

Equivalent-voltage approach for modeling low-frequency dispersive effects in microwave FETs

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In this paper, a simple and efficient approach for the modeling of low-frequency dispersive phenomena in FETs is proposed. The method is based on the definition of a virtual, nondispersive associated device controlled by equivalent port voltages and it is justified on the basis of a physically-consistent, charge-controlled description of the device. Dispersive effects in FETs are accounted for by means of an intuitive circuit solution in the framework of any existing nonlinear dynamic model. The new equivalent-voltage model is identified on the basis of conventional measurements carried out under static and small signal dynamic operating conditions. Nonlinear experimental tests confirm the validity of the proposed approach.

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