

Extra Class Formulas

Effective Radiated Power $ERP = \frac{dB}{10} \log^{-1} \times \text{watts}$

Resonance Frequency of Series
or Parallel Circuit $f = \frac{1}{2\pi\sqrt{LC}}$

Phase Angle $\tan^{-1} = \frac{X_C - X_L}{R}$

Power Factor $PF = \frac{P(W)}{|S(VA)|}$ $PF = |\cos \varphi|$ ($\varphi = \text{phase angle}$)

P = power in watts
S = apparent power in volt-amps

Q of Parallel RLC Circuit $Q = \frac{R}{X}$ $X = 2\pi fL$

R = resistance in ohms
X = reactance ohms

Thevenins Theorem $V = \frac{E \times R_L}{R_1 + R_2}$ $R = \frac{R_1 \times R_2}{R_1 + R_2}$

Core Toroidal Turns $N = 100 \sqrt{\left(\frac{L}{A_L}\right)}$

N = number of turns
L = inductance in mH
 A_L = inductance index in mH per 1000 turns

Inductance Value $L = \frac{1}{(2\pi f)C}$

Capacitance Value $R = \frac{1}{(2\pi f)L}$