

Answer on Question #68218-Physics-Electromagnetism

From the analysis of an RLC circuit we can determine the behavior of RL circuit (no capacitor) by putting $C = \infty$, whereas we put $L = 0$ to determine the behavior of RC circuit (no inductor). Explain this difference.

Answer

We need to have zero reactance of the element.

The reactance of inductor is

$$Z = \omega L = 0 \rightarrow L = 0$$

The reactance of capacitor is

$$Z = \frac{1}{\omega C} = 0 \rightarrow C = \infty$$

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