

ATC 700 B Series NPO Porcelain and Ceramic Multilayer Capacitors

- Case B Size (.110" x .110")
- Low ESR/ESL
- Low Noise
- Rugged Construction
- Extended WVDC up to 1500 VDC
- Capacitance Range 0.1 pF to 5100 pF
- Zero TCC
- High Self-Resonance
- Established Reliability (QPL)

ATC, the industry leader, is announcing new improved ESR/ESL performance for the 700 B 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.

Typical functional applications: Bypass, Coupling, Tuning and DC Blocking.

Typical circuit applications: Filters, Oscillators, Timing and RF Power Amplifiers.

ENVIRONMENTAL TESTS

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

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 Volts DC applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours min.

LIFE TEST:

MIL-STD-202, Method 108, for 2000 hours, at 125°C.

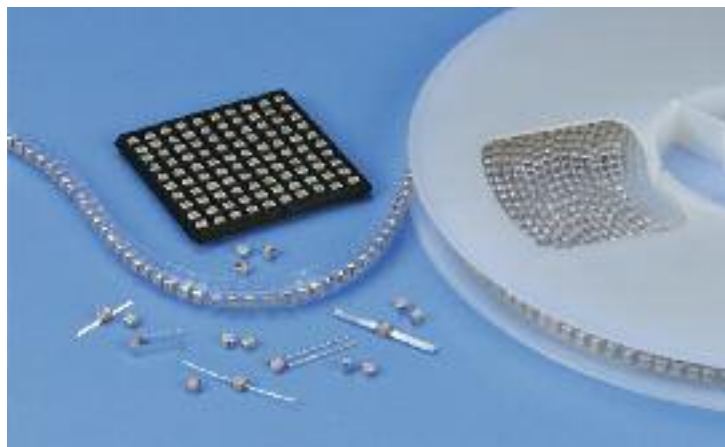
200% WVDC applied.

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.



ELECTRICAL AND MECHANICAL SPECIFICATIONS

QUALITY FACTOR (Q):

Greater than 10,000 (0.1 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.

TEMPERATURE COEFFICIENT OF CAPACITANCE (TCC):

0 $\pm$ 30 PPM/°C (-55°C to +125°C)

INSULATION RESISTANCE (IR):

0.1 pF to 470 pF:

10⁶ Megohms min. @ +25°C at rated WVDC.

10⁵ Megohms min. @ +125°C at rated WVDC.

510 pF to 5100 pF:

10⁵ Megohms min. @ +25°C at rated WVDC.

10⁴ Megohms min. @ +125°C at rated WVDC.

WORKING VOLTAGE (WVDC): See Capacitance Values Table, page 2.

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.

RETRACE: Less than $\pm$ (0.02% or 0.02 pF), whichever is greater.

AGING EFFECTS: None

PIEZOELECTRIC EFFECTS: None

(No capacitance variation with voltage or pressure).

CAPACITANCE DRIFT: $\pm$ (0.02% or 0.02 pF), whichever is greater.

OPERATING TEMPERATURE RANGE:

0.1 to 200 pF: from -55°C to +175°C

220 to 5100 pF: from -55°C to +125°C

TERMINATION STYLES:

Available in various surface mount and leaded styles.

See Mechanical Configurations, page 3.

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. Test per MIL-STD-202, method 211.



AMERICAN

ATC North America
sales@atceramics.com

TECHNICAL

ATC Europe
sales@atceramics.com

CERAMICS

ATC Asia
sales@atceramics-asia.com

THE ENGINEERS' CHOICE™

www.atceramics.com



THE
ENGINEERS'
CHOICE®

ISO 9001 REGISTERED
COMPANY

ATC 700 B 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	N/A
0R2	0.2				3R6	3.6				360	36				361	360			
0R3	0.3	B, C			3R9	3.9				390	39				391	390			
					4R3	4.3				430	43				431	430			
0R4	0.4	4R7			4.7	470				47	471				470				
0R5	0.5	5R1			5.1	510				51	511				510				
0R6	0.6	5R6			5.6	560				56	561			560					
0R7	0.7	6R2			6.2	620				62	621			620					
0R8	0.8	6R8			6.8	680				68	681			680					
0R9	0.9	7R5			7.5	750				75	751			750					
1R0	1.0	8R2			8.2	820				82	821			820					
1R1	1.1	9R1			9.1	910				91	911			910					
1R2	1.2	100			10	101				100	102			1000					
1R3	1.3	110			11	111	110			112	1100								
1R4	1.4	120			12	121	120			122	1200								
1R5	1.5	130			13	131	130			152	1500								
1R6	1.6	150			15	151	150			182	1800								
1R7	1.7	160			16	161	160			222	2200								
1R8	1.8	180			18	181	180			272	2700								
1R9	1.9	200			20	201	200			302	3000								
2R0	2.0	220			22	221	220			332	3300								
2R1	2.1	240			24	241	240			392	3900								
2R2	2.2	270			27	271	270			472	4700								
2R4	2.4	300			30	301	300			512	5100								
2R7	2.7																		
3R0	3.0																		

$$V_{RMS} = 0.707 \times WVDC$$

• SPECIAL VALUES, TOLERANCES, HIGHER WVDC AND MATCHING AVAILABLE. PLEASE CONSULT FACTORY.

Capacitance values in **bold** type indicate porcelain dielectric. All other capacitance values indicate ceramic dielectric.

All 700 B Capacitors are available laser marked with ATC's identification, capacitance code and tolerance.

NOTE: EXTENDED WVDC DOES NOT APPLY TO CDR PRODUCTS.

ATC PART NUMBER CODE

Series ATC700 Case Size B Capacitance Code: 33 First 2 significant digits for capacitance. R=Decimal Point

Indicates number of zeros following digits of capacitance in picofarads except for decimal values. 1

Capacitance Tolerance J

Termination Code W

WVDC 500

Laser Marking X

Packaging T

T - Tape and Reel, 1000 pc. qty.*
TV - Vertical Orientation of Product, Tape and Reel, 1000 pc. qty.*
I - Special Packaging. Consult Factory.
*Consult ATC for other quantities
ATC Cap-Pac® packaging (100 pc. qty. std.) is also available. For this option, leave last field blank.

CAPACITANCE TOLERANCE							
Code	B	C	D	F	G	J	M
Tol.	±0.1 pF	±0.25 pF	±0.5 pF	±1%	±2%	±5%	±20%

The above part number refers to a 700 B 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 ATC Cap-Pac® packaging.

ATC accepts orders for our parts using designations **with** or **without** the "ATC" prefix. Both methods of defining the part number are equivalent, i.e., part numbers referenced with the "ATC" prefix are interchangeable to parts referenced without the "ATC" prefix. Customers are free to use either in specifying or procuring parts from American Technical Ceramics.

For additional information and catalogs contact your ATC representative or call direct at (+1-631) 622-4700.

Consult factory for additional performance data.

A M E R I C A N T E C H N I C A L C E R A M I C S

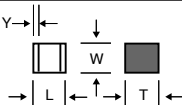
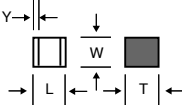
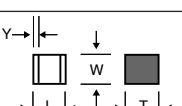
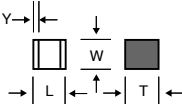
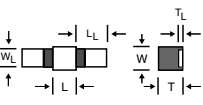
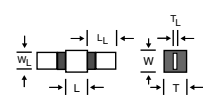
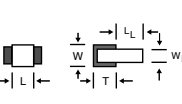
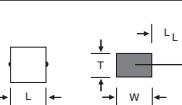
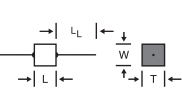
ATC North America
sales@atceramics.com

ATC Europe
sales@atceramics.com

ATC Asia
sales@atceramics-asia.com

www.atceramics.com

ATC 700 B Capacitors: Mechanical Configurations

ATC SERIES & CASE SIZE	ATC TERM. CODE	MIL-PRF- 55681	CASE SIZE & TYPE	OUTLINES W/T IS A TERMINATION SURFACE	BODY DIMENSIONS INCHES (mm)			LEAD AND TERMINATION DIMENSIONS AND MATERIALS				
					LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIALS			
700B	W	CDR14BP	 Solder Plate		.110 +.020 -.010 (2.79 +0.51 -.025)	.110 ±.015 (2.79 ±0.38)	.102 (2.59) max.	.015 (0.38) ±.010 (0.25)	Tin/Lead, Solder Plated over Nickel Barrier Termination			
700B	P	CDR14BP	 Pellet		.110 +.035 -.010 (2.79 +0.89 -.025)	.110 ±.015 (2.79 ±0.38)			Heavy Tin/Lead Coated, over Nickel Barrier Termination			
700B	T	N/A	 Solderable Nickel Barrier		.110 +.020 -.010 (2.79 +0.51 -.025)	.110 ±.015 (2.79 ±0.38)			RoHS Compliant Tin Plated over Nickel Barrier Termination			
700B	CA	CDR13BP	 Gold Chip		.110 +.020 -.010 (2.79 +0.51 -.025)	.110 ±.015 (2.79 ±0.38)			RoHS Compliant Gold Plated over Nickel Barrier Termination			
700B	MS	CDR21BP	 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)	
700B	AR	CDR22BP	 Axial Ribbon				.250 (6.35) min.		.093 ±.005 (2.36 ±0.13)	.004 ±.001 (.102 ±.025)		
700B	RR	CDR24BP	 Radial Ribbon									
700B	RW	CDR23BP	 Radial Wire		.145 ±.020 (3.68 ±0.51)				.500 (12.7) min.	#26 AWG., .016 (.406) dia. nominal		
700B	AW	CDR25BP	 Axial Wire									

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. For a complete military catalog, request American Technical Ceramics document ATC 001-818.

A M E R I C A N T E C H N I C A L C E R A M I C S

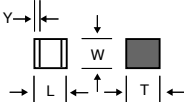
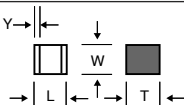
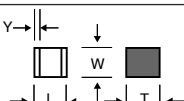
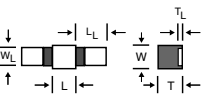
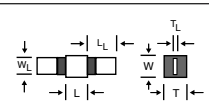
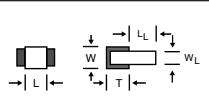
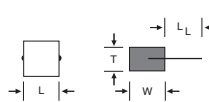
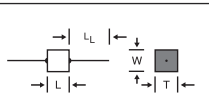
ATC North America
sales@atceramics.com

ATC Europe
saleseur@atceramics.com

ATC Asia
sales@atceramics-asia.com

www.atceramics.com

ATC 700 B Capacitors: Non-Magnetic Mechanical Configurations

ATC SERIES & CASE SIZE	ATC TERM. CODE	MIL-PRF- 55681	CASE SIZE & TYPE	OUTLINES W/T IS A TERMINATION SURFACE	BODY DIMENSIONS INCHES (mm)			LEAD AND TERMINATION DIMENSIONS AND MATERIALS				
					LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIALS			
700B	WN	Meets Require- ments	 B Non-Mag Solder Plate		.110 +.025 -.010 (2.79 +0.64 -0.25)	.110 ±.015 (2.79 ±0.38)	.102 (2.59) max.	.015 (0.38) ±.010 (0.25)	Tin/Lead, Solder Plated over Non-Magnetic Barrier Termination			
700B	PN	Meets Require- ments	 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			
700B	TN	Meets Require- ments	 B Non-Mag Solderable Barrier		.110 +.025 -.010 (2.79 +0.64 -0.25)	.110 ±.015 (2.79 ±0.38)			RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination			
700B	MN	Meets Require- ments	 B Non-Mag 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)	
700B	AN	Meets Require- ments	 B Non-Mag Axial Ribbon				.106 (2.69) max.		.250 (6.35) min.	.093 ±.005 (2.36 ±0.13)	.004 ±.001 (.102 ±.025)	
700B	FN	Meets Require- ments	 B Non-Mag Radial Ribbon									
700B	RN	Meets Require- ments	 B Non-Mag Radial Wire		.145 ±.020 (3.68 ±0.51)				.500 (12.7) min.	#26 AWG., .016 (.406) dia. nominal		
700B	BN	Meets Require- ments	 B Non-Mag Axial Wire									

*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 are **RoHS compliant.

Suggested Mounting Pad Dimensions					
Case B Vertical Mount					
Cap Value		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	Normal	.130	.050	.075	.175
	High Density	.110	.030	.075	.135

Horizontal Electrode Orientation

Vertical Electrode Orientation

Dimensions are in inches.

A M E R I C A N T E C H N I C A L C E R A M I C S

ATC North America
sales@atceramics.com

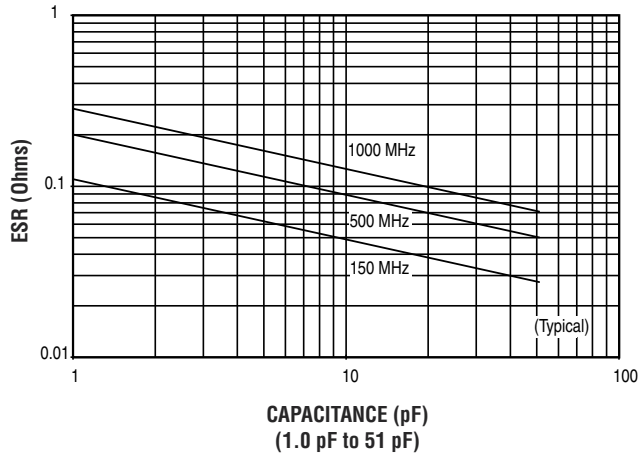
ATC Europe
sales@atceramics.com

ATC Asia
sales@atceramics-asia.com

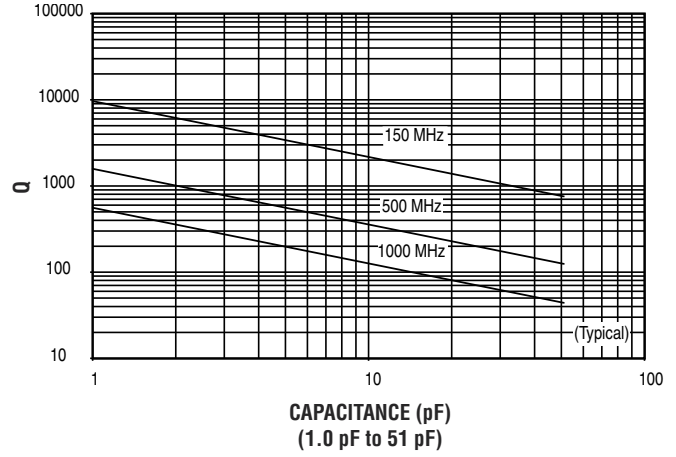
www.atceramics.com

ATC 700 B Performance Data

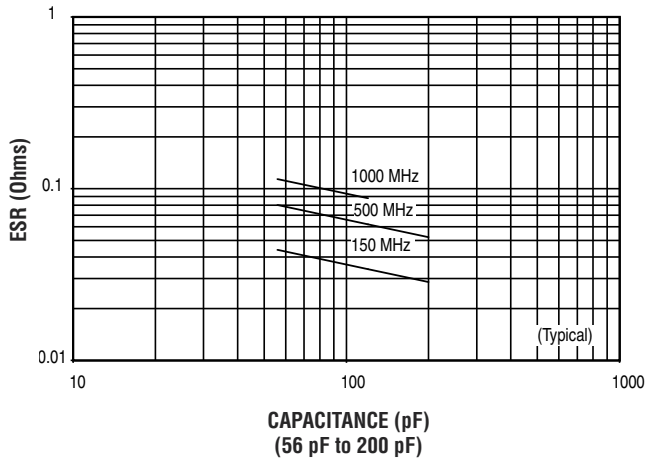
**ESR VS. CAPACITANCE
ATC SERIES 700, CASE B**



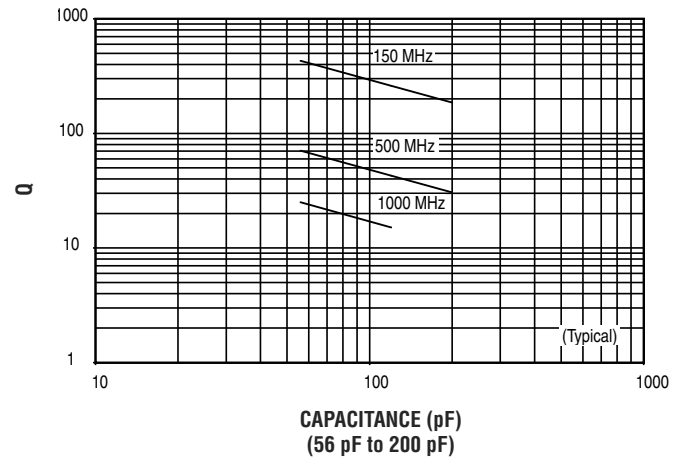
**Q VS. CAPACITANCE
ATC SERIES 700, CASE B**



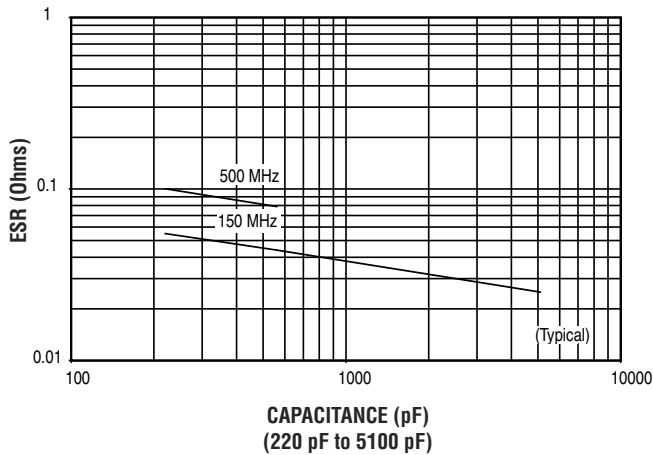
**ESR VS. CAPACITANCE
ATC SERIES 700, CASE B**



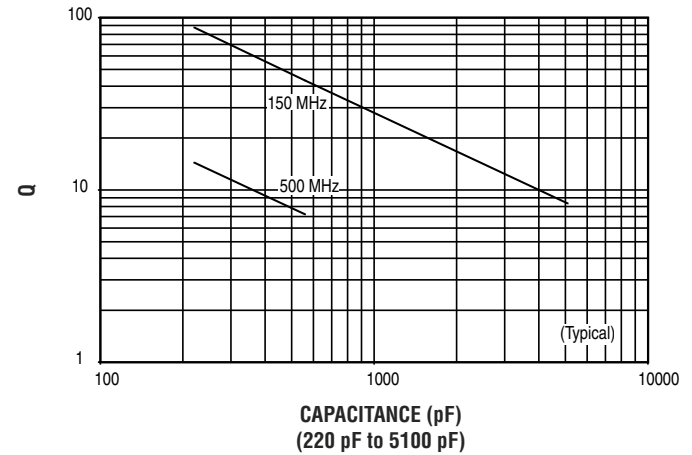
**Q VS. CAPACITANCE
ATC SERIES 700, CASE B**



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



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



A M E R I C A N T E C H N I C A L C E R A M I C S

ATC North America
sales@atceramics.com

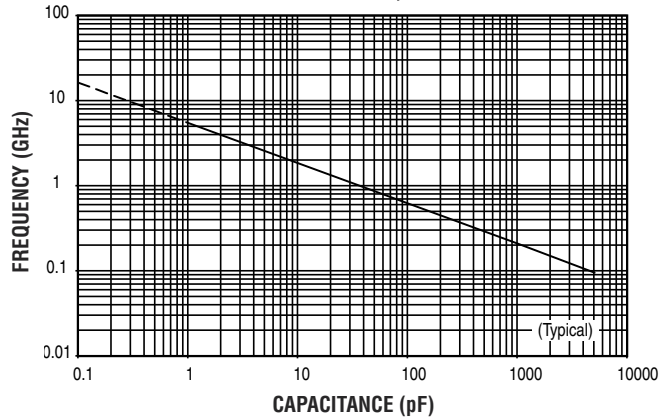
ATC Europe
sales@atceramics.com

ATC Asia
sales@atceramics-asia.com

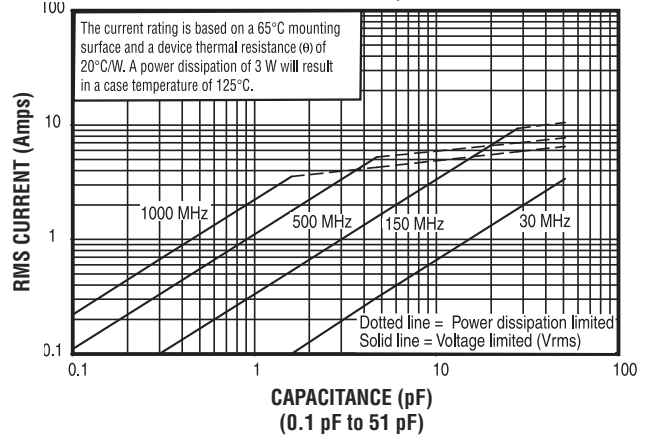
www.atceramics.com

ATC 700 B Performance Data

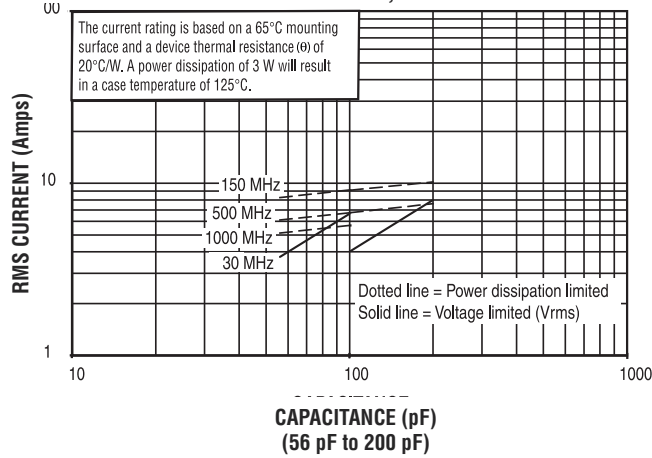
**SERIES RESONANCE VS. CAPACITANCE
ATC SERIES 700, CASE B**



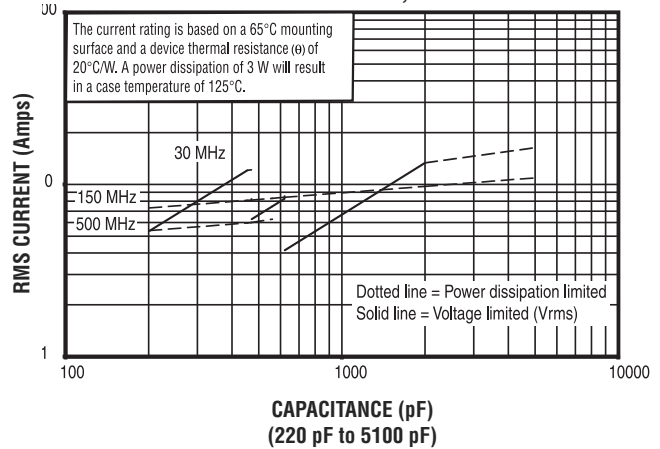
**CURRENT RATING VS. CAPACITANCE
ATC SERIES 700, CASE B**



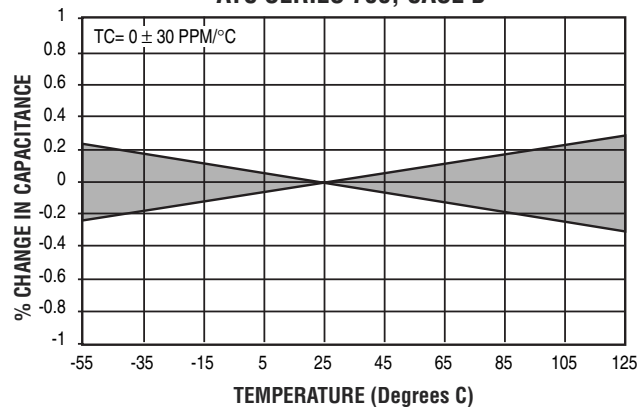
**CURRENT RATING VS. CAPACITANCE
ATC SERIES 700, CASE B**



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



**CAPACITANCE CHANGE VS. TEMPERATURE
ATC SERIES 700, CASE B**



A M E R I C A N T E C H N I C A L C E R A M I C S

ATC North America
sales@atceramics.com

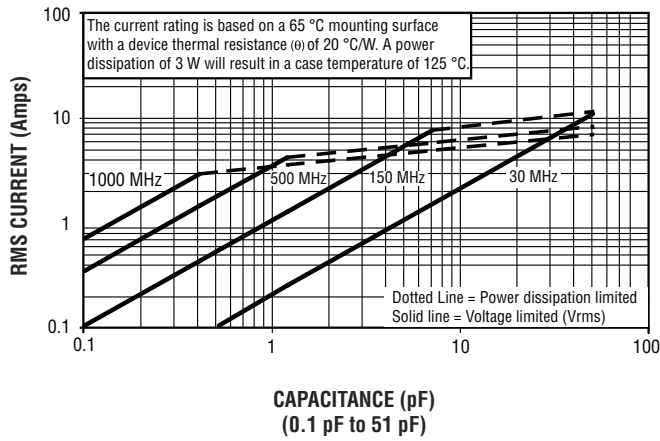
ATC Europe
saleseur@atceramics.com

ATC Asia
sales@atceramics-asia.com

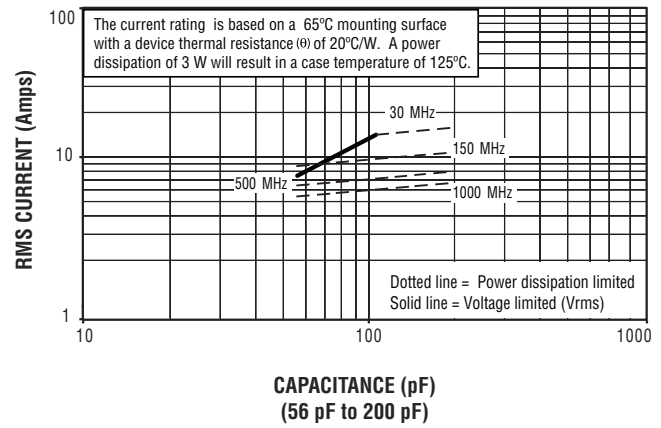
www.atceramics.com

ATC 700 B Performance Data

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



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



A M E R I C A N T E C H N I C A L C E R A M I C S

ATC North America
sales@atceramics.com

ATC Europe
saleseur@atceramics.com

ATC Asia
sales@atceramics-asia.com

www.atceramics.com

Sales of ATC products are subject to the terms and conditions contained in American Technical Ceramics Corp. Terms and Conditions of Sale (ATC document #001-992 Rev. B 12/05). Copies of these terms and conditions will be provided upon request. They may also be viewed on ATC's website at www.atceramics.com/productfinder/default.asp. Click on the link for Terms and Conditions of Sale.

ATC has made every effort to have this information as accurate as possible. However, no responsibility is assumed by ATC for its use, nor for any infringements of rights of third parties which may result from its use. ATC reserves the right to revise the content or modify its product without prior notice.

© 1996 American Technical Ceramics Corp. All Rights Reserved

ATC # 001-814 Rev. S, 9/14

A M E R I C A N T E C H N I C A L C E R A M I C S

ATC North America
sales@atceramics.com

ATC Europe
saleseur@atceramics.com

ATC Asia
sales@atceramics-asia.com

www.atceramics.com

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

American Technical Ceramics (ATC):

[700B0R1BT500XT](#) [700B0R1BW500XT](#) [700B0R2BT500XT](#) [700B0R2BW500XT](#) [700B0R3BT500XT](#)
[700B0R3BW500XT](#) [700B0R3CT500XT](#) [700B0R3CW500XT](#) [700B0R4BT500XT](#) [700B0R4BW500XT](#)
[700B0R4CT500XT](#) [700B0R4CW500XT](#) [700B0R5BT500XT](#) [700B0R5BW500XT](#) [700B0R5CT500XT](#)
[700B0R5CW500XT](#) [700B0R5DT500XT](#) [700B0R5DW500XT](#) [700B0R6BT500XT](#) [700B0R6BW500XT](#)
[700B0R6CT500XT](#) [700B0R6CW500XT](#) [700B0R6DT500XT](#) [700B0R6DW500XT](#) [700B0R7BT500XT](#)
[700B0R7BW500XT](#) [700B0R7CT500XT](#) [700B0R7CW500XT](#) [700B0R7DT500XT](#) [700B0R7DW500XT](#)
[700B0R8BT500XT](#) [700B0R8BW500XT](#) [700B0R8CT500XT](#) [700B0R8CW500XT](#) [700B0R8DT500XT](#)
[700B0R8DW500XT](#) [700B0R9BT500XT](#) [700B0R9BW500XT](#) [700B0R9CT500XT](#) [700B0R9CW500XT](#)
[700B0R9DT500XT](#) [700B0R9DW500XT](#) [700B100FT500XT](#) [700B100FW500XT](#) [700B100GT500XT](#)
[700B100GW500XT](#) [700B100JT500XT](#) [700B100JW500XT](#) [700B100KT500XT](#) [700B100KW500XT](#) [700B100MT500XT](#)
[700B100MW500XT](#) [700B101FT500XT](#) [700B101FW500XT](#) [700B101GT500XT](#) [700B101GW500XT](#)
[700B101JT500XT](#) [700B101JW500XT](#) [700B101KT500XT](#) [700B101KW500XT](#) [700B101MT500XT](#) [700B101MW500XT](#)
[700B102FT50XT](#) [700B102FW50XT](#) [700B102GT50XT](#) [700B102GW50XT](#) [700B102JT50XT](#) [700B102JW50XT](#)
[700B102KT50XT](#) [700B102KW50XT](#) [700B102MT50XT](#) [700B102MW50XT](#) [700B110FT500XT](#) [700B110FW500XT](#)
[700B110GT500XT](#) [700B110GW500XT](#) [700B110JT500XT](#) [700B110JW500XT](#) [700B110KT500XT](#) [700B110KW500XT](#)
[700B110MT500XT](#) [700B110MW500XT](#) [700B111FT300XT](#) [700B111FW300XT](#) [700B111GT300XT](#)
[700B111GW300XT](#) [700B111JT300XT](#) [700B111JW300XT](#) [700B111KT300XT](#) [700B111KW300XT](#) [700B111MT300XT](#)
[700B111MW300XT](#) [700B112FT50XT](#) [700B112FW50XT](#) [700B112GT50XT](#) [700B112GW50XT](#) [700B112JT50XT](#)
[700B112JW50XT](#) [700B112KT50XT](#) [700B112KW50XT](#)