Figure 19.23   Equivalent circuit diagram of a step-down converter
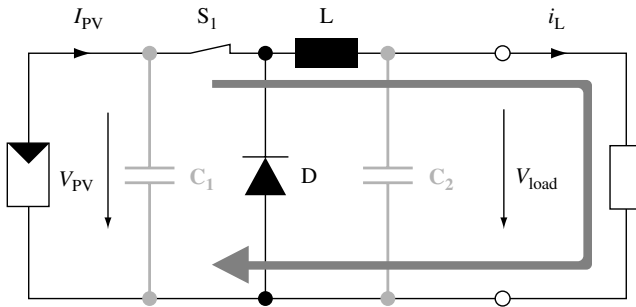

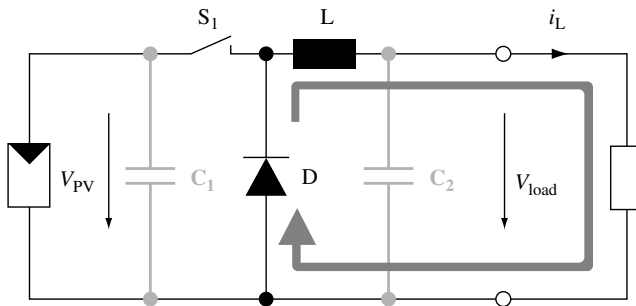**Figure 19.24**   Step-down converter during "on" state

Figure 19.25   Step-down converter during "off" state

diode instead (Figure 19.25). Neglecting the voltage drop across the diode, the current falls down, however, due to the following equation:

$$\frac{di_L}{dt} = -\frac{V_{load}}{L}$$

The capacitor C_1 is used to support the supply voltage (V_{PV}). In principle, S_1 is turned on and off with a switching frequency (i.e. with "t_{on}" and "t_{off}"). With regard to Ohm's law, the behaviour of the load voltage can be obtained from the load current ($= i_L$).