

Opgave 1

a)

$$R = \frac{U}{I} :$$

$$\frac{5 \cdot \ll V \gg}{0.15 \cdot \ll A \gg}$$

$$\frac{33.33333333 \ll V \gg}{\ll A \gg}$$

(1)

combine((1), units)

$$33.33333333 \ll \Omega \gg$$

(2)

b)

$$P = U \cdot I :$$

$$5 \cdot \ll V \gg \cdot 0.15 \cdot \ll A \gg$$

$$0.75 \ll V \gg \ll A \gg$$

(3)

combine((3), units)

$$0.75 \ll W \gg$$

(4)

c)

Modstand R1

$$R = \frac{U}{I} :$$

$$\frac{5 \cdot \ll V \gg}{0.18 \cdot \ll A \gg}$$

$$\frac{27.77777778 \ll V \gg}{\ll A \gg}$$

(5)

combine((5), units)

$$27.77777778 \ll \Omega \gg$$

(6)

Maksimal effekt afsat i dioden

$$P = U \cdot I :$$

$$5 \cdot \ll V \gg \cdot 0.18 \cdot \ll A \gg$$

$$0.90 \ll V \gg \ll A \gg$$

(7)

combine((7), units)

$$0.90 \ll W \gg$$

(8)

Minimal effekt afsat i dioden

$$P = U \cdot I :$$

$$5 \cdot \ll V \gg \cdot 0.03 \cdot \ll A \gg$$

$$0.15 \ll V \gg \ll A \gg$$

(9)

combine((9), units)

$$0.15 \ll W \gg$$

(10)

d)

Modstand R1 størrelse

$$R = \frac{U}{I} :$$

$$\frac{7 \cdot \ll V \gg}{0.18 \cdot \ll A \gg}$$

$$\frac{38.88888889 \llbracket V \rrbracket}{\llbracket A \rrbracket}$$

(11)

$$combine(\mathbf{(11)}, units)$$

$$38.88888889 \llbracket \Omega \rrbracket$$

(12)