Abstracts

Characteristics of deep-submicrometer MOSFET and its empirical nonlinear RF model

Yi-Jen Chan, Chia-Hung Huang, Chung-Chian Weng and Boon-Khim Liew. "Characteristics of deep-submicrometer MOSFET and its empirical nonlinear RF model." 1998 Transactions on Microwave Theory and Techniques 46.5 (May 1998, Part II [T-MTT] (Special Issue on Microwave Circuits on Silicon Substrates)): 611-615.

Si MOSFET's with submicrometer gate length were fabricated and characterized by RF evaluation. Devices with a 0.25 /spl mu/m gate length demonstrated a g/sub m/ of 258 mS/mm, an f/sub T/ of 28 GHz, and a minimum noise figure of 1.8 dB at 900 MHz. A nonlinear device model was constructed based on the measured results. Empirical equations are used to represent the nonlinear elements such as g/sub m/, C/sub gs/, C/sub gd/, C/sub ds/, and R/sub out/. These nonlinear elements, together with device parasitics, provide designers with a comprehensive model for using these devices for RF circuits.

❑ Return to main document.