Mam capacitor customization

Can mom capacitor replace MIM capacitor?

Moreover,the capacitance density of the MOM capacitor can exceed the MIM capacitor when more metal layers are used in nanoscale CMOS processes. With advantages of lower fabrication cost and higher capacitance density,the MOM capacitor could replace MIM capacitor graduallyin general integrated circuit (IC) applications.

Can automatic mom capacitor cell generation have adaptive capacitance?

Abstract: This paper introduces the first problem formulation in the literature for automatic MOM capacitor cell generation with adaptive capacitance. Given an expected capacitance value and available metal layers,the proposed capacitor cell generation method can produce a compact MOM capacitor cell with minimized area and matched capacitance.

What is mom capacitor?

MOM capacitor uses the capacitance between the lateral interconnection. The capacitor density can be increased by technology scaling. Smaller occupied area (same C) can be expected by technology scaling. Furthermore, parasitic capacitance can be controlled.

What causes variation of Mom capacitor parameter?

Capacitor matching and statistical modeling Variation of MOM capacitor parameter occurs due to process variability: metal and dielectric layer thickness,metal widths,and other variations of process parameters over the wafer,wafer-to-wafer,and lot-to-lot.

What is the mom capacitor structure for 50 ff at 60 GHz?

The proposed MOM capacitor structures for 50 fF at f = 60 GHz are L =5 umwith M = 3,and,L = 2 um with M = 5 and that for 100 fF at f = 30 GHz are L = 9 um with M = 3,and L = 4 um with M = 5. The target process is 65-nm CMOS. © 2018 The Institute of Electronics,Information and Communication Engineers.

Can mom capacitors be excluded from parasitic extraction?

Even if MOM capacitors are characterized through measurements and described by compact (SPICE) models,selective blocking (exclusion) of intrinsic MOM capacitance from parasitic extraction and calculating only parasitic coupling to ground and neighboring nets are beyond the capabilities of existing parasitic extraction tools.

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The basic function of the capacitor, shown in Fig. 1, comprises the changing of the capacitive loading of a 3-D micromachined coplanar waveguide transmission line by a laterally moveable section of the ground layer sidewall, which is achieved by integrated MEMS actuators. This translates to a change of the capacitive part in the transmission-line

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In this work, the metal-oxide-metal (MOM) capacitor in the scaled CMOS process has been modeled at high frequencies using an EM simulator, and its layout has been optimized. The ...

Based on the analytical study on different sources of capacitance in MOM capacitors, and understandings of how the lithography process impacts the final shape of the capacitors, we proposed a highly configurable and extensible spiral based capacitor. Several forms of spiral capacitors have been generated and performed lithography simulation to ...

You can include MOM capacitors into your SPICE simulation in two different ways: 1. treat them as devices, in which case LVS should recognize them as devices. 2. treat them as interconnect parasitic capacitance, in which case ...

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Designing the layout for a MOM capacitor that has a required capacitance value is a challenge. Foundries and fabs offering MOM capacitor options in their process technologies do not ...

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