Abstracts

An Improved CAD Oriented FET Model for Large-Signal and Noise Applications

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A novel equivalent circuit for FETs, based on a two region, ohmic and velocity saturated, description of the channel is proposed. The model has a topology close to the main physical phenomena which determine the device behaviour, thus the parameters can be deduced in a natural way. Analytical determination for the new electrical model elements holds so that there is no increase in the extraction cost. The model applied to commercial FETs and HEMTs demonstrates an improved accuracy over the classical models and, at the same time, opens interesting perspectives in the fields of nonlinear and noise electrical modelling for CAD.

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