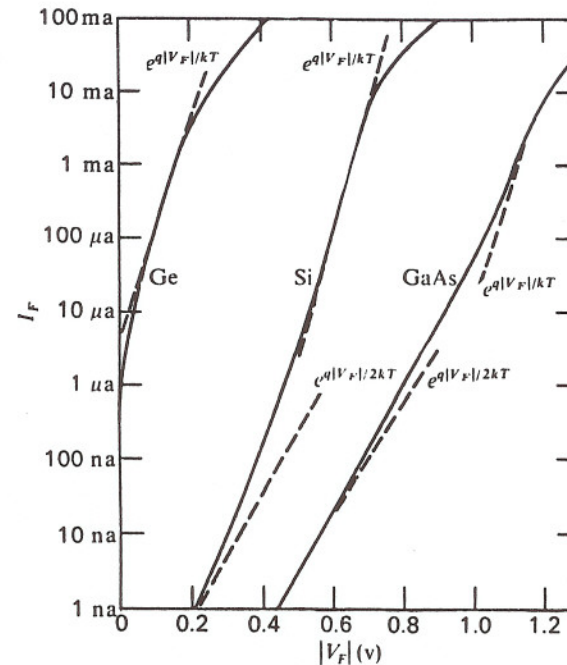


**Fig. 6.22** Illustration of the mechanisms giving rise to forward current.  
 (a)  $n^+p$  diode under 0.35-v forward bias.  
 (b) Corresponding band diagram.  
 (c) Corresponding distribution of electrons and holes.  
 Dashed lines indicate equilibrium electron and hole distributions.



**Fig. 6.24** Comparison of the forward current-voltage characteristics of the germanium, silicon, and gallium arsenide diodes at 25°C. Dashed lines indicate slopes of  $e^{q|V_F|/kT}$  and  $e^{q|V_F|/2kT}$  dependences.

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