

CAPACITANCE

$$C = \frac{\text{AREA}}{\text{THICK}} \times \text{PLATE DIELECTRIC MATERIAL}$$

$$C = \frac{Q}{V} \quad \text{farad} = \frac{\text{Coulomb}}{\text{Volt}}$$

CAPACITANCE IS INV. PROP. TO THICK

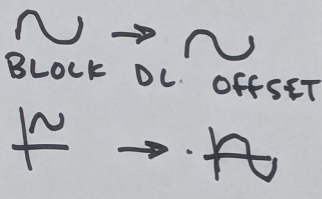
SERIES:

$$C_T = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2}} = \frac{C_1 C_2}{C_1 + C_2}$$

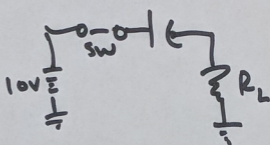
PARALLEL:

$$C_T = C_1 + C_2$$

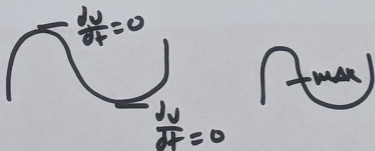
AC COUPLING



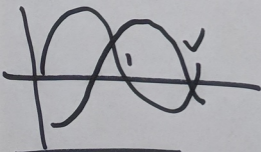
DC ISOLATION



$$I_C = C \frac{dV}{dt}$$



CURRENT OF CAPACITOR + 90° PHASE LAG VOLTAGE



CAP. REACTANCE

$$X_C = \frac{V_{RMS}}{I_{RMS}}$$

$$X_C = \frac{1}{2\pi f C}$$

freq. \downarrow farads

$$X_C = (2\pi f C)^{-1}$$

$$I_C = \frac{V_S}{X_C}$$

SERIES: $X_C = X_{C1} + X_{C2} + X_{C3} \dots$

PARALLEL: $\frac{1}{X_C} = \frac{1}{X_{C1}} + \frac{1}{X_{C2}} \dots$