Abstracts

MIM shunt-capacitor model using black boxes of EM-simulated critical parts

G. Gerhard and S. Koch. "MIM shunt-capacitor model using black boxes of EM-simulated critical parts." 2001 Transactions on Microwave Theory and Techniques 49.3 (Mar. 2001 [T-MTT]): 559-562.

A new model for metal-insulator-metal shunt capacitors is introduced in this paper. The main difference between the new model and known models is that critical parts of the capacitor's geometry are represented by black boxes. These boxes contain S-parameter files generated with an electromagnetic field solver. The capacitor parts, which depend on the capacitance value, are represented by microstrip and lumped elements. The new model combines the advantages of field simulations with those of lumped- or microstrip-based models. It can easily be used in circuit simulators utilizing their features for design development such as optimizations. The model is compared with two shunt capacitors on microwave monolithic integrated circuits to show the excellent fit.

❑ Return to main document.