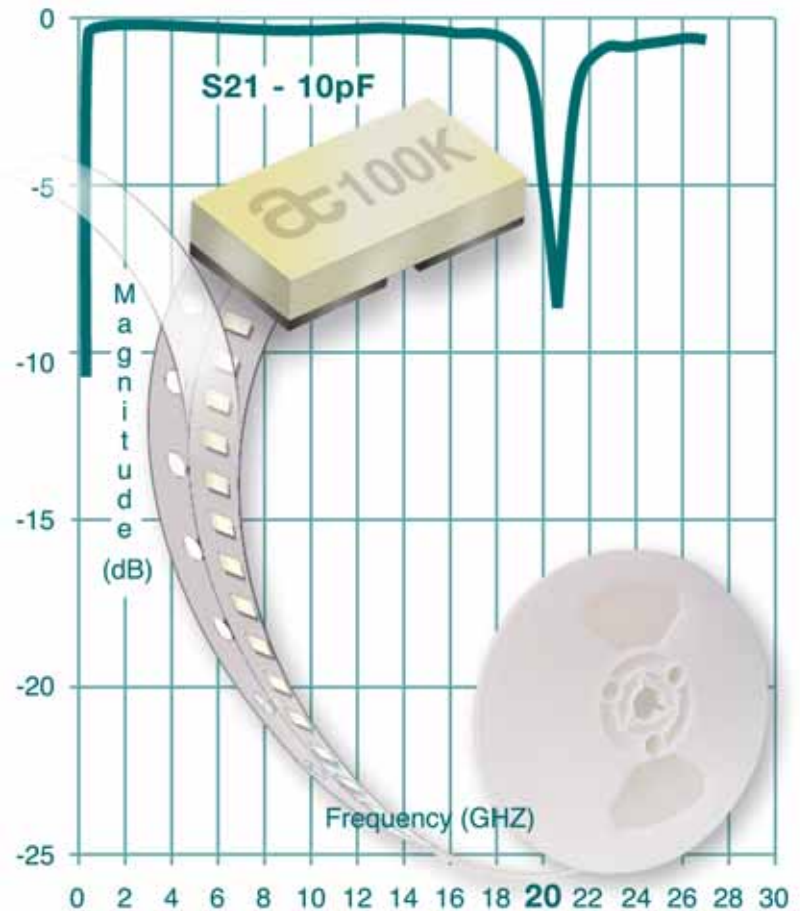


ATC 500S Series BMC Broadband Microwave Millimeter-wave 0603 NPO SMT Capacitors

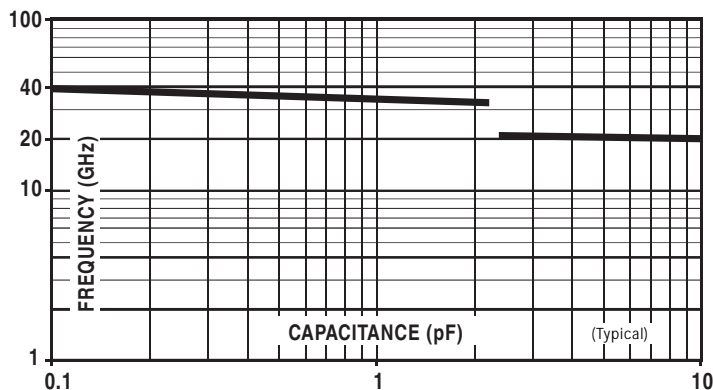
- Low Insertion Loss
- Ultra High Self Resonance
- Surface Mountable
- Rugged Construction

ATC introduces the new 500S Series Broadband Microwave Capacitor (BMC). This unique, patented component greatly exceeds both multilayer and single layer capacitor performance. It delivers extremely low insertion loss with ultra-high self resonance performance, in a rugged, laser-marked package compatible with automatic SMT manufacturing.

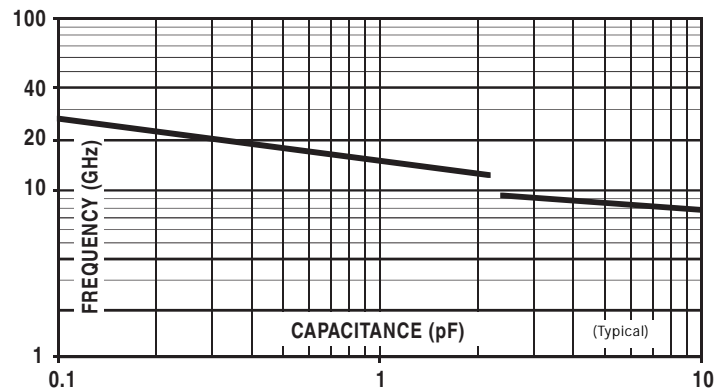
Functional applications include Broadband (Bypass, Coupling, Feedback, Impedance Matching, D.C. Blocking) and Tuning.



PARALLEL RESONANCE VS. CAPACITANCE



SERIES RESONANCE VS. CAPACITANCE



AMERICAN

TECHNICAL

CERAMICS

ATC North America

+1-631-622-4700

sales@atceramics.com

ATC Europe

+46 8 6800410

sales@atceramics-europe.com

ATC Asia

+86-755-2396-8759

sales@atceramics-asia.com



THE ENGINEERS'
CHOICE®

ISO 9001 REGISTERED

www.atceramics.com

ATC 001-883
Rev. F; 2/08

ATC 500 S Series Broadband 0603 NPO Capacitors

ELECTRICAL AND MECHANICAL SPECIFICATIONS

QUALITY FACTOR (Q):

Greater than 1,000 @ 1 MHz.

TEMPERATURE COEFFICIENT OF CAPACITANCE (T.C.):

0 \pm 30 PPM/ $^{\circ}$ C (–55 $^{\circ}$ C to +125 $^{\circ}$ C) (0.1 pF to 2.2 pF)

0 \pm 60 PPM/ $^{\circ}$ C (–55 $^{\circ}$ C to +125 $^{\circ}$ C) (2.4 pF to 10 pF)

INSULATION RESISTANCE (IR):

0.1 pF to 10 pF:

10⁵ Megohms min. @ +25 $^{\circ}$ C @ rated WVDC.

10⁴ Megohms min. @ +125 $^{\circ}$ C @ rated WVDC.

WORKING VOLTAGE (WVDC):

100 WVDC (0.1 pF to 4.7 pF)

50 WVDC (5.1 pF to 10 pF)

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

200% of rated WVDC for 5 secs.

OPERATING TEMPERATURE RANGE:

From –55 $^{\circ}$ C to +125 $^{\circ}$ C (No derating of working voltage).

TERMINATION:

 Chip style suitable for surface mounting.

Platinum with gold flash.

Die Shear Strength Test per MIL-STD-883, Method 2019.

ENVIRONMENTAL TESTS

ATC 500 S Series Broadband Microwave Capacitors are designed and manufactured to meet and exceed the applicable requirements of MIL-C-55681.

THERMAL SHOCK:

MIL-STD-202, Method 107, Condition A.

MOISTURE RESISTANCE:

MIL-STD-202, Method 106.

LOW VOLTAGE HUMIDITY:

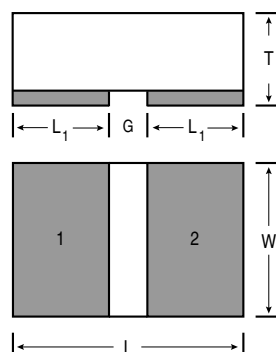
MIL-STD-202, Method 103, Condition A, with 1.5 Volts D.C. applied while subjected to an environment of 85 $^{\circ}$ C with 85% relative humidity for 250 \pm 12 hours.

LIFE TEST:

MIL-STD-202, Method 108, for 2000 hours, at 125 $^{\circ}$ C.

200% WVDC applied.

ATC 500 S SERIES BROADBAND 0603 CAPACITORS: MECHANICAL CONFIGURATIONS



MECHANICAL DIMENSIONS – INCHES (mm)				
Length (L)	L ₁	Width (W)	Thickness (T)	Gap (G)
.060 \pm .005 (1.52 \pm .127)	.025 (.635) nom.	.030 \pm .005 (.762 \pm .127)	.024 (.609) max.	.010 (.254) min.

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

ATC Europe

ATC Asia

+1-631-622-4700 • sales@atceramics.com

+46 8 6800410 • sales@atceramics-europe.com

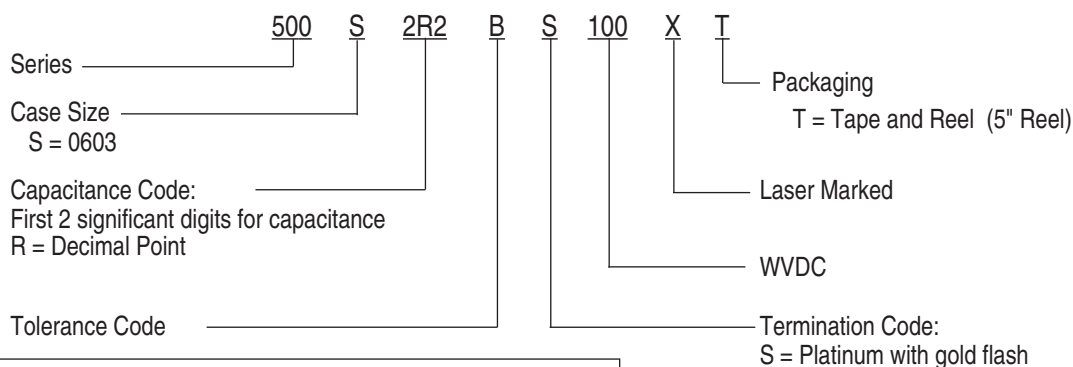
+86-755-2396-8759 • sales@atceramics-asia.com

ATC 500 S Series Broadband 0603 NPO 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
0R1	0.1	A, B, C, D	100	1R1	1.1	B, C, D	100	3R0	3.0	B, C, D	100	6R8	6.8	C, J, K, M	50
0R2	0.2			1R2	1.2			3R3	3.3			7R5	7.5		
0R3	0.3			1R3	1.3			3R6	3.6			8R2	8.2		
0R4	0.4			1R5	1.5			3R9	3.9			9R1	9.1		
0R5	0.5			1R6	1.6			4R3	4.3		100	10	G, J, K, M		
0R6	0.6			1R8	1.8			4R7	4.7						
0R7	0.7			2R0	2.0			5R1	5.1						
0R8	0.8			2R2	2.2			5R6	5.6						
0R9	0.9			2R4	2.4			6R2	6.2						
1R0	1.0			2R7	2.7										

ATC 500 SERIES BMC PART NUMBER CODE



CAPACITANCE TOLERANCE								
Code	A	B	C	D	G	J	K	M
Tol.	±.05 pF	±0.1 pF	±0.25 pF	±0.5 pF	±2%	±5%	±10%	±20%

The above part number refers to a 500S Series (case size S) 2.2 pF capacitor, B tolerance (±0.1 pF), Termination Code S (Platinum with gold flash), 100 WVDC, with marking and 5" tape and reel 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.

AMERICAN TECHNICAL CERAMICS

ATC North America

+1-631-622-4700 • sales@atceramics.com

ATC Europe

+46 8 6800410 • sales@atceramics-europe.com

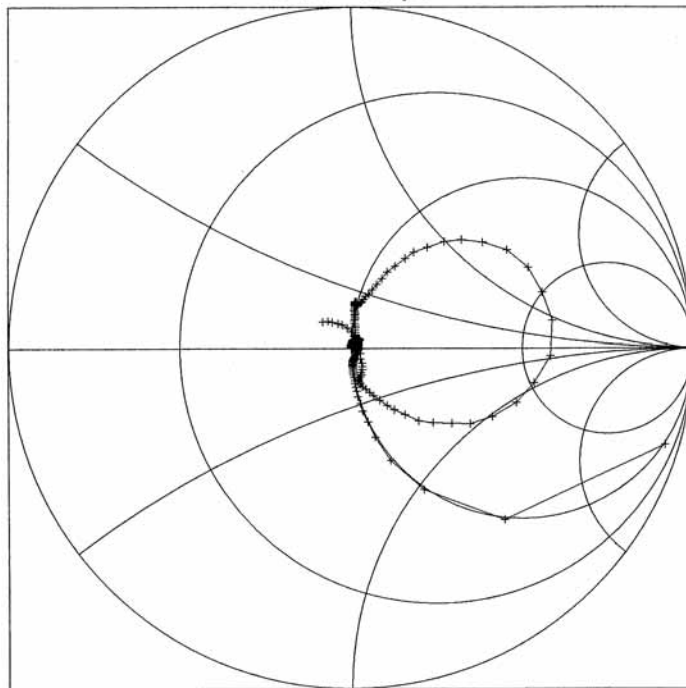
ATC Asia

+86-755-2396-8759 • sales@atceramics-asia.com

w w w . a t c e r a m i c s . c o m

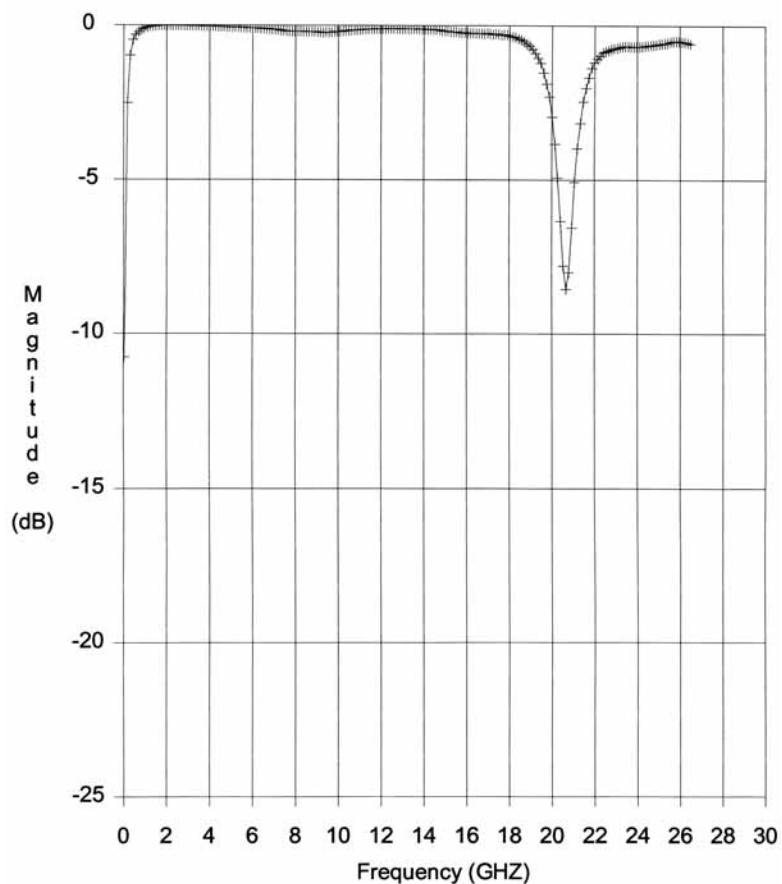
ATC 500 S Series Broadband 0603 NPO Capacitors

S11 - 10 pf



Frequency Range: 50 MHZ to 26.5 GHZ

S21 -- 10 pF



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

ATC Europe

ATC Asia

+1-631-622-4700 • sales@atceramics.com

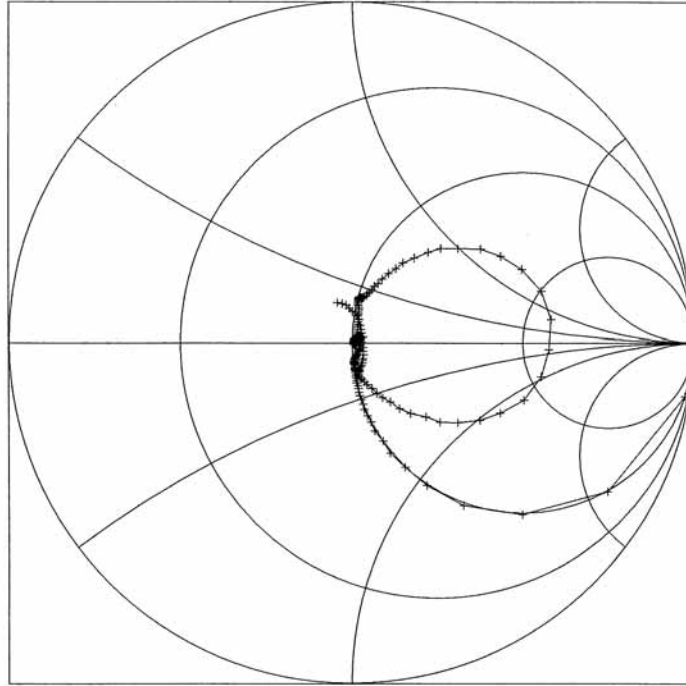
+46 8 6800410 • sales@atceramics-europe.com

+86-755-2396-8759 • sales@atceramics-asia.com

w w w . a t c e r a m i c s . c o m

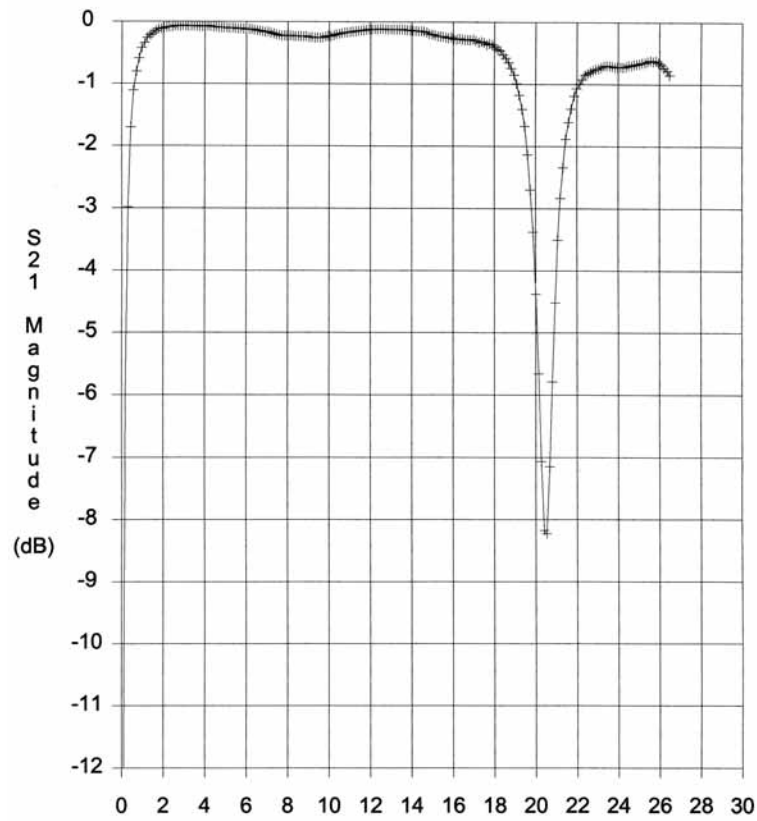
ATC 500 S Series Broadband 0603 NPO Capacitors

S11 - 5.1 pf



Frequency Range: 50 MHZ to 26.5 GHZ

S21 - 5.1 pf



Frequency (GHZ)

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

+1-631-622-4700 • sales@atceramics.com

ATC Europe

+46 8 6800410 • sales@atceramics-europe.com

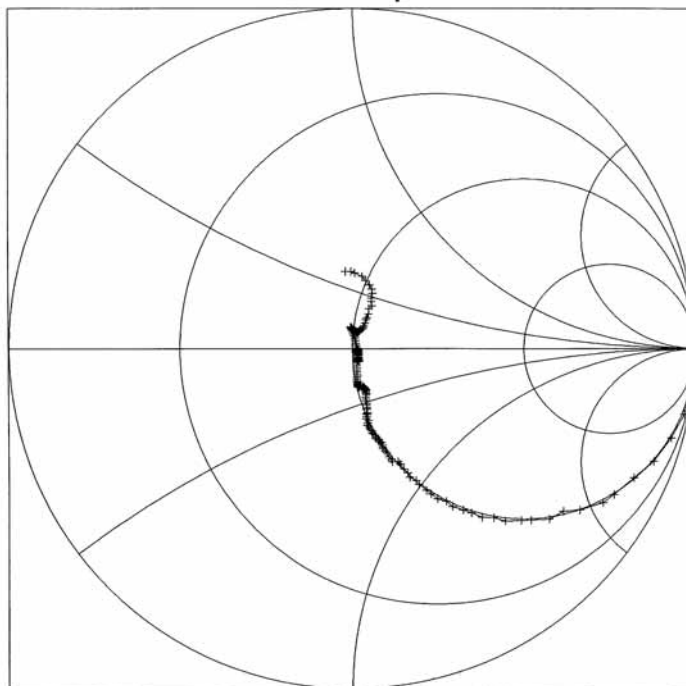
ATC Asia

+86-755-2396-8759 • sales@atceramics-asia.com

w w w . a t c e r a m i c s . c o m

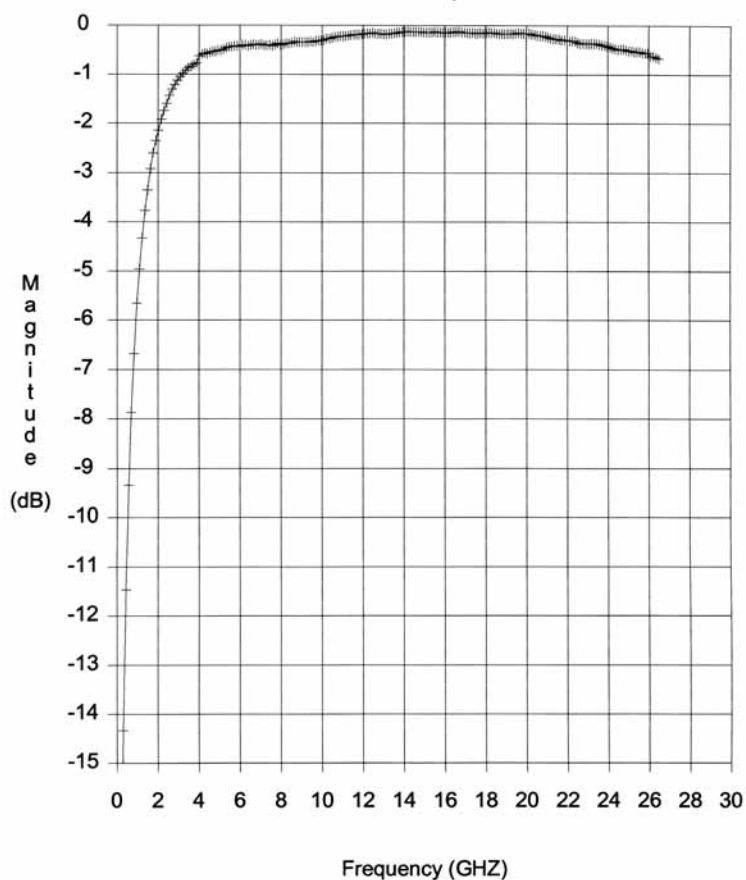
ATC 500 S Series Broadband 0603 NPO Capacitors

S11 - 1 pf



Frequency Range: 50 MHZ to 26.5 GHZ

S21 - 1 pf



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

ATC Europe

ATC Asia

+1-631-622-4700 • sales@atceramics.com

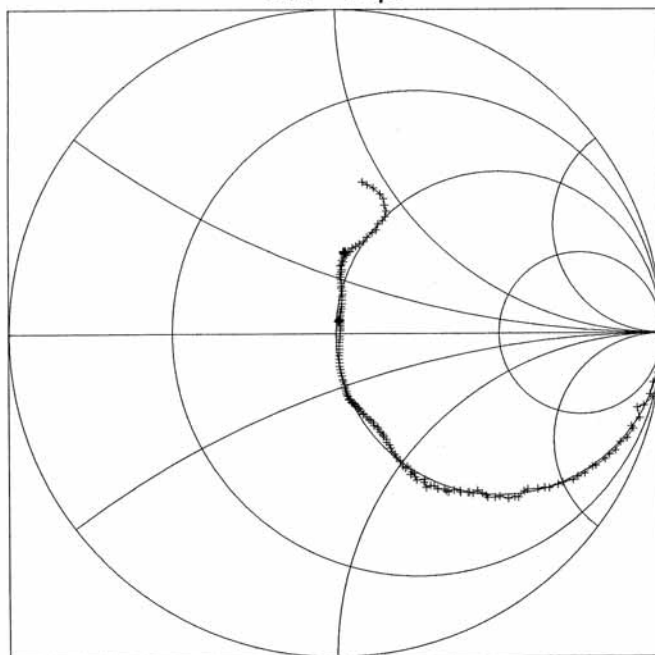
+46 8 6800410 • sales@atceramics-europe.com

+86-755-2396-8759 • sales@atceramics-asia.com

w w w . a t c e r a m i c s . c o m

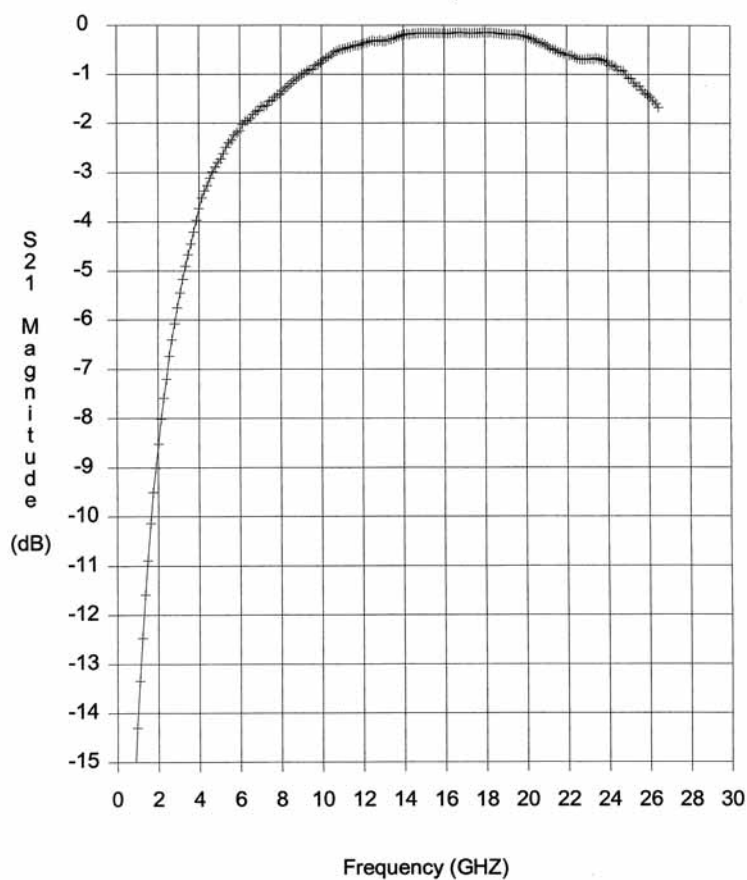
ATC 500 S Series Broadband 0603 NPO Capacitors

S11 - .3 pf



Frequency Range: 50 MHZ to 26.5 GHZ

S21 - .3 pf



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

+1-631-622-4700 • sales@atceramics.com

ATC Europe

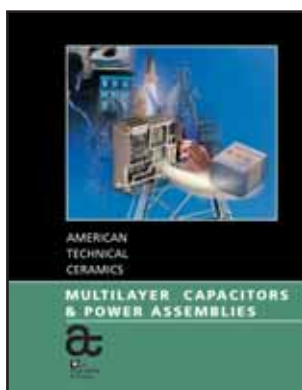
+46 8 6800410 • sales@atceramics-europe.com

ATC Asia

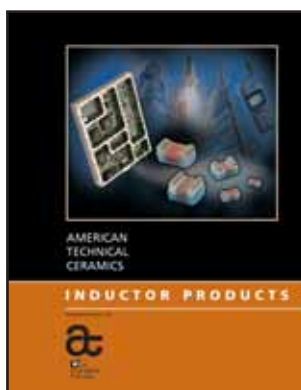
+86-755-2396-8759 • sales@atceramics-asia.com

w w w . a t c e r a m i c s . c o m

Other ATC Product Catalogs



Multilayer Capacitors
& Power Assemblies



Inductor
Products



High Power
Resistive Products



Custom Thin Film
Products



Single Layer
Capacitors

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.

These drawings and specifications are the property of American Technical Ceramics, and any reproduction or disclosure in whole or in part as a basis for use in manufacture or sale of items is expressly prohibited without the written permission of American Technical Ceramics.

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 line without prior notice.

© 1998 American Technical Ceramics Corp. All Rights Reserved.

ATC 001-883 Rev. F; 2/08



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
+1-631-622-4700
sales@atceramics.com

ATC Europe
+46 8 6800410
sales@atceramics-europe.com

ATC Asia
+86-755-2396-8759
sales@atceramics-asia.com

**THE
ENGINEERS'
CHOICE®**
ISO 9001 REGISTERED

www.atceramics.com