

Solid-State Battery Market by Type (Single-cell, Multi-cell), Capacity (Below 20 mAh, 20–500 mAh, Above 500 mAh), Battery Type (Primary, Secondary), Application (Consumer Electronics, Electric Vehicles, Medical Devices), Region - Global Forecast to 2030

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Abstracts

The global solid-state battery market size is expected to grow from USD 85 million in 2023 to USD 963 million by 2030, at a CAGR of 41.5% from 2023 to 2030. Electric vehicles require batteries that are better than conventional batteries in terms of energy density and safety. This has led to a rise in the demand for solid-state batteries in electric vehicles. Solid-state batteries use solid electrolytes, which are safe for use owing to the lack of flammable materials in them. They eliminate the requirement of cooling and can increase their energy density. Solid-state batteries can offer high energy and have extended shelf life.

“Primary battery segment is projected to grow at significant CAGR during the forecast period.”

Primary solid-state batteries find applications in smart consumer devices, medical devices such as skin patches, and wireless sensors used in several IoT devices. In addition, there is a growing demand for such batteries owing to the growing trend of the Internet of Things (IoT), 5G telecommunications, and artificial intelligence (AI) across industries such as consumer electronics and healthcare. These applications are expected to drive the demand for primary batteries from 2023 to 2030.

“Below 20 mAh capacity segment is projected to grow at an impressive CAGR during the forecast period.”

Below 20 mAh batteries are designed to deliver relatively low energy output, making them suitable for applications that require minimal power consumption. Solid-state batteries below 20 mAh are tailored explicitly for low-power applications, such as packaging applications like RFID tags and smart labels, smart cards, and medical or cosmetic patches. These devices require compact, low-power batteries that fit within their limited space. The increasing adoption of compact batteries in various applications is expected to drive the growth of the below 20 mAh segment.

'Wireless Sensors application is expected to hold a significant market share during the forecast period.'

Wireless devices such as wireless speakers, mice, keyboards, Bluetooth headsets, wireless handheld devices, wireless sensors, and the Internet of Things (IoT) devices have gained immense popularity over the past decade. These devices have limited internal space; hence, the power source has always been a factor of concern for the manufacturers. The advantage of the solid-state battery is their compact size and high energy density, which makes them easy to integrate into wireless sensors. In addition to this, manufacturers also stack these batteries one over the other to increase the voltage range. As such, the market for wireless sensors is expected to grow significantly.

'The market in Europe is expected to grow at a significant CAGR during the forecast period.'

Major applications of the solid-state battery market in Europe include packaging, consumer electronics, electric vehicles, and medical devices. The packaging industry in Europe is witnessing a shift toward more visibility and intensive data collection for the manufacturers, as well as more hygiene and convenience for the end users. This drives the manufacturers to use displays, RFID tags, and smart labels in their packages, wherein the compact battery is integrated as a power source. The European Commission has extended its support to technologies such as the Internet of Things (IoT) and cloud computing in wireless applications, which demand thin and flexible power sources. These requirements are expected to increase the demand for solid-state batteries in Europe.

Breakdown of the profiles of primary participants:

By Company Type: Tier 1 - 40%, Tier 2 - 35%, and Tier 3 - 25%

By Designation: C-level Executives - 45%, Directors - 35%, and Others - 20%

By Region: North America - 40%, Europe - 20%, Asia Pacific - 30%, and RoW – 10%

Major players profiled in this report are as follows: Blue Solutions (France), Ilika (UK), Solid Power (US), QuantumScape (US), ProLogium Technology Co., Ltd. (Taiwan), BrightVolt (US), Excellatron (US), Sakuu Corporation (US), and Hitachi Zosen Corporation (Japan) and others.

Research Coverage

The solid-state battery market has been classified by component, type, capacity, battery type, application, and region. The market by component has been classified into cathode, anode, solid electrolytes, and others. By type, the market has been segmented into single-cell battery and multi-cell battery. The capacity segment market is divided into below 20 mAh, 20 mAh-500 mAh, and above 500 mAh. The market has been divided into primary and secondary batteries by battery type segment. Furthermore, the application segment includes consumer electronics, electric vehicles, medical devices, energy harvesting, wireless sensors, packaging, and others. The study also forecasts the market size in four key regions—North America, Europe, Asia Pacific, and RoW.

Key Benefits of Buying the Report:

The report provides insights on the following pointers:

Analysis of key drivers (Rising research & development activities to overcome solid-state battery limitations, Longer shelf life over traditional batteries, Rising demand for miniaturized electronic devices), restraints (Complex manufacturing processes), opportunities (Rising investments by solid-state battery companies, Rising demand for electric vehicles, Rising healthcare investment), and challenges (High cost of fabrication of cells) influencing the growth of the solid-state battery market

Product Development/Innovation: Detailed insights on new products, technologies, research & development activities, funding activities, industry partnerships, and new product launches in the solid-state battery market

Market Development: Comprehensive information about lucrative markets – the report analyses the solid-state battery market across regions such as North America, Europe, Asia Pacific, Middle East & Africa, and South America.

Market Diversification: Exhaustive information about new products & technologies, untapped geographies, recent developments, and investments in the solid-state battery market

Competitive Assessment: In-depth assessment of the market position, growth strategies, and product offerings of leading players like Blue Solutions (France), QuantumScape (US), ProLogium Technology Co, Ltd. (Taiwan), Hitachi Zosen Corporation (Japan), among others in the solid-state battery market

Strategies: The report also helps stakeholders understand the pulse of the solid-state battery market and provides information on key market drivers, restraints, challenges, and opportunities.

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*Details on Business Overview, Products/Solutions/Services offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.

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