

Filter_S21_vs_f_fo

Where To Find This Example

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Design Notes

Filter s21 vs f-fo

Whereas Microwave Office plots frequency f as the x-axis, in some applications, like filters, it may be required to plot a response as a function of f/fo on the x-axis. This project plots S21 as a function of normalized frequency f/fo by using output equations for a simple behavioral filter.

Overview

In order to plot S21 with a modified x-axis of f/fo , this project calculates f/fo x-axis points with output equations. Output equation pulls out the S21 data from the graph, pulls the simulation frequencies using the swpvals variable, sets $fo=7\text{GHz}$, and calculates f/fo . The graph "S21 vs norm f" uses an output equation to plot the S21 against the new x-axis.

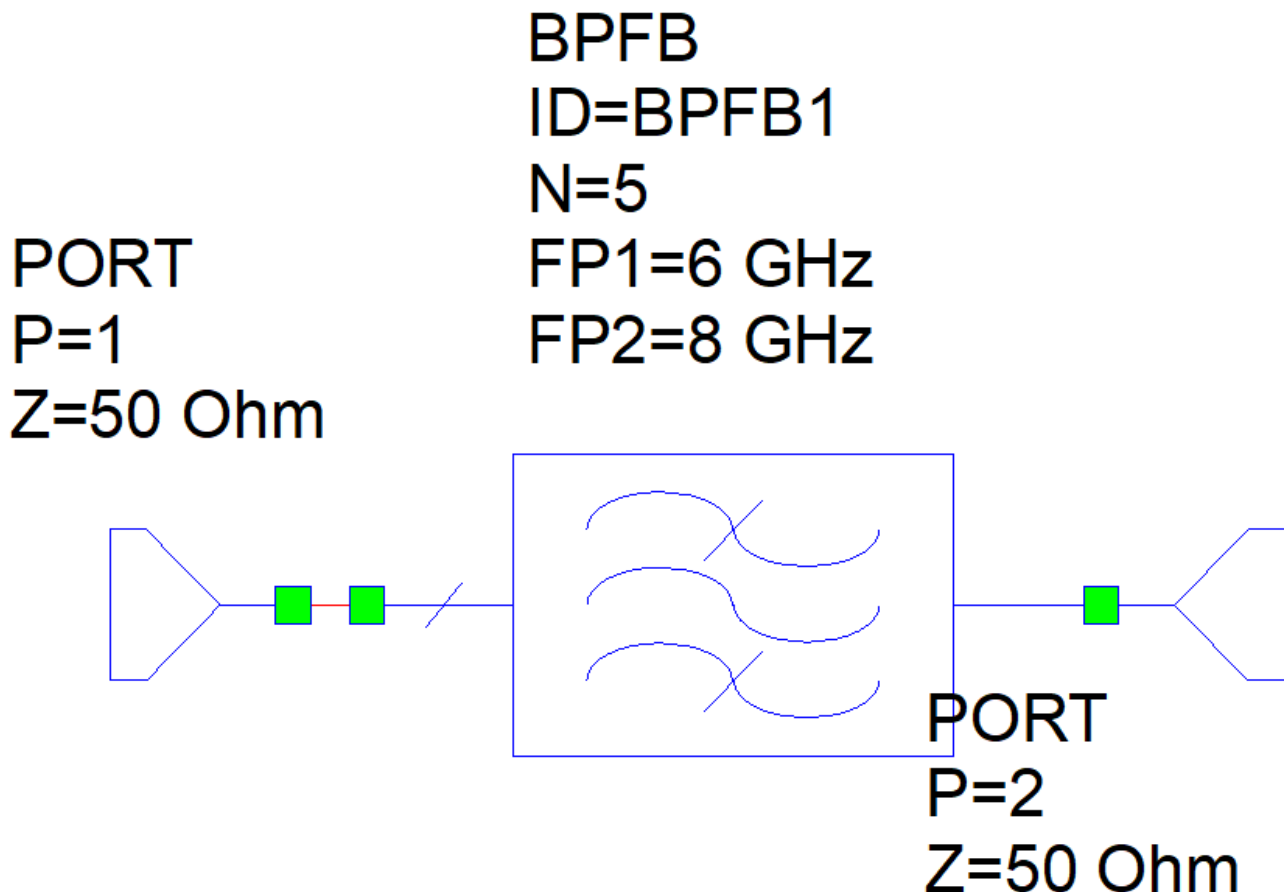
Output Equations

The variable `_FREQ` makes the simulation frequency available as a variable withing Microwave Office. In the output equations `_FREQ` is divided by the chosen center frequency for the example, fo , in order to generate the normalized frequency "fnew" for the new x-axis. The S-parameter data is captured into a variable by the equation statement $S21 = \text{Schematic 1: DB}([S[2,1]])$.

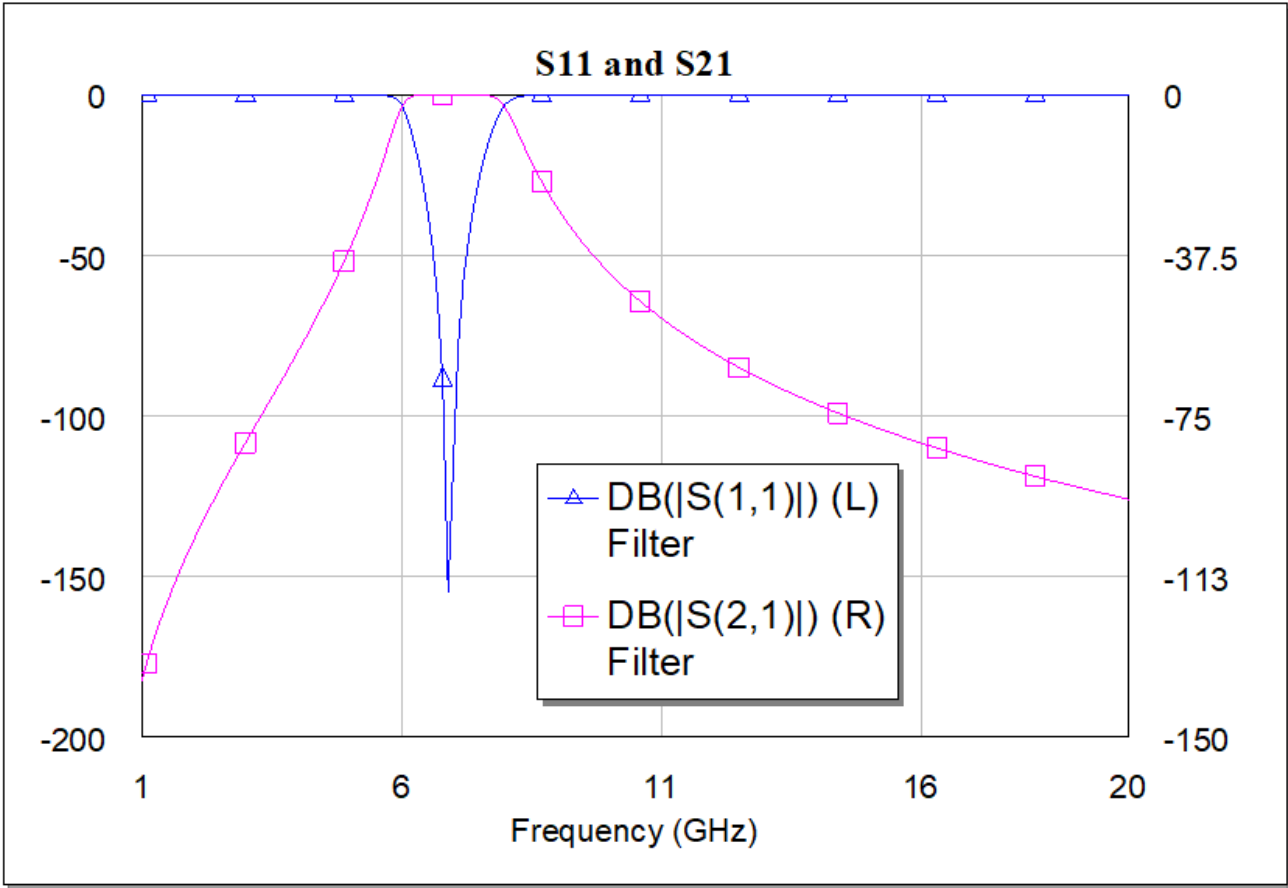
Graph on New X-Axis

The graph "S21 vs norm f" plots S21 on the "fnew" axis of f/fo . The measurement uses an output equation result

Schematic - Filter



Graph - S11 and S21



Graph - S21 vs norm f

