Abstracts

Temperature dependent MOSFET RF large signal model incorporating self heating effects

D. Heo, E. Chen, E. Gebara, S. Yoo, J. Laskar and T. Anderson. "Temperature dependent MOSFET RF large signal model incorporating self heating effects." 1999 MTT-S International Microwave Symposium Digest 99.2 (1999 Vol. II [MWSYM]): 415-418 vol.2.

We present a new temperature dependent large signal model with self heating and ambient temperature effects for power MOSFETs developed from on-wafer pulse I-V measurements at different ambient temperatures. The MOSFET channel current equation in the model has temperature parameters and continuity in high order derivatives to predict temperature effects and harmonics accurately. The data from the model with self heating effects demonstrates good agreement with measured S parameters and power characteristics including gain, efficiency, harmonic components and intermodulation powers in class AB operation.

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