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$A = 0.250\ m^2$

$d = 0.0180\ m$

$V(t) = V_0 \sin \omega t \qquad V_0 = 100\ V_{peak}$

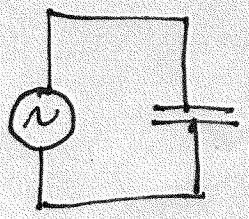
$I_d = 1.00\ A_{peak}$

Find the angular frequency.

First the capacitance for a parallel-plate capacitor is

$$C = \frac{\varepsilon_0 A}{d} = \frac{\left(8.85 \times 10^{-12} \frac{C^2}{Nm^2}\right)(0.250\ m^2)}{0.0100\ m}$$

$$\boxed{C = 2.22 \times 10^{-10}\ F}$$



In an AC circuit with just a capacitor,

$$V_c = X_c \cdot I \rightarrow X_c = \frac{V_c}{I} = \frac{100\ V}{1.00 A}$$

$$X_c = 100\ \Omega$$

But $X_c = \frac{1}{\omega C} \rightarrow \omega = \frac{1}{C \cdot X_c} = \frac{1}{(2.22 \times 10^{-10} F)(100 \Omega)}$

$$\omega = 4.5 \times 10^7\ rad/s$$

Converting to Hz gives

$$f = \frac{\omega}{2\pi} = \frac{4.5 \times 10^7\ rad/s}{2\pi} = \boxed{7.2 \times 10^6\ Hz}$$