Voltage of ac source : $\mathcal{E} = \mathcal{E}_{max} \cos \omega t$
Current through device: $I = I_{max} \cos(\omega t - \delta)$

Capacitor

$V_C = \dfrac{Q}{C} = \mathcal{E}_{max} \cos \omega t \;\Rightarrow\; I = \dfrac{dQ}{dt} = -\omega C \mathcal{E}_{max} \sin(\omega t)$

amplitude: $I_{max} = \omega C \mathcal{E}_{max}$, phase angle: $\delta = -\dfrac{\pi}{2}$

impedance: $X_C \equiv \dfrac{\mathcal{E}_{max}}{I_{max}} = \dfrac{1}{\omega C}$ (capacitive reactance)