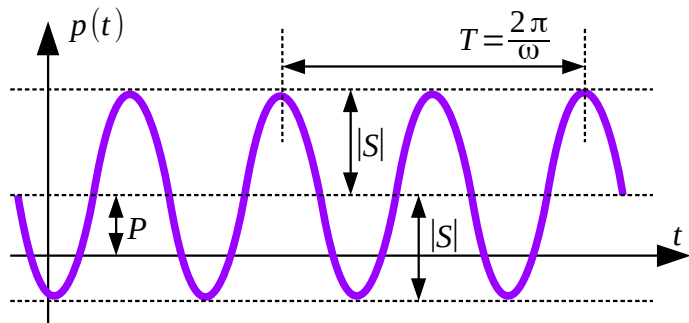


$$u(t) = U \cdot \cos(\omega t + \varphi_U) = \operatorname{Re}[\hat{U} \cdot e^{j\omega t}]$$

$$i(t) = I \cdot \cos(\omega t + \varphi_I) = \operatorname{Re}[\hat{I} \cdot e^{j\omega t}]$$

$$\hat{U} = U \cdot e^{j\varphi_U}$$

$$\hat{I} = I \cdot e^{j\varphi_I}$$



$$p(t) = u(t) \cdot i(t) = U \cdot I \cdot \cos(\omega t + \varphi_U) \cdot \cos(\omega t + \varphi_I) = \frac{U \cdot I}{2} \cdot [\cos(\varphi_U - \varphi_I) + \cos(2\omega t + \varphi_U + \varphi_I)]$$

Kompleksna moč

$$S = P + jQ = \frac{\hat{U} \cdot \hat{I}^*}{2} = \frac{U \cdot e^{j\varphi_U} \cdot I \cdot e^{-j\varphi_I}}{2} = \frac{U \cdot I}{2} \cdot e^{j(\varphi_U - \varphi_I)}$$

Navidezna moč

$$|S| = \left| \frac{\hat{U} \cdot \hat{I}^*}{2} \right| = \frac{U \cdot I}{2} = \frac{p(t_{MAX}) - p(t_{MIN})}{2}$$

Delovna moč

$$P = \langle p(t) \rangle = \operatorname{Re} \left[\frac{\hat{U} \cdot \hat{I}^*}{2} \right] = \frac{U \cdot I}{2} \cdot \operatorname{Re} [e^{j(\varphi_U - \varphi_I)}] = \frac{U \cdot I}{2} \cdot \cos(\varphi_U - \varphi_I)$$

Jalova moč

$$Q = \operatorname{Im} \left[\frac{\hat{U} \cdot \hat{I}^*}{2} \right] = \frac{U \cdot I}{2} \cdot \operatorname{Im} [e^{j(\varphi_U - \varphi_I)}] = \frac{U \cdot I}{2} \cdot \sin(\varphi_U - \varphi_I)$$