



Master Thesis: Implementation of a wafer-level soft switching setup for GaN power transistors

Job description

Our team in Villach is looking for a master student who wants to write his master thesis in cooperation with us. We offer excellent supervision from our experts and an attractive salary. Join us now!

This work is aiming for the development and implementation of a soft switching setup for GaN power devices fully based on wafer-level assessment. Soft switching applications use typically a resonance in the circuit such that the power transistor is being discharged and its energy can be reused in the switching application. Thus, no energy is lost during switching and the power transistor does not see the harsh stress conditions that typically applies during hard switching. The work will explore different schemes of soft switching by active components i.e. an active transistor turning on in parallel to the DUT and resonant soft switching by passive components e.g. LC as energy storage as in typical resonant circuits. The setup already accommodate for in-situ characterization of the device including threshold voltage drifts i.e. measurement of the ID-VG, dynamic RDSon characterization, measurement of the gate and drain leakage currents, probing of potential at additional contact points e.g. Kelvin measurement points. During your thesis project, we expect you to become a growing expert for electronic hardware design, with a strong focus on soft-switching stress tests on wafer-level. This means you will need to acquire some special knowledge and perform dedicated tasks:

- **Learn** about **types** and **characteristics** of **advanced power semiconductors**, especially GaN high-voltage devices
- **Improve** your skills in **power electronic hardware design**, **layout** and **circuit simulation**
- Further **develop** and **implement** the **concept for an automated wafer-level test system** together with your senior tutors (PhD students and senior engineers)
- **Design**, **build** and **evaluate** a working **hardware prototype**
- Document your results by **writing** and **submitting** your **Master thesis**

Further Information

Type of employment: Temporary / Full-time (flexible working hours from Monday to Friday between 6 a.m. and 7 p.m.)

Duration: min. 6 months

This thesis has to be written in cooperation with an university.

Profile

At a glance

Location: **Villach (Austria)**
Job ID: **362552**
Start date: **Oct 01, 2022**
Entry level: **0-1 year**
Type: **Full time**
Contract: **Temporary**

Apply to this position online by following the URL and entering the Job ID in our job search:

Job ID: **362552**
www.infineon.com/jobs

Contact

Nico Steinhauser
Student Talent Attraction Manager



You are a master student covering the area of (Power) **Electronics** (Informatics) with a strong ambition for **application tests**, **system** (hardware/software) **design** and making things work. You are also able to:

- Start right away, because you have completed most of your exams
- Provide knowledge and experience in
 - Programming (Python) / HW design (μ C)
 - Circuit understanding, spice simulation, PCB designs
- Work and communicate well with our international team in English and/or German

This position is subject to the collective agreement for workers and employees in the electrical and electronics industry (full-time), employment group D for master students (<https://www.feei.at/wp-content/uploads/2022/05/minimum-salaries-white-collar-workers-2022.pdf>).

Please attach the following documents (German or English) to your application:

- CV
- Motivation letter
- Certificate of matriculation at a university
- Transcript of records
- Bachelor certificate
- Reference letter (optional)

Benefits

- **Villach:** Coaching, mentoring networking possibilities; Wide range of training offers & planning of career development; International assignments; Different career paths: Project Management, Technical Ladder, Management & Individual Contributor; Flexible working conditions; Home office options; Part-time work possible (also during parental leave); Sabbatical; Child care in Villach & Klagenfurt; On-site social counselling and works doctor; Health promotion programs; On-site canteen; Private insurance offers; Wage payment in case of sick leave; Corporate pension benefits; Flexible transition into retirement; Performance bonus; Accessibility, access for wheelchairs

Why Us

Part of your life. Part of tomorrow.

Infineon is a world leader in semiconductor solutions that make life easier, safer, and greener. Our solutions for efficient energy management, smart mobility, and secure, seamless communications link the real and the digital world.

–Power & Sensor Systems (PSS) drives leading-edge power management, sensing and data transfer capabilities –

Infineon PSS semiconductors play a vital role in enabling intelligent power management, smart sensitivity as well as fast and reliable data processing in an increasingly digitalized world. Our leading-edge power devices make chargers, adapters, power tools and lighting systems smarter, smaller, lighter and more energy-efficient. Our trusted sensors increase the context sensitivity of “things” and systems such as HMI, and our RF chips power fast and reliable data communication.

** The term gender in the sense of the General Equal Treatment Act (GETA) or other national legislation refers to the biological assignment to a gender group. At Infineon*



we are proud to embrace (gender) diversity, including female, male and diverse.

Infiniteon Hub - Connect. Create. Challenge.

The iHub at TU Wien represents an inspiring tech platform, networking area and event location, connecting Infiniteon Austria with tech experts, science specialists and young professionals.

Check out our upcoming events:

[Infiniteon iHub](#)

