

# SEMICONDUCTOR TRANSPORT

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**Carrier Transport**

We will refer to this transport mechanism as carrier diffusion. The total current in a semiconductor equals the sum of the drift and the diffusion current.

What are the physical mechanisms responsible for current flow in semiconductors? • How do electrons and holes in a semiconductor behave.

Devices have been invented; for instance, semiconductor lasers, solar cells, light- The transport of electrons in semiconductors is based on the Schrödinger.

Fundamental concepts of semiconductors. Carrier transport by Diffusion. In the above discussion, we came to know how the carrier transport occurs in the.

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The motion of a carrier drifting in a semiconductor due to an applied electric field, is illustrated in Figure 2. At higher doping concentrations, the mobility decreases due to ionized impurity scattering Semiconductor Transport the ionized doping atoms.

The current flowing through the device is then a property of the chemical potential. To include the contribution of electrons as well as holes to the conductivity, we add the current density due to holes to that of the electrons, Semiconductor Transport The Lorentz force then becomes:

The Lorentz force then becomes: Resistivity of n-type and p-type silicon varies with temperature. Electrons therefore remain in the higher minima as long as the electric field exceeds the peak field.