CODACA Developed High Current Power Inductors for Energy Storage Industry to Assist Environmental Sustainable Development

Due to the global energy crisis, many countries have released environmental policies to assist sustainable environmental development, as well as drive new energy development. As the new energy revolution's key technology, the demand for energy storage is proliferating.
In recent years, the market of photo-voltaic energy storage, outdoor portable energy storage power supply, new energy vehicle charging piles, and other markets have grown rapidly but also drive the rapid development and layout of upstream component enterprises in the industry.

In simple terms, energy storage is the ability to capture energy at one time for use at a later time. It can be established in all three stages: production of electricity (power plants, power stations) - transmission of electricity (grid companies) - use of electricity (users). As one of the basic electronic components, inductors are used in a wide range of applications and are also used in devices involving voltage and current conversion. Therefore, what opportunities do energy storage products bring to inductors companies? What is the market demand for inductors in the energy storage industry?

Main Applications of Energy Storage Industry

Power systems, new energy vehicles, domestic sectors and data centers are the most popular in the energy storage industry, which has huge potential in the market now and brings more opportunities for the related product:

1. Power Conversion System

The power conversion system is a device connected between the energy storage batteries and the grids, which realizes bi-directional conversion of electricity. It mainly consists of DC/AC bi-directional converters, control units, etc. Not only can it convert the DC from the energy storage batteries to AC transmitting to the grids, but converts the AC from the grids to DC charging the energy storage system. As an indispensable magnetic component for power conversion systems, power inductors play an important role in circuit design.

2. Charging Stations for New Energy Vehicles

Under the trend of developing green environment and low carbon industry, the rapid growth of new energy vehicles has stimulated the demand for charging stations. At present, the technology level of companies related to charging stations has been greatly enhanced. As an essential part of charging stations, power inductors are widely used in DC/DC converters, DC charging stations, power modules, and charging devices, bringing about a bright future.

3. Portable Energy Storage Devices

Portable energy storage devices are designed with built-in high-density lithium-ion batteries to provide stable AC/DC power system, mainly used in outdoor leisure activities, emergency rescue and other fields, with the advantages of safety, portability, stability, environmental protection, etc. Portable energy storage combines the functions of power bank and generator, so it is also a substitute for small oil-fired generator. Now with the popularity of portable energy storage equipment, the demand for compact high-current inductors has also increased.

4. Data Center Energy Storage System

In order to further enhance the stability and reliability of power supply in the data center, more and more energy storage systems are applied in the digital center, it can optimize the power supply structure, improve the capacity and standby time of emergency power supply to achieve the high reliability of power supply. In addition, the energy storage system can also achieve energy conservation, low carbon and environmental protection through peak shaving and valley filling, capacity allocation and other mechanisms. The development of data center energy storage system has also brought huge market demand for super high current power inductor products.

Market Demands for Inductors in Energy Storage Industry

Currently, the energy storage field is still dominated by industrial and commercial energy storage applications, and high power magnetic components are the major requirements. For the inductor, it must withstand higher voltage and peak current, so it requires higher isolation voltage, heat dissipation performance and lower power loss. Meanwhile, in order to save space and comply with the integration trend of equipment, small size and high current will be the mainstream trend for inductors in the energy storage industry.

1. Good Pressure Resistance and Heat Dissipation

With the increasing operating frequency and current in the energy storage system, there are higher requirements for voltage resistance and heat dissipation of power inductors. In order to improve the voltage resistance of the inductor, it is necessary to use a flat winding wire with high voltage resistance, and at the same time choose a better magnetic core material.

CODACA has introduced the CPEX series for energy storage applications. It's designed with the flat wire and the magnetic powder core to improve the voltage resistance, and the saturation currents up to 300 Amps, features extremely low DC resistance and core losses, provides stable inductance and DC bias, and achieves continuous work stability over high current applications.

2. Low Power Loss

Power inductors and transformers account for a large proportion of the power loss of the energy storage system. Among them, the inductor loss mainly includes copper loss and core loss; The copper loss depends on the coil material , while the core loss depends on the magnetic core material. CODACA has developed the high current power inductors for the energy storage system which are designed with low loss magnetic power core, providing excellent soft characteristics and electromagnetic interference resistance ability.

3. Compact Design

Miniaturization and lightweight of electronic equipment is the development trend of the market, and also the direction of the development of magnetic components technology, aiming at saving equipment space and improving power density.
CODACA's CSBX, CSCM, and CPRX compact high current inductors developed for the energy storage industry, which can minimize the packaging size, it reduces the PCB space by 30% relative to the toroidal Inductors.

4. Customization Inductors

Different energy storage areas will have various requirements for inductors, so customers need to customize according to specific applications, special requirements budgets, etc. Therefore, the inductor manufacturers' technical support, R&D, and customization capabilities are crucial.

CODACA Offers Kinds of Inductors Solutions for Energy Storage Industry

CODACA has focused on manufacturing and developing inductors for more than 22 years, leading the industry trend and providing inductor solutions to meet different needs from end user.
CODACA has developed series of high current power inductors, such as CPEX , CPRX, CPFL, CPEA, and CPEH family, which can meet the application requirements of various scenarios such as DC-DC converters and DC charging piles in different power bands.

CODACA has an experienced R&D team and research and development of core magnetic materials, which can meet the customized requirements of different energy storage users for inductors, the standard products in stock can be delivery within 48hours.
Whats more , CODACA test center certificate by CNAS, and all products have passed rigorous tests before being launched to ensure that the products can still operate safely, reliably and stably in complex environments such as high frequency and high temperature.

In the following decades, CODACA will continue to focus on new energy and energy storage markets, providing customers with high-efficiency and high performance inductors. CODACA will also make our contribution to protect the earth with low-carbon actions.
For more information or samples, please visit www.codaca.com