

RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

800R Series NPO Ceramic Ultra-Low ESR Multilayer Capacitors



GENERAL DESCRIPTION

KYOCERA 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. KYOCERA 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

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 D.C. 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 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



Tape & Reel



ENVIRONMENTAL CHARACTERISTICS

Quality Factor (Q)	> 2,000 @ 1 MHz
Temperature Coefficient of Capacitance (TCC)	0 ±30 PPM/°C (-55°C to +125°C)
Insulation Resistance (IR)	1 pF to 100 pF: 10 ⁹ Megohms min. @ +25°C at rated WVDC 10 ⁴ Megohms min. @ +125°C at rated WVDC
Working Voltage (WVDC)	500 WVDC
Dielectric Withstanding Voltage (DWV)	Case R: 250% of rated WVDC for 5 secs
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
Termination Styles	RoHS Compliant and Solder Plate See Mechanical Configurations
Terminal Strength	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
Tol.	±0.1 pF	±0.25 pF	±0.5 pF	±2%	±5%	±10%	±20%

Packaging ————
T = Tape and Reel, 500 pc.
TS = Electrodes in Horizontal Orientation
Tape and Reel: 500 pc.
Please see last Column 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 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.

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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		
800R	T	R Solderable Nickel Barrier		.070 ±.015 (1.78±0.38)	.090 ±.010 (2.29±0.25)	.115 (2.92) max.	.010+.010 - .005 (0.25+0.25 - 0.13)	RoHS Compliant Tin Plated over Nickel Barrier Termination	T&R, 1000 or 500 pcs Horizontal T&R, 1000 or 500 pcs	T1K or T TS1K or TS
800R	W	R Solder Plate		.070 ±.015 (1.78±0.38)	.090 ±.010 (2.29±0.25)	.115 (2.92) max.	.010+.010 - .005 (0.25+0.25 - 0.13)	Tin/ Lead, Solder Plated over Nickel Barrier Termination	T&R, 1000 or 500 pcs Horizontal T&R, 1000 or 500 pcs	T1K or T TS1K or TS

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		
800R	TN	R Non-Mag Solderable Barrier		.070 ±.015 (1.78±0.38)	.090 ±.010 (2.29±0.25)	.115 (2.92) max.	.010+.010 - .005 (0.25+0.25 - 0.13)	RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination	T&R, 1000 or 500 pcs Horizontal T&R, 1000 or 500 pcs	T1K or T TS1K or TS

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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