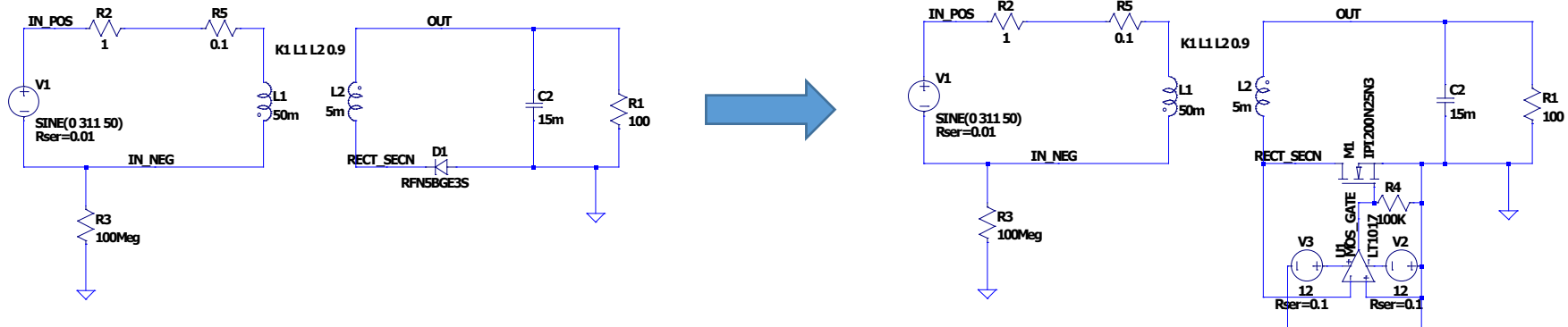


Project Proposal - Active Rectification:

Low forward drop (on resistance) with high voltage blocking capacity is crucial for many (AC)DC/DC converters

A 'diode emulator' can be built using a high voltage transistor and control logic, the case of a half wave rectifier:



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Project Description:

- Circuit design of an active rectification IC, consisting of a power stage, gate driver and sensing circuitry in a wide-bandgap technology
- Layout implementation of the entire chip
- Design of characterization PCB's
- Characterization & application tests

Outcomes:

- Tape-out experience in an emerging & exciting technology
- Chance to take part in the whole design process from topology selection to characterization
- Opportunity to learn High Voltage & Power Design essentials from an experienced team
- Possibility of publications

MinDCet

MinDCet is a High-Voltage, Power and Mixed-Signal IC design company, supporting our clients from concept to production-tested ASICs by cost-effectively accelerating time-to-market.

This thesis proposal arose from the need for accurate delay measurements in characterization setups and an ongoing IC design project to design a laser diode driver used in lidar systems. The developed delay measurement system will be used in our lab as a tool. We plan to use an adapted version of the tool to build a demonstrator with our own designed lidar laser driver IC.