# Abstracts

## RF electro-thermal modeling of LDMOSFETs for power-amplifier design

*S. Akhtar, P. Roblin, Sunyoung Lee, Xiaohui Ding, Shuang Yu, J. Kasick and J. Strahler. "RF electro-thermal modeling of LDMOSFETs for power-amplifier design." 2002 Transactions on Microwave Theory and Techniques 50.6 (Jun. 2002 [T-MTT]): 1561-1570.*

A new approach for the electro-thermal modeling of LDMOSFETs for power-amplifier design that bypasses pulsed-IVs and pulsed-RF measurements is presented in this paper. The existence of low-frequency dispersion in LDMOSFETs is demonstrated by comparing pulsed IVs with iso-thermal IVs. The modeling technique uses iso-thermal IV and microwave measurements to obtain the temperature dependence of small-signal parameters. Optimized tensor-product B-splines, which distribute knots to minimize fitting errors, are used to represent the small-signal parameters and extract the large-signal model as a function of voltages and temperature. The model is implemented on ADS and is verified by simulating and measuring the power harmonics and IMD large-signal performance of a power amplifier. The impact on the model of temperature-dependent drain and gate charge is investigated. The presented model is found to compare well and, in some cases, exceed the existing MET model for LDMOSFETs.

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