

Solid-State Battery for Automotive Market Forecasts to 2034 – Global Analysis By Battery Type (Thin-Film Solid-State Batteries, Bulk Solid-State Batteries, and Hybrid Solid-State Batteries), Electrolyte Type, Capacity, Vehicle Type, Application, Distribution Channel and By Geography

<https://marketpublishers.com/r/S1A159677038EN.html>

Date: July 2026

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: S1A159677038EN

Abstracts

According to Statistics MRC, the Global Solid-State Battery for Automotive is accounted for \$0.8 billion in 2026 and is expected to reach \$18.4 billion by 2034, growing at a CAGR of 48.3% during the forecast period. Solid-State Battery for Automotive is an advanced energy storage technology that replaces the liquid or gel electrolyte found in conventional lithium-ion batteries with a solid electrolyte material. This innovative design offers significant advantages including higher energy density, faster charging capabilities, improved safety, and longer cycle life. As automotive manufacturers race to develop next-generation EVs, solid-state battery technology has emerged as a critical enabler for mass market electric mobility.

Market Dynamics:

Driver:

Growing demand for safer, high-energy-density EV batteries

The increasing consumer demand for electric vehicles with longer driving ranges and enhanced safety is a primary driver for the solid-state battery market. Solid-state batteries offer significantly higher energy density compared to conventional lithium-ion batteries, enabling EVs to achieve extended ranges without increasing battery pack

size. The elimination of flammable liquid electrolytes enhances safety by reducing the risk of thermal runaway and fires. As automakers seek to address range anxiety and safety concerns, solid-state batteries have become a strategic priority. The technology's potential to reduce charging times further enhances its appeal, making it a key enabler for mass EV adoption.

Restraint:

High manufacturing costs and production scalability challenges

The commercialization of solid-state batteries faces significant challenges related to high manufacturing costs and production scalability. The materials used in solid-state batteries, particularly advanced solid electrolytes, are expensive and require complex synthesis processes. Manufacturing techniques such as thin-film deposition and high-temperature sintering are cost-intensive and difficult to scale for mass production. Achieving consistent quality and performance across large production volumes remains a significant hurdle. Additionally, the establishment of specialized production facilities requires substantial capital investment. These cost and scalability barriers currently limit solid-state batteries to premium applications and delay their widespread adoption in mainstream electric vehicles.

Opportunity:

Expansion of electric vehicle market and government support

The rapid expansion of the global electric vehicle market, coupled with strong government support for advanced battery technologies, presents a substantial opportunity for solid-state batteries. Governments worldwide are investing heavily in battery research and development, offering subsidies and incentives for next-generation battery technologies. The increasing number of EV models and growing consumer acceptance create a favorable market environment for solid-state battery adoption. Automakers are forming strategic partnerships with solid-state battery developers to secure future supply and accelerate commercialization. As EV production scales and battery technology advances, solid-state batteries are positioned to capture significant market share in the coming decade.

Threat:

Competition from alternative battery technologies

Solid-state batteries face intense competition from other advanced battery technologies, including lithium-sulfur batteries, advanced lithium-ion batteries, and sodium-ion batteries. These alternative technologies are also undergoing rapid development and offer competitive advantages such as lower costs, established supply chains, or superior performance in specific applications. Lithium-ion batteries continue to improve through incremental innovations, potentially narrowing the performance gap with solid-state batteries. The high investment required for solid-state battery commercialization creates risk if alternative technologies achieve commercial viability sooner or at lower cost. This competitive landscape demands strategic focus and continuous innovation to maintain market relevance.

Covid-19 Impact:

The COVID-19 pandemic initially disrupted the solid-state battery market due to factory shutdowns, supply chain disruptions, and reduced automotive production. However, the crisis also accelerated the focus on sustainable mobility and clean energy technologies. Governments incorporated battery technology investments into economic recovery packages, providing additional funding for solid-state battery research and development. The pandemic highlighted the importance of battery supply chain resilience and the need for advanced energy storage solutions. As the automotive industry recovers and EV adoption accelerates, the solid-state battery market is experiencing renewed momentum, with increased investment and strategic partnerships driving commercialization efforts.

The bulk solid-state segment is expected to be the largest during the forecast period

The bulk solid-state segment is expected to account for the largest market share during the forecast period, driven by their higher energy density and scalability compared to thin-film batteries, making them suitable for automotive propulsion applications. Bulk solid-state batteries utilize thick solid electrolyte layers and are manufactured using scalable processes that can be adapted from conventional battery production. Their ability to deliver high capacity and power output addresses the requirements of electric vehicles for extended range and performance.

The sulfide-based electrolytes segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the sulfide-based electrolytes segment is predicted to witness

the highest growth rate, fueled by the superior ionic conductivity and favorable mechanical properties of sulfide-based solid electrolytes, which approach the performance of liquid electrolytes. Sulfide electrolytes enable faster charging and better low-temperature performance, addressing key consumer concerns about EV usability. Their compatibility with conventional electrode materials simplifies manufacturing integration.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, attributed to the presence of leading battery manufacturers, automotive OEMs, and extensive government support for battery innovation across countries like Japan, South Korea, and China. The region's well-established battery supply chains and significant investments in solid-state battery research and development position it as the global leader. Japan's aggressive solid-state battery roadmap, South Korea's battery manufacturing capabilities, and China's EV market leadership collectively contribute to the region's market dominance.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, fueled by the region's rapid EV adoption, substantial government funding for battery technology, and the presence of key solid-state battery developers. Japan, South Korea, and China are making significant investments in solid-state battery commercialization, with multiple companies targeting production within the next few years. The region's automotive manufacturing scale and battery expertise, combined with supportive policies promoting advanced battery technologies, will drive exceptional growth in the solid-state battery market.

Key players in the market

Some of the key players in Solid-State Battery for Automotive Market include Toyota Motor Corporation, QuantumScape Corporation, Solid Power, Inc., Samsung SDI Co., Ltd., LG Energy Solution Ltd., Contemporary Amperex Technology Co., Limited, Panasonic Holdings Corporation, ProLogium Technology Co., Ltd., Factorial Energy, Inc., BYD Company Ltd., Nissan Motor Co., Ltd., SK On Co., Ltd., Hitachi Zosen Corporation, Ilika plc, and Ganfeng Lithium Group Co., Ltd.

Key Developments:

In March 2026, QuantumScape Corporation announced a strategic partnership with a major automotive manufacturer for the development and production of solid-state batteries for premium electric vehicles. The collaboration aims to accelerate the commercialization of QuantumScape's innovative solid-state battery technology, leveraging the automaker's manufacturing expertise and supply chain capabilities to achieve production scale and market introduction.

In February 2026, Toyota Motor Corporation announced a breakthrough in solid-state battery technology, achieving a significant increase in energy density and cycle life. The company confirmed plans to introduce solid-state batteries in production vehicles by 2028, positioning itself as a leader in next-generation battery technology.

Battery Types Covered:

Thin-Film Solid-State Batteries

Bulk Solid-State Batteries

Hybrid Solid-State Batteries

Electrolyte Types Covered:

Sulfide-Based Electrolytes

Oxide-Based Electrolytes

Polymer-Based Electrolytes

Composite Electrolytes

Capacities Covered:

Below 20 kWh

20–50 kWh

50–100 kWh

Above 100 kWh

Vehicle Types Covered:

Passenger Cars

Commercial Vehicles

Buses and Coaches

Two-Wheelers

Three-Wheelers

Off-Highway Vehicles

Applications Covered:

Power Batteries for EV Propulsion

Auxiliary Automotive Batteries

High-Performance Automotive Applications

Autonomous and Connected Vehicle Systems

Distribution Channels Covered:

Original Equipment Manufacturers (OEMs)

Aftermarket

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

What our report offers:

Market share assessments for the regional and country-level segments

Strategic recommendations for the new entrants

Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)

Strategic recommendations in key business segments based on the market estimations

Competitive landscaping mapping the key common trends

Company profiling with detailed strategies, financials, and recent developments

Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

Contents

1 EXECUTIVE SUMMARY

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL SOLID-STATE BATTERY FOR AUTOMOTIVE MARKET, BY BATTERY TYPE

- 5.1 Thin-Film Solid-State Batteries
- 5.2 Bulk Solid-State Batteries
- 5.3 Hybrid Solid-State Batteries

6 GLOBAL SOLID-STATE BATTERY FOR AUTOMOTIVE MARKET, BY ELECTROLYTE TYPE

- 6.1 Sulfide-Based Electrolytes
- 6.2 Oxide-Based Electrolytes
- 6.3 Polymer-Based Electrolytes
- 6.4 Composite Electrolytes

7 GLOBAL SOLID-STATE BATTERY FOR AUTOMOTIVE MARKET, BY CAPACITY

- 7.1 Below 20 kWh
- 7.2 20–50 kWh
- 7.3 50–100 kWh
- 7.4 Above 100 kWh

8 GLOBAL SOLID-STATE BATTERY FOR AUTOMOTIVE MARKET, BY VEHICLE TYPE

- 8.1 Passenger Cars
- 8.2 Commercial Vehicles
- 8.3 Buses and Coaches
- 8.4 Two-Wheelers
- 8.5 Three-Wheelers
- 8.6 Off-Highway Vehicles

9 GLOBAL SOLID-STATE BATTERY FOR AUTOMOTIVE MARKET, BY APPLICATION

- 9.1 Power Batteries for EV Propulsion
- 9.2 Auxiliary Automotive Batteries
- 9.3 High-Performance Automotive Applications
- 9.4 Autonomous and Connected Vehicle Systems

10 GLOBAL SOLID-STATE BATTERY FOR AUTOMOTIVE MARKET, BY DISTRIBUTION CHANNEL

- 10.1 Original Equipment Manufacturers (OEMs)
- 10.2 Aftermarket

11 GLOBAL SOLID-STATE BATTERY FOR AUTOMOTIVE MARKET, BY GEOGRAPHY

- 11.1 North America
 - 11.1.1 United States
 - 11.1.2 Canada
 - 11.1.3 Mexico
- 11.2 Europe
 - 11.2.1 United Kingdom
 - 11.2.2 Germany
 - 11.2.3 France
 - 11.2.4 Italy
 - 11.2.5 Spain
 - 11.2.6 Netherlands
 - 11.2.7 Belgium
 - 11.2.8 Sweden
 - 11.2.9 Switzerland
 - 11.2.10 Poland
 - 11.2.11 Rest of Europe
- 11.3 Asia Pacific
 - 11.3.1 China
 - 11.3.2 Japan
 - 11.3.3 India
 - 11.3.4 South Korea
 - 11.3.5 Australia
 - 11.3.6 Indonesia
 - 11.3.7 Thailand
 - 11.3.8 Malaysia

- 11.3.9 Singapore
- 11.3.10 Vietnam
- 11.3.11 Rest of Asia Pacific
- 11.4 South America
 - 11.4.1 Brazil
 - 11.4.2 Argentina
 - 11.4.3 Colombia
 - 11.4.4 Chile
 - 11.4.5 Peru
 - 11.4.6 Rest of South America
- 11.5 Rest of the World (RoW)
 - 11.5.1 Middle East
 - 11.5.1.1 Saudi Arabia
 - 11.5.1.2 United Arab Emirates
 - 11.5.1.3 Qatar
 - 11.5.1.4 Israel
 - 11.5.1.5 Rest of Middle East
 - 11.5.2 Africa
 - 11.5.2.1 South Africa
 - 11.5.2.2 Egypt
 - 11.5.2.3 Morocco
 - 11.5.2.4 Rest of Africa

12 STRATEGIC MARKET INTELLIGENCE

- 12.1 Industry Value Network and Supply Chain Assessment
- 12.2 White-Space and Opportunity Mapping
- 12.3 Product Evolution and Market Life Cycle Analysis
- 12.4 Channel, Distributor, and Go-to-Market Assessment

13 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

- 13.1 Mergers and Acquisitions
- 13.2 Partnerships, Alliances, and Joint Ventures
- 13.3 New Product Launches and Certifications
- 13.4 Capacity Expansion and Investments
- 13.5 Other Strategic Initiatives

14 COMPANY PROFILES

- 14.1 Toyota Motor Corporation
- 14.2 QuantumScape Corporation
- 14.3 Solid Power, Inc.
- 14.4 Samsung SDI Co., Ltd.
- 14.5 LG Energy Solution Ltd.
- 14.6 Contemporary Amperex Technology Co., Limited
- 14.7 Panasonic Holdings Corporation
- 14.8 ProLogium Technology Co., Ltd.
- 14.9 Factorial Energy, Inc.
- 14.10 BYD Company Ltd.
- 14.11 Nissan Motor Co., Ltd.
- 14.12 SK On Co., Ltd.
- 14.13 Hitachi Zosen Corporation
- 14.14 Ilika plc
- 14.15 Ganfeng Lithium Group Co., Ltd.

List Of Tables

LIST OF TABLES

Table 1 Global Solid-State Battery for Automotive Market Outlook, By Region (2023-2034) (\$MN)

Table 2 Global Solid-State Battery for Automotive Market Outlook, By Battery Type (2023-2034) (\$MN)

Table 3 Global Solid-State Battery for Automotive Market Outlook, By Thin-Film Solid-State Batteries (2023-2034) (\$MN)

Table 4 Global Solid-State Battery for Automotive Market Outlook, By Bulk Solid-State Batteries (2023-2034) (\$MN)

Table 5 Global Solid-State Battery for Automotive Market Outlook, By Hybrid Solid-State Batteries (2023-2034) (\$MN)

Table 6 Global Solid-State Battery for Automotive Market Outlook, By Electrolyte Type (2023-2034) (\$MN)

Table 7 Global Solid-State Battery for Automotive Market Outlook, By Sulfide-Based Electrolytes (2023-2034) (\$MN)

Table 8 Global Solid-State Battery for Automotive Market Outlook, By Oxide-Based Electrolytes (2023-2034) (\$MN)

Table 9 Global Solid-State Battery for Automotive Market Outlook, By Polymer-Based Electrolytes (2023-2034) (\$MN)

Table 10 Global Solid-State Battery for Automotive Market Outlook, By Composite Electrolytes (2023-2034) (\$MN)

Table 11 Global Solid-State Battery for Automotive Market Outlook, By Capacity (2023-2034) (\$MN)

Table 12 Global Solid-State Battery for Automotive Market Outlook, By Below 20 kWh (2023-2034) (\$MN)

Table 13 Global Solid-State Battery for Automotive Market Outlook, By 20–50 kWh (2023-2034) (\$MN)

Table 14 Global Solid-State Battery for Automotive Market Outlook, By 50–100 kWh (2023-2034) (\$MN)

Table 15 Global Solid-State Battery for Automotive Market Outlook, By Above 100 kWh (2023-2034) (\$MN)

Table 16 Global Solid-State Battery for Automotive Market Outlook, By Vehicle Type (2023-2034) (\$MN)

Table 17 Global Solid-State Battery for Automotive Market Outlook, By Passenger Cars (2023-2034) (\$MN)

Table 18 Global Solid-State Battery for Automotive Market Outlook, By Commercial

Vehicles (2023-2034) (\$MN)

Table 19 Global Solid-State Battery for Automotive Market Outlook, By Buses and Coaches (2023-2034) (\$MN)

Table 20 Global Solid-State Battery for Automotive Market Outlook, By Two-Wheelers (2023-2034) (\$MN)

Table 21 Global Solid-State Battery for Automotive Market Outlook, By Three-Wheelers (2023-2034) (\$MN)

Table 22 Global Solid-State Battery for Automotive Market Outlook, By Off-Highway Vehicles (2023-2034) (\$MN)

Table 23 Global Solid-State Battery for Automotive Market Outlook, By Application (2023-2034) (\$MN)

Table 24 Global Solid-State Battery for Automotive Market Outlook, By Power Batteries for EV Propulsion (2023-2034) (\$MN)

Table 25 Global Solid-State Battery for Automotive Market Outlook, By Auxiliary Automotive Batteries (2023-2034) (\$MN)

Table 26 Global Solid-State Battery for Automotive Market Outlook, By High-Performance Automotive Applications (2023-2034) (\$MN)

Table 27 Global Solid-State Battery for Automotive Market Outlook, By Autonomous and Connected Vehicle Systems (2023-2034) (\$MN)

Table 28 Global Solid-State Battery for Automotive Market Outlook, By Distribution Channel (2023-2034) (\$MN)

Table 29 Global Solid-State Battery for Automotive Market Outlook, By Original Equipment Manufacturers (OEMs) (2023-2034) (\$MN)

Table 30 Global Solid-State Battery for Automotive Market Outlook, By Aftermarket (2023-2034) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) are also represented in the same manner as above.

I would like to order

Product name: Solid-State Battery for Automotive Market Forecasts to 2034 – Global Analysis By Battery Type (Thin-Film Solid-State Batteries, Bulk Solid-State Batteries, and Hybrid Solid-State Batteries), Electrolyte Type, Capacity, Vehicle Type, Application, Distribution Channel and By Geography

Product link: <https://marketpublishers.com/r/S1A159677038EN.html>

Price: US\$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/S1A159677038EN.html>