EV Solid-state Battery Market Size & Share Analysis - Growth Trends and Forecast (2026 - 2031)

> **Industry:** Electric Vehicles & Clean Mobility (Automotive & Transportation)

> **Source:** https://www.mordorintelligence.com/industry-reports/ev-solid-state-battery-market
> **Scraped Date:** 2026-09-17

Executive Market Summary

Market Metric	Details
Base Market Size	USD 372.09 million
Projected Forecast (2031)	USD 372.09 million
Growth Rate (CAGR)	43.11 %
Largest Market Region	N/A
Fastest-Growing Region	N/A

Market Visualizations & Infographics

Comprehensive Research Analysis

Overview Points List Flex 49 Share Feature End

Market OverviewStudy Period | 2020 - 2031 |
Market Size (2026) | USD 0.37 Billion |
Market Size (2031) | USD 2.23 Billion |
Growth Rate (2026 - 2031) | 43.11 % |
Fastest Growing Market | Middle East and Africa |
Largest Market | Asia Pacific |
Market Concentration | Medium |
Major Players*Disclaimer: Major Players sorted in no particular order

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Market Overview

EV Solid-state Battery Market Analysis by Mordor IntelligenceEV solid-state battery market size in 2026 is estimated at USD 372.09 million, growing from 2025 value of USD 260 million with 2031 projections showing USD 2.23 billion, growing at 43.11% CAGR over 2026-2031. Intensifying zero-emission vehicle mandates, rapid advances in sulfide electrolyte processing, and automakers' pilot-line investments are converging to accelerate adoption. Passenger cars remain the launchpad for commercial deployment, while commercial fleets register stronger incremental growth as operators recognise the technology's lifetime cost advantages. Asia-Pacific leads global shipments, buoyed by integrated supply chains in Japan, South Korea, and China. Meanwhile, capacity additions in North America and Europe point to a broader geographic spread once manufacturing yields improve. Strategic risks concentrate around lithium-metal foil availability and roll-to-roll yield losses, but recent breakthroughs in anode-free cell formation and improved moisture-tolerant electrolytes are narrowing these gaps.

Key Report Takeaways* By vehicle type, passenger cars led with 73.52% of the solid-state battery market share in 2025; commercial vehicles are projected to post the fastest 38.95% CAGR to 2031.
* By propulsion, battery electric vehicles (BEVs) accounted for 69.45% of the solid-state battery market size in 2025, and the segment is expected to rise at a 38.60% CAGR through 2031.
* By solid electrolyte type, sulfide chemistries commanded 46.92% market share in 2025, while oxide systems are forecast to expand at 30.25% CAGR to 2031.
* By anode material, lithium-metal captured 55.05% share of the solid-state battery market size in 2025 and is advancing at a 44.10% CAGR between 2026 and 2031.
* By battery capacity, 20–100 Ah cells held 47.95% revenue share in 2025; cells above 100 Ah are projected to register the strongest 41.90% CAGR through 2031.
* By geography, Asia-Pacific dominated with 40.85% market share in 2025, whereas the Middle East and Africa are forecast to expand at a 35.40% CAGR to 2031.

Key Market Trends

Market Trends and InsightsDrivers Impact Analysis of EV Solid-state Battery Market*Driver | (~) % Impact on CAGR Forecast | Geographic Relevance | Impact Timeline |
Rapid EV Sales Expansion | +13.6% | Global, with concentration in China, Europe, North America | Medium term (2-4 years) |
Energy Density and Safety Edge | +9.1% | Global, early adoption in premium segments | Long term (≥ 4 years) |
ZEV Mandates and Incentives | +8.2% | North America, Europe, China | Short term (≤ 2 years) |
Automaker Vertical Integration | +6.4% | Asia-Pacific, Europe, North America | Medium term (2-4 years) |
Sulfide Roll-To-Roll Breakthroughs | +5.4% | Asia-Pacific core, spill-over to global manufacturing | Medium term (2-4 years) |
Insurance Fire-Liability Pressure | +3.6% | North America & EU, regulatory-driven markets | Long term (≥ 4 years) |
Source: Mordor Intelligence |

Competitive Landscape

Competitive Landscape

The solid-state battery market remains moderately fragmented. Competitive differentiation revolves around patent portfolios, electrolyte formulations, and roll-

to-roll yields.

Toyota concentrates on sulfide chemistry and in-house pack integration. Samsung SDI pursues an anode-free design that improves volumetric density, while Quantum Scape commercialises a ceramic separator licensed to multiple automakers. Start-ups such as ProLogium focus on flexible oxide stacks for premium consumer electronics and e-motorcycles, indicating wider horizontal applications beyond cars.

Strategic alliances between automakers and cell developers intensify as companies race to lock in capacity. Evidence of consolidation potential is visible in recent joint ventures and equity stakes, particularly where automakers exchange capital for guaranteed cell off-take. Nonetheless, the sector's capital intensity and stringent quality thresholds limit viable entrants, suggesting a medium-term shift toward an oligopolistic structure once pilot lines mature.

EV Solid-state Battery Industry Leaders* Toyota Motor Corporation

* Samsung SDI Co., Ltd

* Solid Power Inc.

* LG Energy Solution Ltd

* QuantumScape Corporation

* *Disclaimer: Major Players sorted in no particular order

Scope Methodology P Space

In this methodology, the EV solid-state battery market is counted as revenue from solid-electrolyte traction battery packs supplied for use in electric vehicles, with the sale recorded at the point of first commercial shipment in USD.

Scope exclusions: We exclude prototype-stage cells that are not yet in commercial shipment, aftermarket replacements, and solid-state batteries meant for consumer electronics or stationary storage.

Segmentation Container

* By Vehicle Type* Passenger Cars
* Commercial Vehicles

* By Propulsion* Battery Electric Vehicle (BEV)
* Plug-in Hybrid Electric Vehicle (PHEV)
* Hybrid Electric Vehicle (HEV)

* By Solid Electrolyte Type* Sulfide-based
* Oxide-based
* Polymer-based

* By Anode Material* Lithium-Metal
* Silicon-Composite
* Graphite-Composite

* By Battery Capacity* Below 20 Ah
* 20 to 100 Ah
* Above 100 Ah

* By Geography* North America* United States
* Canada
* Rest of North America

* South America
* Europe* Germany
* United Kingdom
* France
* Spain
* Russia
* Rest of Europe

* Asia-Pacific* China
* Japan
* South Korea
* India
* Australia
* Rest of Asia-Pacific

* Middle East and Africa* Saudi Arabia
* UAE
* South Africa
* Egypt
* Nigeria
* Rest of Middle East and Africa

Frequently Asked Questions

What is the current size of the solid-state battery market?

The solid-state battery market size stands at USD 372.09 million in 2026 and is forecast to reach USD 2.23 billion by 2031.

How fast is the solid-state battery market growing?

The market is projected to register a 43.11% compound annual growth rate between 2026 and 2031.

Which region leads the solid-state battery market?

Asia-Pacific holds the largest share at 40.85% in 2025 owing to integrated suppl y chains and aggressive pilot-line investment.

Why are solid-state batteries considered safer than lithium-ion?

They eliminate flammable liquid electrolytes, reducing thermal-runaway risk and enabling safer deployment in high-energy applications.

When will large-scale solid-state battery production begin?

Commercial output is expected to ramp from 2027 onward as pilot lines transition to multi-gigawatt-hour capacities.

Which vehicle segment will adopt solid-state batteries first?

Premium passenger cars are set to pioneer adoption, followed by commercial fleet s that prioritise reduced charging downtime.