Abstracts

A simple and analytical parameter-extraction method of a microwave MOSFET

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A simple and accurate parameter-extraction method of a high-frequency small-signal MOSFET model including the substrate-related parameters and nonreciprocal capacitors is proposed. Direct extraction of each parameter using a linear regression approach is performed by Y-parameter analysis on the proposed equivalent circuit of the MOSFET for high-frequency operation. The extracted results are physically meaningful and good agreement has been obtained between the simulation results of the equivalent circuit and measured data without any optimization. Also, the extracted parameters, such as g/sub m/ and g/sub ds/, match very well with those obtained by DC measurement.

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