

Solar cells, also known as photovoltaic cells, are the fundamental units of solar energy systems. They directly convert light energy into electrical energy without intermediary steps, relying solely on the photovoltaic effect. Structurally, a solar cell is a p–n junction semiconductor device, created by combining p–type semiconductor material (high hole concentration, electron deficiency) with n–type material (high electron concentration). Figure 1–1 illustrates this construction.