

Modelithics_Part_and_Hsweep

Where To Find This Example

AWR Version 15

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AWR Version 14

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Design Notes

Various Simulations with Modelithics parts

PDK

You must first install the Modelithics Select Library to properly simulate this example. You can obtain this library from AWR downloads page under "Vendor Libraries" tab.

Overview

This collection of example schematics demonstrate different types of tuning, optimization and yield analysis that can be performed using the Modelithics part-value and substrate-scalable global RLC models. To look at each specific example, you will need to enable the measurements on the graphs for that specifically named example.

SUBSTRATE TUNING

Example_CAP_HSUB_TUNE_1b illustrates the use of tuning in MWO to examine the frequency response of the CAP_MUR_0805_001 model as a function of substrate thickness.

Example_IND_HSUB_TUNE_1b illustrates the use of tuning in MWO to examine the frequency response of the IND_TKO_0805_001 model as a function of substrate thickness.

DISCRETE PART VALUE OPTIMIZATION

Example_CAP_PART_OPT_1 illustrates the use of discrete part value optimization in MWO using the CAP_MUR_0805_001 model. Discrete optimization requires the creation of a vector array containing discrete part values (the C_val[] vector seen in the schematic) and a suitable optimization algorithm (such as Pointer - Robust Optimization). The part value arrays are available in the resources folder of the XML library.

Example_IND_PART_OPT_1 illustrates the use of discrete part value optimization in MWO using the IND_TKO_0805_001 model. Discrete optimization requires the creation of a vector array containing discrete part values (the L_val[] vector seen in the schematic) and a suitable optimization algorithm (such as Pointer - Robust Optimization). The part value arrays are available in the resources folder of the XML library.

CONTINUOUS PART VALUE OPTIMIZATION

Example_CAP_PART_OPT_1b illustrates the use of continuous part value optimization in MWO using the CAP_MUR_0805_001 model. A suitable optimization algorithm is Gradient Optimization.

Example_IND_PART_OPT_1b illustrates the use of continuous part value optimization in MWO using the IND_TKO_0805_001 model. A suitable optimization algorithm is Gradient Optimization.

DISCRETE PART VALUE TUNING

Example_CAP_PART_TUNE_1 illustrates the use of discrete part value tuning in MWO using the CAP_MUR_0805_001 model. Discrete tuning requires the creation of a vector array containing discrete part values (the C_val[] vector seen in the schematic). The part value arrays are available in the resources folder of the XML library.

Example_IND_PART_TUNE_1 illustrates the use of discrete part value tuning in MWO using the IND_TKO_0805_001 model. Discrete tuning requires the creation of a vector array containing discrete part values (the L_val[] vector seen in the schematic). The part value arrays are available in the resources folder of the XML library.

CONTINUOUS PART VALUE TUNING

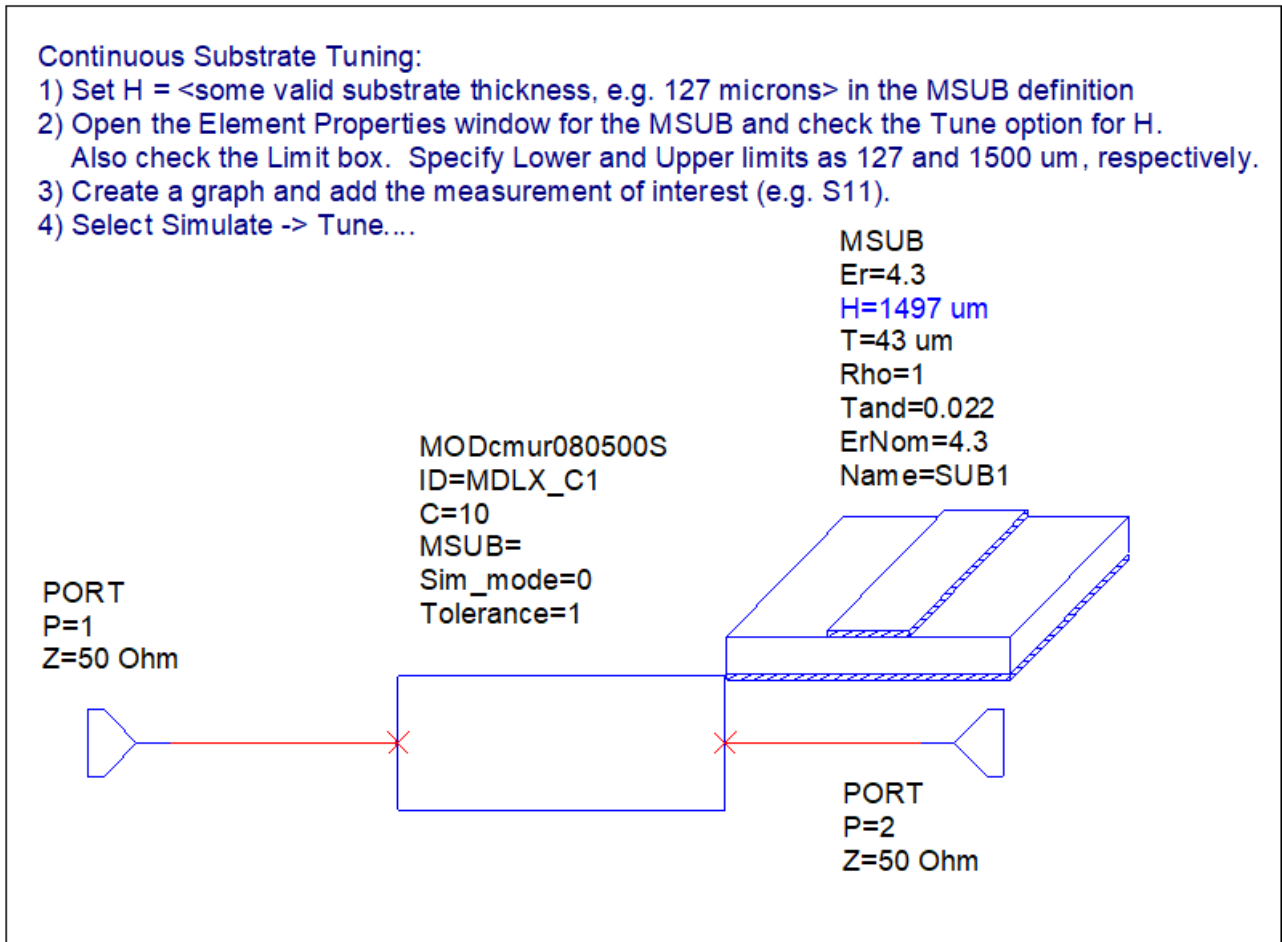
Example_CAP_PART_TUNE_1b illustrates the use of continuous part value tuning in MWO using the CAP_MUR_0805_001 model.

Example_IND_PART_TUNE_1b illustrates the use of continuous part value tuning in MWO using the IND_TKO_0805_001 model.

YIELD ANALYSIS (Statistical Simulations)

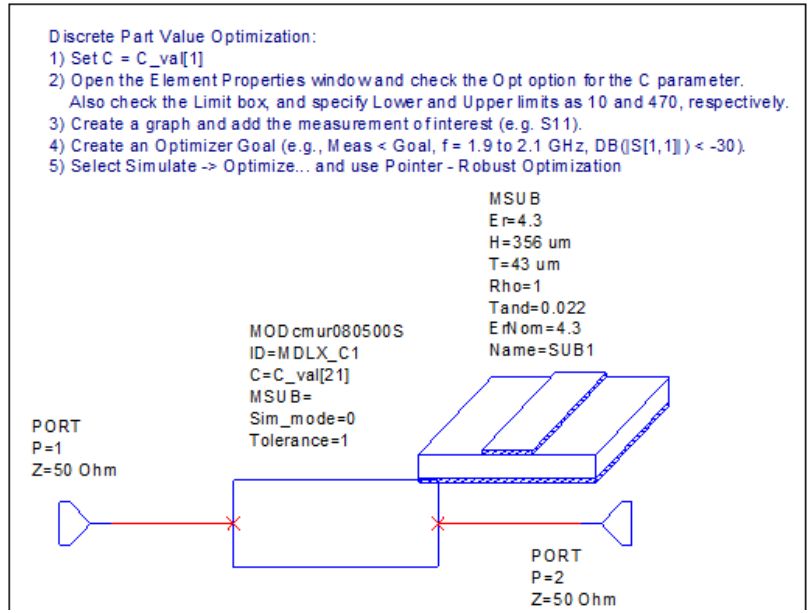
Example_IND_PART_YIELD_1 illustrates the use of yield analysis in MWO using the IND_TKO_0805_001 model. The nominal value of the Tolerance parameter in the model should be specified as 1, with the statistical distribution specified according to the vendor-specified part value tolerance (e.g. 10%).

Schematic - Example_CAP_HSUB_TUNE_1b

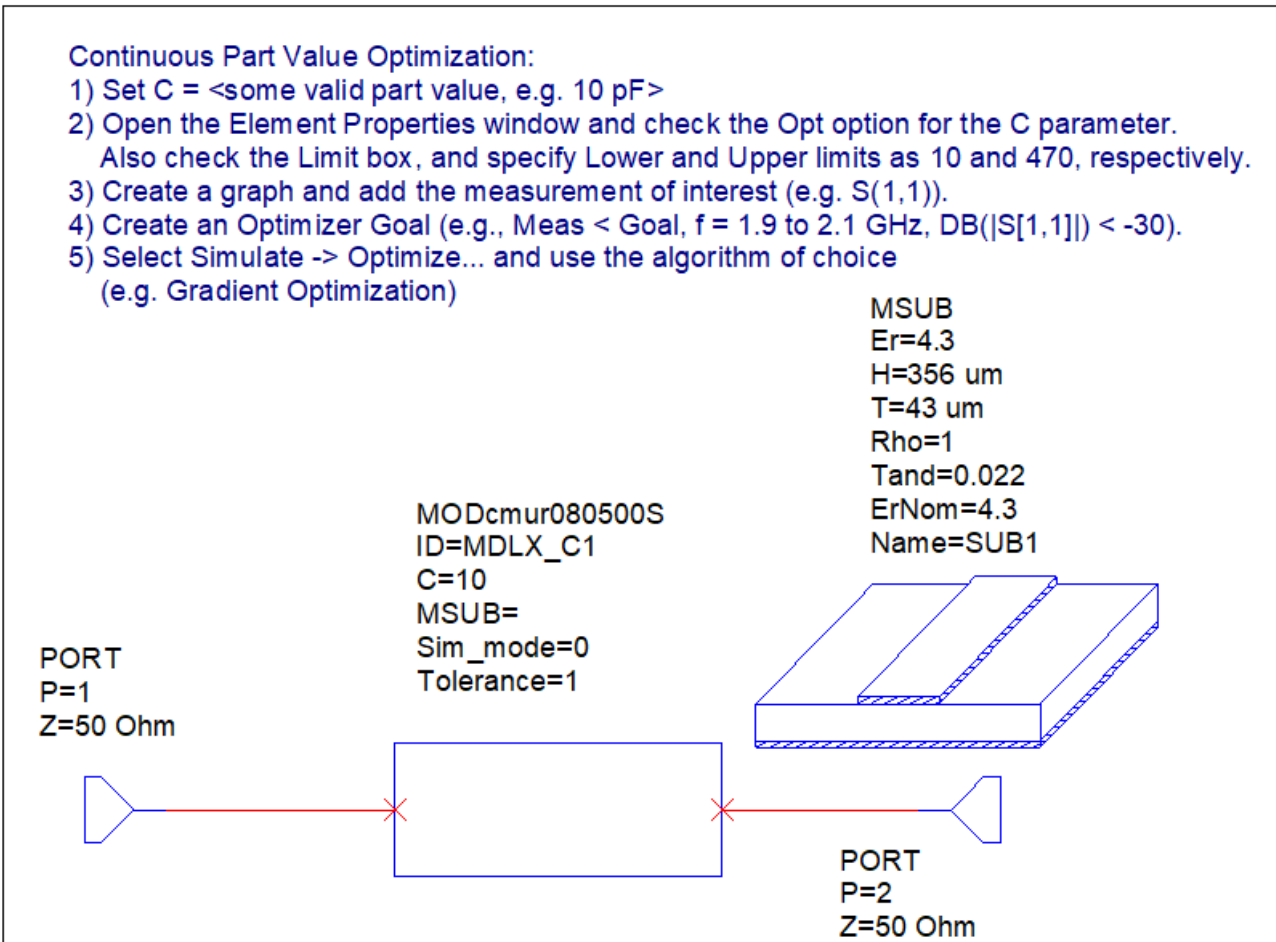


Schematic - Example_CAP_PART_OPT_1

Valid part values for the Modelithics Select version of the CAP_MUR_0805_001 model:
 C_val={10,11,12,13,15,16,18,20,22,24,27,30,33,36,39,43,47,51,56,62,68,75,82,91,100,110,120,130,150,160,180,200,220,240,270,300,330,360,390,430,470}



Schematic - Example_CAP_PART_OPT_1b



Schematic - Example_CAP_PART_TUNE_1

Valid part values for the Modelithics Select version of the CAP_MUR_0805_001 model:

C_val={10,11,12,13,15,16,18,20,22,24,27,30,33,36,39,43,47,51,56,62,68,75,82,91,100,110,120,130,150,160,180,200,220,240,270,300,330,360,390,430,470}

