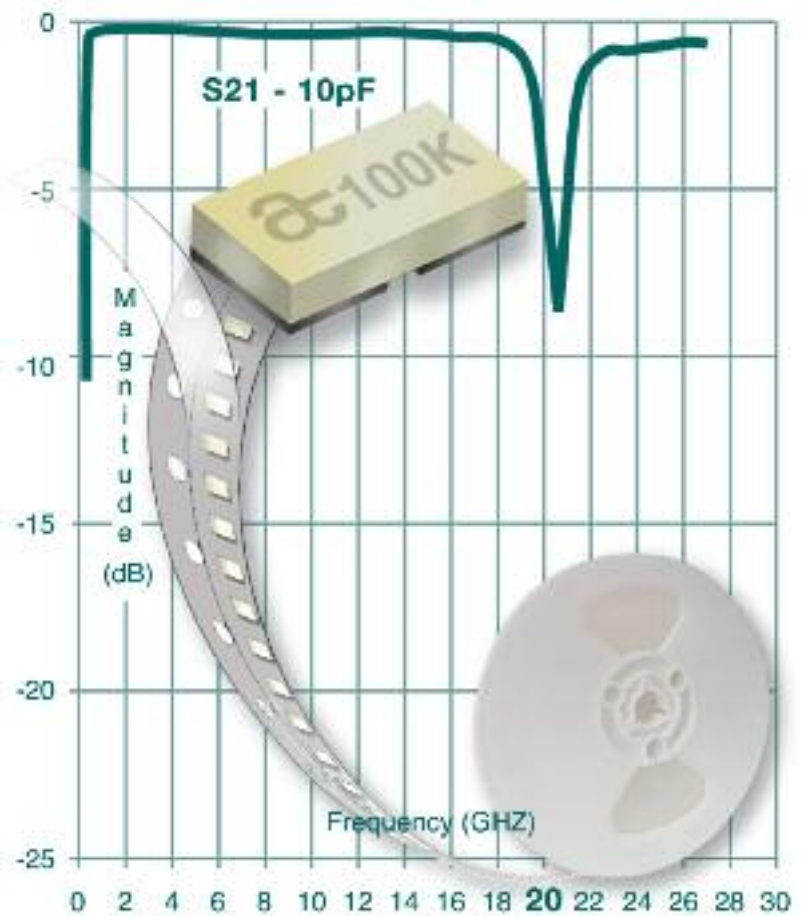


# ATC 500 S Series BMC Broadband Microwave Millimeter-wave 0603 NPO SMT Capacitors

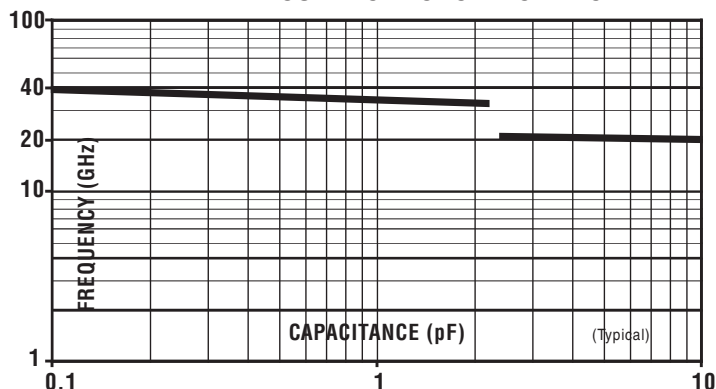
- Low Insertion Loss
- Ultra High Self Resonance
- Surface Mountable
- Rugged Construction

ATC introduces the new 500 S 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.

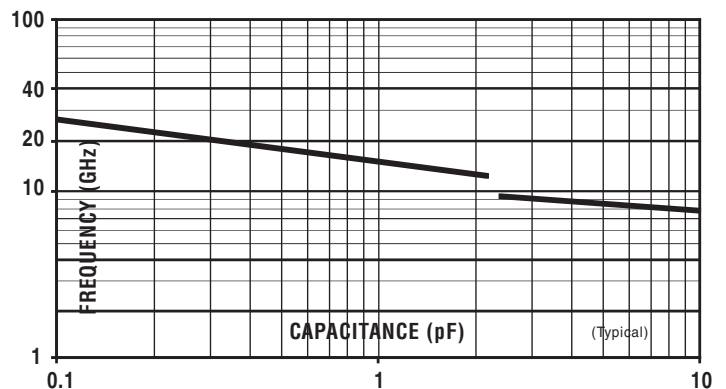
Functional applications include Broadband (Bypass, Coupling, Feedback, Impedance Matching, D.C. Blocking) and Tuning.



PARALLEL RESONANCE VS. CAPACITANCE



SERIES RESONANCE VS. CAPACITANCE



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ATC North America  
sales@atceramics.com

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sales@atceramics.com

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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:

10<sup>5</sup> Megohms min. @  $+25^{\circ}$ C @ rated WVDC.

10<sup>4</sup> 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:

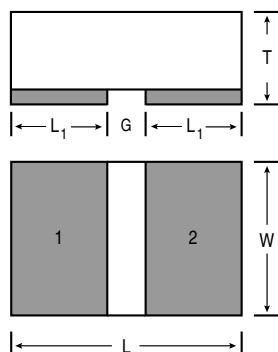
MIL-STD-202, Method 103, Condition A, with 1.5 Volts D.C. applied while subjected to an environment of  $85^{\circ}$ C with 85% relative humidity for  $250 \pm 12$  hours.

### 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 <sub>1</sub>	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.

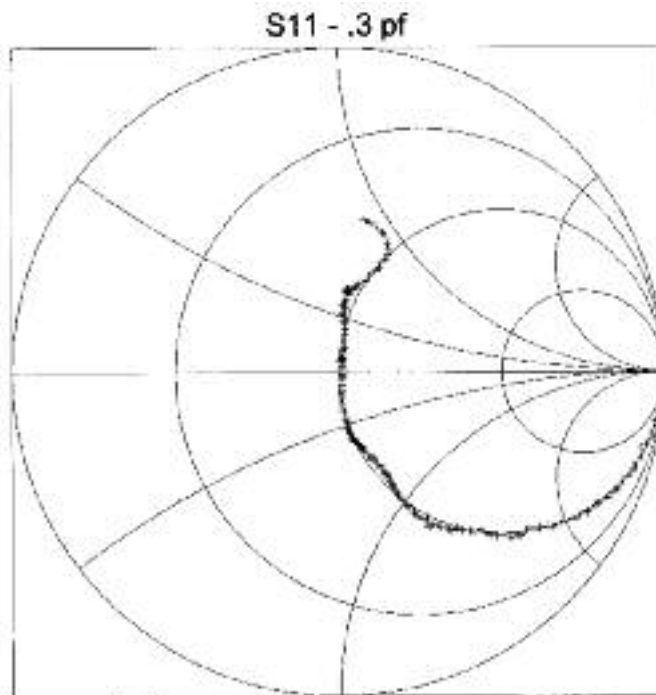
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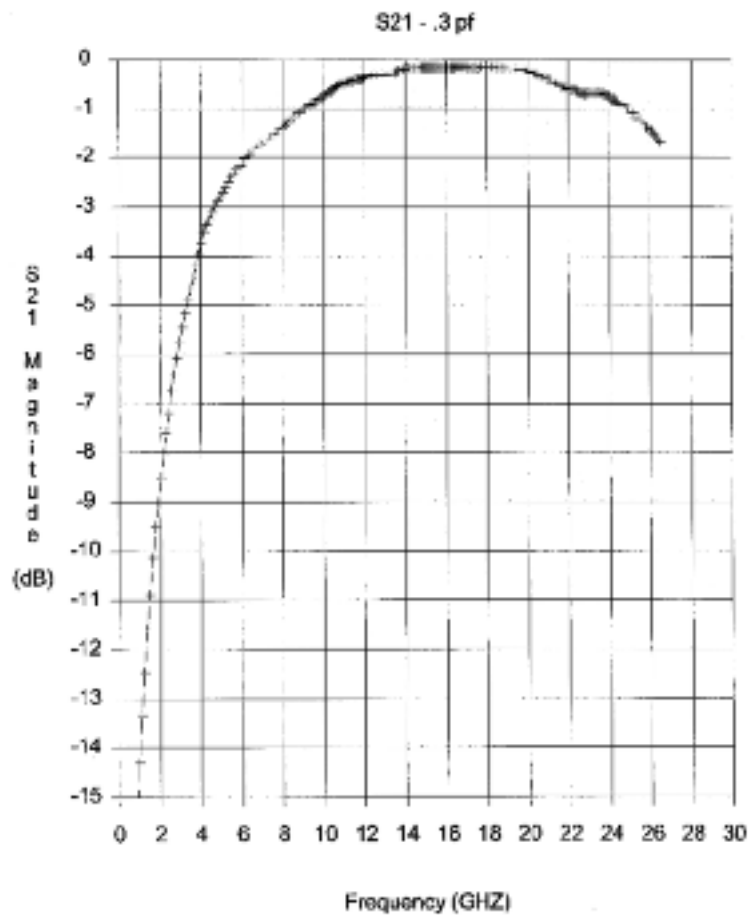
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ATC Asia  
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## ATC 500 S Series Broadband 0603 NPO Capacitors



Frequency Range: 50 MHz to 26.5 GHz



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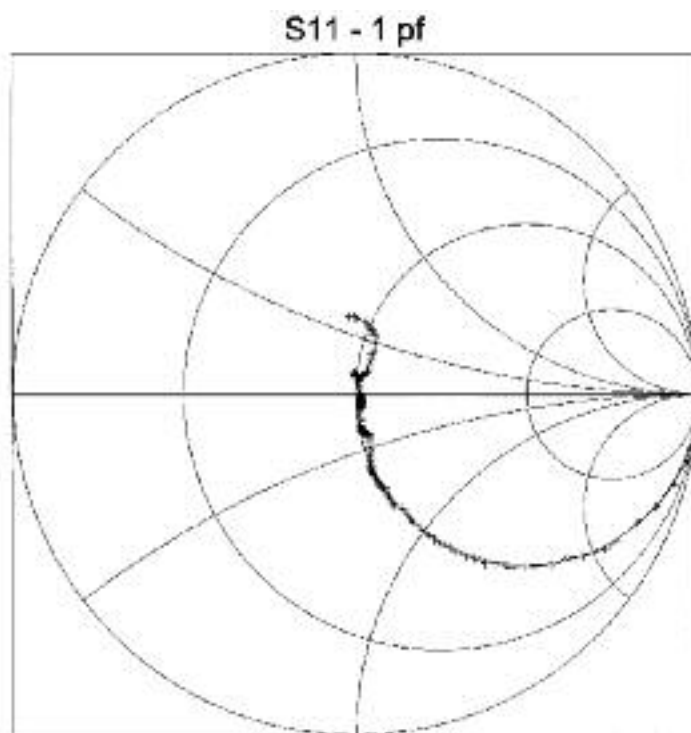
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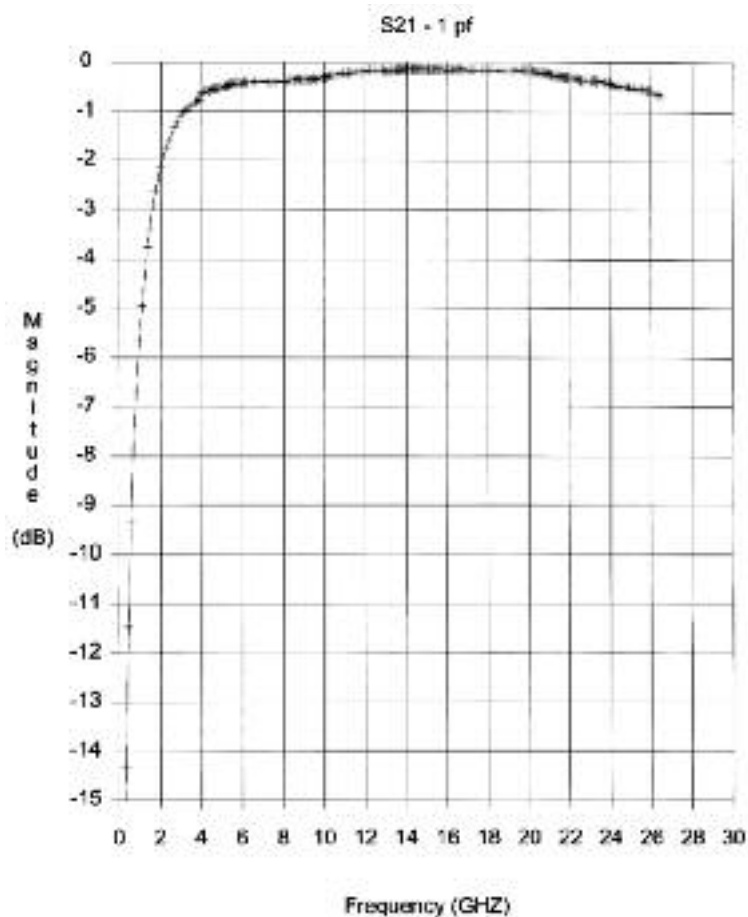
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## ATC 500 S Series Broadband 0603 NPO Capacitors



Frequency Range: 50 MHZ to 26.5 GHZ



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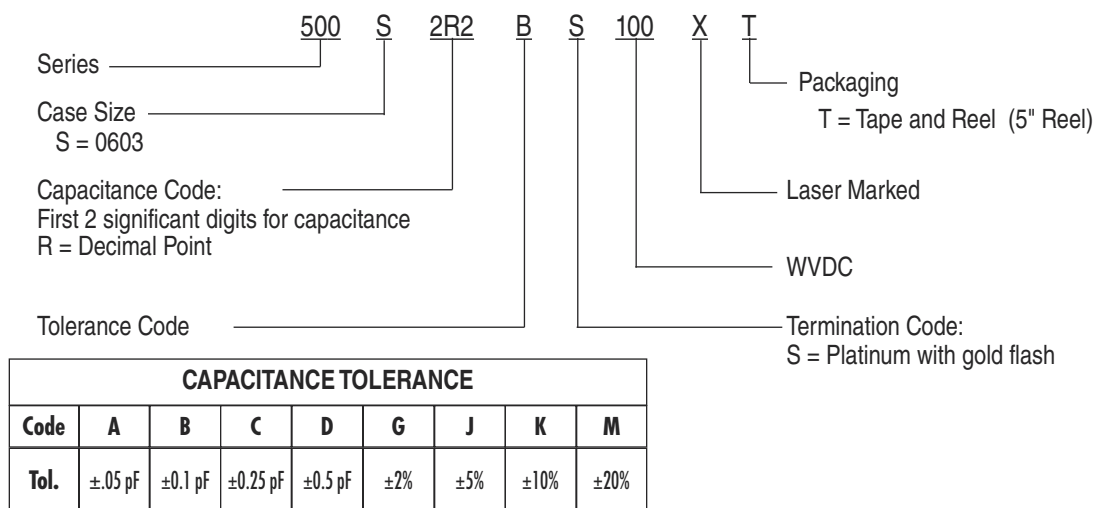
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# ATC 500 S Series Broadband 0603 NPO Capacitors

## 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



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.

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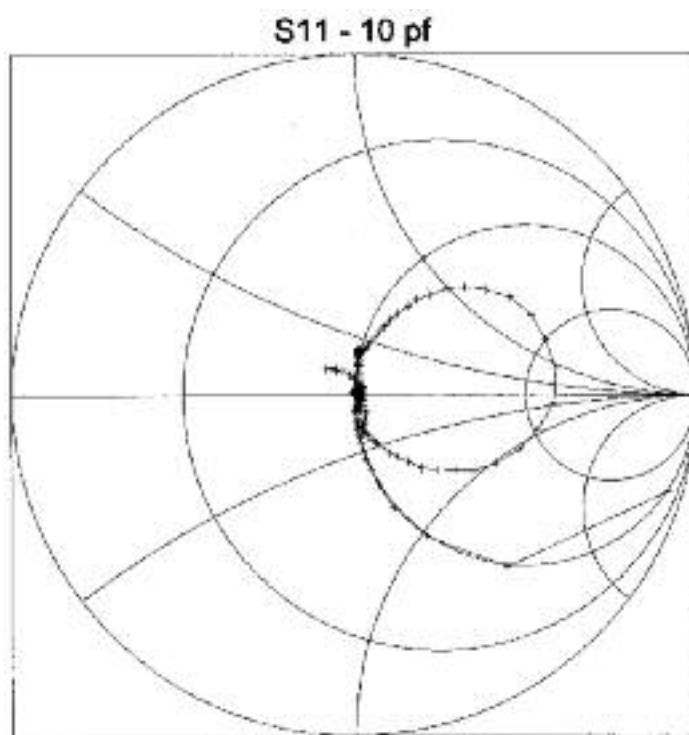
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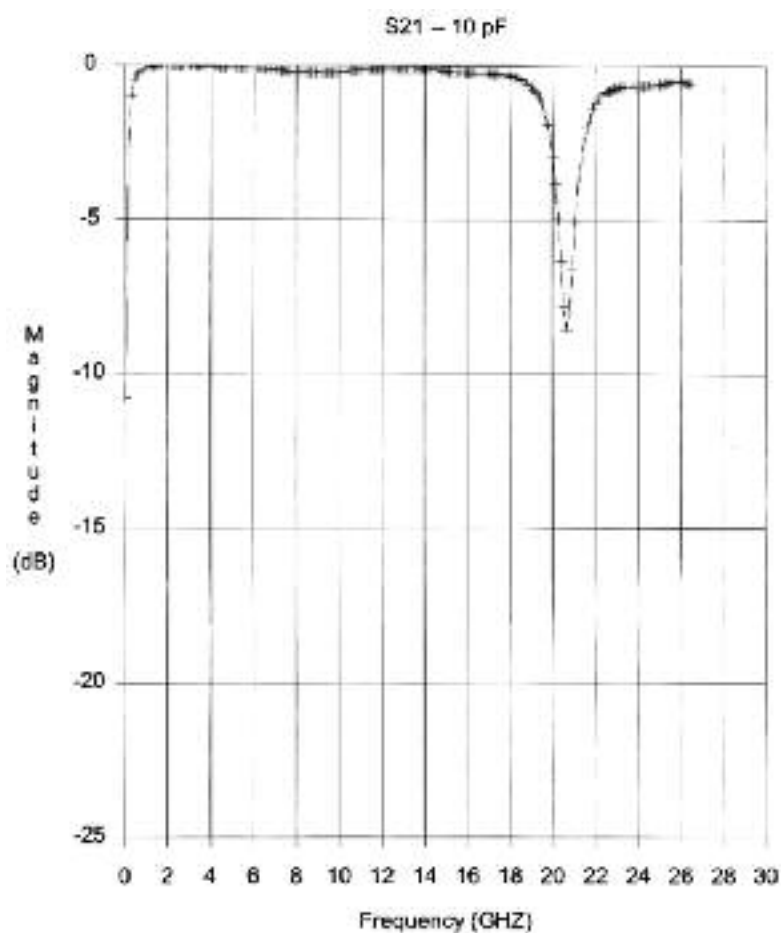
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# ATC 500 S Series Broadband 0603 NPO Capacitors



Frequency Range: 50 MHZ to 26.5 GHZ



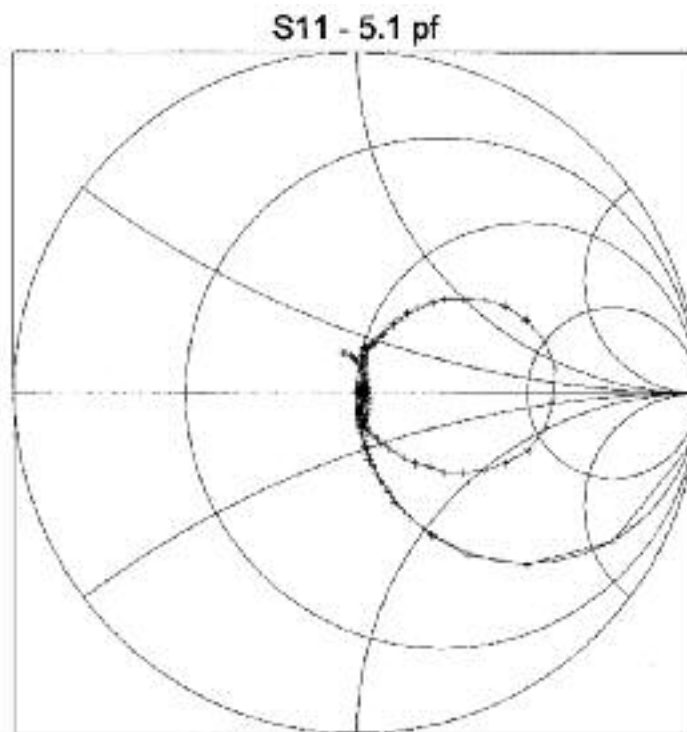
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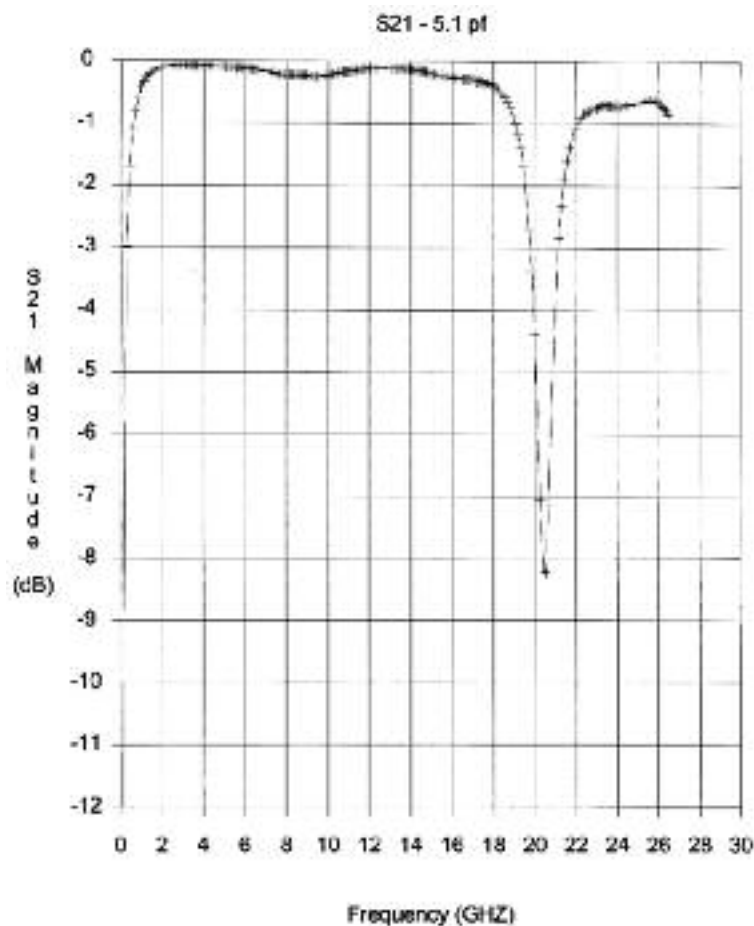
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saleseur@atceramics.com

ATC Asia  
sales@atceramics-asia.com

## ATC 500 S Series Broadband 0603 NPO Capacitors



Frequency Range: 50 MHz to 26.5 GHz



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sales@atceramics.com

ATC Europe  
sales@atceramics.com

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**AMERICAN**  
ATC North America  
[sales@atceramics.com](mailto:sales@atceramics.com)

**TECHNICAL**  
ATC Europe  
[saleseur@atceramics.com](mailto:saleseur@atceramics.com)

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