EKV3 Extraction for TSMC 0.18um

D. Manic & W. Grabinski

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Introduction

- CSEM analog designers used to the EKV.
- Differentiator factor in the low-power/low-voltage design?
- CSEM launched the EKV3 Extraction project with W. Grabinski.
- Selected foundry process was TSMC 0.18um.
- Available data:
  - Some transistor measurements (CSEM).
  - BSIM3 model from the foundry.
  - Raw data from the foundry.

EKV3 extraction project definition

- Extraction work objective
  - Intrinsic device modeling.
  - Extrinsic parasitic elements modeling.
  - Short distance matching validation.
- Models (typical case):
  - EKV3 MOSFET Model (core devices).
  - Extrinsic diode models.
- Simulators: ELDO (and/or Spectre)

Status & Results

- The EKV3 model for TSMC 0.18u is now in the final validation phase.
  - Final delivery expected by July 15.
- Results presented by Wladek Grabinski.

Observations and Issues

- How to select data for the EKV modeling?
  - BSIM3 playbacks or measurements.
  - Corner models.
  - Problem for fabless people.
- EKV library synchronization for different foundries. Is it reasonable idea?
- EKV library validation.
- EKV3 implementation in Eldo (by MG).

Thank you for your attention!