

Global DC-DC Converter Market - Strategic Insights and Forecasts (2026-2031)

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Abstracts

The Global DC-DC Converter market is forecast to grow at a CAGR of 5.5%, reaching USD 8.1 billion in 2031 from USD 6.2 billion in 2026.

The global DC-DC converter market plays an essential enabling role across the electronics, automotive, medical, and energy sectors, providing the critical power management function of converting one DC voltage level to another with high efficiency, compact form factor, and reliable regulation. As modern systems across virtually every industry segment become more electrified, miniaturized, and power-sensitive, the demand for sophisticated DC-DC converter solutions continues to expand. The market's sustained growth through 2031 is driven by the global acceleration of electric vehicle adoption, rising consumption of portable consumer electronics, growing medical device complexity, and the Asia Pacific region's continued dominance as the world's primary electronics and automotive manufacturing hub.

Market Drivers

The rising demand for portable electronic devices is among the foundational growth drivers for the DC-DC converter market. Smartphones, tablets, laptops, and wearables all rely on DC-DC converters for efficient power management, converting battery voltage to the precise levels required by processors, displays, memory, and communication modules. Consumer Technology Association data indicates that US laptop and tablet sales revenue reached USD 47 billion in 2021, a 7% increase over the prior year. India's 5G smartphone shipments were projected to surge from 28 million units in 2021 to approximately 64 million in 2022, representing a 129% increase and a significant incremental demand source for power management components. The global tablet market trajectory toward 160 million units by 2024 further reflects the breadth of

portable device demand that underpins DC-DC converter consumption. Japan's Ministry of Economy, Trade and Industry reported consumer electronic equipment production of 418,200 million yen in December 2023, exceeding the prior year comparison period, confirming sustained consumer electronics manufacturing activity.

The accelerating global adoption of electric vehicles is a second major structural demand driver. DC-DC converters are critical components in EV powertrains, serving to interface and regulate power between the high-voltage traction battery and the lower-voltage systems that power auxiliary electronics, lighting, climate control, and onboard communication systems. EV sales in China grew from 6 million units in 2022 to 8.1 million in 2023 and were projected to reach 10.1 million in 2024, while European EV sales reached 3.2 million in 2023 with continued growth anticipated. The performance requirements for automotive DC-DC converters are particularly demanding, requiring light weight, compact size, high reliability, broad input voltage tolerance, and low electromagnetic interference. Eaton's May 2024 launch of a higher-power 48-volt DC-DC converter for commercial and off-highway vehicles illustrates the active product development investment targeting this high-growth automotive sub-segment.

Medical device electrification and miniaturization represent a third growth driver. DC-DC converters are embedded in a wide range of medical equipment including CT scanners, MRI machines, X-ray systems, and portable diagnostic devices such as glucose meters, blood pressure monitors, and respiratory support equipment, providing stable, regulated power supply essential for accurate clinical operation. India's medical device export market was projected to reach USD 10 billion by 2025 from USD 2.53 billion in fiscal year 2021, reflecting the scale of medical device manufacturing growth that generates component demand. The International Electrotechnical Commission valued the global medical electrical equipment market at USD 35.5 billion in 2019 with projected growth of 6.2% annually through 2025.

Market Restraints

The DC-DC converter market faces constraints including competitive pressure on pricing as the market matures and commoditization risk increases for standard converter configurations. Electromagnetic interference management requirements add design complexity and cost, particularly for automotive and medical applications where strict compliance standards must be met. Supply chain dependencies on semiconductor components, including power MOSFETs and specialized ICs, introduce procurement risk during periods of global chip supply tightness. The increasing sophistication of integrated power management ICs that combine DC-DC conversion with other functions

may reduce the addressable market for standalone converter modules in certain consumer electronics segments over time.

Technology and Segment Insights

By type, switched DC-DC converters dominate the market, offering significantly higher efficiency than linear regulators by using switching elements and energy storage components to transform voltage levels with minimal power dissipation. Switched converters are preferred across automotive, industrial, and high-power applications where efficiency is a primary performance criterion. Linear DC-DC converters serve applications requiring very low noise output and simple circuit design, typically in sensitive analog, audio, and low-power electronics contexts where efficiency is secondary to output quality.

By power, high-power DC-DC converters are the faster-growing segment, driven by EV powertrain applications, industrial automation, and utility-scale energy storage systems. Low-power converters serve the large-volume consumer electronics and portable medical device markets, benefiting from consistent demand from global smartphone, tablet, and wearable device production.

By end-user, the automotive segment is emerging as the highest-growth demand category, driven by EV adoption and the increasing electronic content per vehicle in both conventional and electric models. The electrical and electronics segment remains the largest by volume, encompassing consumer devices, computing infrastructure, and telecommunications equipment. Medical and healthcare represents a growing and premium-value segment driven by increasing device complexity, regulatory demands for reliable power management, and the global expansion of medical device manufacturing. The utilities segment encompasses energy storage and grid management systems where DC-DC converters support power conversion within battery energy storage installations and renewable energy integration.

Geographically, Asia Pacific leads the global market, supported by China's dominant EV production and consumer electronics manufacturing scale, Japan's precision electronics industry, India's rapidly expanding electronics sector backed by government PLI schemes and a USD 2 billion Ministry of Electronics and Information Technology budget allocation in 2023-24, and South Korea's advanced semiconductor and consumer electronics manufacturing base. North America maintains a significant market position, driven by automotive electrification investment, medical device manufacturing, and the presence of leading DC-DC converter technology companies. Europe contributes

through automotive industry demand and renewable energy sector growth.

Competitive and Strategic Outlook

The global DC-DC converter competitive landscape includes diversified power electronics conglomerates and specialized power management companies. Key players include ABB, General Electric, Infineon Technologies, Murata Manufacturing, RECOM Power, TDK Corporation, Texas Instruments, Traco Electronic, Vicor Corporation, XP Power, Advanced Energy, PICO Electronics, and ROHM Group. TDK Corporation's April 2023 launch of the 300W-rated TDK-Lambda RGC series of ruggedized non-isolated converters, designed for robotics, automated guided vehicles, communications, and industrial battery-powered applications, reflects the industry's focus on application-specific ruggedized converter development for industrial automation environments. Competitive differentiation is driven by power density, efficiency ratings, thermal management performance, input voltage range flexibility, regulatory compliance certification breadth, and the ability to serve demanding environmental specifications across automotive, medical, and defense-adjacent applications.

Conclusion

The global DC-DC converter market is set for steady, broad-based growth through 2031, driven by the structural electrification of the automotive sector, persistent global consumer electronics demand, medical device proliferation, and the expanding role of power conversion technology in energy storage and renewable integration systems. Manufacturers that combine high-efficiency switched converter technology, application-specific product development for automotive and medical verticals, and strong Asia Pacific manufacturing and distribution presence will be best positioned to capture long-term market share in this foundational power electronics segment.

Key Benefits of this Report

Insightful Analysis: Gain detailed market insights across regions, customer segments, policies, socio-economic factors, consumer preferences, and industry verticals.

Competitive Landscape: Understand strategic moves by key players to identify optimal market entry approaches.

Market Drivers and Future Trends: Assess major growth forces and emerging developments shaping the market.

Actionable Recommendations: Support strategic decisions to unlock new revenue streams.

Caters to a Wide Audience: Suitable for startups, research institutions, consultants, SMEs, and large enterprises.

What Businesses Use Our Reports For

Industry and market insights, opportunity assessment, product demand forecasting, market entry strategy, geographical expansion, capital investment decisions, regulatory analysis, new product development, and competitive intelligence.

Report Coverage

Historical data from 2021 to 2024 and forecast data from 2026 to 2031

Growth opportunities, challenges, supply chain outlook, regulatory framework, and trend analysis

Competitive positioning, strategies, and market share evaluation

Revenue growth and forecast assessment across segments and regions

Company profiling including strategies, products, financials, and key developments

Contents

1. INTRODUCTION

- 1.1. Market Overview
- 1.2. Market Definition
- 1.3. Scope of the Study
- 1.4. Market Segmentation
- 1.5. Currency
- 1.6. Assumptions
- 1.7. Base and Forecast Years Timeline
- 1.8. Key Benefits for the Stakeholders

2. RESEARCH METHODOLOGY

- 2.1. Research Design
- 2.2. Research Process
- 2.3. Data Validation

3. EXECUTIVE SUMMARY

- 3.1. Key Findings
- 3.2. Analyst View

4. MARKET DYNAMICS

- 4.1. Market Drivers
- 4.2. Market Restraints
- 4.3. Porter's Five Forces Analysis
 - 4.3.1. Bargaining Power of Supplier
 - 4.3.2. Bargaining Power of Buyers
 - 4.3.3. Threat of New Entrants
 - 4.3.4. Threat of Substitutes
 - 4.3.5. Competitive Rivalry in the Industry
- 4.4. Industry Value Chain Analysis

5. GLOBAL DC-DC CONVERTER MARKET BY TYPE

- 5.1. Introduction

- 5.2. Linear
- 5.3. Switched

6. GLOBAL DC-DC CONVERTER MARKET BY POWER

- 6.1. Introduction
- 6.2. Low
- 6.3. High

7. GLOBAL DC-DC CONVERTER MARKET BY END-USER

- 7.1. Introduction
- 7.2. Automotive
- 7.3. Utilities
- 7.4. Medical & Healthcare
- 7.5. Electrical & Electronics
- 7.6. Others

8. GLOBAL DC-DC CONVERTER MARKET BY GEOGRAPHY

- 8.1. Global Overview
- 8.2. North America
 - 8.2.1. By Type
 - 8.2.2. By Power
 - 8.2.3. By End-user
 - 8.2.4. By Country
 - 8.2.4.1. United States
 - 8.2.4.2. Canada
 - 8.2.4.3. Mexico
- 8.3. South America
 - 8.3.1. By Type
 - 8.3.2. By Power
 - 8.3.3. By End-user
 - 8.3.4. By Country
 - 8.3.4.1. Brazil
 - 8.3.4.2. Argentina
 - 8.3.4.3. Rest of South America
- 8.4. Europe
 - 8.4.1. By Type

8.4.2. By Power

8.4.3. By End-user

8.4.4. By Country

8.4.4.1. United Kingdom

8.4.4.2. Germany

8.4.4.3. France

8.4.4.4. Italy

8.4.4.5. Spain

8.4.4.6. Rest of Europe

8.5. Middle East and Africa

8.5.1. By Type

8.5.2. By Power

8.5.3. By End-user

8.5.4. By Country

8.5.4.1. Saudi Arabia

8.5.4.2. United Arab Emirates

8.5.4.3. Rest of Middle East and Africa

8.6. Asia-Pacific

8.6.1. By Type

8.6.2. By Power

8.6.3. By End-user

8.6.4. By Country

8.6.4.1. China

8.6.4.2. India

8.6.4.3. Japan

8.6.4.4. South Korea

8.6.4.5. Taiwan

8.6.4.6. Thailand

8.6.4.7. Indonesia

8.6.4.8. Rest of Asia-Pacific

9. COMPETITIVE ENVIRONMENT AND ANALYSIS

9.1. Major Players and Strategy Analysis

9.2. Emerging Players and Market Lucrativeness

9.3. Mergers, Acquisitions, Agreements, and Collaborations

9.4. Competitive Dashboard

10. COMPANY PROFILES

- 10.1. ABB Ltd.
- 10.2. General Electric
- 10.3. Infineon Technologies
- 10.4. Murata Manufacturing Co., Ltd.
- 10.5. RECOM Power GmbH
- 10.6. TDK Corporation
- 10.7. Texas Instrument Incorporated
- 10.8. Traco Electronic AG
- 10.9. Vicor Corporation
- 10.10. XP Power
- 10.11. Advanced Energy
- 10.12. PICO Electronics, Inc.
- 10.13. ROHM Group

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