RF/Microwave Capacitors RF/Microwave Multilayer Capacitors (MLC) 180R Series NPO Porcelain Ultra-Low ESR





GENERAL DESCRIPTION

KYOCERA AVX, the industry leader, offers new improved ESR/ESL performance for the 180R Series RF Capacitors. This is KYOCERA AVX's lowest ESR multilayer capacitor. The high Q, high self-resonance characteristic many RF/ Microwave applications

FUNCTIONAL APPLICATIONS

- Bypass Feedback
- Coupling · Impedance Matching
- Tuning · DC Blocking

CIRCUIT APPLICATIONS

- RF Power Amplifiers
- · Timing Circuits
- Filters
- · Delay Lines
- Oscillators

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 VDC applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours					
Life Test	MIL-STD-202, Method 108, for 2000 hours, at 125 °C. 200% WVDC applied					

FEATURES

- Case R Size (.070" x .090")
- · Capacitance Range 0.5pF to 100pF
- 500 WVDC
- · Low ESR/ESL
- High Q
- · Ultra-Stable Performance
- · High Self-Resonance

PACKAGING OPTIONS







ELECTRICAL & MECHANICAL SPECIFICATIONS

Quality Factor (Q)	greater than 10,000 at 1 MHz					
Temperature Coefficient of Capacitance (TCC)	0±30 PPM/°C (-55°C to +125°C) 0±60 PPM/°C (+125°C to +175°C)					
Insulation Resistance (IR)	0.5 pF to 100 pF: 106 Megohms min. @ +25°C at rated WVDC 105 Megohms min. @ +125°C at rated WVDC 104 Megohms min. above +125°C					
Working Voltage (WVDC)	500 WVDC					
Dielectric Withstanding Voltage (DWV)	Case R: 250% of rated WVDC for 5 secs.					
Aging Effects	None					
Piezoelectric Effects	None (no capacitance variation with voltage or pressure)					
Capacitance Drift	±(0.02% or 0.02 pF), whichever is greater					
Operating Temperature Range	-55°C to +175°C (No derating of working voltage)					
Termination Style	See Mechanical Configuration					
Terminal Strength	Termination for chips withstand a pull of 5 lbs. min., 15 lbs, for 5 seconds in direction perpendicular to the termination surface of the capacitor					

RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

180R Series NPO Porcelain Ultra-Low ESR

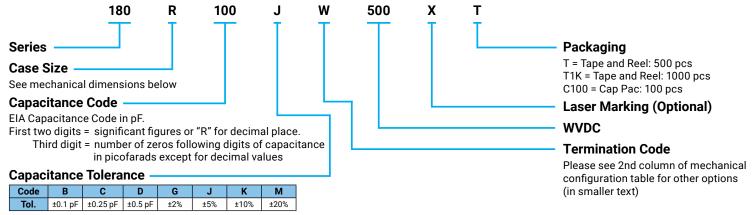


CAPACITANCE VALUES

Cap. Code	Cap. (pF)	Tol.	Rated WVDC	Cap. Code	Cap. (pF)	Tol.	Rated WVDC	Cap. Code	Cap. (pF)	Tol.	Rated WVDC
0R5	0.5			3R0	3.0		-	200	20	G, J, K, M	500
0R6	0.6			3R3	3.3	B, C, D		220	22		
0R7	0.7			3R6	3.6			240	24		
0R8	0.8			3R9	3.9			270	27		
0R9	0.9			4R3	4.3			300	30		
1R0	1.0			4R7	4.7			330	33		
1R1	1.1			5R1	5.1			360	36		
1R2	1.2			5R6	5.6	B, C, J, K, M		390	39		
1R3	1.3			6R2	6.2			430	43		
1R4	1.4		F00	6R8	6.8			470	47		
1R5	1.5	B, C, D	500	7R5	7.5		500	510	51		
1R6	1.6			8R2	8.2			560	56		
1R7	1.7			9R1	9.1			620	62		
1R8	1.8			100	10			680	68		
1R9	1.9			110	11			750	75		
2R0	2.0			120	12			820	82		
2R1	2.1			130	13			910	91		
2R2	2.2			150	15			101	100		
2R4	2.4			160	16						
2R7	2.7			180	18						

VRMS = 0.707 X WVDC

HOW TO ORDER



The above part number refers to a 180R Series (case size R) 10 pF capacitor, J tolerance (±5%), 500 WVDC, with W termination (Tin/Lead, Solder Plated over Nickel Barrier), laser marking and Tape and Reel packaging.

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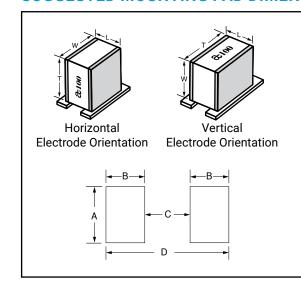


MECHANICAL CONFIGURATION

Series & Case	Term.	Case Size	Outline W/T is a Termination Surface	Body Dimensions inches (mm)			Lead and Termination Dimensions and Material		
Size	Code	& Type		Length (L)			Overlap (Y)	Materials	
180R	W	R Solder Plate	$\begin{array}{c c} Y \to \leftarrow & \downarrow \\ \hline & T & \hline & \downarrow \\ & \downarrow L \leftarrow^{\uparrow} \to W \leftarrow \end{array}$.070 ±.015 (1.78 ±0.38)	.090 ±.010 (2.29 ±0.25)	.115 (2.92) max.	.010+.010005 (0.25+0.25 - 0.13)	Tin/Lead, Solder Plated over Nickel Barrier Termination	
180R	Т	R Solderable Nickel Barrier	$\begin{array}{c c} Y \to & \downarrow \\ \hline & T \\ \hline & \uparrow \\ \hline & \downarrow \\ & \uparrow \\ \hline & \downarrow \\ & \downarrow \\ \hline & \uparrow \\ \hline & \downarrow \\ & \downarrow \\ \hline & \downarrow \\$.070 ±.015 (1.78 ±0.38)	.090 ±.010 (2.29 ±0.25)	.115 (2.92) max.	.010+.010005 (0.25+0.25 - 0.13)	RoHS Compliant Tin Plated over Nickel Barrier Termination	

All 180 R Capacitors are available laser marked with ATC's identification, capacitance code and tolerance.

SUGGESTED MOUNTING PAD DIMENSIONS

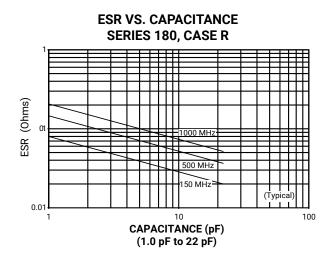


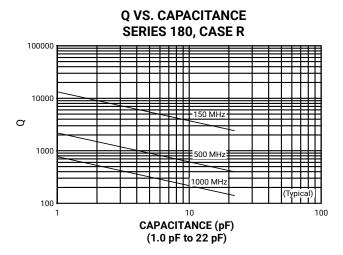
Mount Type	Case R								
Mount Type	Pad Size	A Min.	B Min.	C Min.	D Min.				
Vertical Mount	Normal	.125	.050	.030	.130				
vertical Mount	High Density	.115	.030	.030	.090				
Horizontal Mount	Normal	.110	.050	.030	.130				
Horizontal Mount	High Density	.090	.030	.030	.090				

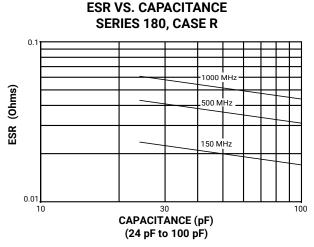
Dimensions are in inches.

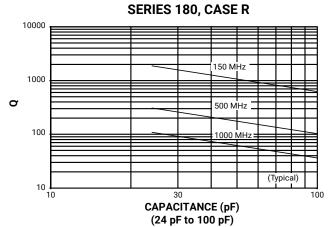


PERFORMANCE DATA









Q VS. CAPACITANCE