

Project Ingenieurswetenschappen:  
Elektronisch ontwerp van de e-VUBOX speaker  
Invulblad

Vrije Universiteit Brussel

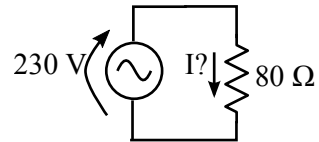
Versie 08.2015

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# 1 Basis Elektronica

## 1.1 De weerstand



Figuur 1: Voorbeeldnetwerkje.

### Doe-het-zelf 1

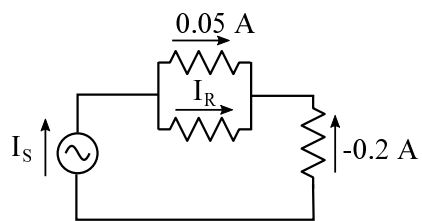
*Wet van Ohm:*  $V = R \cdot I$

*Vermogen:*  $P = V \cdot I$

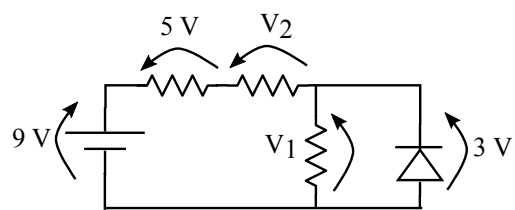
$$I = \dots$$

$$P = \dots$$

## 1.2 Netwerken



(a) Vind  $I_R$  en  $I_s$ .



(b) Vind  $V_R$  en  $U_C$ .

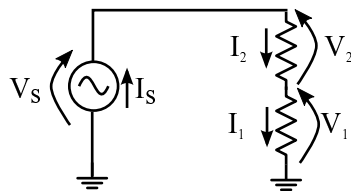
Figuur 2: De wetten van Kirchhoff

Doe-het-zelf 2

$$\begin{array}{ll} I_S = \dots & V_1 = \dots \\ I_R = \dots & V_2 = \dots \end{array}$$

## 2 Bouwstenen

### 2.1 Volumeknop



Figuur 3: Volumeregeling: de spanningsdeler

Doe-het-zelf 3

$$V_1 = \dots\dots\dots$$

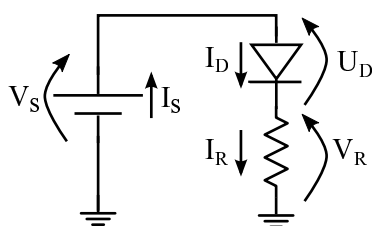
Doe-het-zelf 4

$$R_2 = \dots\dots\dots$$

Doe-het-zelf 5

$$R_{pot} = \dots\dots$$

## 2.2 Statusledje

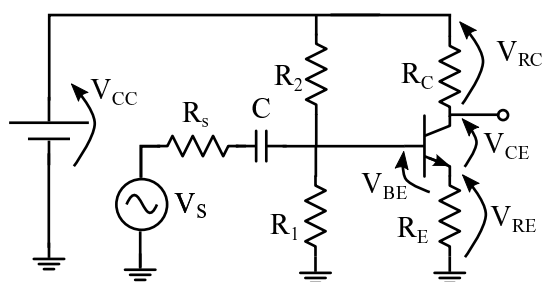


Figuur 4: Diode netwerk.

Doe-het-zelf 6

$$R_{led} = \dots\dots$$

## 2.3 Versterker



Figuur 5: Versterkerschakeling met de transistor.

Doe-het-zelf 7

$$I_C \approx \dots\dots$$

Doe-het-zelf 8

$$V_C = \dots\dots\dots (1)$$

Doe-het-zelf 9

$$R_C = \dots (2)$$

$$R_E = \dots (3)$$

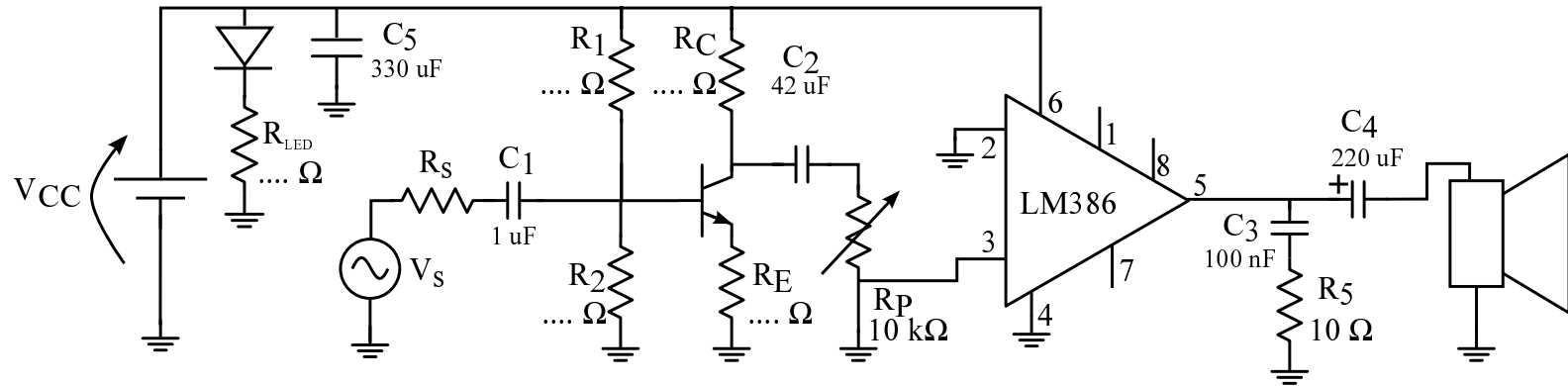
Doe-het-zelf 10

$$V_B = \dots \tag{4}$$

$$R_1 = 1k\Omega \tag{5}$$

$$R_2 = \dots \tag{6}$$

### 3 Overzicht



Figuur 6: Volledig Schema