

TAIYO YUDEN Supercapacitors Ensure Uninterrupted Power in Server Applications Devices

In today's hyper-connected world, transmitting and receiving information between different locations has become commonplace. The internet has provided access to unlimited streams of information accessible on mobile phones, personal computers, gaming consoles, wearables, and more. An annual report published by Cisco Systems predicts that about two-thirds of the global population will have internet connectivity by 2023. Moreover, the number of internet-enabled devices is set to triple within the same period.

The Role of Servers in IT Infrastructure

Servers are an integral part of IT infrastructure across the globe. These are computers that relay information to computers at other locations via local area networks (LANs) and wide area networks (WANs). Servers are housed within data centers, dedicated buildings that house computers, storage components, and telecom equipment. There are many types of servers for different functions, such as mail servers for handling mail communications, file servers used for file storage and distribution, and Web servers used for displaying website content on the World Wide Web.

The Need for Uninterrupted Power in Data Centers

A constant power supply is a critical requirement in data centers to keep servers functional round the clock. Servers consist of complex electronic systems needed for the processing, storage, and transmission of massive volumes of data in real-time. Even a few seconds of a brownout or total blackout can cause files to become corrupted. Initial power spikes from switching to emergency generators may result in equipment malfunction. Portable energy storage, such



as backup batteries and supercapacitors, helps keep servers running for brief periods in the event of power failures, interruptions, or poor power quality.

Portable energy storage devices provide critical backup power for server systems during power outages or disasters, preventing a total loss of data. Supercapacitors have several advantages over primary batteries. They provide high-density power which helps to meet the ever-growing energy demands of data-intensive computing hardware. Moreover, they avoid many of the limitations affecting batteries. For example, they have no thermal runaway risk due to higher operating temperatures and have minimal degradation over thousands of charge/discharge cycles. Additionally, supercapacitor cells can be combined in modules to increase the overall capacitance and paired with existing batteries to ensure the highest uptime.

TAIYO YUDEN Power Solutions for Server Applications

TAIYO YUDEN's RS, RH, and RL series lithium-ion (hybrid) supercaps are ideal for providing bridge power in servers to prevent costly downtime on operations. The lithium-ion technology utilized in RS, RH and RL supercaps offers several benefits over electric double-layer capacitor (EDLC) types including lower cell counts, higher capacitances, and greater reliability at high temperatures with low self-discharge. The RS (standard) supercapacitors offer capacitances ranging from 20 to 270 F with operating temperatures from -30°C to +85°C. The RH (high-temperature) series offers an even wider operating temperature range with excellent stability from -30°C up to +105°C. The RL (low-temperature) series supports operating temperature from -40°C to +85°C.