

Capacitance formulas

Quantity	Formula	Units
Definition	$C = Q / V$	$F = C/V$
Parallel plates	$C = \epsilon_r \epsilon_0 A / d$	$\epsilon_0 = 8.854 \times 10^{-12} \text{ F/m}$
Parallel	$C = C_1 + C_2 + \dots$	F
Series	$1/C = 1/C_1 + 1/C_2 + \dots$	F
Charge	$Q = CV$	coulombs
Energy	$E = \frac{1}{2}CV^2$	joules
Time constant	$\tau = RC$	seconds
Reactance	$X_c = 1/(2\pi fC)$	ohms

Notes