

How to calculate capacitance of a capacitor?

The following formulas and equations can be used to calculate the capacitance and related quantities of different shapes of capacitors as follow. The capacitance is the amount of charge stored in a capacitor per volt of potential between its plates. Capacitance can be calculated when charge Q & voltage V of the capacitor are known: $C = Q/V$

How do you calculate the charge of a capacitor?

$C = Q/V$ If capacitance C and voltage V is known then the charge Q can be calculated by: $Q = C V$ And you can calculate the voltage of the capacitor if the other two quantities (Q & C) are known: $V = Q/C$ Where Reactance is the opposition of capacitor to Alternating current AC which depends on its frequency and is measured in Ohm like resistance.

How do you calculate the voltage of a capacitor?

$Q = C V$ And you can calculate the voltage of the capacitor if the other two quantities (Q & C) are known: $V = Q/C$ Where Reactance is the opposition of capacitor to Alternating current AC which depends on its frequency and is measured in Ohm like resistance. Capacitive reactance is calculated using: Where

How do you calculate capacitor power in Watts?

Capacitor power, P_c (W) in watts is calculated by the product of current running through the capacitor, I_c (A) in amperes and voltage running through the capacitor, V_c (V) in volts. Capacitor power, P_c (W) = I_c (A) * V_c (V) P_c (W) = capacitor power in watts, W . V_c (V) = voltage in volts, V . I_c (A) = current in amperes, A .

How to calculate capacitor size for a motor?

PF = Power factor (decimal). Let's calculate the required capacitor size for a motor with the following specifications: Step-by-Step Calculation: Result: A capacitor of approximately 12.02 μ F is required. Check the motor's power, voltage, and required power factor. Use the formula or an online capacitor sizing calculator.

How do you find the average power of a capacitor?

The Average power of the capacitor is given by: $P_{av} = CV^2 / 2t$ where t is the time in seconds. When a capacitor is being charged through a resistor R , it takes upto 5 time constant or $5T$ to reach upto its full charge. The voltage at any specific time can be found using these charging and discharging formulas below:

E (J) = Capacitor Energy in Joules. C (F) = Capacitance in Farads. V (C) = Voltage in Coulomb. Capacitor Energy Calculation: 1) Calculate the Capacitor Energy and given for Capacitance = 100F, Voltage = 30C. Answer. $E = \frac{1}{2} * C * V^2$. $E = 0.5 * 100 * 30^2$. $E = 45000J$. 2) Calculate the Voltage and given for Capacitance = 100F, Capacitor Energy ...

