**Coilcraft S-Parameter Data**
**4310LC Series Wideband RF Chokes**

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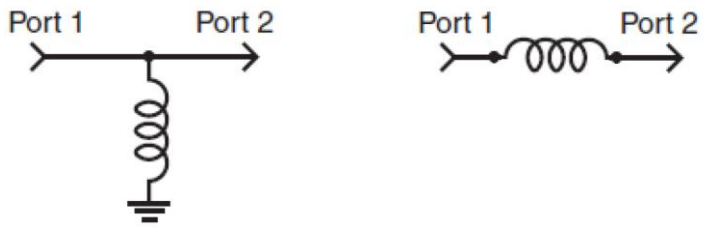
Coilcraft two-port S-parameter data files are based on empirical measurements. The data files are used as "black box" descriptions, thus reducing complexity in circuit modeling.

The data files represent de-embedded measurements. Effects due to customer circuit board traces, board materials, ground planes, or interactions with other components are not included and may have a significant effect when comparing the S-parameters to measurements of the inductors using typical production verification instruments and fixtures.

Since data sheet specifications are based on typical production measurements, and the S-parameter models are based on de-embedded measurements as described below, the S-parameter model results may be different from the data sheet specifications.

## S-parameter modeling method

The 2-port measurements for this series were made in both the shunt (left) and series (right) configurations as shown below.




The S-parameters of a sample was measured, and then the circuit board parasitics were de-embedded using circuit simulation software. The valid frequency range for the shunt measurements is 1 MHz to 6000 MHz and the valid frequency range for the series measurements is 0.1 MHz to 8500 MHz.

## S-parameter file description.

All of the S-parameter data files are in the TouchStone format. The following is a typical data segment of a two-port file:

```
# MHZ  S  MA  R 50
!Freq    MagS11   AngS11   MagS21   AngS21   MagS12   AngS12   MagS22   AngS22
1        0.001    59.879   1.000    -0.036   1.000    -0.036   0.001    59.879
22.19    0.014    83.698   0.999    -0.798   0.999    -0.798   0.014    83.698
43.38    0.027    84.582   0.998    -1.558   0.998    -1.558   0.027    84.582
....
```

The first line (header) describes the frequency units, parameter, measurement format and characteristic impedance of the measurement (50 Ohms).

The first column is the frequency in MHz. The next columns are the S-parameters as described in the column headings.

## Disclaimer

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