

Answer on Question #55889, Physics / Electromagnetism

An ac circuit consists of a voltage source

$$v=200\sin 120\pi t$$

and a

$6\mu\text{F}$

capacitor in series. Calculate the current established in the circuit

0.32A

1.24A

0.64A

2.13A

Solution

$$I = \frac{V}{X_c} = \frac{\frac{V_{max}}{\sqrt{2}}}{\frac{1}{\omega C}} = \frac{\frac{200}{\sqrt{2}}}{\frac{1}{120\pi * 6 * 10^{-6}}} = 0,32 \text{ A}$$

Answer: 0.32A