

From *Semiconductor Physics and Devices: Basic Principles* (4th Edition), Donald A. Neamen, McGraw Hill, 2012, ISBN 978-0-07-352958-5.

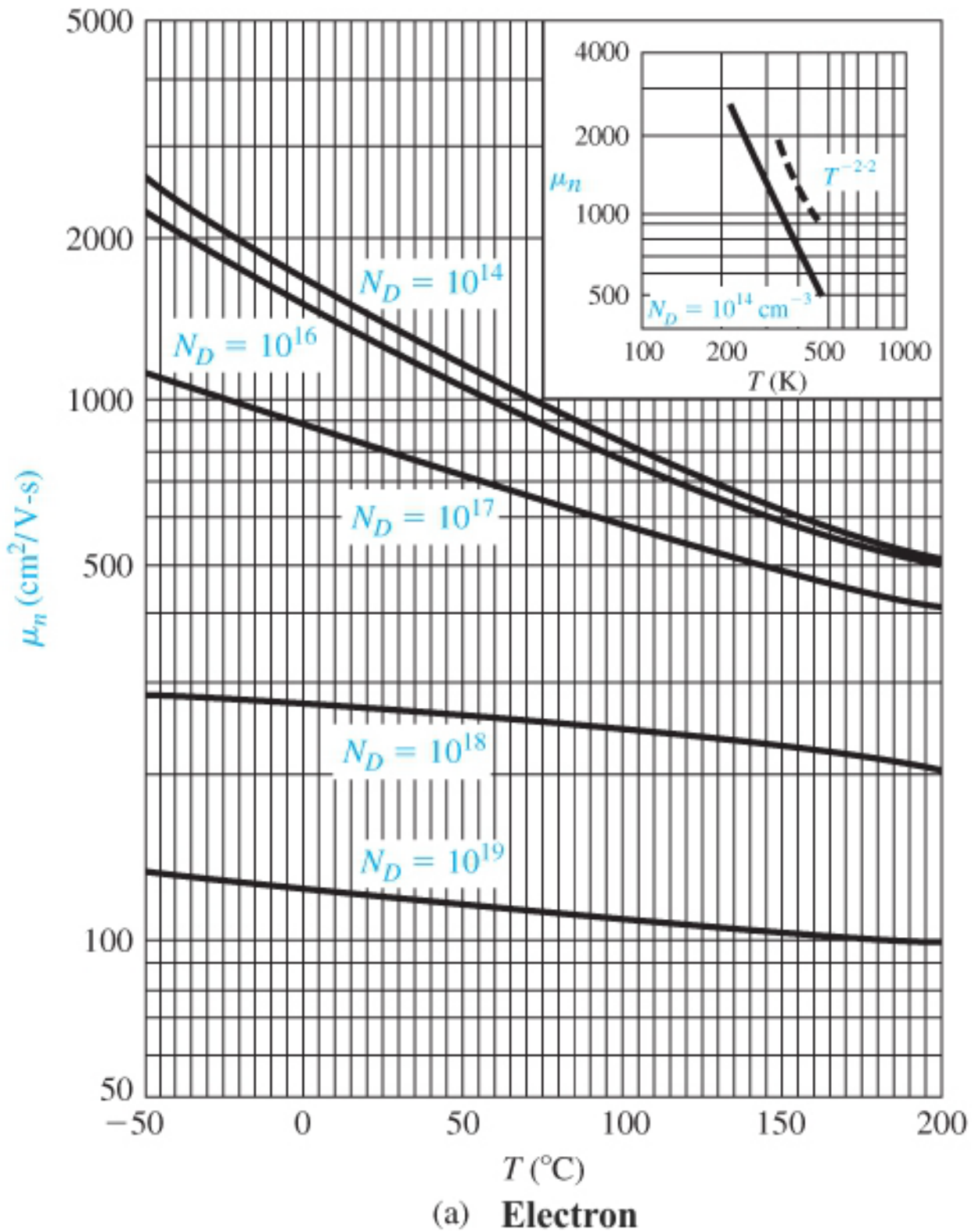


Figure 5.2 | (a) Electron and (b) hole mobilities in silicon versus temperature for various doping concentrations. Inserts show temperature dependence for “almost” intrinsic silicon. (From Pierret [8].)

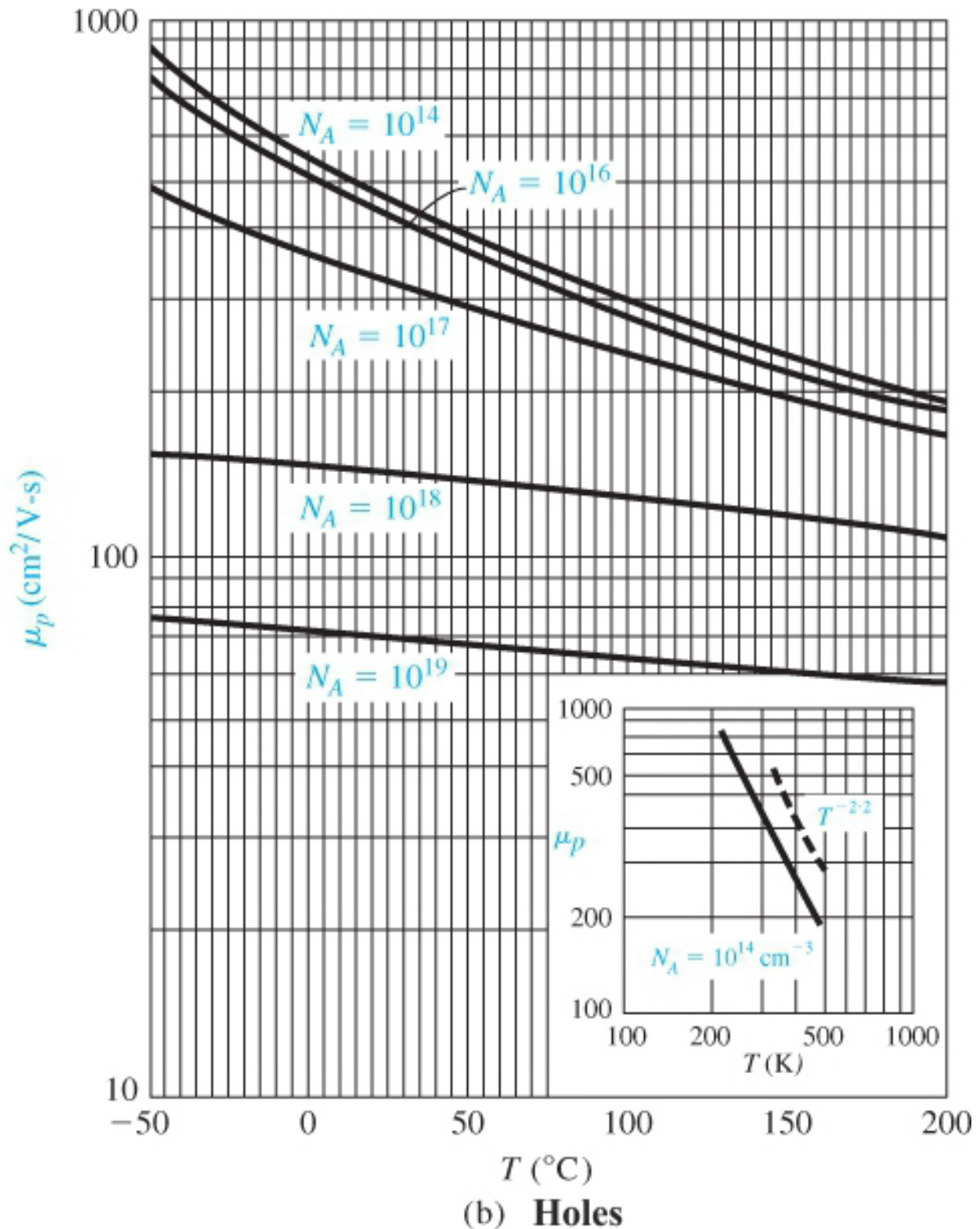


Figure 5.2 | (a) Electron and (b) hole mobilities in silicon versus temperature for various doping concentrations. Inserts show temperature dependence for “almost” intrinsic silicon. (From Pierret [8].)

- Note that the mobilities decrease as temperature increases due to more collisions/scattering from lattice vibrations.

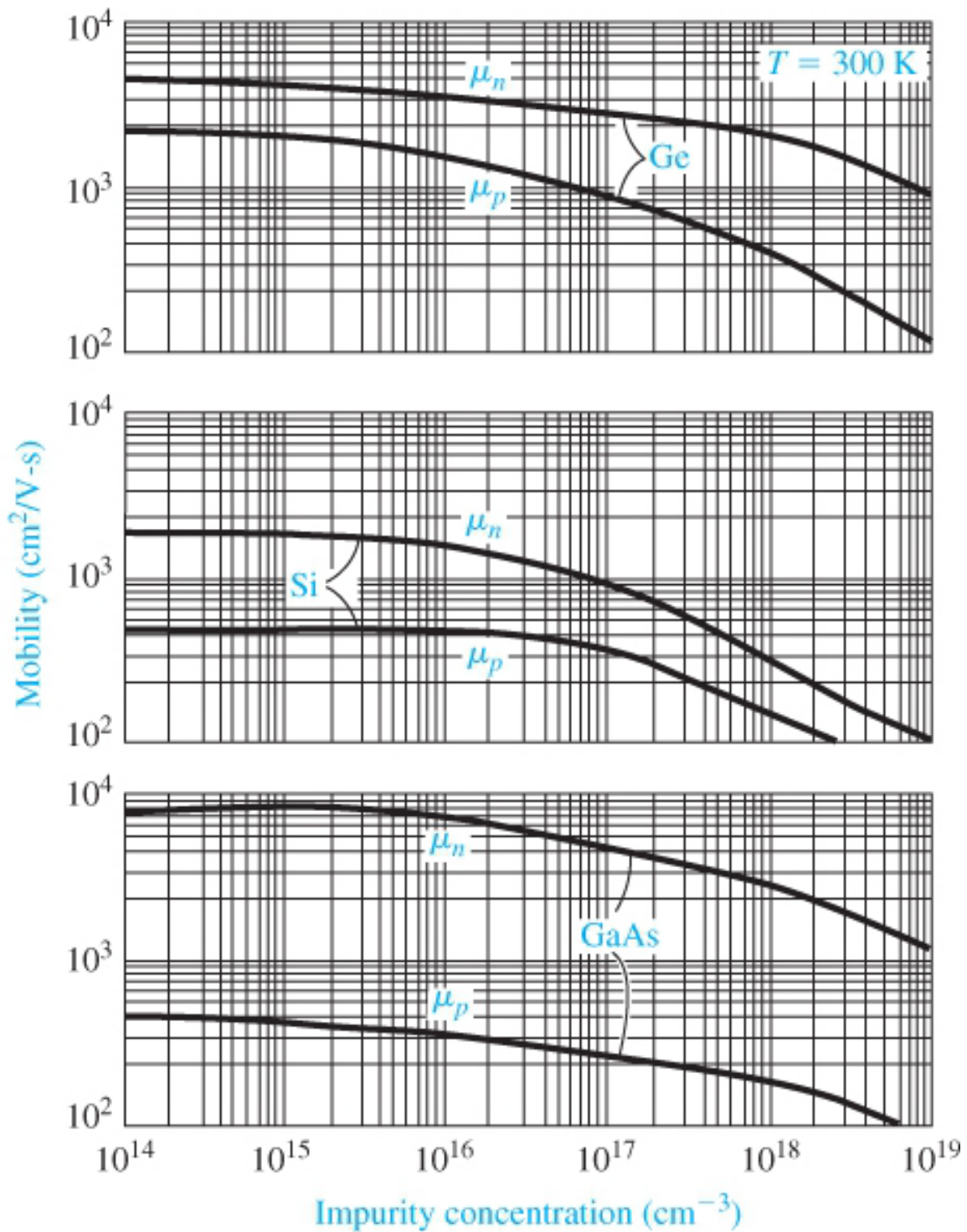


Figure 5.3 | Electron and hole mobilities versus impurity concentrations for germanium, silicon, and gallium arsenide at $T = 300\text{ K}$. (From Sze [14].)

- Note that the mobilities decrease as N_I increases due to more collisions/scattering with ionized impurities.