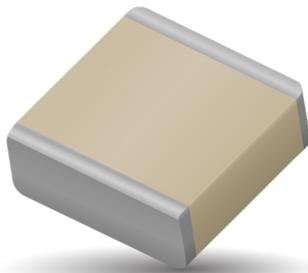


RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

100E Series Porcelain High RF Power Multilayer Capacitors



GENERAL DESCRIPTION

AVX, the industry leader, offers new improved ESR/ESL performance for the 100 E Series RF Capacitors. This high Q multilayer capacitor is ultra-stable under high RF current and voltage applications. High density porcelain construction provides a rugged, hermetic package. AVX offers an encapsulation option for applications requiring extended protection against arc-over and corona.

FUNCTIONAL APPLICATIONS

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

CIRCUIT APPLICATIONS

- HF/RF Power Amplifiers
- Transmitters
- Antenna Tuning
- Plasma Chambers
- Medical (MRI coils)

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. 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
Termination Styles	Available in various surface mount and leaded styles. See Mechanical Configurations
Terminal Strength	Terminations for chips and pellets withstand a pull of 5 lbs. min., 10 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor.

FEATURES

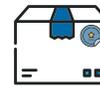
- Case E Size (.380" x .380")
- Capacitance Range 1pF to 5100pF
- Extended WVDC up to 7200 VDC
- Low ESR/ESL
- High Q
- High RF Power
- Ultra-Stable Performance
- High RF Current/Voltage
- Available with Encapsulation Option*

* For leaded styles only

PACKAGING OPTIONS



Tape & Reel



Special Packaging Available



Tray (96 pcs)



ELECTRICAL SPECIFICATIONS

Temperature Coefficient (TCC)	90 ± 20 PPM/°C
Capacitance Range	1 pF to 5100 pF
Operating Temperature	-55°C to +125°C*
Quality Factor	Greater than 10,000 (1 pF to 1000 pF) @ 1 MHz. Greater than 10,000 (1100 pF to 5100 pF) @ 1 KHz.
Insulation Resistance (IR)	1 pF to 5100 pF 10 ⁵ Megohms min. @ 25°C at 500 VDC 10 ⁴ Megohms min. @ 125°C at 500 VDC
Working Voltage (WVDC)	See Capacitance Values table
Dielectric Withstanding Voltage (DWV)	250% of WVDC for capacitors rated at 500 volts DC or less for 5 seconds. 150% of WVDC for capacitors rated at 1250 volts DC or less for 5 seconds. 120% of WVDC for capacitors rated above 1250 Volts DC for 5 seconds
Aging Effects	None
Piezoelectric Effects	None
Capacitance Drift	± (0.02% or 0.02 pF), whichever is greater
Retrace	Less than ±(0.02% or 0.02 pF), whichever is greater.

RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

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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						
			STD.	EXT.				STD.	EXT.				STD.	EXT.				STD.	EXT.					
1R0	1.0	B, C, D	3600	7200	5R6	5.6	B, C, D	3600	7200	470	47	F, G, J, K, M	3600	TAGE	391	390	F, G, J, K, M	3600	N/A					
1R1	1.1				6R2	6.2				510	51				431	430								
1R2	1.2				6R8	6.8				560	56				471	470								
1R3	1.3				7R5	7.5				620	62				511	510								
1R4	1.4				8R2	8.2				680	68				561	560								
1R5	1.5				9R1	9.1				750	75				621	620								
1R6	1.6				EXTENDED VOLTAGE	7200				EXTENDED VOLTAGE	100				10	EXTENDED				681	680	2500	751	750
1R7	1.7										110				11					910	91		751	750
1R8	1.8										120				12					101	100		821	820
1R8	1.9										130				13					111	110		911	910
2R0	2.0	150	15	121			120	EXT.	102		1000	1000	112	1100										
2R1	2.1	160	16	131			130	5000	122		1200													
2R2	2.2	180	18	151			150	VOLT.	152		1500													
2R3	2.4	200	20	161			160		182		1800													
2R4	2.7	220	22	181			180		222		2200													
3R0	3.0	240	24	201			200		N/A		272		2700											
3R0	3.3	270	27	221	220	302	3000																	
3R0	3.6	300	30	241	240	332	3300																	
3R0	3.9	330	33	271	270	392	3900																	
4R3	4.3	360	36	301	300	472	4700																	
4R7	4.7	390	39	331	330	512	5100																	
5R1	5.1	430	43	361	360																			

VRMS = 0.707 X WVDC

• SPECIAL VALUES, TOLERANCES, MATCHING, AND CAPACITOR ASSEMBLIES ARE AVAILABLE. • AVX'S CUSTOM POWER CAPACITOR ASSEMBLY CATALOG, LISTS ASSEMBLY OPTIONS. • DIFFERENT WORKING VOLTAGES ARE AVAILABLE • ENCAPSULATION OPTION AVAILABLE. PLEASE CONSULT FACTORY.

HOW TO ORDER

Series **100** Case Size **E** Capacitance **391** Tolerance **K** Voltage Rating **W** Working Voltage **3600** Termination **X**** Packaging **T**

See mechanical dimensions below

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	M
Tol.	±1 pF	±25 pF	±5 pF	±1%	±2%	±5%	±10%	±20%

Packaging
T = Tape and Reel, 250 pc qty. Please see last Column Mechanical Configuration Table for Box and Tray Options

Laser Marking

Voltage Rating

Termination Style Code
Please see 2nd Column Mechanical Configuration Table

**Optional

The above part number refers to a 100 E Series (case size E) 390 pF capacitor, K tolerance (±10%), 3600 WVDC, with W termination (Tin / Lead, Solder Plated over Nickel Barrier), laser marking and Tape and Reel packaging.

RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

100E Series Porcelain High RF Power Multilayer Capacitors



MECHANICAL CONFIGURATION

AVX Series & Case Size	AVX Term. Code	Case Size & Type	Outline 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		
100E	W	E Solder Plate		.380+.015-.010 (9.65+0.38-0.25)	.380 ±.010 (9.65 ±0.25)	.170 (4.32) max.	.040 (1.02) max.	Tin/Lead, Solder Plated over Nickel Barrier Termination	T&R, 250 pcs Tray, 96 pcs	T J96
100E	P	E Pellet		.380+.040-.010 (9.65+1.02-0.25)				Heavy Tin/Lead Coated, over Nickel Barrier Termination	T&R, 250 pcs Tray, 96 pcs	T J96
100E	T	E Solderable Nickel		.380+.015-.010 (9.65+0.38-0.25)				RoHS Compliant Tin Plated over Nickel Barrier Termination	T&R, 250 pcs Tray, 96 pcs	T J96
100E	CA	E Gold Chip		.380+.015-.010 (9.65+0.38-0.25)				RoHS Compliant Gold Plated over Nickel Barrier Termination	T&R, 250 pcs Tray, 96 pcs	T J96
100E	MS	E Microstrip		.380+.035-.010 (9.65+0.89-0.25)			N/A	N/A	High Purity Silver Leads $L_L = .750 (19.05) \text{ min}$ $W_L = .350 \pm .010 (8.89 \pm 0.25)$ $T_L = .010 \pm .005 (0.25 \pm 0.13)$ Leads are Attached with High Temperature Solder.	Tray, 16 or 32 pcs
100E	AR	E Axial Ribbon			Silver-plated Copper Leads Dia. = $.032 \pm .002 (.813 \pm .051)$ $L_L = 2.25 (57.2) \text{ min.}$	Tray, 16 or 32 pcs			J16 J32	
100E	AW	E Non-Mag Axial Wire			Silver-plated Copper Leads Dia. = $.032 \pm .002 (.813 \pm .051)$ $L_L = 1.0 (25.4) \text{ min.}$	Box, 20 pcs			B20	
100E	RW	E Non-Mag Radial Wire								
100E										

Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.

RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

100E Series Porcelain High RF Power Multilayer Capacitors



MECHANICAL CONFIGURATION

AVX Series & Case Size	AVX Term. Code	Case Size & Type	Outline 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		
100E	WN	Non-Mag Solder Plate		.380+.015 -.010 (9.65+0.38-0.25)	.380 ±.010 (9.65 ±0.25)	.170 (4.32) max.	.040 (1.02) max.	Tin/Lead, Solder Plated over Non-Magnetic Barrier Termination	T&R, 250 pcs Tray, 96 pcs	T J96
100E	PN	Non-Mag Pellet		.380+.040 -.010 (9.65+1.02-0.25)				Heavy Tin/Lead Coated, over Non-Magnetic Barrier Termination	T&R, 250 pcs Tray, 96 pcs	T J96
100E	TN	Non-Mag Solderable Barrier		.380+.015 -.010 (9.65+0.38-0.25)				RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination	T&R, 250 pcs Tray, 96 pcs	T J96
100E	MN	Non-Mag Microstrip		.380+.035 -.010 (9.65+0.89-0.25)	.380 ±.010 (9.65 ±0.25)	.170 (4.32) max.	N/A	High Purity Silver Leads $L_L = .750$ (19.05) min $W_L = .350 \pm .010$ (8.89 ±0.25) $T_L = .010 \pm .005$ (0.25 ±0.13) Leads are Attached with High Temperature Solder.	Tray, 16 or 32 pcs	J16 J32
100E	AN	Non-Mag Axial Ribbon						Tray, 16 or 32 pcs	J16 J32	
100E	BN	Non-Mag Axial Wire						Box, 20 pcs	B20	
100E	RN	Non-Mag Radial Wire		Tray, 16 or 64 pcs	J16 J64					

Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.

RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

100E Series Porcelain High RF Power Multilayer Capacitors



SUGGESTED MOUNTING PAD DIMENSIONS

Horizontal
Electrode Orientation

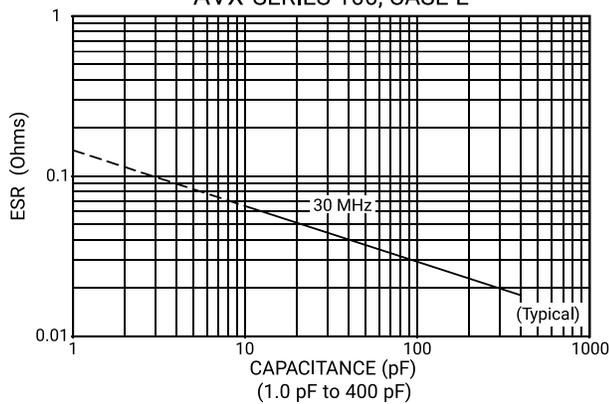
Vertical
Electrode Orientation

Mount Type	Case E				
	Pad Size	A Min.	B Min.	C Min.	D Min.
Vertical Mount	Normal	.185	.050	.325	.425
	High Density	.165	.030	.325	.385
Horizontal Mount	Normal	.405	.050	.325	.425
	High Density	.383	.030	.325	.385

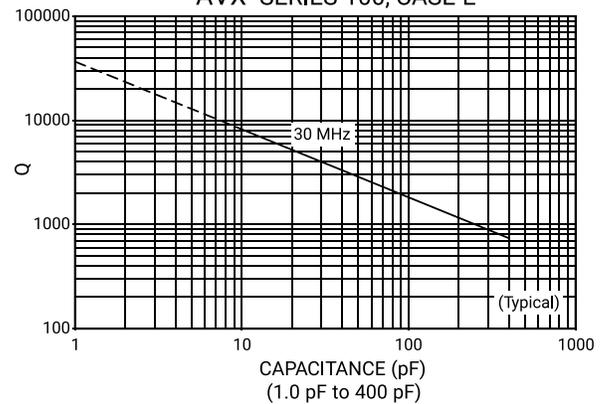
Dimensions are in inches.

PERFORMANCE DATA

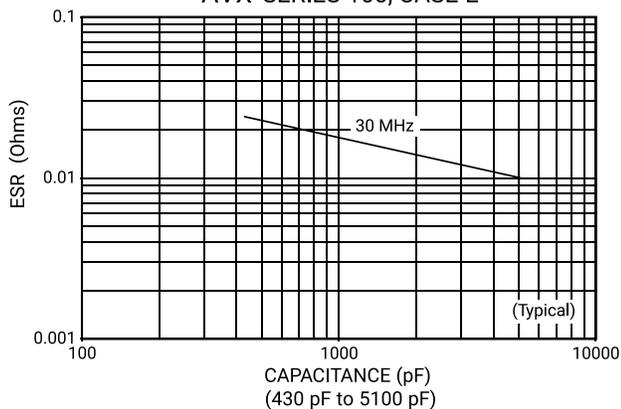
ESR VS. CAPACITANCE
AVX SERIES 100, CASE E



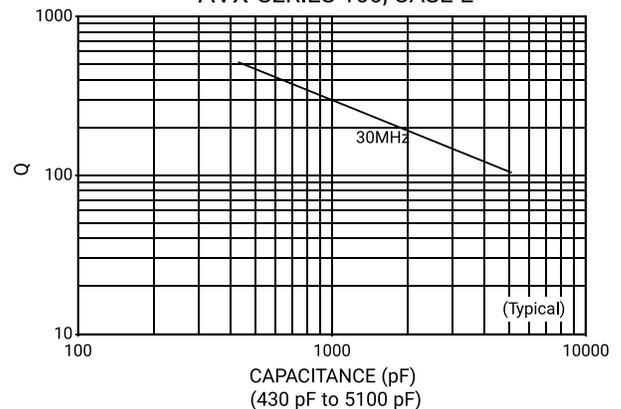
Q VS. CAPACITANCE
AVX SERIES 100, CASE E



ESR VS. CAPACITANCE
AVX SERIES 100, CASE E



Q VS. CAPACITANCE
AVX SERIES 100, CASE E



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

RF/Microwave Capacitors

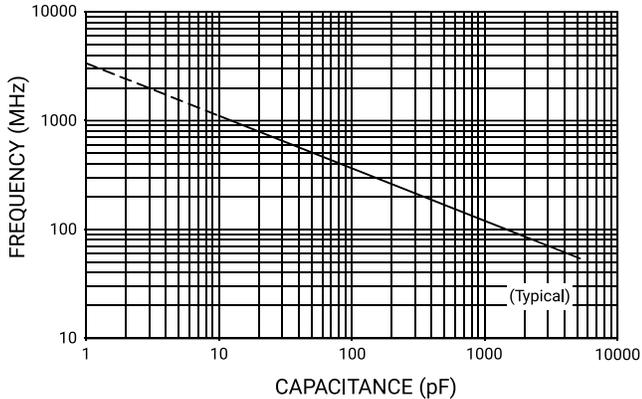
RF/Microwave Multilayer Capacitors (MLC)

100E Series Porcelain High RF Power Multilayer Capacitors

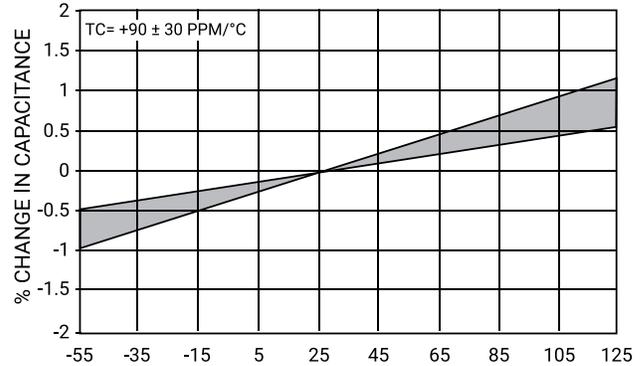


PERFORMANCE DATA

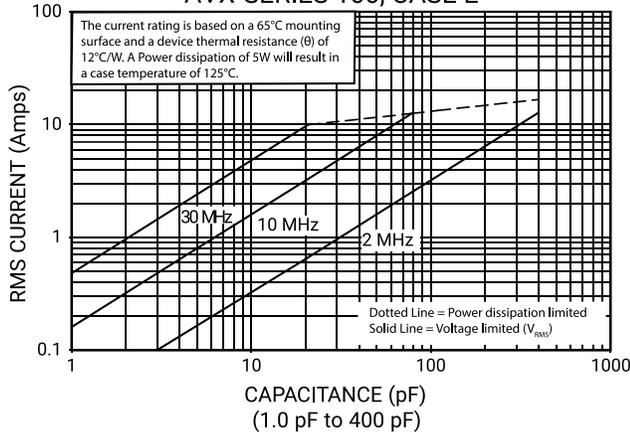
SERIES RESONANCE VS. CAPACITANCE
AVX SERIES 100, CASE E



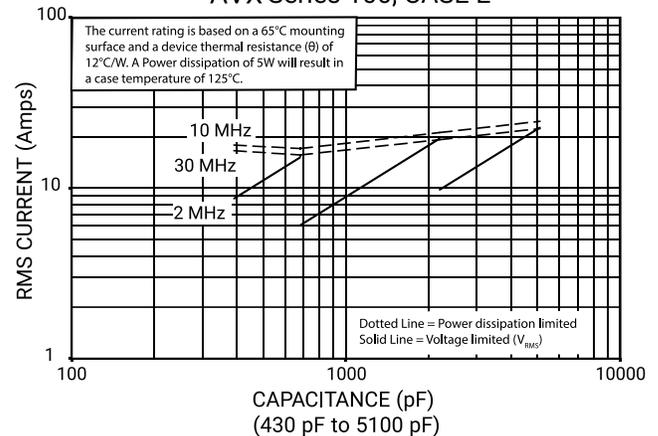
CAPACITANCE CHANGE VS. TEMPERATURE
AVX SERIES 100, CASE E



CURRENT RATING VS. CAPACITANCE
AVX SERIES 100, CASE E



CURRENT RATING VS. CAPACITANCE
AVX Series 100, CASE E



CURRENT RATING VS. CAPACITANCE
AVX SERIES 100, CASE E, EXTENDED VOLTAGE

