The book provides a thorough understanding of the basic concepts, principles and techniques involved in circuit analysis. At the outset it is pointed out that the constraint equations due to KCL, KVL and Device characterizations essentially constitute the complete behaviour of an electrical circuit. These equations are then used for the systematic formulation of network equations on different sets of basis variables. Further, network transformations and theorems useful in circuit analysis are elaborated. The physical principles and mathematical analysis involved in understanding the transient phenomena in networks are discussed in detail. Sinusoidal steady state analysis of networks, including three-phase systems form another important part of the book.

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Basic Processes in Integrated-Circuit Fabrication

2.2.1 Electrical Resistivity of Silicon

But this fact is seldom important in circuit analyses because the analyses are almost always at the current level and not the charge level. In a circuit diagram each I (or i) usually has an associated arrow to indicate the current direction, as shown in Fig. 1-1. This arrow specifies the direction of positive current flow, but not necessarily the direction of actual flow.