

Week_10
Non-assessed

The circuit below shows a resistor $R_1 = 4\Omega$ connected to a parallel combination of a capacitor $C = 8\ \mu\text{F}$ and a second resistor $R_2 = 25\Omega$. The source has a 80 V peak amplitude and operates at 1000 Hz.

(i) Express the impedance of the circuit as a complex number $z = a + jb$.

Hence find

(ii) the magnitude of the impedance,

(iii) the magnitude of the current drawn from the source,

(iv) the phase angle between the source voltage and the current,

(v) the power delivered by the source.

