ATC 500 Series Measurement Notes and Test Conditions

The S-parameter data files are two port descriptions of American Technical Ceramics, Broadband Microwave Capacitor, 500 Series, Surface Mount Capacitors. These S-Parameter data files can used as element descriptions in modeling.

TEST CONFIGURATION:

1. Vector Network Analyzer, HP Model 8722D

2. Universal Test Fixture Mainframe, Inter-Continental Model TF-3001B

3. Midsection assembly(s), Inter-Continental:

P/N A0115386.

4. Insert assembly(s), Inter-Continental:

P/N A0115387 (Modified)

5. Calibration Kit, Inter-Continental TRL-3004A

6. RF Test Cable Set, W. L. Gore P/N FE0BN0BM025.0

The test fixture referenced above utilizes 2.4 mm precision transitions.

The insert assembly consists of a 25 mil thick alumina substrate with two 330 mil gold launches. The BMC test sample was placed in a series thru configuration across a gap (65 mils) at the center of the two launches. The device under test was mounted in the test fixture, such that the electrode orientation was parallel to the microstrip. All fixture elements including test cables were de-embedded and operate in a 50 ohm test environment. An electrical delay of approximately 6 pico seconds was implemented in order to approximate the reference plane at the center of the capacitor.

The vector network analyzer used to generate the S-Parameter files has a

four receiver architecture. A full two port TRM/TRL calibration was

employed for all measurements.

Capacitance range covered. 0.1 pF to 10.0 pF

Frequency range covered. 50 MHz to 26.5 GHz

Data is collected over 201 points. The following is a data sample:

# GHZ S DB R 50

0.05 -0.12 -8.67 -16.59 82.66 -16.59 82.66 -0.12 -8.67

0.18 -1.13 -28.86 -6.37 61.49 -6.37 61.49 -1.13 -28.86

0.31 -2.76 -43.62 -3.23 46.66 -3.23 46.66 -2.76 -43.62

0.45 -4.46 -53.95 -1.87 36.72 -1.87 36.72 -4.46 -53.95

The first line (header), first character is a # sign, describes the frequency units, parameter, measurement format and characteristic impedance of the measurement (in this case 50 Ohms).

The data is arranged as follows:

The first column is the frequency in GHz. The next two columns are S11 dB magnitude and S11 phase. Succeeding column pairs represent S21, S12, S22

DISCLAIMER: American Technical Ceramics (ATC) has made every effort to make this information as accurate as possible. However, no responsibility is assumed by ATC for its use, nor 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.