectric Withstanding Voltage (DWV)</b>	Case R: 250% of rated WVDC for 5 secs
<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
<b>Termination Styles</b>	RoHS Compliant and Solder Plate See Mechanical Configurations
<b>Terminal Strength</b>	Terminations for chips withstand a pull of 5 lbs. min., 15 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
1R0	1.0	B, C, D	500	3R9	3.9	B, C, D	500	220	22	G, J K, M	500
1R1	1.1			4R3	4.3			240	24		
1R2	1.2			4R7	4.7			270	27		
1R3	1.3			5R1	5.1			300	30		
1R4	1.4			5R6	5.6			330	33		
1R5	1.5			6R2	6.2			360	36		
1R6	1.6			B, C, J, K, M	6R8	6.8		390	39		
1R7	1.7				7R5	7.5		430	43		
1R8	1.8				8R2	8.2		470	47		
1R9	1.9			9R1	9.1	510		51			
2R0	2.0			100	10	560		56			
2R1	2.1			110	11	620		62			
2R2	2.2			120	12	680		68			
2R4	2.4			130	13	750		75			
2R7	2.7			150	15	820		82			
3R0	3.0			160	16	910		91			
3R3	3.3			180	18	101		100			
3R6	3.6			200	20						

VRMS = 0.707 X WVDC

SPECIAL VALUES, TOLERANCES AND MATCHING AVAILABLE. PLEASE CONSULT FACTORY.

## HOW TO ORDER

**800 R 100 J T 500 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	G	J	K	M
<b>Tol.</b>	±0.1 pF	±0.25 pF	±0.5 pF	±2%	±5%	±10%	±20%

**Packaging**  
T = Tape and Reel,  
500 and 1000 pc. qty. std.\*  
TS = Electrodes in Horizontal Orientation  
Tape and Reel: 500 and 1000 pc. qty. std.\*

**Laser Marking**

**WVDC**

**Termination Code**  
Please see 2nd Column Mechanical Configuration Table

The above part number refers to a 800 R Series (case size R) 10 pF capacitor, J tolerance (±5%), 500 WVDC, with T termination (Tin Plated over Nickel Barrier, RoHS Compliant), laser marked, and tape and reel packaging.

\*Consult ATC for other quantities. \*\*Laser Marking is optional.

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## RF/Microwave Multilayer Capacitors (MLC)

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#### MECHANICAL CONFIGURATION

AVX Series & Case Size	AVX Term. Code	Case Size & Type	Outline ES W/T is a Termination Surface	Body Dimensions inches (mm)			Lead and Termination Dimensions and Material		Pkg Type & Qty	Pkg Code
				Length (L)	Width (W)	Thickness (T)	Overlap (Y)	Materials		
800B	T	B Solderable Nickel Barrier		.110+.020-.010 (2.79+0.51-0.25)	.110 ±.015 (2.79 ±0.38)	.070 (1.78) max.	.015 (0.38) ±.010 (0.25)	RoHS Compliant Tin Plated over Nickel Barrier Termination	T&R, 1000 or 500 pcs Vertical T&R, 1000 pcs	T or T500 TV
800B	W	B Solder Plate		.110+.020-.010 (2.79+0.51-0.25)	.110 ±.015 (2.79 ±0.38)			Tin/ Lead, Solder Plated over Nickel Barrier Termination	T&R, 1000 or 500 pcs	T or T500 TV C100

#### NON-MAGNETIC CONFIGURATION

AVX Series & Case Size	AVX Term. Code	Case Size & Type	Non-Magnetic Configuration	Body Dimensions inches (mm)			Lead and Termination Dimensions and Material		Pkg Type & Qty	Pkg Code
				Length (L)	Width (W)	Thickness (T)	Overlap (Y)	Materials		
800B	TN	B Non-Mag Solderable Barrier		.110+.020-.010 (2.79+0.51-0.25)	.110 ±.015 (2.79 ±0.38)	.070 (1.78) max.	.015 (0.38) ±.010 (0.25)	RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination	T&R, 1000 or 500 pcs	T or T500 TV C100

#### SUGGESTED MOUNTING PAD DIMENSIONS

Horizontal  
Electrode Orientation

Vertical  
Electrode Orientation

Mount Type	Case R				
	Pad Size	A Min.	B Min.	C Min.	D Min.
Vertical Mount	Normal	.125	.050	.030	.130
	High Density	.115	.030	.030	.090
Horizontal Mount	Normal	.110	.050	.030	.130
	High Density	.090	.030	.030	.090

Dimensions are in inches.

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