

Electronics with the Modular System

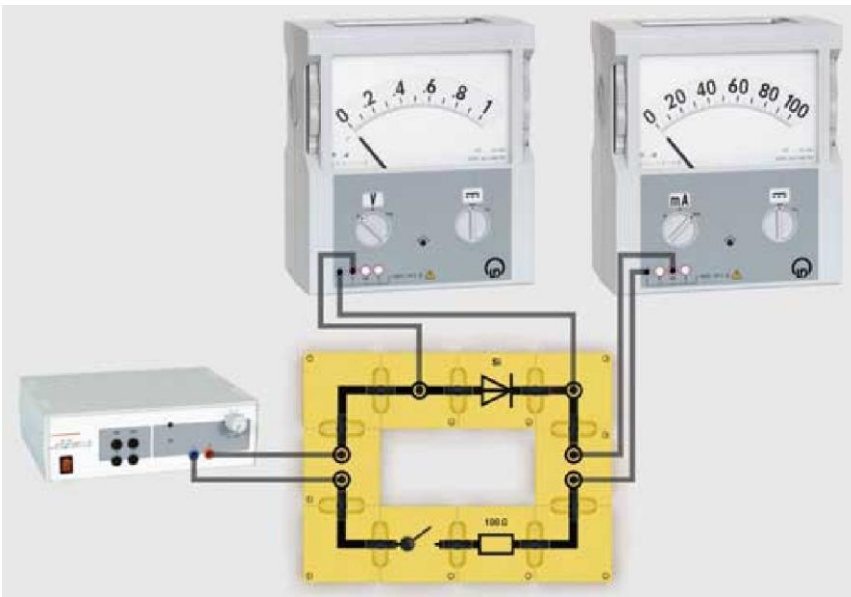
Basic Electronic Circuits
Semiconductor diodes

Characteristic of a silicon diode

Objective of the experiment

To investigate the relationship between the voltage U and the current I for a diode connected in the forward direction.

Setup



Apparatus

1	539 035	Diode Si, BST
1	539 009	Resistor 100 Ω , BST
1	539 025	Toggle switch, BST
1	539 002	Connector block BST, straight, 1 socket
2	539 003	Connector blocks BST, straight, 2 sockets
3	539 004	Connector blocks BST, 90° angle
1	539 005	Connector block BST, 90° angle with socket
10	539 000	Bridging plug, BST
2	531 906	Demo multimeter, passive
1	521 49	Power supply 12 V DC, 230 V
6	500 644	Safety connection lead, 100 cm
1	301 300	Demonstration experiment frame
1	301 301	Adhesive magnetic board

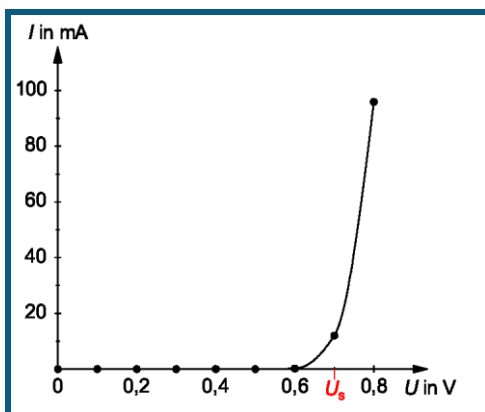
Carrying out the experiment

- Set up the circuit.
- Close the toggle switch and increase the voltage U (starting from 0 V) in 0.1 V increments.
- Read the voltage U and the current I on the demo multimeter and enter them into the table.

Measuring example

Voltage U / V	Current I / mA
0	0
0.1	0
0.2	0
0.3	0
0.4	0
0.5	0
0.6	0.2
0.7	12
0.8	96

Evaluation



Starting from a threshold voltage U_S , a high current I flows through a diode connected in the forward direction.

If the voltage U is lower than the threshold U_S , the current is either very low or not observable.

For the silicon diode used in the experiment, the threshold voltage U_S is approx. 0.7 V.