Abstracts

New non-quasi-static theory for extracting small-signal parameters applied to LDMOSFETs

P. Roblin, S. Akhtar and J. Strahler. "New non-quasi-static theory for extracting small-signal parameters applied to LDMOSFETs." 2000 Microwave and Guided Wave Letters 10.8 (Aug. 2000 [MGWL]): 322-324.

We present analytic formulas for simultaneously extracting the parasitic resistances, inductances, and the intrinsic parameters of a small-signal FET equivalent circuit model including the non-quasi-static (NQS) charging time-constants associated with the gate and drain charges, respectively. For the NQS equivalent circuit topology considered, there exists a continuum of solutions for the circuit parameters, as a function of the source resistance, giving exactly the same frequency response fit. A multi-bias analysis is used to determine the final source resistance. Realistic results are obtained for power LDMOSFETs despite the very small value of the parasitics in these power RF devices.

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