

dummy11

Student Group

First Name	Surname	Matrikel Nr.

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Which of the following statement(s) for real diodes is/are correct?

- P-doping produces quasi-free electrons
- Conductivity in semiconductors happens via conduction band and valence band
- The diode blocks at any negative voltage (reverse voltage).
- The diode can be modeled as a voltage source and capacitor

check answers

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Exercise - Quiz

On which physical properties does the forward voltage U_S depend?

- temperature
- current range considered
- (semiconductor) material
- LED color
- breakdown voltage of the Z-diode

check answers

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Exercise - Quiz

Which statement(s) about the junction is/are correct?

- There is no electric field in the junction
- The junction does not contain free charge carriers
- The junction becomes larger when current is passed through it
- Electron-hole pairs are created in the junction by photons
- The junction is enlarged in the Schottky diode compared to the PN diode
- The junction forms a capacitor

check answers

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Exercise - Quiz

The forward voltage ...

- ... for silicon is fixed about 0.6 ... 0.7 V
- ... serves to allow electrons to cross the bandgap
- ... depends on the current range under consideration
- ... is smaller for germanium diodes than for silicon diodes.

check answers

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Exercise - Quiz

Statements about the conduction/valence band

- Photon capture can move electrons from the conduction band to the valence band
- "Recombination" removes an electron from the valence band and a hole from the conduction band
- A donor creates one or more quasi-free electrons
- The band gap indicates the maximum energetic distance between the conduction and valence bands

check answers

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Exercise - Quiz

The forward current ...

- ... Is dependent on the temperature
- ... depends on the forward voltage
- ... is logarithmic concerning the forward voltage
- ... depends on the reverse voltage

check answers

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