

The voltage and current at the terminals of the circuit element in Fig. 1.5 are zero for $t < 0$ and $t > 40$ s. In the interval between 0 and 40 s the expressions are

$$v = t(1 - 0.025t) \text{ V}, \quad 0 < t < 40 \text{ s};$$

$$i = 4 - 0.2t \text{ A}, \quad 0 < t < 40 \text{ s}.$$

- At what instant of time is the power being delivered to the circuit element maximum?
- What is the power at the time found in part (a)?
- At what instant of time is the power being extracted from the circuit element maximum?
- What is the power at the time found in part (c)?
- Calculate the net energy delivered to the circuit at 0, 10, 20, 30, and 40 s.

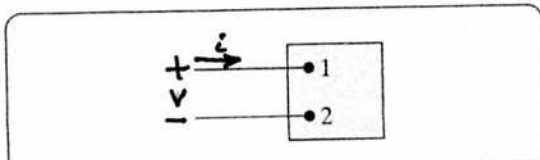


Figure 1.5 An ideal basic circuit element.