
Ioxus Hybrid Capacitor FAQs

- **What is an Ioxus hybrid capacitor?**

A) Ioxus Hybrid Capacitors are similar to lithium ion batteries, except they store charge at the surface of the electrodes instead of within the electrodes. Hybrid capacitors store 85 to 115 percent more energy than an ultracapacitor, while retaining a high cycle life in comparison to a battery. Hybrid capacitors have more power than lithium ion batteries, but less energy storage.

- **To what voltage can the hybrid capacitors be charged?**

A) Ioxus Hybrid Capacitors can be charged from 1.0 VDC up to 2.3 VDC.

- **What is the temperature range of a hybrid capacitor?**

A) Storage: -30°C to +65°C
B) Operation: -25°C to +60°C

- **How much energy is lost in a hybrid capacitor at -25°C use?**

A) Approximately 5 percent, compared to a battery's energy loss of more than 50 percent.

- **Can I replace battery XYZ with hybrid capacitors?**

A) Usually no, but there are certain applications such as LED lighting which can be powered by hybrid capacitors without a battery. The use of high-efficiency DC-DC converters can greatly extend the working voltage range for increased energy extraction from cells while providing a regulated output.

- **What is the cycle life of a hybrid capacitor?**

A) Hybrid capacitors offer more than 20,000 charge/discharge cycles, compared to hundreds to low-thousands of a battery.

- **What power can a hybrid capacitor deliver?**

A) Ioxus hybrid capacitors offer two to three times the power over typical batteries with a maximum power of up to 5kW/kg, compared to up to 3kW/kg for the leading "power batteries."

- **How efficient is a hybrid capacitor for storing and delivering power?**

A) Ioxus hybrid capacitors are 95 percent efficient compared to batteries, which are approximately 70 percent efficient.

- **In what areas can hybrid capacitors be used in automotive applications?**

A) Ioxus hybrid capacitors can be used for short-term back-up power for memory and power windows. When disconnecting the battery, the computer loses power. If a hybrid capacitor is used, the computer will retain its power. This can be performed many times due to the high cycle life of the hybrid capacitor.

B) For power windows or door locks, in the event of an emergency, the hybrid capacitor can provide power to unlock the doors or lower the windows when the rest of the electrical system has been compromised.

- **Can hybrid capacitors be recharged quickly?**

A) Yes. Ioxus hybrid-capacitors can be recharged as quickly as they can be discharged, allowing for a rapid charge to support a high power demand. In hybrid capacitors, you can charge with up to 8 amps, depending on the cell size.