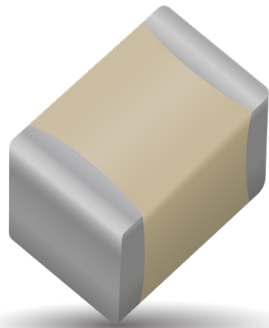


RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

700B Series NPO Porcelain and Ceramic Multilayer Capacitors



FEATURES

- Case E Size (.110" x .110")
- Capacitance Range 0.1 pF to 5100 pF
- 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, is announcing new improved ESR/ESL performance for the 700B Series RF/Microwave Capacitors. The superior high self-resonance and zero TCC characteristic of this Series provide excellent performance over a broad range of RF and microwave applications requiring minimum drift, including RF power. Porcelain and ceramic construction provide a rugged, hermetic package.

PACKAGING OPTIONS



Tape & Reel



Vertical Orientation Tape & Reel



Cap Pac® (100 pcs)



FUNCTIONAL APPLICATIONS

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

CIRCUIT APPLICATIONS

- Timing Power Amplifiers
- RF Power Amplifiers
- Filters
- 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. 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.

AVX 700B Series Capacitors are designed and manufactured to meet and exceed the requirements of EIA-198, MIL-PRF-55681 and MIL-PRF-123.

ELECTRICAL SPECIFICATIONS

Temperature Coefficient (TCC)	0 ±30 PPM/°C (-55°C to +125°C)
Capacitance Range	0.1 pF to 5100 pF
Operating Temperature	0.1 to 200 pF: from -55°C to +175°C 220 to 5100 pF: from -55°C to +125°C
Quality Factor	Greater than 10,000 (1 pF to 200 pF) @ 1 MHz. Greater than 2000 (220 pF to 1000 pF) @ 1 MHz. Greater than 2000 (1100 pF to 5100 pF) @ 1 KHz.
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 5100 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.

RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

700B Series NPO Porcelain and Ceramic Multilayer Capacitors



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	3R3	3.3	B, C, D	500	1500	330	33	F, G, J, K, M	500	1500	331	330	F, G, J, K, M	200	EXT.					
0R2	0.2				3R6	3.6				360	36				361	360								
0R3	0.3	B, C			EXT. VOLTAGE	3R9				3.9	1500				EXT. VOLTAGE	390				39	1500	EXT. VOLTAGE	391	390
0R4	0.4					4R3				4.3						430				43			431	430
0R5	0.5	B, C, D			EXT. VOLTAGE	4R7				4.7	500				EXT. VOLTAGE	470				47	1000	EXT. VOLTAGE	471	470
0R6	0.6					5R1				5.1						510				51			511	510
0R7	0.7					5R6				5.6						560				56			561	560
0R8	0.8					6R2				6.2						620				62			621	620
0R9	0.9					6R8				6.8						680				68			681	680
1R0	1.0					7R5				7.5						750				75			751	750
1R1	1.1		8R2	8.2		820	82	821	820															
1R2	1.2		9R1	9.1		910	91	911	910															
1R3	1.3		B, C, D	EXT. VOLTAGE		100	10	300	EXT. VOLTAGE	101		100	1000	EXT. VOLTAGE		102	1000							
1R4	1.4					110	11			111		110				112	1100							
1R5	1.5	120			12	121	120			122	1200													
1R6	1.6	130			13	131	130			152	1500													
1R7	1.7	150			15	151	150			182	1800													
1R8	1.8	160			16	161	160			222	2200													
1R9	1.9	180			18	181	180			272	2700													
2R0	2.0	200			20	201	200			302	3000													
2R1	2.1	220			22	221	220			332	3300													
2R2	2.2	240			24	241	240			392	3900													
2R4	2.4	270	27	271	270	472	4700																	
2R7	2.7	300	30	301	300	512	5100																	
3R0	3.0																							

SPECIAL VALUES, TOLERANCES, DIFFERENT WVDC AND MATCHING AVAILABLE. • ENCAPSULATION OPTION AVAILABLE. PLEASE CONSULT FACTORY.

HOW TO ORDER

700 B 331 J W 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	F	G	J	K	M
Tol.	±1 pF	±25 pF	±5 pF	±1%	±2%	±5%	±10%	±20%

Packaging —————
T = Tape and Reel, 1000 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

Laser Marking (Optional) —————

Voltage Rating —————

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

The above part number refers to a 700B Series (case size B) 330 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)

700B Series NPO Porcelain and Ceramic 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			
700B	W	CDR14BG	B Solder Plate		110+.025-.010 (2.79 +0.64 -0.25)	.110 ±.015 (2.79 ±0.38)	.102 (2.59) max.	.102 (2.59) max.	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	
700B	P	CDR14BG	B Pellet		110+.025-.010 (2.79 +0.64 -0.25)	.110 ±.015 (2.79 ±0.38)	.102 (2.59)		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	
700B	T	N/A	B Solderable Nickel Barrier		110+.025-.010 (2.79 +0.64 -0.25)	.110 ±.015 (2.79 ±0.38)	.102 (2.59)		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	
700B	CA	CDR13BG	B Gold Chip		110+.025-.010 (2.79 +0.64 -0.25)	.110 ±.015 (2.79 ±0.38)	.102 (2.59)		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	
700B	MS	CDR21BG	B 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
700B	AR	CDR22BG	B Axial Ribbon						.250 (6.35) min.	.093 ±.005 (2.36 ± 0.13)	.004 ±.001 (.102 ± .025)	Box, 20 or 100 pcs
700B	RR	CDR24BG	B Radial Ribbon						.102 (2.59) max.	Box, 20 or 100 pcs		
700B	RW	CDR23BG	B Radial Wire		.145 ±.020 (3.68 ±0.51)				.500 (12.7)	#26 AWG., .016 (.406) dia. nominal	Box, 20 or 100 pcs	
700B	AW	CDR25BG	B Axial Wire						.950 min.		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)

700B Series NPO Porcelain and Ceramic 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				
700B	WN	Meets Requirements	B Non-Mag Solder Plate		.110 +.020 -.010 (2.79 +0.51 -0.25)	.110 ±.015 (2.79 ±0.38)	.102 (2.59) max.	.102 (2.59) ±.010 (0.25)	Tin / Lead, Solder Plated over Non-Magnetic Barrier Termination		T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs		
700B	PN	Meets Requirements	B Non-Mag Pellet		.110 +.035 -.010 (2.79 +0.89 -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		
700B	TN	Meets Requirements	B 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		
700B	MN	Meets Requirements	B Non-Mag Microstrip		.135 ±.015 (3.43 ±0.38)	.110 ±.015 (2.79 ±0.38)	.120 (3.05) max.	N/A	Length (L)	Width (W)	Thickness (T)	Cap Pac, 20 pcs	
700B	AN	Meets Requirements	B Non-Mag Axial Ribbon						.250 (6.35) (6.35) min.	.093 ± .005 (2.36 ± 0.13)	.004 ± .001 (.102 ± .025)		Box, 20 or 100 pcs
700B	FN	Meets Requirements	B Non-Mag Radial Ribbon						.145 ±.020 (3.68 ±0.51)	.102 (2.59) max.	N/A		.500 (12.7) min.
700B	RN	Meets Requirements	B Non-Mag Axial Wire		.950 min.	N/A						Box, 20 or 100 pcs	
700B	BN	Meets Requirements	B Non-Mag Radial Wire								Box, 20 or 100 pcs		

*Capacitors with values greater than 200 pF contain a trace magnetic element that may exhibit weak magnetic properties.

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

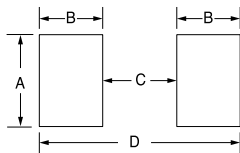
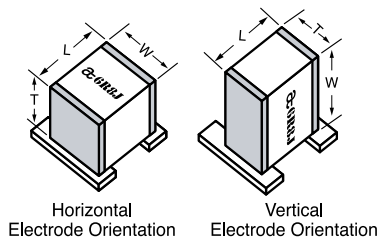
RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

700B Series NPO Porcelain and Ceramic Multilayer Capacitors



SUGGESTED MOUNTING PAD DIMENSIONS

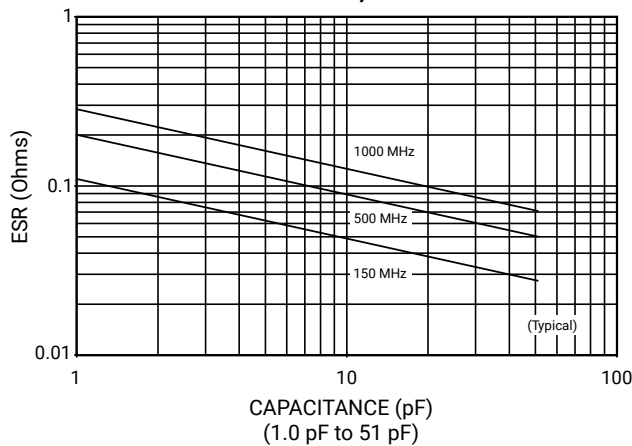


Case B Vertical Mount					
Cap Value	Pad Size	A Min.	B Min.	C Min.	D Min.
0.1 pF	Normal	.065	.050	.075	.175
	High Density	.045	.030	.075	.135
0.2 pF	Normal	.090	.050	.075	.175
	High Density	.070	.030	.075	.135
0.3 to 510 pF	Normal	.110	.050	.075	.175
	High Density	.090	.030	.075	.135
> 510 pF	Normal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

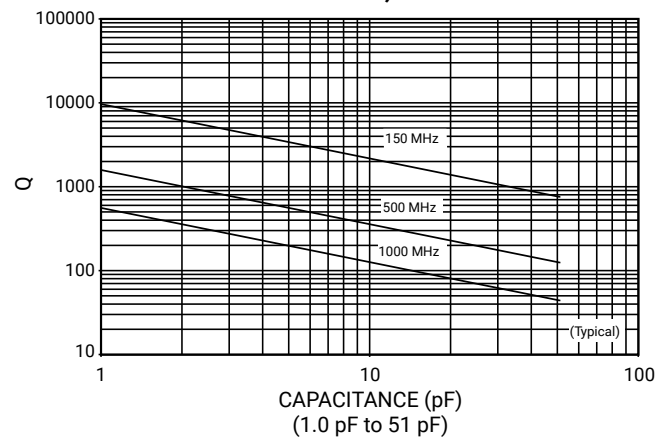
Horizontal Mount					
All Values	Pad Size	A Min.	B Min.	C Min.	D Min.
All Values	Normal	.130	.050	.075	.175
	High Density	.110	.030	.075	.135

PERFORMANCE DATA

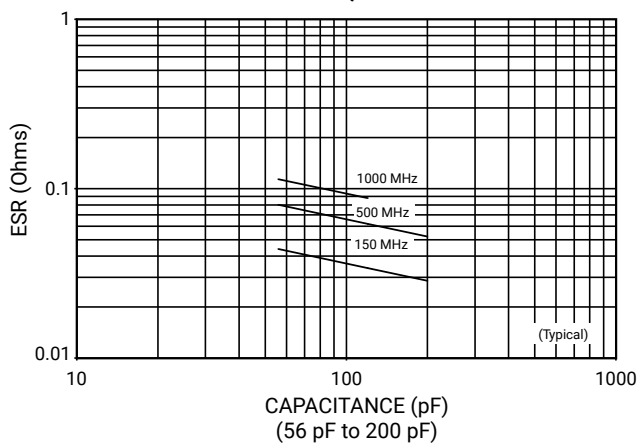
**ESR VS. CAPACITANCE
SERIES 700, CASE B**



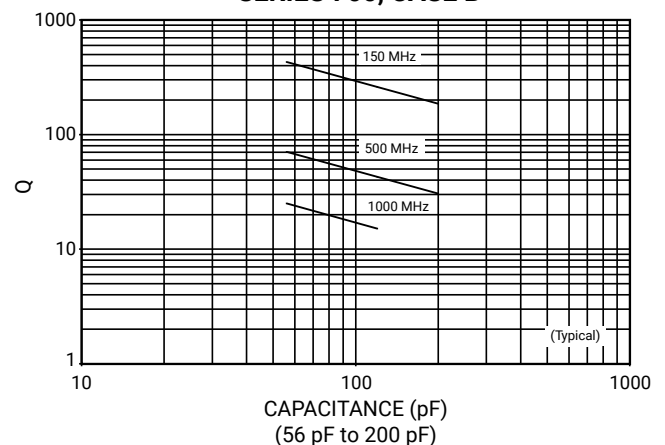
**Q VS. CAPACITANCE
SERIES 700, CASE B**



**ESR VS. CAPACITANCE
SERIES 700, CASE B**



**Q VS. CAPACITANCE
SERIES 700, CASE B**



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

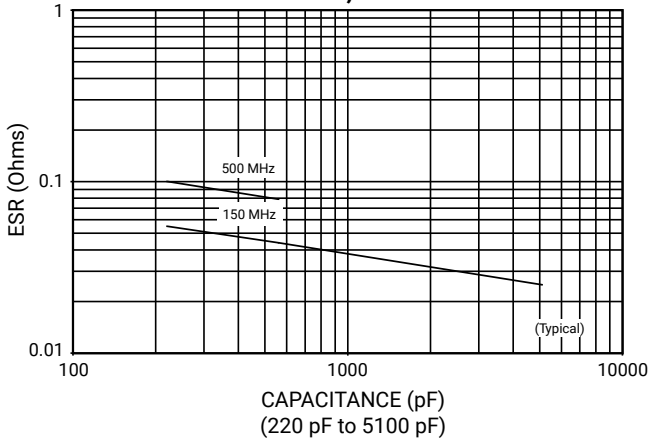
RF/Microwave Multilayer Capacitors (MLC)

700B Series NPO Porcelain and Ceramic Multilayer Capacitors

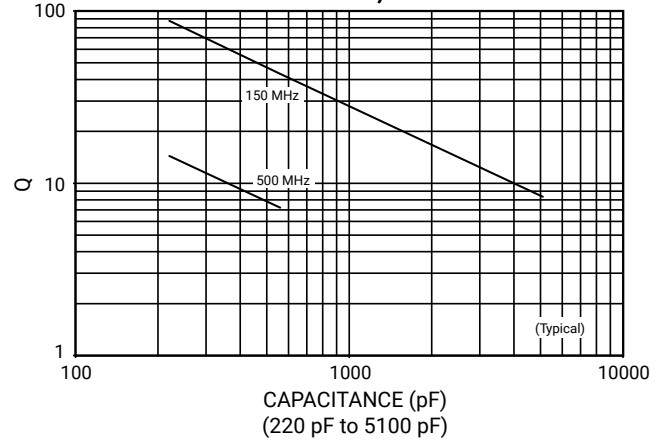


PERFORMANCE DATA

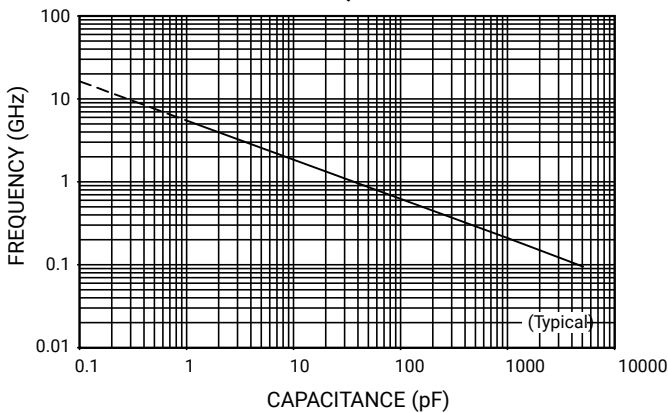
**ESR VS. CAPACITANCE
SERIES 700, CASE B**



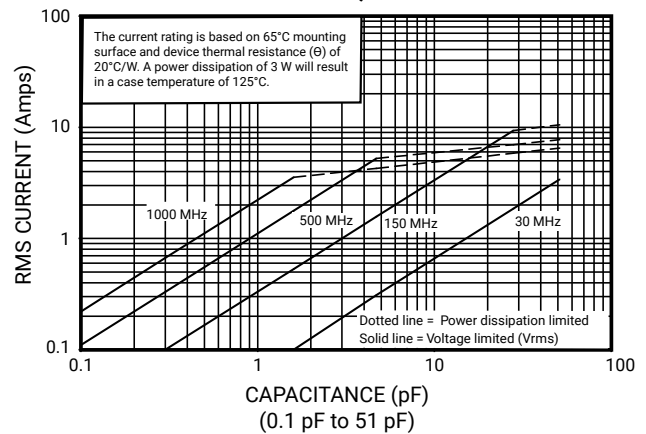
**Q VS. CAPACITANCE
SERIES 700, CASE B**



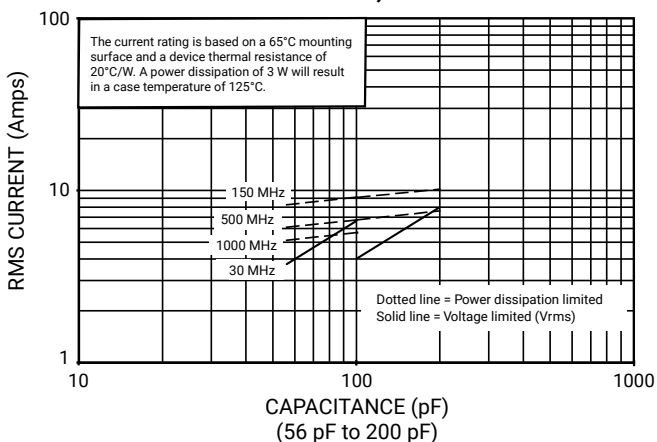
**SERIES RESONANCE VS. CAPACITANCE
SERIES 700, CASE B**



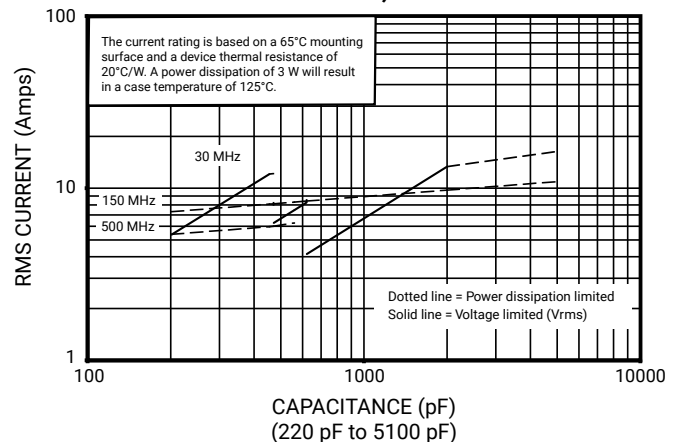
**CURRENT RATING VS. CAPACITANCE
SERIES 700, CASE B**



**CURRENT RATING VS. CAPACITANCE
SERIES 700, CASE B**



**CURRENT RATING VS. CAPACITANCE
SERIES 700, CASE B**



RF/Microwave Capacitors

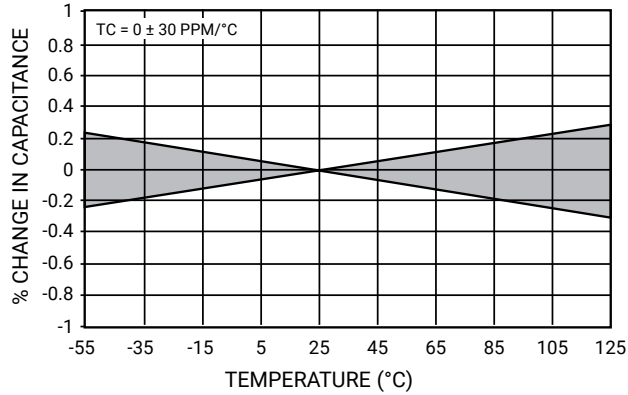
RF/Microwave Multilayer Capacitors (MLC)

700B Series NPO Porcelain and Ceramic Multilayer Capacitors

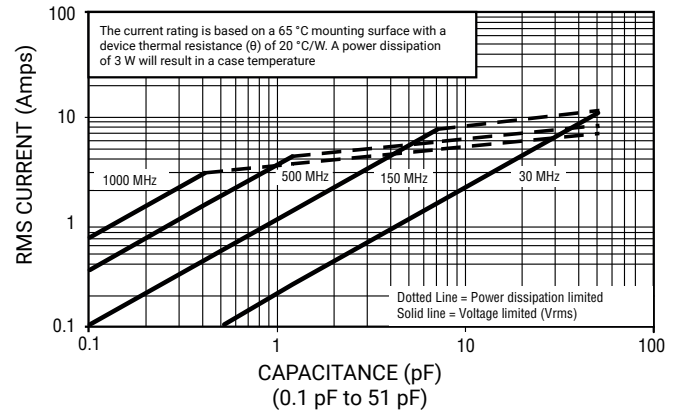


PERFORMANCE DATA

**CURRENT CHANGE VS. TEMPERATURE
SERIES 700, CASE B**



**CURRENT RATING VS. CAPACITANCE
SERIES 700, CASE B, EXTENDED VOLTAGE**



**CURRENT RATING VS. CAPACITANCE
SERIES 700, CASE B, EXTENDED VOLTAGE**

