

Global Solid-state DC Breaker Market Growth 2026-2032

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Abstracts

The global Solid-state DC Breaker market size is predicted to grow from US\$ 291 million in 2025 to US\$ 1008 million in 2032; it is expected to grow at a CAGR of 19.7% from 2026 to 2032.

Solid-state DC Breaker is an advanced direct-current protection device that uses power semiconductor switching modules to interrupt DC fault current through high-speed electronic control rather than mechanical contact separation, enabling arc-free breaking, fast response, precise current limitation, and stable protection in high-power DC systems. Compared with conventional mechanical DC circuit breakers, its advantages lie in faster fault interruption, reduced contact wear, higher control accuracy, better thermal performance, longer service life, and stronger suitability for high-voltage and high-power DC applications. In 2025, production was approximately 850,000 units and the average price was USD 350 per unit. The industry's capacity utilization rate in 2025 was about 60% and the average gross margin was around 35%. Upstream, the key inputs include SiC MOSFET/JFET chips, DBC/AMB ceramic substrates, and packaging materials, with representative suppliers such as Wolfspeed, Infineon Technologies, and Rogers Corporation providing core wide-bandgap chips and high-performance substrate materials. The midstream segment focuses on solid-state DC interruption topology design, semiconductor module integration, drive and protection circuit design, insulation coordination, thermal structure optimization, fault-current interruption testing, arc-free switching strategy, reliability validation, and automated assembly, which together determine breaking speed, voltage and current endurance, heat dissipation, protection accuracy, safety reliability, and cost competitiveness. Downstream, Solid-state DC Breaker is mainly used in electric vehicles, microgrids, and data centers.

The solid-state DC breaker is a highly efficient, fast-acting circuit breaker designed

specifically for DC systems, utilizing semiconductor devices to interrupt the current flow. Unlike traditional mechanical DC breakers, which rely on moving parts to physically separate the contacts and extinguish arcs, solid-state DC breakers use power semiconductors such as Insulated Gate Bipolar Transistors (IGBTs), Metal-Oxide-Semiconductor Field-Effect Transistors (MOSFETs), or thyristors. These components enable the breaker to respond almost instantaneously to fault conditions, making them ideal for modern power systems with high-speed demands.

LP Information, Inc. (LPI) ' newest research report, the "Solid-state DC Breaker Industry Forecast" looks at past sales and reviews total world Solid-state DC Breaker sales in 2025, providing a comprehensive analysis by region and market sector of projected Solid-state DC Breaker sales for 2026 through 2032. With Solid-state DC Breaker sales broken down by region, market sector and sub-sector, this report provides a detailed analysis in US\$ millions of the world Solid-state DC Breaker industry.

This Insight Report provides a comprehensive analysis of the global Solid-state DC Breaker landscape and highlights key trends related to product segmentation, company formation, revenue, and market share, latest development, and M&A activity. This report also analyzes the strategies of leading global companies with a focus on Solid-state DC Breaker portfolios and capabilities, market entry strategies, market positions, and geographic footprints, to better understand these firms' unique position in an accelerating global Solid-state DC Breaker market.

This Insight Report evaluates the key market trends, drivers, and affecting factors shaping the global outlook for Solid-state DC Breaker and breaks down the forecast by Type, by Application, geography, and market size to highlight emerging pockets of opportunity. With a transparent methodology based on hundreds of bottom-up qualitative and quantitative market inputs, this study forecast offers a highly nuanced view of the current state and future trajectory in the global Solid-state DC Breaker.

This report presents a comprehensive overview, market shares, and growth opportunities of Solid-state DC Breaker market by product type, application, key manufacturers and key regions and countries.

Segmentation by Type:

750V

1200V

1700V

Others

Segmentation by Current Direction:

Unidirectional DC Solid-State Circuit Breaker

Bidirectional DC Solid-State Circuit Breaker

Segmentation by Rated Current:

Current?16A

16A

Contents

1 SCOPE OF THE REPORT

- 1.1 Market Introduction
- 1.2 Years Considered
- 1.3 Research Objectives
- 1.4 Market Research Methodology
- 1.5 Research Process and Data Source
- 1.6 Economic Indicators
- 1.7 Currency Considered
- 1.8 Market Estimation Caveats

2 EXECUTIVE SUMMARY

- 2.1 World Market Overview
 - 2.1.1 Global Solid-state DC Breaker Annual Sales 2021-2032
 - 2.1.2 World Current & Future Analysis for Solid-state DC Breaker by Geographic Region, 2021, 2025 & 2032
 - 2.1.3 World Current & Future Analysis for Solid-state DC Breaker by Country/Region, 2021, 2025 & 2032
- 2.2 Solid-state DC Breaker Segment by Type
 - 2.2.1 750V
 - 2.2.2 1200V
 - 2.2.3 1700V
 - 2.2.4 Others
 - 2.2.5 Solid-state DC Breaker Sales by Type
 - 2.2.5.1 Global Solid-state DC Breaker Sales Market Share by Type (2021-2026)
 - 2.2.5.2 Global Solid-state DC Breaker Revenue and Market Share by Type (2021-2026)
 - 2.2.5.3 Global Solid-state DC Breaker Sale Price by Type (2021-2026)
- 2.3 Solid-state DC Breaker Segment by Current Direction
 - 2.3.1 Unidirectional DC Solid-State Circuit Breaker
 - 2.3.2 Bidirectional DC Solid-State Circuit Breaker
 - 2.3.3 Solid-state DC Breaker Sales by Current Direction
 - 2.3.3.1 Global Solid-state DC Breaker Sales Market Share by Current Direction (2021-2026)
 - 2.3.3.2 Global Solid-state DC Breaker Revenue and Market Share by Current Direction (2021-2026)

- 2.3.3.3 Global Solid-state DC Breaker Sale Price by Current Direction (2021-2026)
- 2.4 Solid-state DC Breaker Segment by Rated Current
 - 2.4.1 Current?16A
 - 2.4.2 16A

List Of Tables

LIST OF TABLES

Table 1. Solid-state DC Breaker Annual Sales CAGR by Geographic Region (2021, 2025 & 2032) & (\$ millions)

Table 2. Solid-state DC Breaker Annual Sales CAGR by Country/Region (2021, 2025 & 2032) & (\$ millions)

Table 3. Major Players of 750V

Table 4. Major Players of 1200V

Table 5. Major Players of 1700V

Table 6. Major Players of Others

Table 7. Global Solid-state DC Breaker Sales by Type (2021-2026) & (K Units)

Table 8. Global Solid-state DC Breaker Sales Market Share by Type (2021-2026)

Table 9. Global Solid-state DC Breaker Revenue by Type (2021-2026) & (\$ million)

Table 10. Global Solid-state DC Breaker Revenue Market Share by Type (2021-2026)

Table 11. Global Solid-state DC Breaker Sale Price by Type (2021-2026) & (US\$/Unit)

Table 12. Major Players of Unidirectional DC Solid-State Circuit Breaker

Table 13. Major Players of Bidirectional DC Solid-State Circuit Breaker

Table 14. Global Solid-state DC Breaker Sales by Current Direction (2021-2026) & (K Units)

Table 15. Global Solid-state DC Breaker Sales Market Share by Current Direction (2021-2026)

Table 16. Global Solid-state DC Breaker Revenue by Current Direction (2021-2026) & (\$ million)

Table 17. Global Solid-state DC Breaker Revenue Market Share by Current Direction (2021-2026)

Table 18. Global Solid-state DC Breaker Sale Price by Current Direction (2021-2026) & (US\$/Unit)

Table 19. Major Players of Current?16A

Table 20. Major Players of 16A

List Of Figures

LIST OF FIGURES

- Figure 1. Picture of Solid-state DC Breaker
- Figure 2. Solid-state DC Breaker Report Years Considered
- Figure 3. Research Objectives
- Figure 4. Research Methodology
- Figure 5. Research Process and Data Source
- Figure 6. Global Solid-state DC Breaker Sales Growth Rate 2021-2032 (K Units)
- Figure 7. Global Solid-state DC Breaker Revenue Growth Rate 2021-2032 (\$ millions)
- Figure 8. Solid-state DC Breaker Sales by Geographic Region (2021, 2025 & 2032) & (\$ millions)
- Figure 9. Solid-state DC Breaker Sales Market Share by Country/Region (2025)
- Figure 10. Solid-state DC Breaker Sales Market Share by Country/Region (2021, 2025 & 2032)
- Figure 11. Product Picture of 750V
- Figure 12. Product Picture of 1200V
- Figure 13. Product Picture of 1700V
- Figure 14. Product Picture of Others
- Figure 15. Global Solid-state DC Breaker Sales Market Share by Type in 2026
- Figure 16. Global Solid-state DC Breaker Revenue Market Share by Type (2021-2026)
- Figure 17. Product Picture of Unidirectional DC Solid-State Circuit Breaker
- Figure 18. Product Picture of Bidirectional DC Solid-State Circuit Breaker
- Figure 19. Global Solid-state DC Breaker Sales Market Share by Current Direction in 2026
- Figure 20. Global Solid-state DC Breaker Revenue Market Share by Current Direction (2021-2026)
- Figure 21. Product Picture of Current?16A
- Figure 22. Product Picture of 16A

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