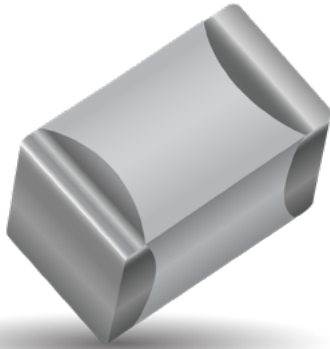


# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

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



#### GENERAL DESCRIPTION

KYOCERA AVX's 800B 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 NP0 low loss rugged dielectrics are designed to provide superior heat transfer in high RF power applications. Ultra-low ESR and superior thermal performance insure that the 800B Series products are your best choice for high RF power applications from VHF through microwave frequencies.

#### TYPICAL APPLICATIONS

- Avionics
- Public Safety Radio
- Wireless Communications
- VHF / UHF / HDTV Broadcast Transmitters
- Telecom
- WiMAX
- Microwave Communication Systems and Satellite Systems

#### TYPICAL CIRCUIT APPLICATIONS

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

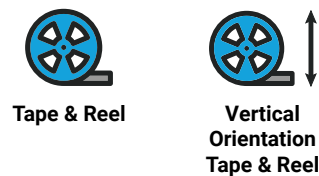
#### ENVIRONMENTAL TEST

<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 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 200% WVDC applied

#### FEATURES

- Case B Size (.110" x .110")
- Rugged, reliable NP0 dielectric
- Case optimized for highest self resonant frequency
- Capacitance Range 0.1 pF to 1000 pF
- Lowest ESR
- Capable of highest RF Power
- RoHS Compliant/Lead-Free

#### PACKAGING OPTIONS



#### ENVIRONMENTAL CHARACTERISTICS

<b>Quality Factor</b>	Greater than 2,000 at 1 MHz (Cap Values $\leq 10\text{pf}$ .0010 Max. @ 1MHz Cap Values $> 10\text{pf}$ .0005 Max. @ 1MHz)
<b>Temperature Coefficient of Capacitance (TCC)</b>	0 $\pm$ 30 PPM/°C (-55°C to +125°C)
<b>Insulation Resistance (IR)</b>	0.1 pF to 1000 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>	See Capacitance Values Table
<b>Dielectric Withstanding Voltage (DWV)</b>	Case B: 250% of rated WVDC for 5 secs
<b>Retrace</b>	Less than $\pm(0.02\%$ or 0.02 pF), whichever is greater
<b>Aging Effects</b>	None
<b>Piezoelectric Effects</b>	None
<b>Capacitance Drift</b>	$\pm(0.02\%$ 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 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.



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

TDS-RFM-0022 | Rev 3

— RF MICROWAVE PRODUCTS —

# 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
0R1	0.1	B	500	2R4	2.4	B, C, D	500	200	20	F, G, J, K, M	500	151	150	F, G, J, K, M	300
0R2	0.2			2R7	2.7			220	22			161	160		
0R3	0.3	B, C		3R0	3.0			240	24			181	180		
	0R4			0.4	3R3			3.3	270			27	201		
0R5	0.5	B, C, D		3R6	3.6			300	30			221	220		F, G, J, K, M
0R6	0.6			3R9	3.9	330		33	241			240			
0R7	0.7			4R3	4.3	360		36	271			270			
0R8	0.8			4R7	4.7	390		39	301			300			
0R9	0.9			5R1	5.1	430		43	331			330			
1R0	1.0			5R6	5.6	470		47	361			360			
1R1	1.1		6R2	6.2	510	51	391	390							
1R2	1.2		B, C, J, K, M	6R8	6.8	560	56	431	430						
1R3	1.3			7R5	7.5	620	62	471	470						
1R4	1.4			8R2	8.2	680	68	511	510						
1R5	1.5			9R1	9.1	750	75	561	560						
1R6	1.6		F, G, J, K, M	100	10	820	82	621	620						
1R7	1.7			110	11	910	91	681	680						
1R8	1.8			120	12	101	100	751	750						
1R9	1.9	130		13	111 121 131	110 120 130	821	820							
2R0	2.0	150		15			911	910							
2R1	2.1	160		16			102	1000							
2R2	2.2	180		18											

VRMS = 0.707 X WVDC

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

#### HOW TO ORDER

**Series** 800

**Case Size** B  
See mechanical dimensions below

**Capacitance** 910  
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** J  
Code: B, C, D, F, G, J, K, M  
Tol.: ±0.1 pF, ±0.25 pF, ±0.5 pF, ±1%, ±2%, ±5%, ±10%, ±20%

**Rated Voltage** 500  
WVDC

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

**Laser Marking (Optional)** X

**Packaging** T  
T = Tape and Reel, 500 pc qty  
TV = Vertical Tape and Reel, 500 pc qty  
Please see last Column Mechanical Configuration Table for other options

800 B 910 J T 500 X T

The above part number refers to a 800 B Series (case size B) 91 pF capacitor, J tolerance (±5%), 500 WVDC, with T termination (Tin Plated over Nickel Barrier Termination, RoHS Compliant), laser marking and tape and reel packaging.

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MECHANICAL CONFIGURATION

Series & Case Size	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 or 500 pcs	T1K or T TV1K or 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 Vertical T&R, 1000 or 500 pcs	T1K or T TV1K or TV

NON-MAGNETIC CONFIGURATION

Series & Case Size	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 Vertical T&R, 1000 or 500 pcs	T1K or T TV1K or TV

SUGGESTED MOUNTING PAD DIMENSIONS

Horizontal Electrode Orientation      Vertical Electrode Orientation

Case B Vertical Mount					
Cap Value .43	Pad Size	A Min.	B Min.	C Min.	D Min.
All Values	Normal	.090 (2.29)	.050 (1.27)	.075 (1.91)	.175 (4.45)
	High Density	.070 (1.78)	.030 (.762)	.075 (1.91)	.135 (3.43)

inches (mm)

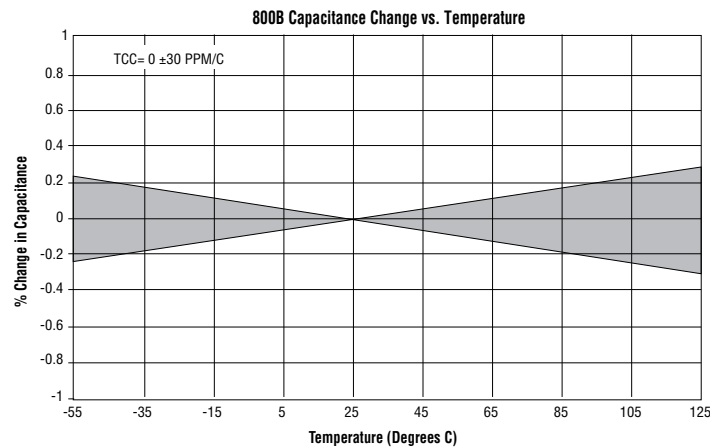
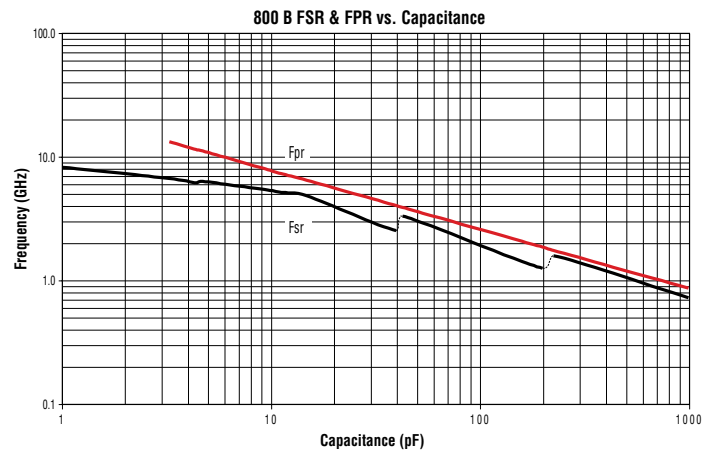
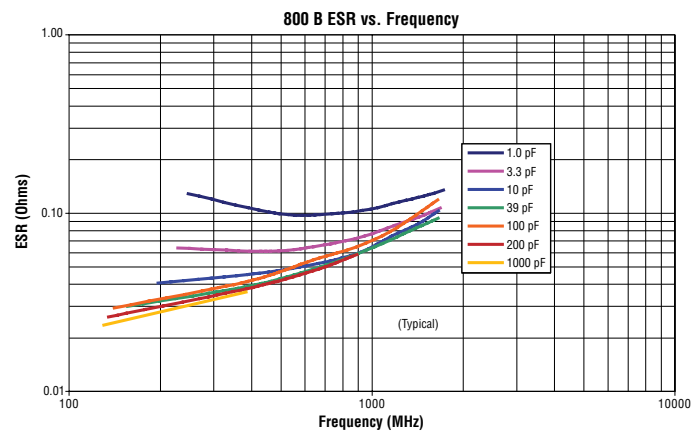
Case B Horizontal Mount					
Cap Value .43	Pad Size	A Min.	B Min.	C Min.	D Min.
All Values	Normal	.130 (3.30)	.050 (1.27)	.075 (1.91)	.175 (4.45)
	High Density	.110 (2.79)	.030 (.762)	.075 (1.91)	.135 (3.43)

inches (mm)

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PERFORMANCE DATA






# RF/Microwave Capacitors

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SAMPLE KITS

Kit #	RoHS Compliant	Item Number	Description	Cap. Value Range (pF)	Cap Value (pF)	Tol.	Price
Kit 83T		DK0083T	800B NP0 Ceramic High RF Power MLCs 16 different values, 15 pcs. min. per value	1.0 to 10	1.0, 1.2, 1.5, 1.8, 2.0, 2.2, 2.4, 2.7, 3.0, 3.3..... 3.9, 4.7, 5.6, 6.8, 8.2 ..... 10 .....	±0.1 ±0.25 ±5%	\$165.00
Kit 84T		DK0084T	800B NP0 Ceramic High RF Power MLCs 16 different values, 15 pcs. min. per value	10 to 100	10, 12, 15, 18, 20, 22, 24, 27, 30, 33, 39, 47, 56, 68, 82, 100 .....	±0.1	\$165.00
Kit 85T		DK0085T	800B NP0 Ceramic High RF Power MLCs 16 different values, 15 pcs. min. per value	100 to 1000	100, 120, 150, 180, 200, 220, 240, 270, 300, 330, 390, 470 ..... 560, 680, 820, 1000.....	±5% ±10%	\$165.00