

dummy11

Student Group

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Exercise - Quiz

What type of amplifier produces an output current I_{O} from an input voltage U_{I} , such that an output voltage $U_{\text{O}} = k \cdot U_{\text{I}}$ with constant k is produced?

- Current-to-voltage converter
- Current amplifier
- Voltage-to-current converter
- Voltage amplifier

check answers

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Exercise - Quiz

The transfer resistance ...

- Cannot be measured using a resistance meter
- Can be used for voltage dividers
- Is given by $\frac{U_{\text{I}}}{I_{\text{O}}}$, with input voltage U_{I} and output current I_{O}
- represents the gain

check answers

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Exercise - Quiz

An amplifier circuit...

- ... needs an additional power supply for the amplification.
- ... can only be built with positive

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feedback.

- ... controls by an input circuit with high power output with small power.
- ... has to include a voltage divider

check answers

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

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

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

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

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

The forward voltage ...

- ... for silicon is 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.

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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