

“Semiconductors and Diodes”

Course Goal

You will learn to understand the design of semiconductors and the functioning of the most common semiconductor diodes.

Course Contents

Semiconductor diodes

- > Semiconductor materials
- > Design of a semiconductor
- > Intrinsic conductivity
- > n-silicon
- > p-silicon
- > pn-transition with/without external voltage
- > Functioning of semiconductor diodes
- > Switching behaviour of semiconductor diodes
- > Temperature behaviour of semiconductor diodes
- > Semiconductor diodes as rectifiers
- > Semiconductor diodes as switches
- > Types of semiconductor diodes
- > Testing semiconductor diodes
- > Characteristic values and limit values

Semiconductor diodes with special properties

- > Z diodes
- > Capacitance diodes
- > Tunnel diodes
- > Backward diodes
- > PIN diodes
- > Schottky diodes (hot carrier diodes)

Thyristors

- > Design and functioning
- > Switching behaviour
- > Characteristic values
- > Limit values
- > Applications

DIAC and TRIAC

- > Design and functioning
- > Switching behaviour
- > Characteristic values
- > Limit values
- > Applications

Photo-semiconductors

- > Design and functioning
- > Switching behaviour
- > Characteristic values
- > Applications
- > LED's
- > Photo-diodes
- > Optical couplers

Hands-on exercises

- > Various measurement exercises on the theoretical aspects of the course
- > Computer-supported documentation of the various measurement exercises (lab reports)

Target Group / Prior Knowledge

People who have attended the modules Basics of Electrical Engineering (Direct Current and Alternating Current) or have comparable prior knowledge.

Course Length

70 instructional units

Course Price

Available on request

Course Location:

Kapsch Partner Solutions GmbH, Johann-Hoffmann-Platz 9, 1120 Vienna or
at customer site, by agreement

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