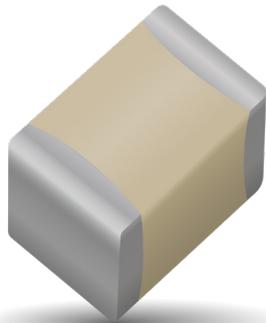


RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

100B Series Porcelain Superchip® Multilayer Capacitors



FEATURES

- Case B Size (.110" x .110")
- Capacitance Range 0.1pF to 1000pF
- Extended WVDC up to 1500 VDC
- Low ESR/ESL
- High Q
- Low Noise
- Ultra-Stable Performance
- High Self-Resonance
- Established Reliability (QPL)

GENERAL DESCRIPTION

AVX, the industry leader, offers new improved ESR/ESL performance for the 100 B Series RF/Microwave Capacitors. This Series is now available with extended operating temperatures up to 175°C. High Density porcelain construction provides a rugged, hermetic package.

FUNCTIONAL APPLICATIONS

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

CIRCUIT APPLICATIONS

- UHF/Microwave RF Power Amplifiers
- Oscillators
- Low Noise Amplifiers
- Filter Networks
- Timing Circuits

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., 15 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor.

PACKAGING OPTIONS



Tape & Reel



Vertical Orientation Tape & Reel



Cap Pac® (100 pcs)



ELECTRICAL SPECIFICATIONS

Temperature Coefficient (TCC)	+90 ±20 PPM/°C (-55°C to +125°C) +90 ±30 PPM/°C (+125°C to +175°C)
Capacitance Range	0.1pF to 1000pF
Operating Temperature	-55°C to +125°C*
Quality Factor	greater than 10,000 at 1 MHz
Insulation Resistance (IR)	0.1 pF to 470 pF: 10 ⁵ Megohms min. @ +25°C at rated WVDC. 10 ⁵ Megohms min. @ +125°C at rated WVDC. 510 pF to 1000 pF: 10 ⁵ Megohms min. @ +25°C at rated WVDC. 10 ⁴ Megohms min. @ +125°C at rated WVDC.
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.

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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.																		
0R1	0.1	B	500	1500	2R4	2.4	B, C, D	500	1500	200	20	F, G, J, K, M	500	1500	151	150	F, G, J, K, M	300	EXT.																		
0R2	0.2				2R7	2.7				220	22				161	160																					
0R3	0.3	3R0			3.0	240				24	181				180																						
0R4	0.4	3R3			3.3	270				27	201				200																						
0R5	0.5	B, C			500	1500				3R6	3.6				B, C, D	500		1500	300	30	F, G, J, K, M	500	1500	221	220	F, G, J, K, M	200	EXT.									
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	B, C, D								500	1500								5R1	5.1				B, C, J, K, M	500		1500	430	43	F, G, J, K, M	500	1500	331	330	F, G, J, K, M	100	600
1R0	1.0																		5R6	5.6								470	47				361	360			
1R1	1.31	6R2	6.2	510			51	391	390																												
1R2	1.2	6R8	6.8	560			56	431	430																												
1R3	1.3	B, C, D	500	1500			7R5	7.5	F, G, J, K, M			500	1500	620			62		F, G, J, K, M	500								1500	471				470	F, G, J, K, M		50	EXT.
1R4	1.4						8R2	8.2						680			68												511				510				
1R5	1.5	9R1			9.1	750	75	561						560																							
1R6	1.6	100			10	820	82	621						620																							
1R7	1.7	B, C, D			500	1500	110	11						F, G, J, K, M	500	1500	910	91			F, G, J, K, M	500	1500			681			680				F, G, J, K, M			300	300
1R8	1.8						120	12									101	100								751			750								
1R9	1.9	130					13	111		110	821						820																				
2R0	2.0	150					15	121		120	911						910																				
2R1	2.1	B, C, D					500	1500		160	16						F, G, J, K, M	500						1500	131	130	F, G, J, K, M		500	1500	102	1000			F, G, J, K, M	50	VOLT
2R2	2.2									180	18														101	100					821	820					

VRMS = 0.707 X WVDC

• SPECIAL VALUES, TOLERANCES, DIFFERENT WVDC AND MATCHING AVAILABLE. • ENCAPSULATION OPTION AVAILABLE. PLEASE CONSULT FACTORY. NOTE: EXTENDED WVDC DOES NOT APPLY TO CDR PRODUCTS.

HOW TO ORDER

100 B 910 J W 500 X T

Series — 100

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

W — Termination Style Code
Please see 2nd Column Mechanical Configuration Table

500 — Voltage Rating

X — Laser Marking (Optional)

T — Packaging
T = Tape and Reel, 1000 pc or 500 pc qty
TV = Vertical Tape and Reel, 1000 pc qty
For Box or Tray option, leave this field blank. Please see last Column Mechanical Configuration Table for details

The above part number refers to a 100 B Series (case size B) 91 pF capacitor, J tolerance (±5%), 500 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)

100B Series Porcelain Superchip® Multilayer Capacitors



MECHANICAL CONFIGURATION

AVX Series & Case Size	AVX Term. Code	MIL-PRF-55681	Case Size & Type	Outline W/T is a Termination Surface	Body Dimensions inches (mm)			Lead and Termination Dimensions and Material			Pkg Type	
					Length (L)	Width (W)	Thickness (T)	Overlap (Y)	Materials			
100B	W	CDR14BG	Solder Plate		.110+ .020 - .01 (2.79 + 0.51-0.25)	.110 ± .015 (2.79 ± 0.38)	N/A	.015 (0.38) ±.010 (0.25)	Tin / Lead, Solder Plated over Nickel Barrier Termination		T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	
100B	P	CDR14BG	Pellet		.110+ .035 - .01 (2.79 + 0.89-0.25)	.110 ± .015 (2.79 ± 0.38)			Heavy Tin/Lead Coated, over Nickel Barrier Termination		T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	
100B	T	N/A	Solderable Nickel		.110+ .035 - .01 (2.79 + 0.51-0.25)	.110 ± .015 (2.79 ± 0.38)			RoHS Compliant Tin Plated over Nickel Barrier Termination		T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	
100B	CA	CDR13BG	Gold Chip		.110+ .020 - .010 (2.79 + 0.51-0.25)	.110 ± .015 (2.79 ± 0.38)			RoHS Compliant Gold Plated over Nickel Barrier Termination		T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	
100B	MS	CDR21BG	Microstrip		.135 ± .015 (3.43 ± 0.38)	.110 ± .015 (2.79 ± 0.38)	.120 (3.05) max.	N/A	Length (L _L)	Width (W _L)	Thickness (T _L)	Cap Pac, 20 pcs
100B	AR	CDR22BG	Axial Ribbon						.102 (2.59) max.	.250 (6.35) min.	.093 ± .005 (2.36 ± 0.13)	.004 ± .001 (.102 ± .025)
100B	RR	CDR24BG	Radial Ribbon		.145 ± .020 (3.68 ± 0.51)	.500 (12.7)	#26 AWG., .016 (.406) dia. nominal	Box, 20 or 100 pcs				
100B	RW	CDR23BG	Radial Wire					Box, 20 or 100 pcs				
100B	AW	CDR25BG	Axial Wire		Box, 20 or 100 pcs							

Additional lead styles available: Narrow Microstrip (NM), Narrow Axial Ribbon (NA) and Vertical Narrow Microstrip (H). Other lead 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)

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NON-MAGNETIC MECHANICAL CONFIGURATION

AVX Series & Case Size	AVX Term. Code	MIL-PRF-55681	Case Size & Type	Outline W/T is a Termination Surface	Body Dimensions inches (mm)			Lead and Termination Dimensions and Material			Pkg Type			
					Length (L)	Width (W)	Thickness (T)	Overlap (Y)	Materials					
100B	WN	Meets Requirements	Non-Mag		.110+ .020 - .01 (2.79 + 0.51-0.25)	.110 ±.015 (2.79 ±0.38)	.102 (2.59) max.	.015 (0.38) ±.010 (0.25)	Tin / Lead, Solder Plated over Nickel Barrier Termination		T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs			
100B	PN	Meets Requirements	Solderable Nickel		.110+ .035 - .01 (2.79 + 0.51-0.25)	.110 ±.015 (2.79 ±0.38)			Heavy Tin / Lead, Coated over Non-Magnetic Barrier Termination		T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs			
100B	TN	Meets Requirements	Gold Chip		.110+ .020 - .010 (2.79 + 0.51-0.25)	.110 ±.015 (2.79 ±0.38)			RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination		T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs			
100B	MN	Meets Requirements	Microstrip		.135 ±.015 (3.43 ±0.38)	.110 ±.015 (2.79 ±0.38)	.120 (3.05) max.	N/A	Length (L _L)	Width (W _L)	Thickness (T _L)	Cap Pac, 20 pcs		
100B	AN	Meets Requirements	Axial Ribbon						.102 (2.59) max.	.250 (6.35) (6.35) min.	.093±.005 (2.36 ±0.13)	.004 ± .001 (.102±.025)	Box, 20 or 100 pcs	
100B	FN	Meets Requirements	Radial Ribbon										Box, 20 or 100 pcs	
100B	RN	Meets Requirements	Radial Wire		.145 ±.020 (3.68 ±0.51)	.500 (12.7)	#26 AWG, .016 (.406) dia. nominal	Box, 20 or 100 pcs						
100B	BN	Meets Requirements	Axial Wire					Box, 20 or 100 pcs						

Additional lead styles available: Narrow Microstrip (NM), Narrow Axial Ribbon (NA) and Vertical Narrow Microstrip (H). Other lead lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are RoHS compliant.

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SUGGESTED MOUNTING PAD DIMENSIONS

Horizontal
Electrode Orientation

Vertical
Electrode Orientation

Case B Vertical Mount

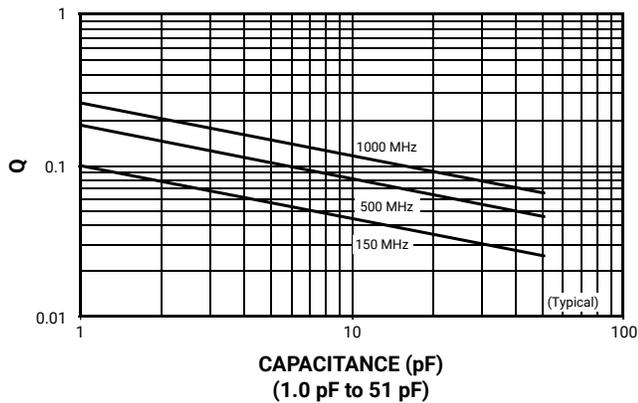
Cap Value	Pad Size	A Min.	B Min.	C Min.	D Min.
0.1 pF	Normal	.065	.050	.075	.175
	High Density	.045	.030	.075	.135
0.2 pF	Normal	.090	.050	.075	.175
	High Density	.070	.030	.075	.135
0.3 to 510 pF	Normal	.110	.050	.075	.175
	High Density	.090	.030	.075	.135
> 510 pF	Normal	.120	.050	.075	.175
	High Density	.100	.030	.075	.135

Case B Vertical Mount

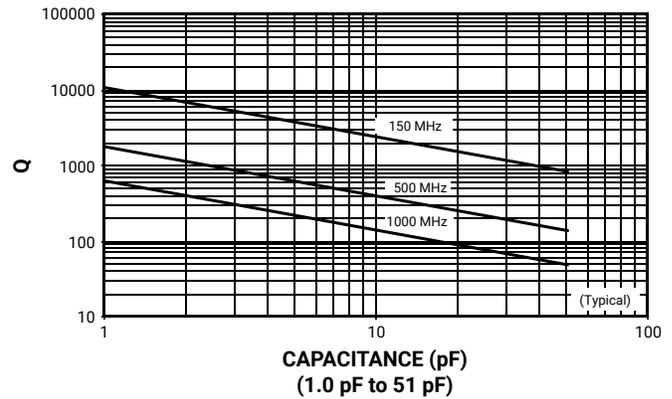
All Values	Pad Size	A Min.	B Min.	C Min.	D Min.
All Values	Normal	.130	.050	.075	.175
	High Density	.110	.030	.075	.135

PERFORMANCE DATA

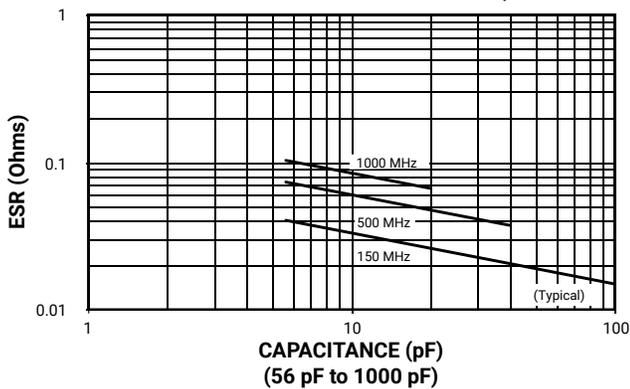
ESR VS. CAPACITANCE AVX SERIES 100, CASE B



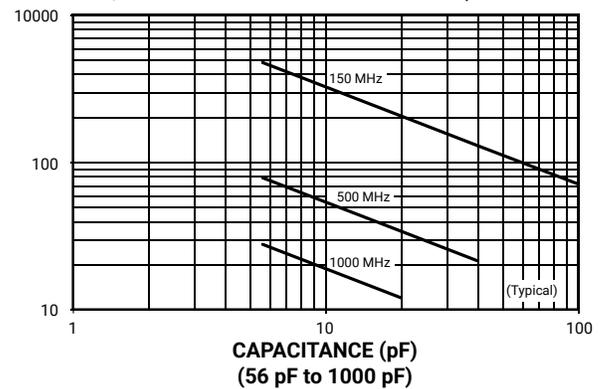
Q VS. CAPACITANCE AVX SERIES 100, CASE B



ESR VS. CAPACITANCE AVX SERIES 100, CASE B



Q VS. CAPACITANCE AVX SERIES 100, CASE B



RF/Microwave Capacitors

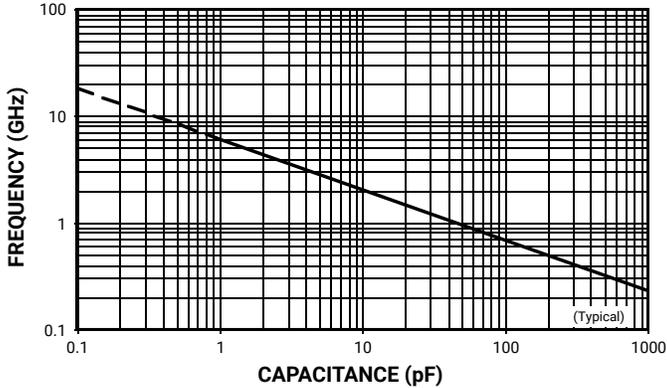
RF/Microwave Multilayer Capacitors (MLC)

100B Series Porcelain Superchip® Multilayer Capacitors

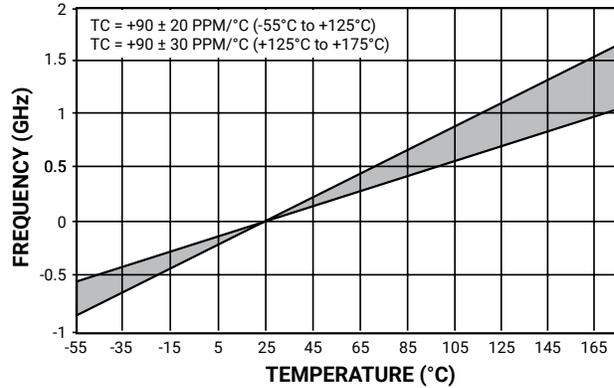


PERFORMANCE DATA

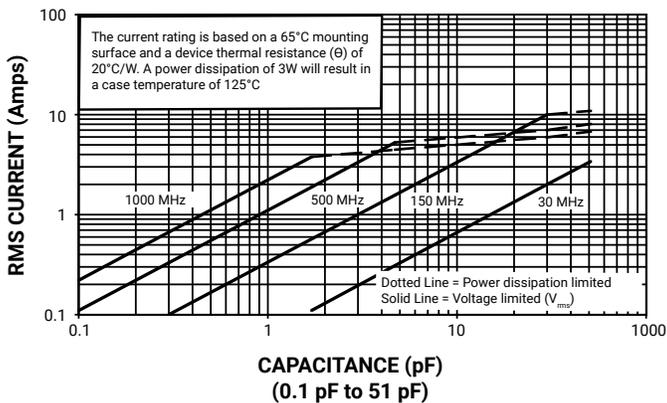
SERIES RESONANCE VS. CAPACITANCE
AVX SERIES 100, CASE B



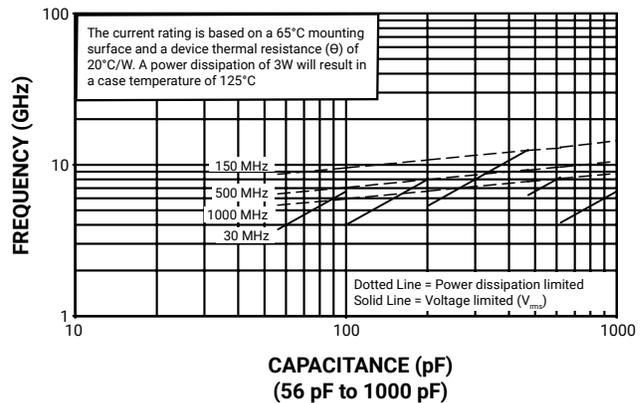
CAPACITANCE CHANGE VS. TEMPERATURE
AVX SERIES 100, CASE B



CURRENT RATING VS. CAPACITANCE
AVX SERIES 100, CASE B



CURRENT RATING VS. CAPACITANCE
AVX SERIES 100, CASE B



RF/Microwave Capacitors
RF/Microwave Multilayer Capacitors (MLC)
100B Series Porcelain Superchip® Multilayer Capacitors



PERFORMANCE DATA

CURRENT RATING VS. CAPACITANCE
AVX SERIES 100, CASE B

