Capacitor added to the battery

Can a capacitor charge a battery?
Well...only until their potentials meet in the middle. Crazy Buddy's answer and related comments have made the point that you could indeed use a capacitor to charge a battery,but the amount of energy stored in capacitors is generally less than in batteries so it wouldn't charge the battery very much.

What happens if you put a capacitor on a battery?
This will happen because there is no resistance between the capacitor and the battery, so the variation of current by time will be infinite. Obviously, this is true when talking about ideal components and non-realistic circuits. I thought that doing it in real life would cause sparks, damaged components, explosions, or whatever.

What happens when a battery terminal is connected to a capacitor?
When battery terminals are connected to an initially uncharged capacitor, the battery potential moves a small amount of charge of magnitude Q from the positive plate to the negative plate. The capacitor remains neutral overall, but with charges + Q and - Q residing on opposite plates.

What happens if an uncharged capacitor is connected directly to a battery?
In my understanding,theoretically,when an uncharged capacitor is connected directly to a battery of,let's say,9 volts,instantly the capacitor will be charged and its voltage will also become 9V. This will happen because there is no resistance between the capacitor and the battery,so the variation of current by time will be infinite.

Does a capacitor help stabilize voltage?
The effective internal series resistance of a normal capacitor is much greater than the effective internal resistance of an automotive battery in good condition. That means that the capacitor will not help stabilize the voltage. But if the battery is an older second battery powering a high powered sound system then there may be a benefit.

Should I use a battery or a capacitor?
It depends on the expected lifetime you need. If you are going to have more than tens of thousands of power fail events, then capacitors would assure you of a longer life, useful if it was an unattended situation like a remote island. However a battery would be so much smaller, cheaper and easier to use, that's the way I would go.

All you need to charge a battery from a capacitor is to have more voltage charged on the capacitor than the voltage of the battery. The size will only affect how ...

Initially, a capacitor with capacitance (C_0) when there is air between its plates is charged by a battery to voltage (V_0). When the capacitor is fully charged, the battery is disconnected. A charge (Q_0) then resides on the plates, and the ...

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As you correctly observed, the electric field stays the same in the capacitor after insertion of the dielectric because the applied voltage is constant. This is accomplished by the increase in positive and negative areal charge on the plates of the capacitor which is provided by the battery. Before the insertion there is a vacuum between the ...

So here we have a 9V battery and two capacitors with a total capacitance of 230uF. As this is parallel, this wire is 9V and this is 0V so both capacitors are charged to 9V. Therefore 0.00023 F multiplied by 9V = 0.00207 coulombs. And, with the three capacitors, we have 330uF (0.00033 F) multiplied by 9V = 0.00297 coulombs. We can also calculate the ...

Initially, a capacitor with capacitance (C_0) when there is air between its plates is charged by a battery to voltage (V_0). When the capacitor is fully charged, the battery is disconnected. A charge (Q_0) then resides on the plates, and the potential difference between the plates is measured to be (V_0). Now, suppose we insert a ...

Capacitor connected to battery. A second capacitor is then added to the first one in parallel. As the second capacitor is added, what happens to the charge on the first capacitor? ~select- As the two capacitors remain connected, the plates of the ...

Batteries are good at providing a small amount of charge for a long time, so charge is transferred slowly from a battery to a capacitor. The capacitor is discharged quickly through a flash bulb, lighting the bulb brightly for a short time. If the distance between the plates of a capacitor is changed, the capacitance is changed. For a charged ...

In my understanding, theoretically, when an uncharged capacitor is connected directly to a battery of, let"s say, 9 volts, instantly the capacitor will be charged and its voltage will also become 9V. This will happen ...

When battery terminals are connected to an initially uncharged capacitor, equal amounts of positive and negative charge, +Q + Q and -Q - Q, are separated into its two plates. The capacitor remains neutral overall, but we refer to it as storing a charge Q Q in this circumstance.

The effective internal series resistance of a normal capacitor is much greater than the effective internal resistance of an automotive battery in good condition. That means that the capacitor will not help stabilize the voltage. But if the battery is an older second battery powering a high powered sound system then there may be a benefit. But ...

In summary, batteries and capacitors serve unique roles in electronics, with batteries providing sustained energy and capacitors delivering quick bursts. The choice between them depends on your needs: batteries for long-term power and capacitors for rapid energy. Understanding these differences can help you make informed decisions in technology applications.

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I have a battery powered device (motion sensor) CR2032 or CR2477. I have consulted the sample designs and found that there is usually a capacitor with a value from 220uF to 330uF in parallel with the battery. What is the effect of this capacitor other than ripple voltage flattening? Is it related to the RC charging and discharging circuit?

The effective internal series resistance of a normal capacitor is much greater than the effective internal resistance of an automotive battery in good condition. That means ...

During batteries" charging and discharging, the ions tend to flow back-and-forth between the anode and cathode. While this ion transfer process occurs, the battery gets heated up, expands, and then contracts. These reactions gradually degrade a battery, resulting in a reduced lifespan of batteries. However, a significant advantage of battery ...

If your operating power is 12 V * 8 A = 96 watts, and you want to run for 20 s, you need to be able to deliver 20x96 = 1920 J, which is a huge ...

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