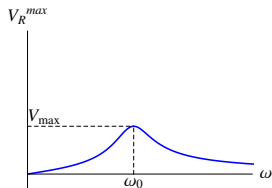


## RLC Series Resonance (2)



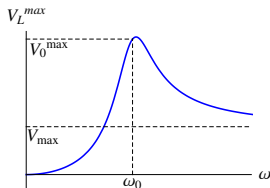
resistor

$$V_R^{max} = I_{max} R$$



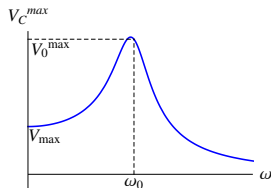
inductor

$$V_L^{max} = I_{max} \omega L$$



capacitor

$$V_C^{max} = I_{max} / \omega C$$



- relaxation times:  $\tau_{RC} = RC$ ,  $\tau_{RL} = L/R$
- angular frequencies:  $\omega_L = \frac{\omega_0}{\sqrt{1 - (\omega_0 \tau_{RC})^2/2}}$ ,  $\omega_C = \omega_0 \sqrt{1 - (\omega_0 \tau_{RC})^2/2}$
- voltages:  $V_0^{max} = V_{max} \omega_0 \tau_{RL}$ ,  $V_L^{max}(\omega_L) = V_C^{max}(\omega_C) = \frac{V_0^{max}}{\sqrt{1 - (\omega_0 \tau_{RC})^2/4}}$