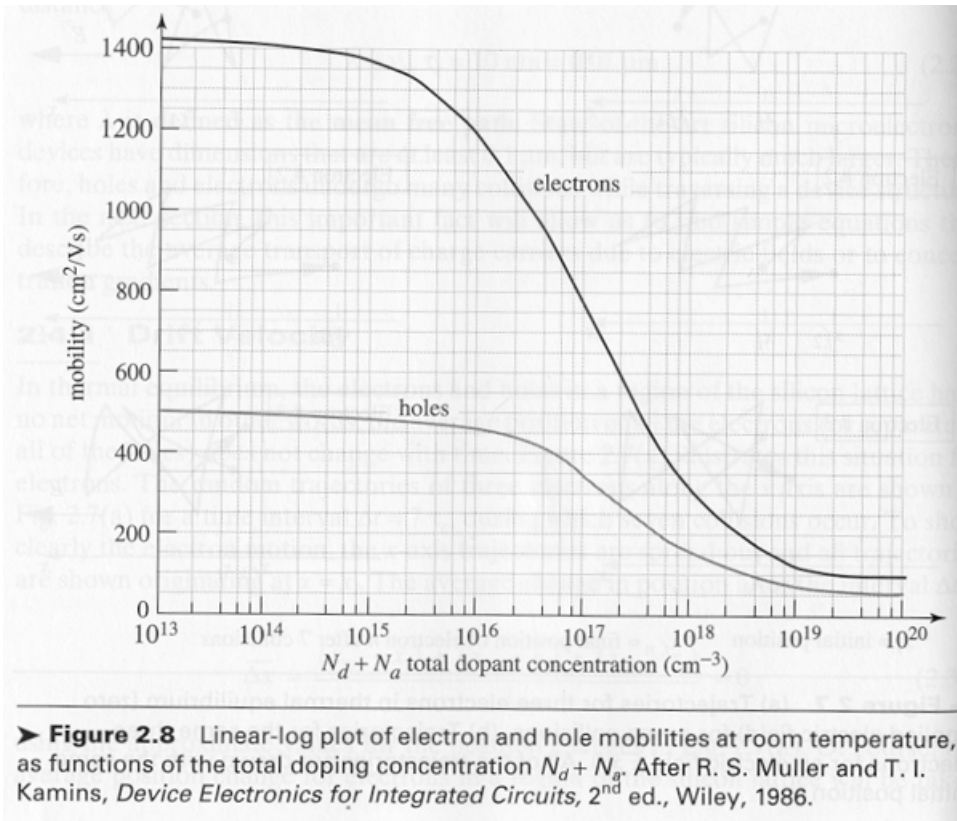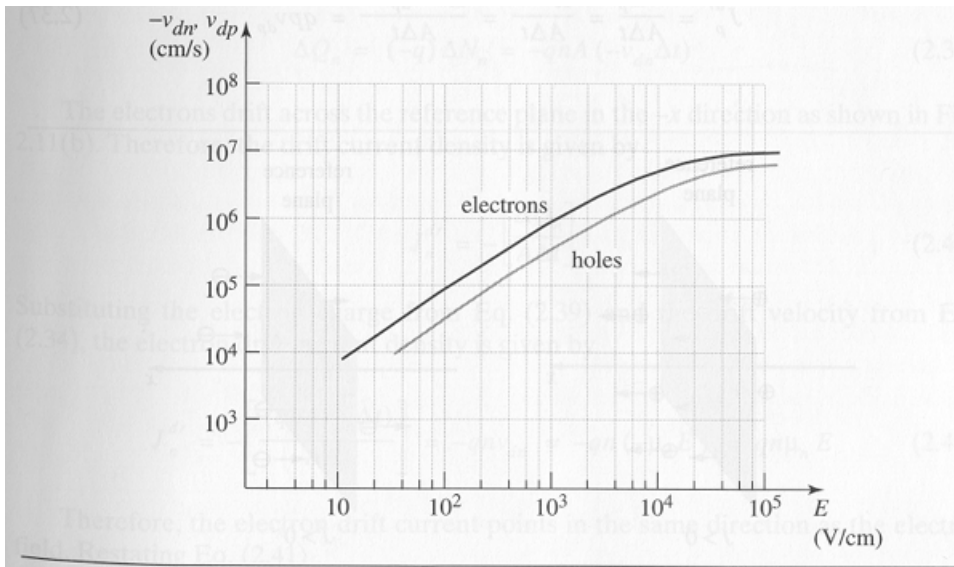**FIGURE 3.1**
(*a*) Pictorial illustration of the continuous random thermal motion of a conduction electron in a semiconductor lattice. (*b*) The same electron with an electric field applied from right to left, exhibiting net motion superimposed on the random thermal motion.

adapted from <u>Microelectronic devices and circuits</u>, Fonstad, 1994.

➤ **Figure 2.8** Linear-log plot of electron and hole mobilities at room temperature, as functions of the total doping concentration $N_d + N_a$. After R. S. Muller and T. I. Kamins, *Device Electronics for Integrated Circuits*, 2nd ed., Wiley, 1986.

adapted from <u>Microelectronics: an integrated approach</u>, Howe and Sodini, 1997.

> **Figure 2.9** Log-log plot of the drift velocity as a function of electric field for electrons and holes, showing the linear region where the velocity is proportional to the field and velocity saturation at high fields. After R. S. Muller and T. I. Kamins, *Device Electronics for Integrated Circuits,* 2nd ed., Wiley, 1986.

adapted from <u>Microelectronics: an integrated approach</u>, Howe and Sodini, 1997.