

MOS-AK 2007 @ AMS

Compact Modeling Activities @ austriamicrosystems

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Compact Modeling and Characterizations

The PDC Group

Process and Device Characterization Group at AMS:

Responsibilities:

- Compact Modeling
- Simulator Support
- Physical Verification
- Design Documents



International Projects

EU IST Project:

•CODESTAR

– Compact modelling of on-chip passive structures at high frequencies.

– <http://www.magwel.com/codestar/>

– MOS AK Stuttgart 7 May 2004: E. Seebacher, AMS

[CODESTAR: Compact Modeling of On-chip Passive Structures at High Frequencies](#)

•CHAMELEON RF

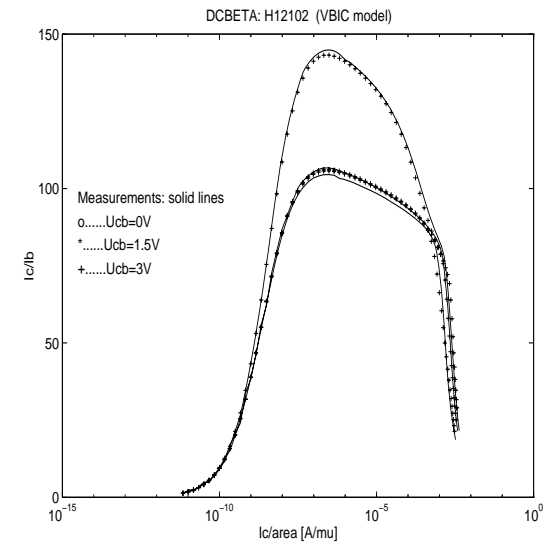
– Comprehensive High-Accuracy Modelling of Electromagnetic Effects in Complete Nanoscale RF blocks

– <http://www.chameleon-rf.org/>

– MOS AK 22 Sept. 2006, [Montreux : Field solver views on constructing compact models for devices in an electromagnetic ambient](#) Wim Schoenmaker, MAGWEL; Nick van der Meijs, TU Delft; Daniel Ioan, Polytechnical University Bucharest

Compact Modeling Activities

- Member of CMC
 - LDMOS modeling sub-committee
- Active MOS-AK member
 - Meeting organization and paper presentation
- Member of FSA
 - MS/RF modeling sub-committee
- Cooperation with EPFL
 - Analytical LDMOS model development
- Cooperation with Technical University of Crete (TUC)
 - EKV3.0 model evaluation (presented at MOS-AK Sept. 2006)



Main Focus in Compact Modeling

•CMOS Technology

–Analog/RF MOS transistor modeling based on BSIM3v3/BSIM4

•SiGe BiCMOS Technology

–RF Bipolar transistor modeling based on VBIC

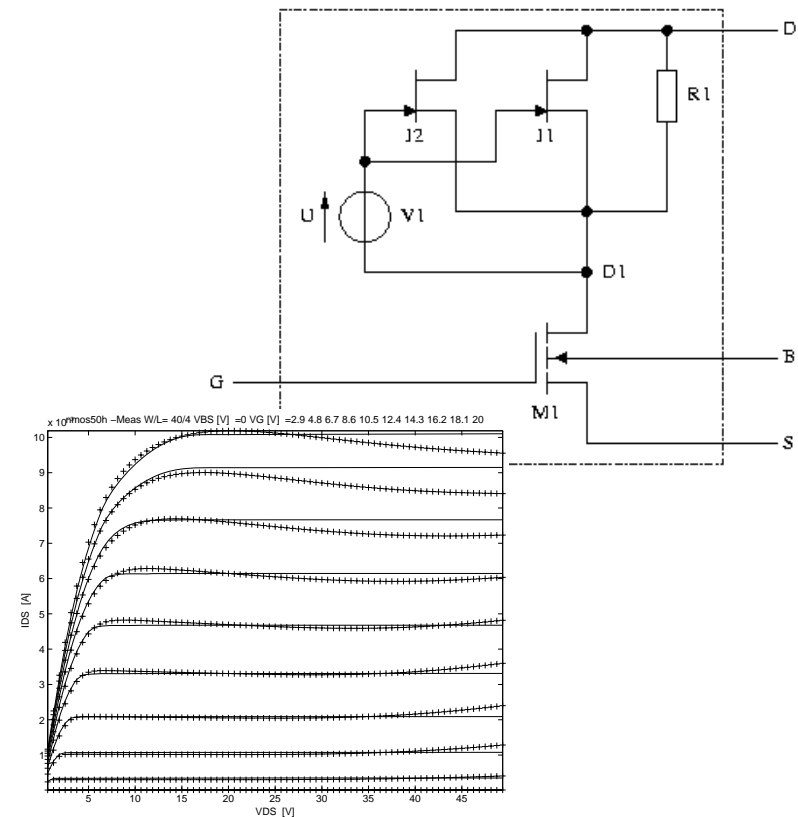
–RF modeling for varactor (MOS–AK UPS 2001), inductor, resistors and caps.

•HV CMOS Technology

–LDMOS transistor modeling BSIM3v3 sub-circuit (MOS- AK June 2002 Wroclaw)

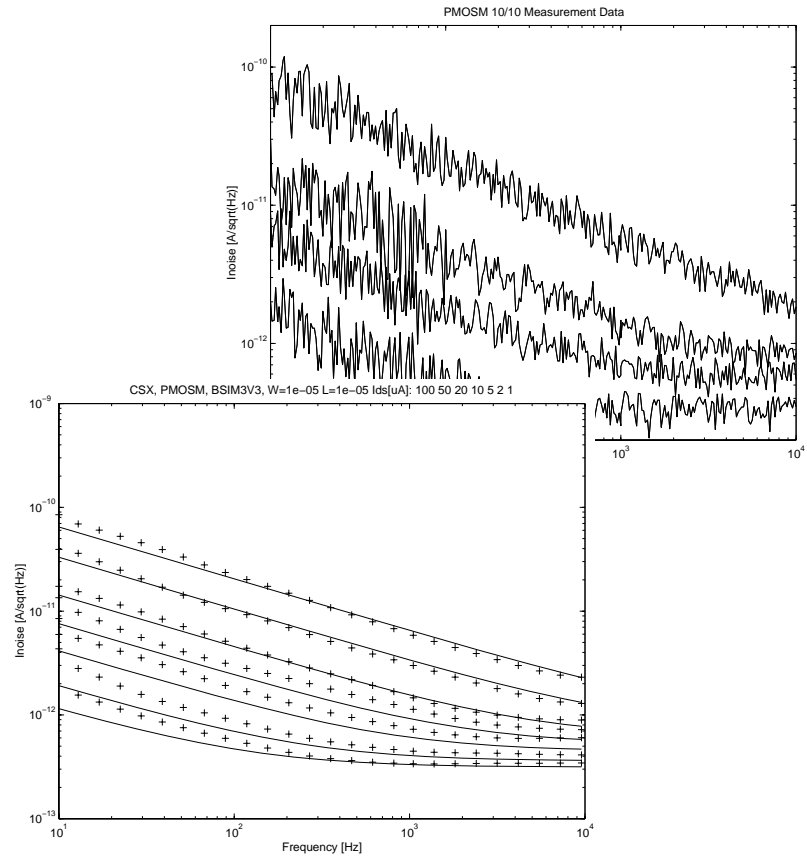
–high temperature and high voltage

–special parasitic modeling (MOS-AK Boeblingen 2006)



Special Session "MOS Noise Modeling"

- 1/f noise characterization and modeling for MOS and Bipolar transistors.
- Used models: BSIM3v3 (NOIA,B,C) and SPICE (AF,KF)
- Support of 1/f noise WC corner models based on extensive measurements.
- Measurement equipment:
 In-house development Noise box
 transimpedance amplifier optimized for low
 frequency noise measurements
 & On Wafer measurement system base on
 commercial Stanford amplifiers



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Thank you for your attention

