

APPLICATION BRIEF

Situation

Cloud computing, internet connectivity, and artificial intelligence are key drivers in the modern world for development. Data centers are the primary infrastructure for these innovations. As these technologies develop, the power required by these data centers will also increase. To meet their growing power demands, supporting infrastructure has to be developed. One of these supporting structures is the Battery Energy Storage System (BESS). The BESS acts as the intermediary between the electrical grid and data centers. It stores and delivers energy to the data center whenever there are grid fluctuations or outages. A BESS is fundamental to maintaining uptime of data centers.

These systems require robust protection against overvoltage and overcurrent events within the power supply. Without adequate circuit protection, preventable surges can damage sensitive, mission-critical components or propagate downstream to data center servers. In this app brief, Bourns, a leading component manufacturer, will discuss the application and benefits of Bourns components within a BESS data center application.

Solution

IsoMOV® Hybrid Protection Components are Bourns' solution to general power protection. They are a combination of Metal Oxide Varistors (MOVs) and Gas Discharge Tubes (GDTs), providing the overvoltage protection characteristics of both devices with the benefits of both technologies.

POWrFuse™ High-Power Fuses ensure that if any faults occur, damage is isolated to the fuse and does not propagate through the connected systems. BESS devices employ a fuse to minimize damage and simplify repairs.

Resistors are as flexible as they are reliable. Bourns highlights two use cases within the front end of a BESS system: current sensing shunts and voltage dividers.

Benefits

Enhanced Surge Protection

IsoMOV® Hybrid Protection Components combine the fast response of MOVs with the robustness of GDTs, offering superior protection against transient overvoltage events and minimizing wear over time.

Improved System Reliability

POWrFuse™ High-Power Fuses localize damage during fault conditions, preventing widespread system failure and reducing downtime.

Precision Monitoring

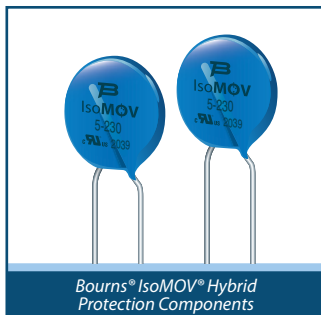
Bourns® Resistors enable accurate current and voltage sensing, allowing BESS systems to detect and respond to irregular power conditions effectively.

Cost-Effective Maintenance

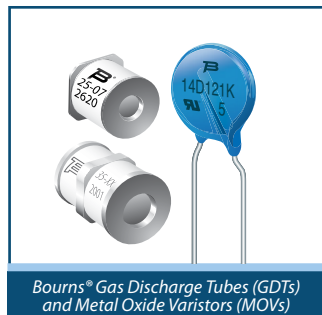
Using fuses as sacrificial components simplifies repairs and lowers replacement costs, making BESS systems more economical over their lifecycle.

Trusted Quality

Bourns' high-performance circuit protection components deliver long-term durability and compliance with industry standards.



Bourns® IsoMOV® Hybrid Protection Components



Bourns® Gas Discharge Tubes (GDTs) and Metal Oxide Varistors (MOVs)



Bourns® POWrFuse™ High-Power Fuses



Bourns® Resistors

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