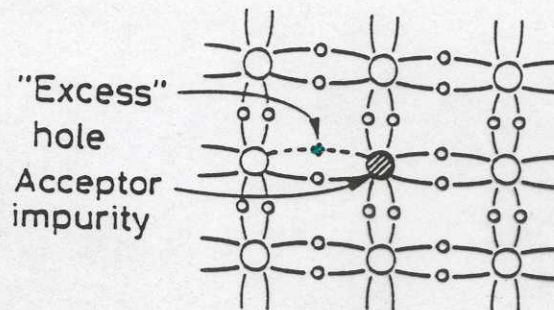
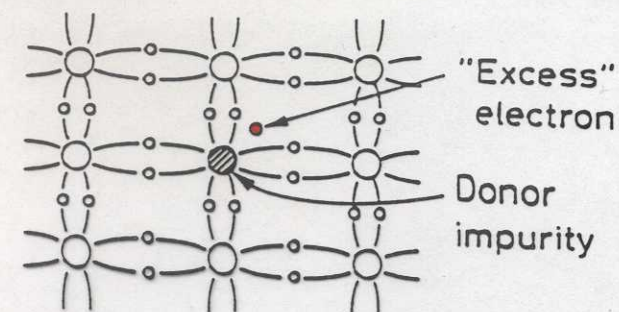


Fig. 10.4. (a) Addition of donor impurities to form n-type semiconductor materials. The impurities add excess electrons to the crystal and create donor impurity levels in the energy gap. (b) Addition of acceptor impurities to create p-type material. Acceptor impurities create an excess of holes and impurity levels close to the valence band

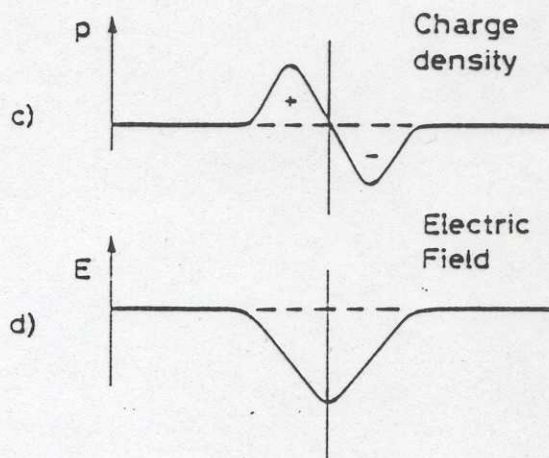
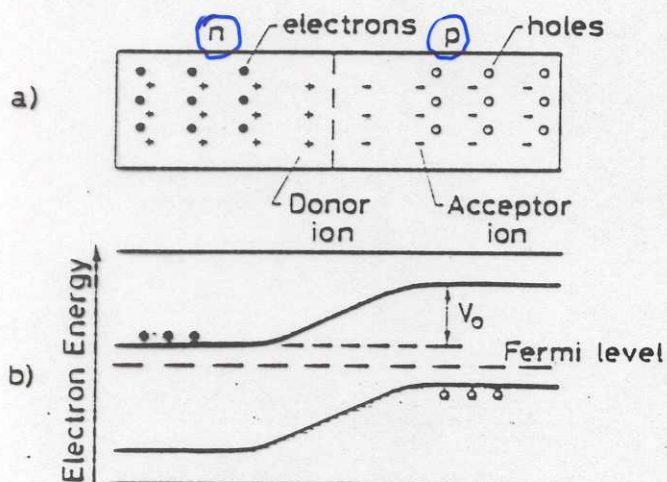


Fig. 10.5. (a) Schematic diagram of an np junction, (b) diagram of electron energy levels showing creation of a contact potential V_0 , (c) charge density, (d) electric field intensity

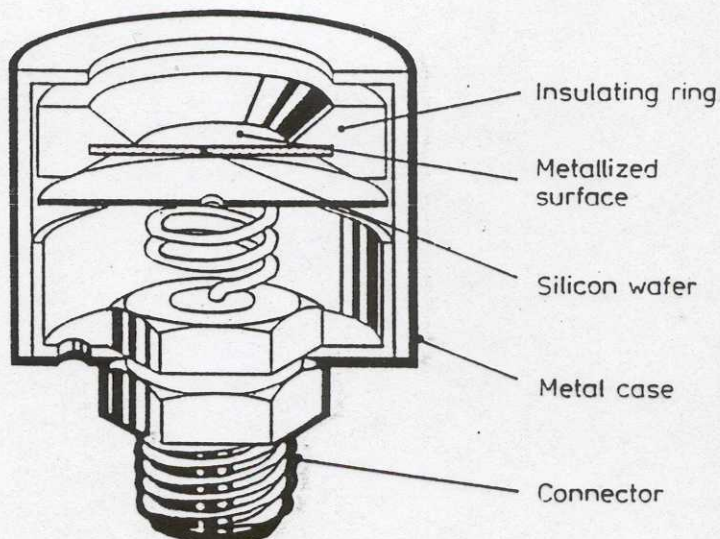
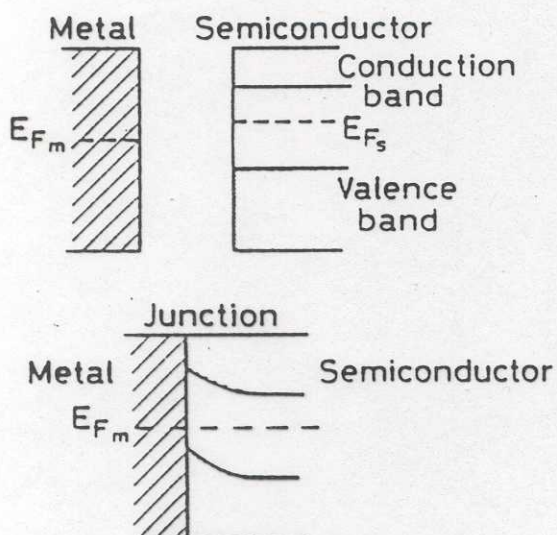


Fig. 10.11

Fig. 10.12