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A semiconductor material has an electrical conductivity value falling between that of a conductor, such as metallic copper, and an insulator, such as glass. Its resistivity falls as its temperature rises; metals are the opposite. Its conducting properties may be altered in useful ways by introducing impurities ("doping") into the crystal structure. When two differently-doped regions exist in the ...

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The basic function of such a device is to switch ON and OFF the flow of electricity as and when required. A semiconductor device can perform the function of a vacuum tube with hundreds of times its volume. A single integrated circuit (IC), such as a microprocessor chip, can do the work of a set of vacuum tubes.

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A semiconductor is a substance whose resistivity lies between the conductors and insulators. The property of resistivity is not the only one that decides a material as a semiconductor, but it has few properties as follows. Semiconductors have the resistivity which is less than insulators and more than conductors.

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energy would decrease and the material would begin to behave less like a

semiconductor and more like a metal. If α_0 were to decrease, the bandgap energy

would increase and the material would begin to behave more like an insulator. 3.2

wave equation is: $\nabla^2 \psi = -\frac{2m_e}{\hbar^2} (E - V) \psi$ Assume the solution is of the form: $\psi = e^{j(kx - \omega t)}$

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