Conduction Cooled Capacitor Application Notes

Conduction cooled capacitors are designed for use in high power resonant (tank) circuits. Typically, these circuits consist of a capacitor and an inductor connected either in series or parallel.

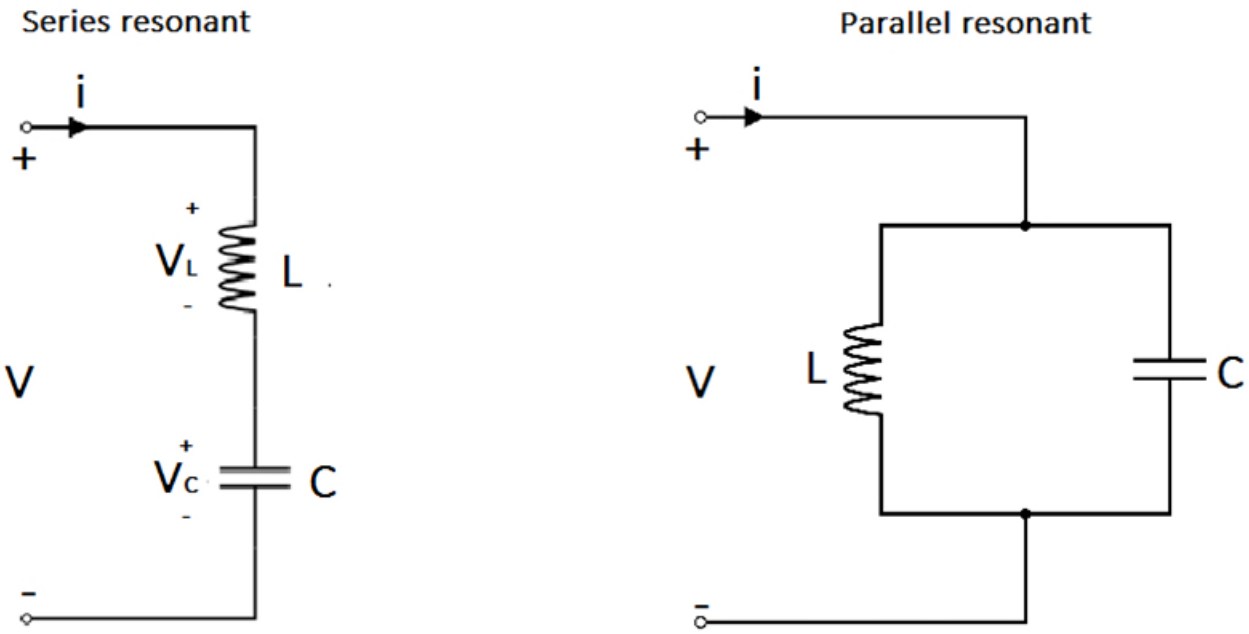
The resonant frequency in these LC circuits is found when the reactance of the capacitor and the inductor are equal

$X_L=X_C$

$\omega L=1/\omega C$

$\omega=1/\sqrt{LC}$

$fo= 1/(2\pi\sqrt{LC})$



Active, apparent and reactive power

Active or real power is the actual power that can be delivered to the load.

P=V*I Watts

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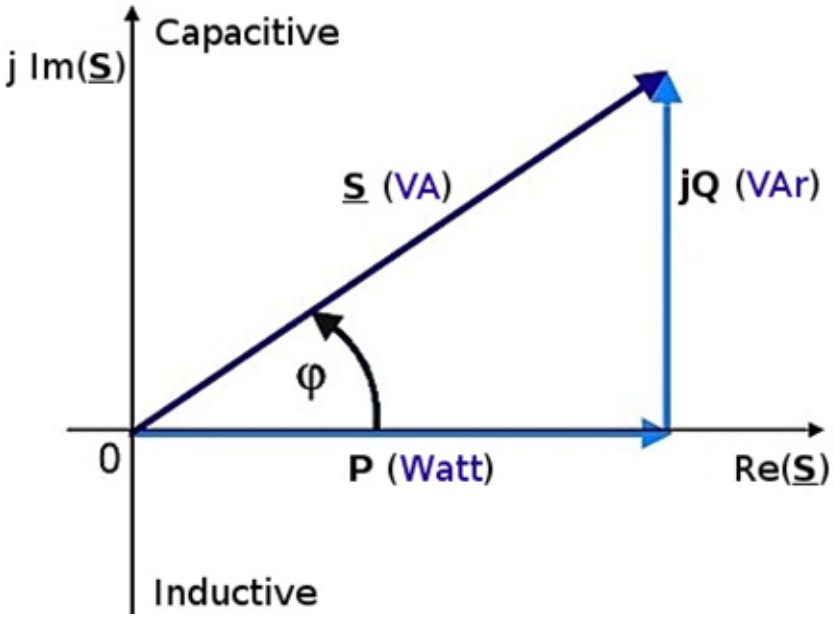
Reactive or imaginary power is



Reactive power= $V*I*\sin\Phi = V^2*2*\pi*f*C$

Reactive power is expressed in volt ampere reactive (var).

Apparent power is the power supplied to the circuit. Apparent power is measured in volt-amperes (VA). Apparent power is the voltage multiplied by the current in an AC system. Apparent power is the vector sum of the active and reactive power.

$S=\sqrt{(Q^2+P^2)}$

S= apparent power (Kilovolt amps, kva)

Q= reactive power (kilovolt amp reactive, kvar)

P= active power (kilowatts, kw)