

Electronics

Capacitors

Problem 1.- A $6\mu\text{F}$ capacitor is connected in series with a $12\mu\text{F}$ capacitor. When a 5-volt potential difference is applied across this combination, the total energy stored in the two capacitors is?

Solution: The equivalent capacitance is:

$$C = \frac{1}{\frac{1}{6\mu\text{F}} + \frac{1}{12\mu\text{F}}} = 4\mu\text{F} ,$$

And the energy is:

$$\frac{1}{2}CV^2 = \frac{1}{2}4\mu\text{F}(5\text{V})^2 = \mathbf{50 \mu\text{J}}$$