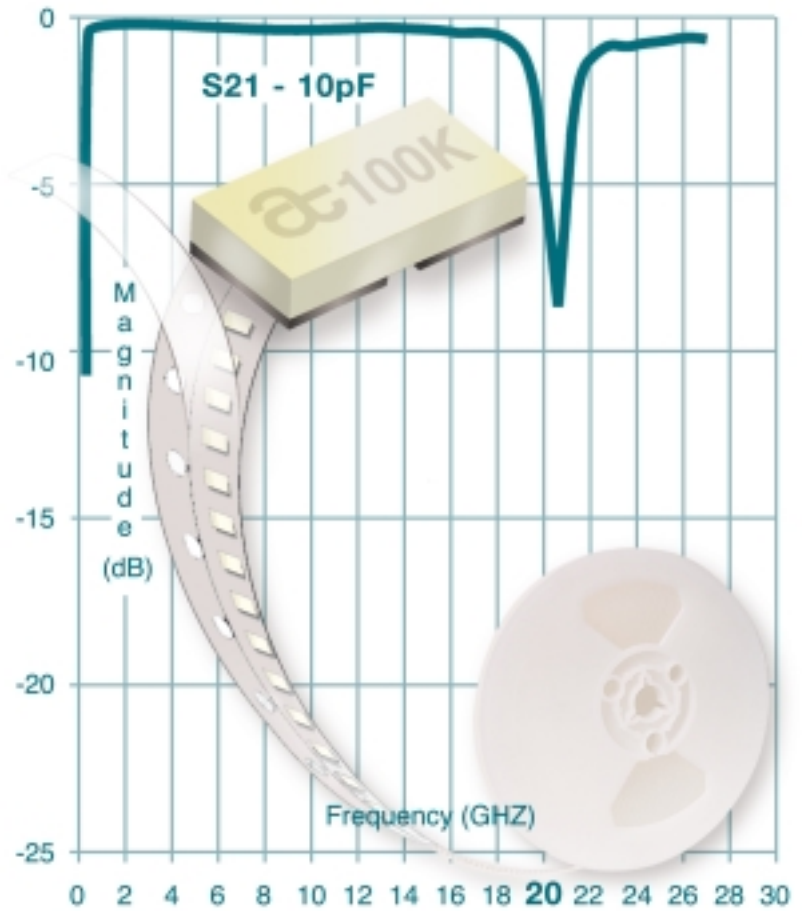


ATC 500 Series BMC Broadband Microwave Millimeter-wave 0603 NPO SMT Capacitors

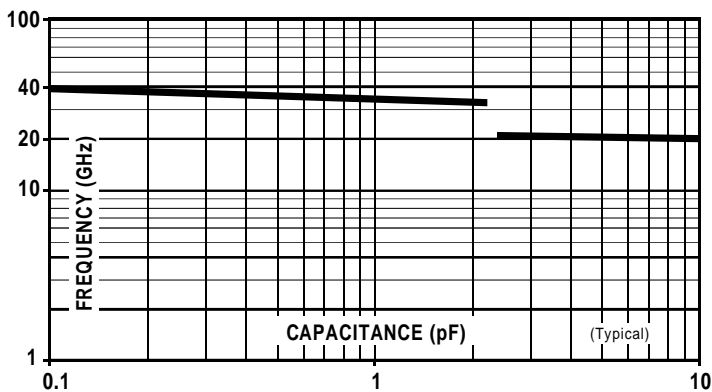
- Low Insertion Loss
- Ultra High Self Resonance
- Surface Mountable
- Rugged Construction

ATC introduces the new 500 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.

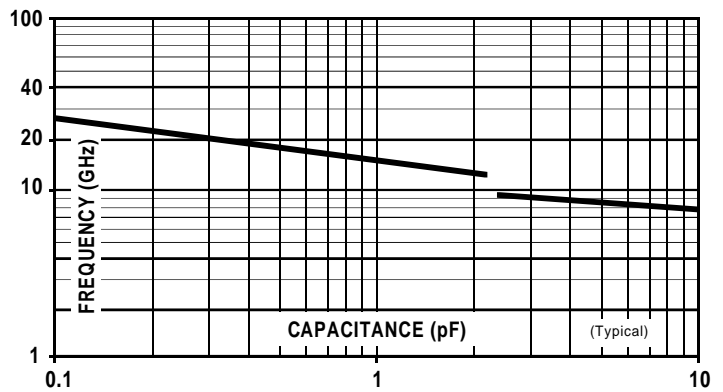
Functional applications include Broadband (Bypass, Coupling, Feedback, Impedance Matching, D.C. Blocking) and Tuning.



PARALLEL RESONANCE VS. CAPACITANCE



SERIES RESONANCE VS. CAPACITANCE



american technical ceramics
one norden lane, huntington station, n.y. 11746-2142 usa
phone: 631-622-4700 • fax: 631-622-4748 • e-mail: sales@atceramics.com
<http://www.atceramics.com>

ATC 500 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 ±30 PPM/°C (-55°C to +125°C) (0.1 pF to 2.2 pF)

0 ±60 PPM/°C (-55°C to +125°C) (2.4 pF to 10 pF)

INSULATION RESISTANCE (IR):

0.1 pF to 10 pF:

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

10⁴ Megohms min. @ +125°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°C to +125°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:

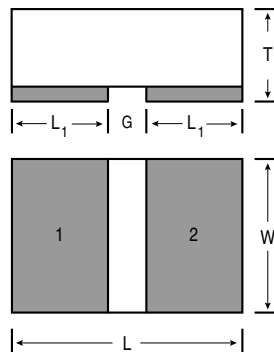
MIL-STD-202, Method 103, Condition A, with 1.5 Volts D.C. applied while subjected to an environment of 85°C with 85% relative humidity for 250 ±12 hours.

LIFE TEST:

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

200% WVDC applied.

ATC 500 S BROADBAND 0603 CAPACITORS: MECHANICAL CONFIGURATIONS



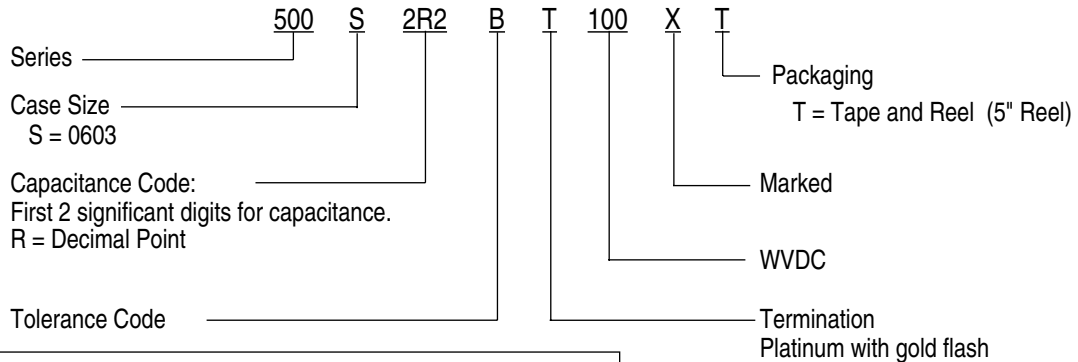
| MECHANICAL DIMENSIONS – INCHES (mm) | | | | |
|-------------------------------------|---------------------|----------------------------|---------------------|---------------------|
| Length (L) | L ₁ | Width (W) | Thickness (T) | Gap (G) |
| .060 ±.005 (1.52 ±.127) | .025 (.635) nom. | .030 ±.005 (.762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

ATC 500 S 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 | | | 50 | | | |
| 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% |

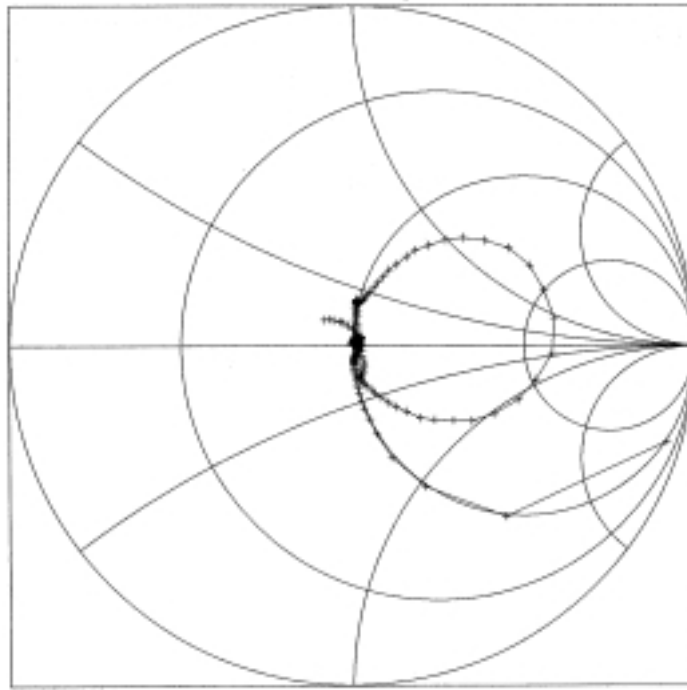
The above part number refers to a 500S Series (case size S) 2.2 pF capacitor, B tolerance (±0.1 pF), 100 WVDC, with marking and 5" tape and reel packaging.

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 (631) 622-4700.

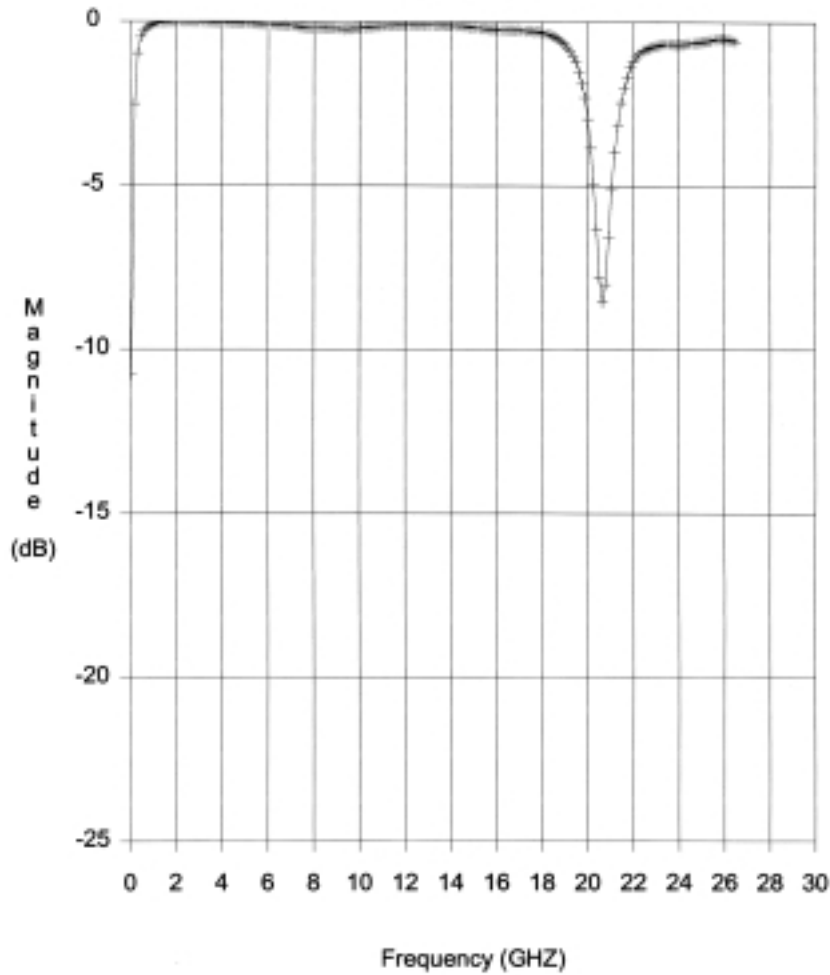
Consult factory for additional performance data.

S11 - 10 pf

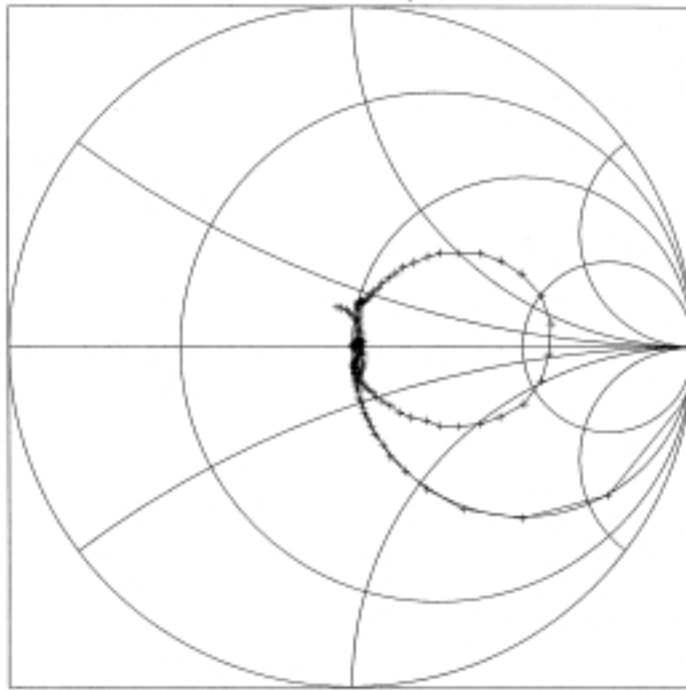


Frequency Range: 50 MHz to 26.5 GHz

S21 -- 10 pF

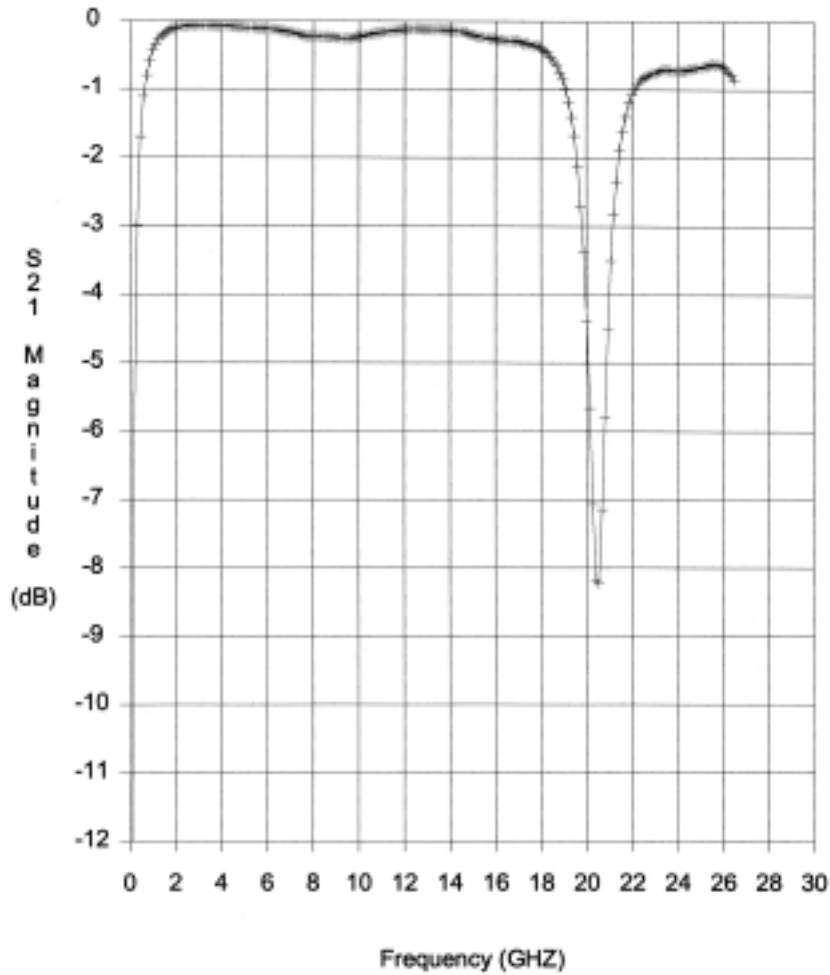


S11 - 5.1 pf

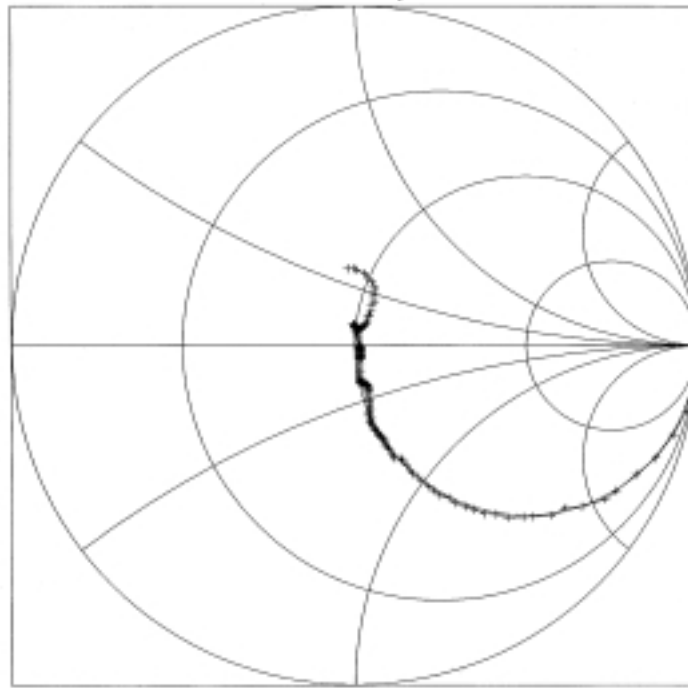


Frequency Range: 50 MHz to 26.5 GHz

S21 - 5.1 pf

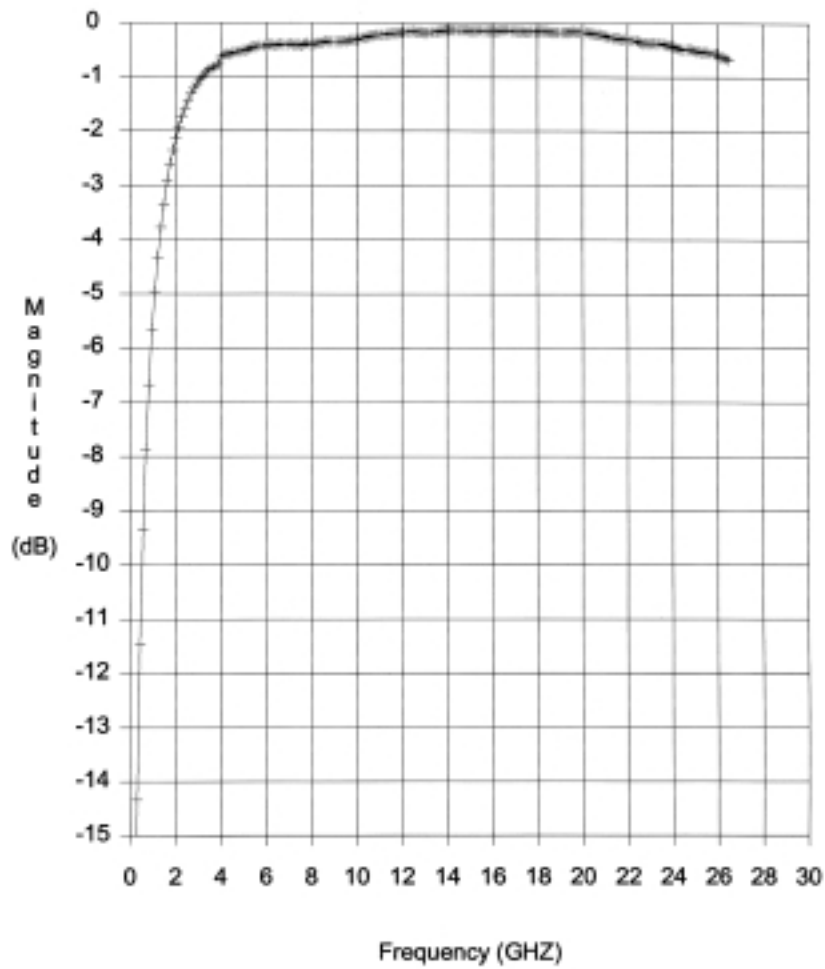


S11 - 1 pf

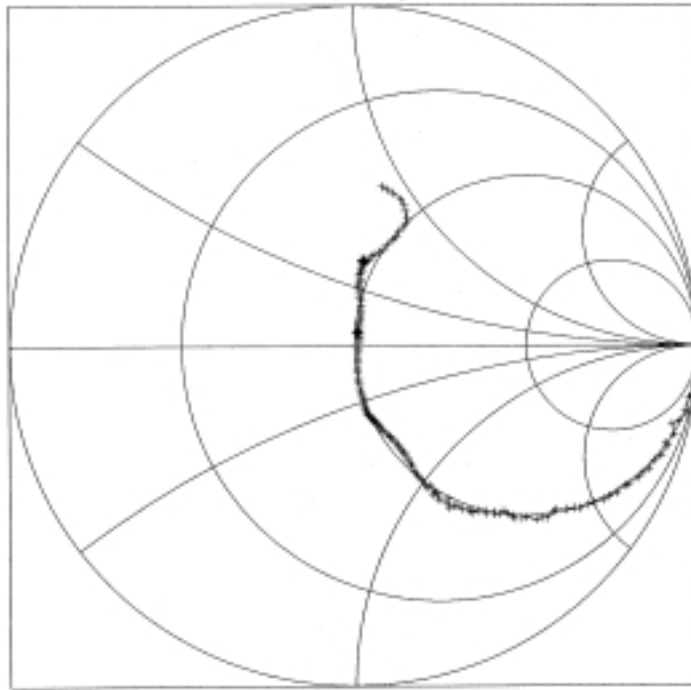


Frequency Range: 50 MHz to 26.5 GHz

S21 - 1 pf

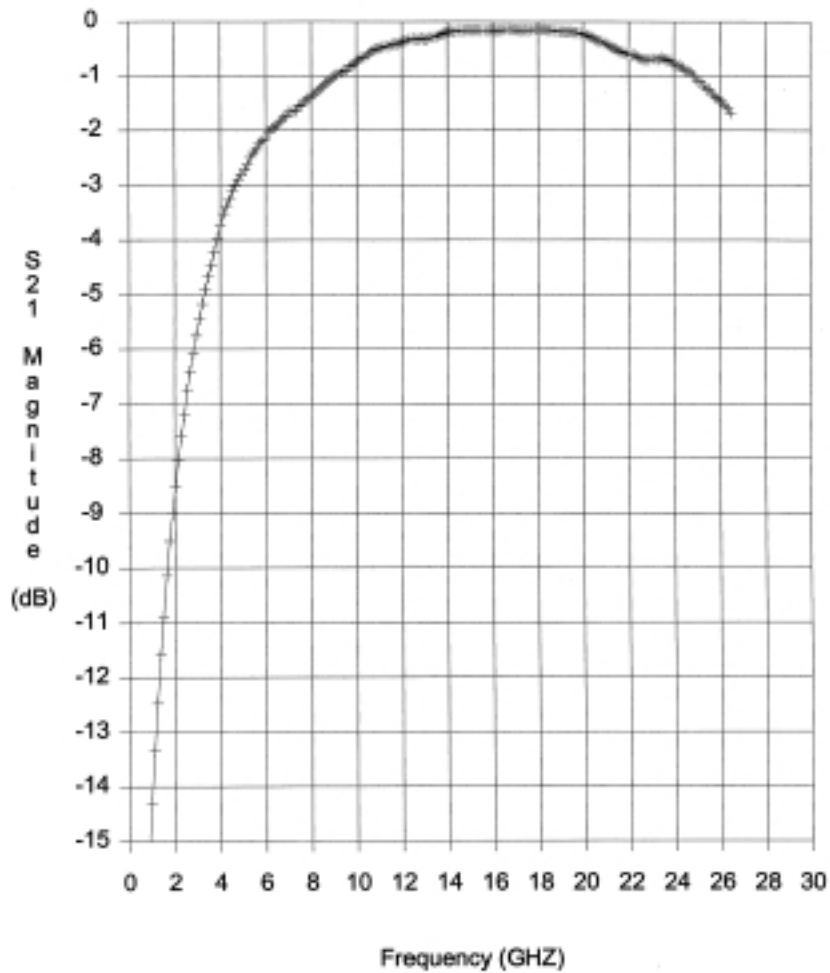


S11 - .3 pf



Frequency Range: 50 MHZ to 26.5 GHZ

S21 - .3 pf



ATC Engineering Design Support

Engineering design assistance for all ATC products is available by phone, fax and e-mail. Our RF Engineering Group provides a high level of technical support to meet customers' application needs.

Additional performance data is available for ATC's 500 Series BMC Capacitors:

Introducing ATC's **New** CD Catalog



- Complete Data Sheets
- Technical Notes and Circuit Designer's Notebooks
- pdf Files
- Design Support Software – Quik Cap™, Quik Calc™, S-Parameter Files
- New Design Kits
- IBM/PC Compatible
- ATC Website links for late-breaking news

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