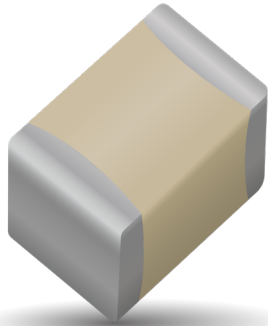


RF/Microwave Capacitors

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

KYOCERA 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
- Impedance Matching
- Coupling
- DC Blocking
- Tuning

CIRCUIT APPLICATIONS

- UHF/Microwave RF Power Amplifiers
- Low Noise Amplifiers
- Oscillators
- 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	Standard WVDC: 0.1 to 330pF: from -55°C to +175°C 360 to 1000pF: from -55°C to +125°C Extended WVDC: 0.1 to 1000pF: from -55°C to +125°C (No derating of working voltage)
Quality Factor	greater than 10,000 at 1 MHz
Insulation Resistance (IR)	0.1 pF to 470 pF: 10 ⁶ 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	B, C			3R0	3.0				240	24				181	180			1000	
0R4	0.4				3R3	3.3				270	27				201	200				
0R5	0.5	B, C, D			3R6	3.6				300	30				221	220			200	
0R6	0.6				3R9	3.9				330	33				241	240				EXT.
0R7	0.7				4R3	4.3				360	36				271	270				
0R8	0.8				4R7	4.7				390	39				301	300				600
0R9	0.9				5R1	5.1				430	43				331	330				
1R0	1.0				5R6	5.6				470	47				361	360		VOLT.		
1R1	1.1				6R2	6.2				510	51				391	390				
1R2	1.2				6R8	6.8	560			56	431				430	EXT.				
1R3	1.3				7R5	7.5	620			62	471				470					
1R4	1.4				8R2	8.2	680			68	511		510	100						
1R5	1.5				9R1	9.1	750			75	561		560							
1R6	1.6				100	100	10			820	82		621	620	300					
1R7	1.7					110	11			910	91		681	680						
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	160				16	131			130	102		1000	VOLT						
2R2	2.2	180			18															

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

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

500

X

T

Packaging

T = Tape and Reel, 500 pc qty
TV = Vertical Tape and Reel, 500 pc qty
Please see last column of mechanical configuration table for other options.

Laser Marking (Optional)

Voltage Rating

Termination Style Code

Please see 2nd Column Mechanical Configuration Table

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.

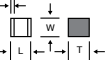
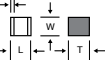
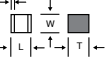
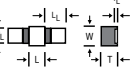
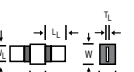
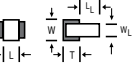
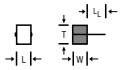
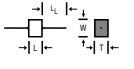
RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

100B Series Porcelain Superchip® Multilayer Capacitors



MECHANICAL CONFIGURATION

Series & Case Size	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	Pkg Code		
					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)	.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	T1K or T TV1K or TV C100	
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	T1K or T TV1K or TV C100	
100B	T	N/A	 Solderable Nickel		.110+ .020 - .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	T1K or T TV1K or TV C100	
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	T1K or T TV1K or TV C100	
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	C20	
100B	AR	CDR22BG	 Axial Ribbon				.102 (2.59) max.		.250 (6.35) min.	.093±.005 (2.36 ±0.13)	.004 ± .001 (.102±.025)	Box, 20 or 100 pcs	B20 or B100	
100B	RR	CDR24BG	 Radial Ribbon									Box, 20 or 100 pcs	B20 or B100	
100B	RW	CDR23BG	 Radial Wire		.145 ±.020 (3.68 ±0.51)						.500 (12.7)	#26 AWG., .016 (.406) dia. nominal	Box, 20 or 100 pcs	B20 or B100
100B	AW	CDR25BG	 Axial Wire										Box, 20 or 100 pcs	B20 or B100

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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NON-MAGNETIC MECHANICAL CONFIGURATION

Series & Case Size	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	Pkg Code	
					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 Copper Barrier Termination			T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	T1K or T TV1K or TV C100
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	T1K or T TV1K or TV C100
100B	TN	Meets Requirements	 Non-Mag Solderable Barrier		.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	T1K or T TV1K or TV C100
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	C20
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	B20 or B100
100B	FN	Meets Requirements	 Radial Ribbon									Box, 20 or 100 pcs	B20 or B100
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	B20 or B100	
100B	BN	Meets Requirements	 Axial Wire								Box, 20 or 100 pcs	B20 or B100	

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

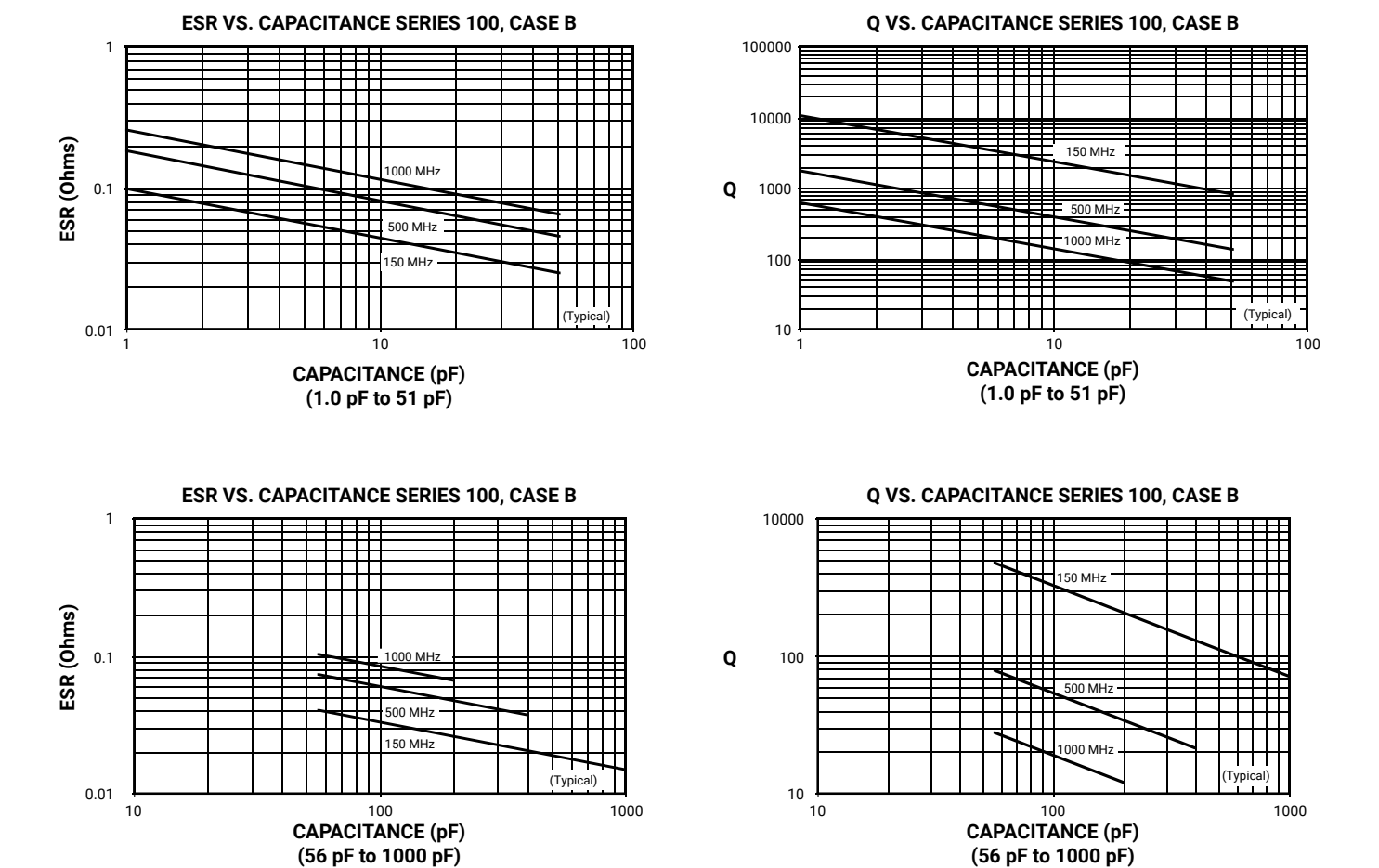
Case B Vertical Mount

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

Horizontal 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

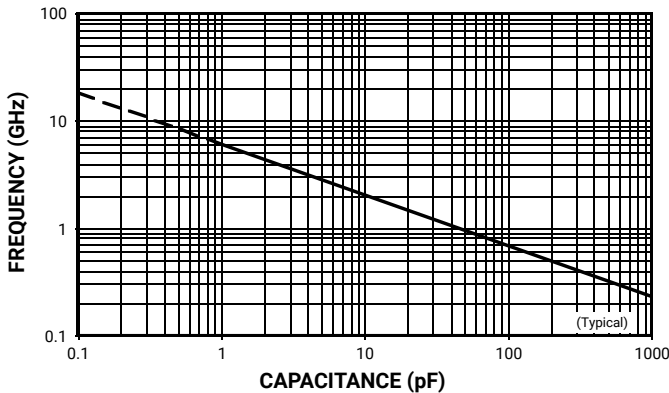


RF/Microwave Capacitors
RF/Microwave Multilayer Capacitors (MLC)
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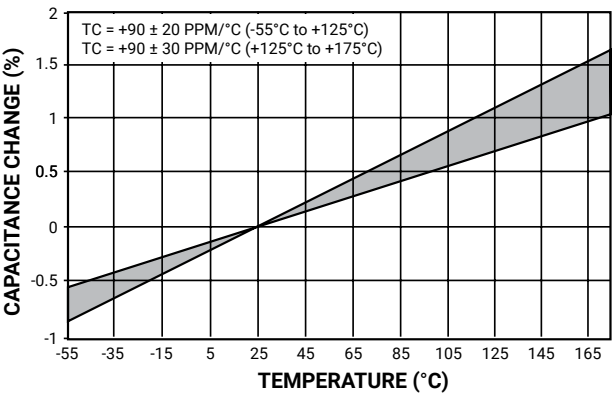


PERFORMANCE DATA

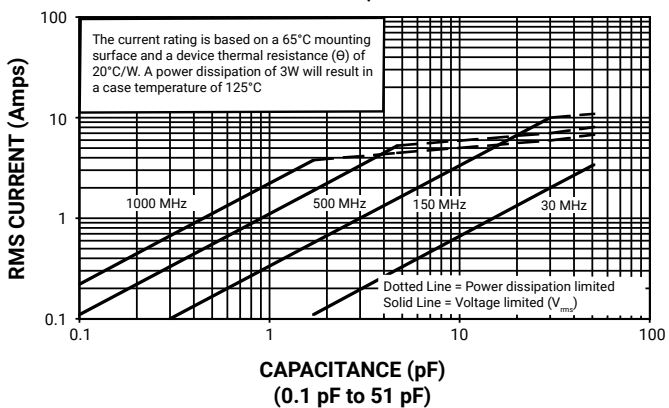
SERIES RESONANCE VS. CAPACITANCE
SERIES 100, CASE B



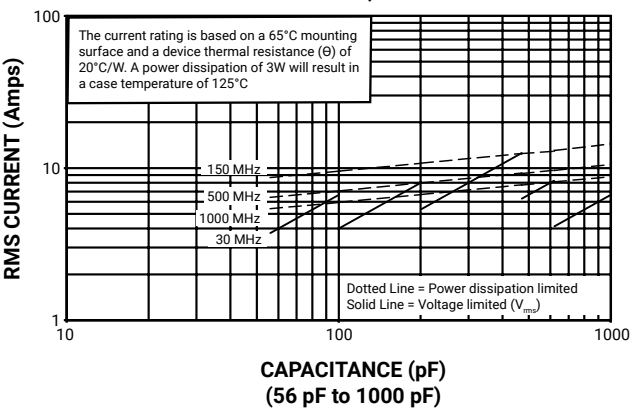
CAPACITANCE CHANGE VS. TEMPERATURE
SERIES 100, CASE B



CURRENT RATING VS. CAPACITANCE
SERIES 100, CASE B



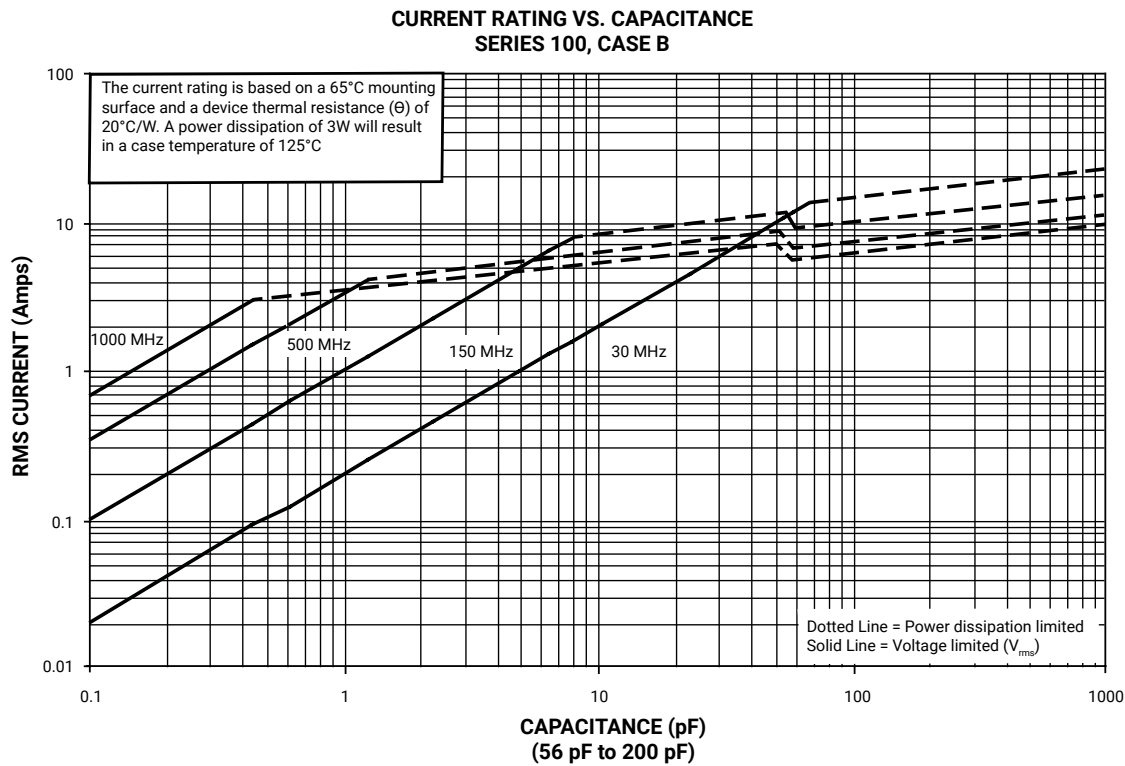
CURRENT RATING VS. CAPACITANCE
SERIES 100, CASE B



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PERFORMANCE DATA



DESIGN KITS

Kit #	RoHS Compliant	Item #	Description	Cap. Value Range (pF)	Cap. Value (pF)	Tol. (pF)	Price
Kit 9		DK0009	100B Porcelain Superchip®, 16 different values, 15 pcs. min. per value	0.1 to 2.0	10, 12, 15, 18, 20, 22, 24, 27, 30, 33, 39, 47, 56, 68, 82, 100 ±5%	±5%	\$180.00
Kit 9T		DK0009T					
Kit 10		DK0010	100B Porcelain Superchip®, 16 different values, 15 pcs. min. per value	10 to 27	100, 120, 150, 180, 200, 220, 240, 270, 300, 330, 390, 470 ±5%	±5%	\$180.00
Kit 10T		DK0010T					
					560, 680, 820, 1000 ±5%		

For Online Kit Orders, Catalog & Application Notes, Visit: www.kyocera-avx.com