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Semiconductor Physics And Devices: Basic Principles

A semiconductor material has an electrical conductivity value falling between that of a metal, like copper, gold, etc. and an insulator, such as glass. Their resistance decreases as their temperature increases, which is behaviour opposite to that of a metal. Their conducting properties may be altered in useful ways by the deliberate, controlled introduction of impurities ("doping") into the ...

Semiconductor - Wikipedia

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Physics 468 and flow of charge carriers in the semiconductor devices are within the solid itself, while in the earlier vacuum tubes/valves, the mobile electrons were obtained from a heated cathode and they were made to flow in an

Chapter Fourteen SEMICONDUCTOR ELECTRONICS: MATERIALS

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Semiconductor Science and Technology is IOP's journal dedicated to semiconductor research. The journal publishes cutting-edge research on the physical properties of semiconductors and their applications.

Semiconductor Science and Technology - IOPscience

2 MOSFET DEVICE PHYSICS AND OPERATION Gate Source Drain Semiconductor substrate Insulator Gate junction Substrate contact Conducting channel Figure 1.1 Schematic illustration of a generic field effect transistor. This device can be viewed as a combination of two orthogonal two-terminal devices

MOSFET Device Physics and Operation

History. The effects of semiconductor doping were long known empirically in such devices as crystal radio detectors and selenium rectifiers. For instance, in 1885 Shelford Bidwell, and in 1930 the German scientist Bernhard Gudden, each independently reported that the properties of semiconductors were due to the impurities contained within them. The doping process was formally first developed by ...

Doping (semiconductor) - Wikipedia

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Scientists synthesized a new semiconductor, boron arsenide (BAs), with an ultrahigh thermal conductivity of 1300 W/mK. (a) Crystal structure of BAs. (b) Defect-free crystal examined by high ...

A new semiconductor with record-high thermal conductivity

semiconductor documentation for amateurs. RCA - Radio Corporation of America: The RCA Transistors and Semiconductor Diodes brochure from 1957 contains an introduction on semiconductor physics along with detailed specifications on Germanium PNP transistors and a few semiconductor diodes (1N34-A, 1N38-A, 1N54-A, and 1N58-A), dimensional outlines, an interchangeability directory, and example ...

Semiconductor Documents - N4TRB Amateur Radio

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Journal of Physics D: Applied Physics - IOPscience

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