

# Schematic diagram of the principle of lithium iron energy storage power supply

What are the components of a lithium ion battery?

A lithium-ion battery has several important components that enable lithium ions to flow through the system. Lithium-rich cathode active materials, such as lithium iron phosphate and lithium cobalt oxide, supply the lithium ions. Anode active materials typically have a low voltage (electrochemical potential vs  $\text{Li/Li}^+$ ) and high capacity.

What is a lithium ion battery used for?

Learn more... Lithium-ion (Li-ion) batteries, developed in 1976, have become the most commonly used type of battery. They are used to power devices from phones and laptops to electric vehicles and solar energy storage systems. Read more...

How does a lithium battery work?

At the same time, lithium undergoes oxidation at the anode and lithium ions flow back to the cathode material, through the electrolyte. Once all the lithium ions are intercalated with the cathode, the battery requires charging to be used again.

How does a lithium ion flow through a cathode?

When discharging, electrons flow from the anode through a circuit, providing electrical power to the device, and return to the cathode. At the same time, lithium undergoes oxidation at the anode and lithium ions flow back to the cathode material, through the electrolyte.

How does a Lithium Ion Separator prolong the life of a battery?

This prolongs the battery lifetime. An uneven distribution of lithium ions moving through the separators can cause a spike like formation, creating a risk of penetration and short circuiting. By maintaining a uniform ion distribution, the dendrite growth can remain evenly distributed to prolong the life of the battery.

Why do lithium ions flow from cathode to anode?

During charging, lithium ions flow away from the cathode to the anode due to a potential difference between the two electrodes.  $\text{Li}^+$  ions are driven through the electrolyte to the anode where the electrons are accumulating, via an external circuit. The simultaneous accumulation of  $\text{Li}^+$  ions and electrons at the anode enables charge storage.



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