

# **EV Semiconductors Market by Technology (Silicon-based, Wide-Bandgap), Propulsion, Application (Battery Management System, Powertrain, ADAS, and more), Component (Power ICs & Modules, MCUs & Processors, Sensors, and more), and Region - Global Forecast to 2032**

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## **Abstracts**

The EV semiconductors market is projected to reach USD 57.48 billion in 2032, growing from USD 24.09 billion in 2025, at a CAGR of 9.1%. The market's growth is driven by increasing semiconductor content per passenger car and the shift to fully electric platforms. EVs use more sensors and computing for safety and automation features, so ADAS requires high-performance MCUs, radar, and vision chips at higher penetration than ICE vehicles. Battery electronics are becoming more advanced because fast charging, longer cycle life, and precise cell monitoring need high-accuracy analog front ends, power devices, and functional safety processors. Wide-bandgap technologies, including SiC and GaN, hybrid SiC GaN inverters, and advanced packaging, improve efficiency, lower heat, and enable compact high-power designs. Government initiatives, such as the US CHIPS Act and the EU Chips Act, drive local fab expansion by Texas Instruments, Infineon, and STMicroelectronics. Software-defined vehicle platforms increase the demand for memory and processing, and tighter OEM supplier collaboration accelerates innovation. 800V architectures in premium BEVs are pushing the adoption of advanced power semiconductors for faster charging and a longer range. 48V systems in models like Audi A6 and Mercedes-Benz C Class sustain demand for efficient power devices to support high electrical load without moving to full high voltage EV designs.

“Battery management system applications are expected to witness notable demand in

the EV semiconductors market during the forecast period.”

Battery management system applications are set to witness substantial growth in the EV semiconductors market. Modern BMS hardware must deliver precise measurement, fast data processing, and efficient thermal control inside large battery packs. Advanced microcontrollers, power management ICs, sensors, and communication modules are required to achieve cell voltage, temperature, charge state, and health accuracy.

In April 2025, STMicroelectronics announced its Stellar with xMemory MCUs that support software-driven battery control and flexible cell balancing architectures. Similarly, in March 2025, Renesas launched the RBMS F platform, which combines fuel gauge ICs, microcontrollers, and analog front ends in one design that improves safety through faster fault detection and optimizes charging and discharging. Likewise, in June 2025, NXP Semiconductors completed its acquisition of TTTech Auto to enhance real-time functional safety computing for high-energy battery systems. Packaging improvements and shifting toward high-power-density batteries also increase the use of SiC and GaN-based components inside BMS modules because they reduce heat and improve efficiency. These developments make BMS one of North America and China’s strongest semiconductor demand drivers across EV production hubs.

“By component type, the power ICs & modules segment is projected to register strong growth in the EV semiconductors market during the forecast period.”

Power ICs & modules, including MOSFETs, IGBTs, and wide-bandgap devices such as SiC and GaN, are critical for inverters, onboard chargers, and DC-DC converters and directly impact vehicle efficiency, range, and thermal performance. Porsche Taycan and Ford Mustang Mach-E employ SiC-based inverters to enhance energy efficiency and enable faster charging. Reflecting the industry’s focus on scaling these next-generation power devices, Infineon and ROHM’s March 2025 memorandum of understanding to collaborate on SiC power packages highlights industry efforts to scale next-generation power devices. Similarly, STMicroelectronics’ investment in September 2025 in panel-level packaging further improves the efficiency and reliability of power semiconductors for automotive applications.

The accelerated adoption of 800V platforms in high-performance BEVs and ongoing global EV production are increasing the demand for high-efficiency power devices. Investments in hybrid SiC-GaN solutions and advanced thermal management packaging are helping OEMs achieve high power density, low losses, and improved overall system reliability, positioning the power semiconductor segment as a significant

growth driver in the EV semiconductors market.

“Europe is projected to witness significant growth in the EV semiconductors market during the forecast period.”

Europe is projected to experience significant growth in the EV semiconductors market, driven by the increasing passenger car electrification and strong regional automotive manufacturing. Leading OEMs such as Volkswagen, BMW, and Stellantis are expanding BEV lineups and investing in software-defined vehicle platforms, increasing demand for high-performance MCUs, power electronics, and radar/ADAS chips. At the same time, key Chinese OEMs are establishing European manufacturing presence. For instance, in March 2025, BYD announced plans for a new plant in Hungary to serve the European market. The EU Chips Act is a primary catalyst, aiming to double Europe's global semiconductor market share to 20% by 2030 through over USD 46.5 billion in public and private investment, fostering self-sufficiency and supply chain resilience for critical components like automotive chips.

Key investments in the region include Infineon's investment of USD 4.9 billion for expansion in Dresden, STMicroelectronics' SiC fab project worth USD 5.5 billion in Catania, and joint ventures (USD 8.2 billion FD-SOI fab by ST and GlobalFoundries near Grenoble, France). European suppliers, including Infineon Technologies AG and STMicroelectronics, are scaling SiC and GaN production to meet demand for high-efficiency inverters and onboard chargers. Combined with government support for electrification, EV mandates, and incentives for energy-efficient vehicle electronics, these developments position Europe as a key growth region for the EV semiconductors market.

In-depth interviews were conducted with CEOs, marketing directors, other innovation and technology directors, and executives from various key organizations operating in this market.

By Company Type: Tier I – 41%, Tier II – 36%, and Tier III – 23%

By Designation: Directors – 32%, Managers – 47%, and Others – 21%

By Region: Asia Pacific – 27%, North America – 42%, and Europe – 31%

The EV semiconductors market is dominated by major players, including Infineon

Technologies AG (Germany), STMicroelectronics (Switzerland), NXP Semiconductors (Netherlands), Texas Instruments Incorporated (US), Renesas Electronics Corporation (Japan), and more. These companies are expanding their portfolios to strengthen their market position.

#### Research Coverage:

The report covers the EV semiconductors market in terms of Technology (Silicon-based Semiconductor, Wide-Bandgap Semiconductor), Propulsion [Battery Electric Vehicle (BEV) and Plug-In Hybrid Electric Vehicle (PHEV)], Application (Battery Management System, Powertrain System, ADAS, Body & Chassis, and Infotainment & Connectivity), Component Type (Power ICs & Modules, Microcontrollers & Processors, Discrettes, Communication & Interface ICs, Sensor ICs, Gate Driver ICs, Memory & Storage ICs, Other Semiconductors), and Region. It covers the competitive landscape and company profiles of significant players in the EV semiconductors market. The study includes an in-depth competitive analysis of the key market players, their company profiles, key observations related to product and business offerings, recent developments, and key market strategies.

#### Key Benefits of Buying the Report:

The report will help market leaders/new entrants with information on the closest approximations of revenue numbers for the EV semiconductors market and its subsegments.

This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies.

The report will also help stakeholders understand the market pulse and provides information on key market drivers, restraints, challenges, and opportunities.

The report will also help stakeholders understand the EV semiconductors market's current and future pricing trends.

The report will also help market leaders/new entrants with information on various market trends based on technology, propulsion, application, component type, and Region.

The report provides insight into the following pointers:

Analysis of key drivers (Rising EV adoption, high semiconductor content per EV, technological advancements in chip design and integration), restraints (Long qualification cycles and strict automotive reliability standards; high cost of advanced materials; and geopolitical, trade, and export control risks; fragmented standards and interoperability challenges), opportunities (Growth in wide-bandgap materials, expansion in emerging markets, tier-1 and OEM partnerships/co-development), and challenges (Intense competition and margin pressure; cybersecurity, safety, and liability concerns).

**Product Development/Innovation:** Detailed insights into upcoming technologies, research & development activities, and product launches in the EV semiconductors market

**Market Development:** Comprehensive information about lucrative markets across varied regions

**Market Diversification:** Exhaustive information about new products and services, untapped geographies, recent developments, and investments in the EV semiconductors market

**Competitive Assessment:** In-depth assessment of market share, growth strategies, and service offerings of leading players like Infineon Technologies AG (Germany), STMicroelectronics (Switzerland), NXP Semiconductors (Netherlands), Texas Instruments Incorporated (US), and Renesas Electronics Corporation (Japan), among others, in the EV semiconductors market

## Contents

### 1 INTRODUCTION

- 1.1 STUDY OBJECTIVES
- 1.2 MARKET DEFINITION
- 1.3 STUDY SCOPE
  - 1.3.1 MARKETS COVERED AND REGIONAL SCOPE
  - 1.3.2 INCLUSIONS AND EXCLUSIONS
  - 1.3.3 YEARS CONSIDERED
- 1.4 CURRENCY CONSIDERED
- 1.5 STAKEHOLDERS

### 2 EXECUTIVE SUMMARY

- 2.1 KEY INSIGHTS AND MARKET HIGHLIGHTS
- 2.2 KEY MARKET PARTICIPANTS: SHARE INSIGHTS AND STRATEGIC DEVELOPMENTS
- 2.3 DISRUPTIVE TRENDS SHAPING MARKET
- 2.4 HIGH-GROWTH SEGMENTS AND EMERGING FRONTIERS
- 2.5 SNAPSHOT: GLOBAL MARKET SIZE, GROWTH RATE, AND FORECAST

### 3 PREMIUM INSIGHTS

- 3.1 ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN EV SEMICONDUCTORS MARKET
- 3.2 EV SEMICONDUCTORS MARKET, BY TECHNOLOGY
- 3.3 EV SEMICONDUCTORS MARKET, BY PROPULSION
- 3.4 EV SEMICONDUCTORS MARKET, BY APPLICATION
- 3.5 EV SEMICONDUCTORS MARKET, BY COMPONENT
- 3.6 EV SEMICONDUCTORS MARKET, BY REGION

### 4 MARKET OVERVIEW

- 4.1 INTRODUCTION
- 4.2 MARKET DYNAMICS
  - 4.2.1 DRIVERS
    - 4.2.1.1 Increased semiconductor content in EVs
    - 4.2.1.2 Innovations in chip design and integration

- 4.2.1.3 Heightened EV adoption
- 4.2.1.4 Rapid evolution of EV architectures
- 4.2.2 RESTRAINTS
  - 4.2.2.1 Long qualification cycles and strict automotive reliability standards
  - 4.2.2.2 High cost of advanced materials
  - 4.2.2.3 Fragmented standards and limited interoperability
- 4.2.3 OPPORTUNITIES
  - 4.2.3.1 Extensive use of wide-bandgap materials
  - 4.2.3.2 Expansion into emerging markets
  - 4.2.3.3 Collaborations between Tier 1s and OEMs
  - 4.2.3.4 Emerging applications of EV semiconductors
- 4.2.4 CHALLENGES
  - 4.2.4.1 Stiff competition and margin pressure
  - 4.2.4.2 Cybersecurity, safety, and liability concerns
  - 4.2.4.3 Geopolitical, trade, and export control risks
- 4.3 UNMET NEEDS AND WHITE SPACES
  - 4.3.1 POWER ELECTRONICS FOR 800V SYSTEMS
  - 4.3.2 EV ARCHITECTURE AND COMPUTING
- 4.4 INTERCONNECTED MARKETS AND CROSS-SECTOR OPPORTUNITIES
- 4.5 STRATEGIC MOVES BY TIER-1/2/3 PLAYERS

## **5 INDUSTRY TRENDS**

- 5.1 MACROECONOMIC INDICATORS
  - 5.1.1 INTRODUCTION
  - 5.1.2 GDP TRENDS AND FORECAST
  - 5.1.3 TRENDS IN GLOBAL EV INDUSTRY
  - 5.1.4 TRENDS IN GLOBAL AUTOMOTIVE AND TRANSPORTATION INDUSTRY
- 5.2 ECOSYSTEM ANALYSIS
  - 5.2.1 RAW MATERIAL SUPPLIERS
  - 5.2.2 CHIP DESIGN COMPANIES
  - 5.2.3 FOUNDRIES
  - 5.2.4 OSAT PROVIDERS
  - 5.2.5 COMPONENT MANUFACTURERS
  - 5.2.6 TIER-1 SUPPLIERS
  - 5.2.7 OEMS
- 5.3 SUPPLY CHAIN ANALYSIS
- 5.4 PRICING ANALYSIS
  - 5.4.1 AVERAGE SELLING PRICE OF EV SEMICONDUCTORS OFFERED BY KEY

## PLAYERS

5.4.2 AVERAGE SELLING PRICE TREND, BY TECHNOLOGY

5.4.3 AVERAGE SELLING PRICE TREND, BY REGION

5.5 TRENDS/DISRUPTIONS IMPACTING CUSTOMER BUSINESS

5.6 INVESTMENT AND FUNDING SCENARIO

5.7 FUNDING, BY USE CASE

5.8 KEY CONFERENCES AND EVENTS

5.9 TRADE ANALYSIS

5.9.1 IMPORT SCENARIO (HS CODE 8541)

5.9.2 EXPORT SCENARIO (HS CODE 8541)

5.9.3 TRADE RESTRICTIONS

5.9.4 US-CHINA EXPORT BANS

5.9.5 EU SUBSIDY RACE

5.9.6 IMPACT OF LOCALIZATION POLICIES ON SOURCING

5.9.7 CXO PRIORITIES

5.10 CASE STUDY ANALYSIS

5.10.1 ELECTROTHERMAL SIMULATION FOR AEC COMPLIANCE IN  
AUTOMOTIVE SMART FET DRIVERS

5.10.2 SMART DATA CONTROL ROOM INTEGRATION FOR SEMICONDUCTOR  
MANUFACTURING OPTIMIZATION

5.10.3 LEGACY SEMICONDUCTOR FAB MODERNIZATION THROUGH ADVANCED  
AUTOMATION PLATFORM

5.10.4 RAPID EV MOTOR CONTROL UNIT DEVELOPMENT THROUGH  
SEMICONDUCTOR SENSOR INTEGRATION

5.10.5 POWER ELECTRONICS AND COMPOUND SEMICONDUCTORS  
ACCELERATE EV INNOVATION

5.10.6 BYD ADVANCES EV SEMICONDUCTOR INNOVATION WITH 1500V SIC  
CHIPS FOR 1000V SUPER E-PLATFORM

5.10.7 WIDE-BANDGAP SEMICONDUCTORS ENABLING 800V POWERTRAIN

5.11 2025 US TARIFF

5.11.1 INTRODUCTION

5.11.2 KEY TARIFF RATES

5.11.3 PRICE IMPACT ANALYSIS

5.11.4 IMPACT ON COUNTRIES/REGIONS

5.11.5 IMPACT ON AUTOMOTIVE INDUSTRY

## **6 TECHNOLOGICAL ADVANCEMENTS, AI-DRIVEN IMPACT, PATENTS, INNOVATIONS, AND FUTURE APPLICATIONS**

## 6.1 KEY TECHNOLOGIES

6.1.1 SIC MOSFETS AND JFETS

6.1.2 800V TRACTION INVERTERS

6.1.3 GAN HEMTS

6.1.4 COMPACT ONBOARD CHARGERS AND DC-DC CONVERTERS

6.1.5 HYBRID SIC-GAN MODULES

## 6.2 COMPLEMENTARY TECHNOLOGIES

6.2.1 ADVANCED PACKAGING AND INTEGRATION

6.2.2 NEXT-GENERATION SENSOR SEMICONDUCTORS

6.2.3 POWER AND CONTROL ICS

6.2.4 HIGH-VOLTAGE INTERCONNECTS

## 6.3 ADJACENT TECHNOLOGIES

6.3.1 AI AND EDGE PROCESSING CHIPS

6.3.2 V2X AND CONNECTIVITY SEMICONDUCTORS

## 6.4 TECHNOLOGY ROADMAP

## 6.5 PATENT ANALYSIS

## 6.6 FUTURE APPLICATIONS

## 6.7 IMPACT OF AI/GEN AI

6.7.1 TOP USE CASES AND MARKET POTENTIAL

6.7.2 BEST PRACTICES

6.7.3 CASE STUDIES

6.7.4 ADJACENT ECOSYSTEM AND IMPACT ON MARKET PLAYERS

6.7.5 CLIENTS' READINESS TO ADOPT AI/GEN AI

## 6.8 SUCCESS STORIES AND REAL-WORLD APPLICATIONS

6.8.1 INFINEON TECHNOLOGIES AG: AI-ENHANCED POWER MODULE OPTIMIZATION

6.8.2 TEXAS INSTRUMENTS INCORPORATED: PREDICTIVE SEMICONDUCTOR MANUFACTURING

6.8.3 STMICROELECTRONICS: AI-ASSISTED DESIGN AND VERIFICATION

6.8.4 TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY: AI-DRIVEN YIELD AND SUPPLY CHAIN RESILIENCE

## 6.9 REGIONAL SEMICONDUCTOR HOTSPOTS AND LOCALIZATION DYNAMICS

## 6.10 SUPPLY CHAIN RISKS IN SIC AND GAN WAFER CONCENTRATION

## 6.11 POLICY DRIVES SHAPING SEMICONDUCTOR SOURCING

## 6.12 COST TRAJECTORIES FOR NEXT-GENERATION SEMICONDUCTORS

## 6.13 SEMICONDUCTOR SHARE OF EV BILL OF MATERIALS

## 6.14 SOURCING MODELS: MULTI-SUPPLIER VS. CAPTIVE DESIGN

## 6.15 FUTURE EV MODEL LAUNCH PIPELINE AND SEMICONDUCTOR DEMAND

## **7 SUSTAINABILITY AND REGULATORY LANDSCAPE**

### 7.1 REGIONAL REGULATIONS AND COMPLIANCE

#### 7.1.1 REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

#### 7.1.2 INDUSTRY STANDARDS

### 7.2 SUSTAINABILITY INITIATIVES

### 7.3 SUSTAINABILITY IMPACT AND REGULATORY POLICY INITIATIVES

### 7.4 CERTIFICATIONS, LABELING, AND ECO-STANDARDS

## **8 CUSTOMER LANDSCAPE AND BUYER BEHAVIOR**

### 8.1 DECISION-MAKING PROCESS

### 8.2 BUYER STAKEHOLDERS AND BUYING EVALUATION CRITERIA

#### 8.2.1 KEY STAKEHOLDERS IN BUYING PROCESS

#### 8.2.2 BUYING CRITERIA

### 8.3 ADOPTION BARRIERS AND INTERNAL CHALLENGES

### 8.4 UNMET NEEDS FROM VARIOUS END-USE INDUSTRIES

### 8.5 MARKET PROFITABILITY

#### 8.5.1 REVENUE POTENTIAL

#### 8.5.2 COST DYNAMICS

## **9 EV SEMICONDUCTORS MARKET, BY TECHNOLOGY**

### 9.1 INTRODUCTION

### 9.2 SILICON-BASED SEMICONDUCTOR

#### 9.2.1 STRONG ECOSYSTEM FOR MCUS, SENSORS, AND POWER ICs TO DRIVE MARKET

### 9.3 WIDE-BANDGAP SEMICONDUCTOR

#### 9.3.1 SOFTWARE-BASED ARCHITECTURE, ADAS ADVANCEMENTS, AND SHIFT TO 800V EV ARCHITECTURE TO DRIVE MARKET

### 9.4 PRIMARY INSIGHTS

## **10 EV SEMICONDUCTORS MARKET, BY PROPULSION**

### 10.1 INTRODUCTION

### 10.2 BEV

#### 10.2.1 ADOPTION OF SiC/GaN POWER DEVICES FOR TRACTION INVERTERS TO DRIVE MARKET

### 10.3 PHEV

10.3.1 DEMAND FOR DUAL-MODE BMS ICS AND POWER MODULES FOR MULTI-VOLTAGE SYSTEMS TO DRIVE MARKET

### 10.4 PRIMARY INSIGHTS

## **11 EV SEMICONDUCTORS MARKET, BY COMPONENT**

### 11.1 INTRODUCTION

### 11.2 POWER IC & MODULE

11.2.1 TRANSITION TO HIGH-VOLTAGE EV ARCHITECTURE AND WBG MATERIALS TO DRIVE MARKET

### 11.3 MICROCONTROLLER & PROCESSOR

11.3.1 GROWTH OF ZONAL/DOMAIN CONTROLLERS AND REAL-TIME SENSOR FUSION FOR ADAS TO DRIVE MARKET

### 11.4 DISCRETE

11.4.1 INCREASE IN 48V SUBSYSTEMS FOR BODY AND COMFORT ELECTRONICS TO DRIVE MARKET

### 11.5 COMMUNICATION & INTERFACE IC

11.5.1 DEPLOYMENT OF MULTI-PROTOCOL 10 GBPS ETHERNET & V2X AND TELEMATICS GATEWAYS TO DRIVE MARKET

### 11.6 SENSOR IC

11.6.1 RAPID SENSOR PROLIFERATION FOR LIDAR, IMAGING RADAR, AND BMS TO DRIVE MARKET

### 11.7 GATE DRIVER IC

11.7.1 PRECISION CONTROL OF HIGH-SPEED SIC/GAN MOSFETS TO DRIVE MARKET

### 11.8 MEMORY & STORAGE IC

11.8.1 HIGH-BANDWIDTH DRAM FOR INFOTAINMENT AND RESILIENT NAND STORAGE FOR OTA/DIAGNOSTICS TO DRIVE MARKET

### 11.9 OTHER SEMICONDUCTORS

### 11.10 PRIMARY INSIGHTS

## **12 EV SEMICONDUCTORS MARKET, BY APPLICATION**

### 12.1 INTRODUCTION

### 12.2 BMS

12.2.1 FOCUS ON CELL-LEVEL MONITORING AND COMPLEX THERMAL MANAGEMENT TO DRIVE MARKET

### 12.3 POWERTRAIN SYSTEM

12.3.1 SIC MOSFET TRANSITION AND INTEGRATED GATE DRIVERS TO DRIVE MARKET

12.4 ADAS

12.4.1 HIGHER LEVEL OF AUTONOMY AND HIGH-SPEED IN-VEHICLE NETWORKS TO DRIVE MARKET

12.5 BODY & CHASSIS

12.5.1 ELECTRIFICATION OF MECHANICAL SYSTEMS AND SHIFT TO ZONAL CONTROLLERS TO DRIVE MARKET

12.6 INFOTAINMENT & CONNECTIVITY

12.6.1 INNOVATION IN SDV ARCHITECTURE, OTA UPDATES, AND HIGH-SPEED CONNECTIVITY MODULES TO DRIVE MARKET

12.7 PRIMARY INSIGHTS

## **13 EV SEMICONDUCTORS MARKET, BY REGION**

13.1 INTRODUCTION

13.2 ASIA PACIFIC

13.2.1 CHINA

13.2.1.1 Local semiconductor production scale and localization efforts for SiC/GaN semiconductors to drive market

13.2.2 INDIA

13.2.2.1 Government incentives for local manufacturing and substantial investments by OEMs to drive market

13.2.3 JAPAN

13.2.3.1 Power semiconductor leadership and high ADAS integration to drive market

13.2.4 SOUTH KOREA

13.2.4.1 Strong local EV battery supply chains and high export focus to drive market

13.3 EUROPE

13.3.1 GERMANY

13.3.1.1 Premium EV platforms with high semiconductor content to drive market

13.3.2 FRANCE

13.3.2.1 Growing ADAS integration in passenger EVs to drive market

13.3.3 ITALY

13.3.3.1 SiC FAB scale-ups and robust supplier ecosystem to drive market

13.3.4 SPAIN

13.3.4.1 EU funding alignment and strong local manufacturing hub to drive market

13.3.5 UK

13.3.5.1 Increased SiC production and government-supported industrialization and development centers to drive market

## 13.4 NORTH AMERICA

### 13.4.1 US

13.4.1.1 Rigorous onshoring policies and supporting government funding to drive market

### 13.4.2 CANADA

13.4.2.1 Strong automotive semiconductor R&D and growing IC design hubs to drive market

### 13.4.3 MEXICO

13.4.3.1 Export-focused assembly hubs and integration into North American supply chains to drive market

## 14 COMPETITIVE LANDSCAPE

### 14.1 INTRODUCTION

### 14.2 KEY PLAYER STRATEGIES/RIGHT TO WIN, 2022–2025

### 14.3 MARKET SHARE ANALYSIS, 2024

### 14.4 REVENUE ANALYSIS, 2020–2024

### 14.5 COMPANY VALUATION AND FINANCIAL METRICS

### 14.6 BRAND/PRODUCT COMPARISON

### 14.7 COMPANY EVALUATION MATRIX: KEY PLAYERS, 2024

#### 14.7.1 STARS

#### 14.7.2 EMERGING LEADERS

#### 14.7.3 PERVASIVE PLAYERS

#### 14.7.4 PARTICIPANTS

#### 14.7.5 COMPANY FOOTPRINT

##### 14.7.5.1 Company footprint

##### 14.7.5.2 Region footprint

##### 14.7.5.3 Technology footprint

##### 14.7.5.4 Application footprint

##### 14.7.5.5 Propulsion footprint

### 14.8 COMPANY EVALUATION MATRIX: START-UPS/SMES, 2024

#### 14.8.1 PROGRESSIVE COMPANIES

#### 14.8.2 RESPONSIVE COMPANIES

#### 14.8.3 DYNAMIC COMPANIES

#### 14.8.4 STARTING BLOCKS

#### 14.8.5 COMPETITIVE BENCHMARKING

##### 14.8.5.1 List of start-ups/SMEs

##### 14.8.5.2 Competitive benchmarking of start-ups/SMEs

### 14.9 COMPETITIVE SCENARIO

- 14.9.1 PRODUCT LAUNCHES
- 14.9.2 DEALS
- 14.9.3 EXPANSIONS
- 14.9.4 OTHER DEVELOPMENTS

## **15 COMPANY PROFILES**

### **15.1 KEY PLAYERS**

#### **15.1.1 INFINEON TECHNOLOGIES AG**

- 15.1.1.1 Business overview
- 15.1.1.2 Products/Solutions offered
- 15.1.1.3 Recent developments
  - 15.1.1.3.1 Product launches/developments
  - 15.1.1.3.2 Deals
  - 15.1.1.3.3 Expansions
  - 15.1.1.3.4 Other developments
- 15.1.1.4 MnM view
  - 15.1.1.4.1 Right to win
  - 15.1.1.4.2 Strategic choices
  - 15.1.1.4.3 Weaknesses and competitive threats

#### **15.1.2 STMICROELECTRONICS**

- 15.1.2.1 Business overview
- 15.1.2.2 Products/Solutions offered
- 15.1.2.3 Recent developments
  - 15.1.2.3.1 Product launches/developments
  - 15.1.2.3.2 Deals
  - 15.1.2.3.3 Expansions
  - 15.1.2.3.4 Other developments
- 15.1.2.4 MnM view
  - 15.1.2.4.1 Right to win
  - 15.1.2.4.2 Strategic choices
  - 15.1.2.4.3 Weaknesses and competitive threats

#### **15.1.3 NXP SEMICONDUCTORS**

- 15.1.3.1 Business overview
- 15.1.3.2 Products/Solutions offered
- 15.1.3.3 Recent developments
  - 15.1.3.3.1 Product launches/developments
  - 15.1.3.3.2 Deals
  - 15.1.3.3.3 Expansions

- 15.1.3.3.4 Other developments
- 15.1.3.4 MnM view
  - 15.1.3.4.1 Right to win
  - 15.1.3.4.2 Strategic choices
  - 15.1.3.4.3 Weaknesses and competitive threats
- 15.1.4 TEXAS INSTRUMENTS INCORPORATED
  - 15.1.4.1 Business overview
  - 15.1.4.2 Products/Solutions offered
  - 15.1.4.3 Recent developments
    - 15.1.4.3.1 Product launches/developments
    - 15.1.4.3.2 Deals
    - 15.1.4.3.3 Expansions
    - 15.1.4.3.4 Other developments
  - 15.1.4.4 MnM view
    - 15.1.4.4.1 Right to win
    - 15.1.4.4.2 Strategic choices
    - 15.1.4.4.3 Weaknesses and competitive threats
- 15.1.5 RENESAS ELECTRONICS CORPORATION
  - 15.1.5.1 Business overview
  - 15.1.5.2 Products/Solutions offered
  - 15.1.5.3 Recent developments
    - 15.1.5.3.1 Product launches/developments
    - 15.1.5.3.2 Deals
    - 15.1.5.3.3 Expansions
    - 15.1.5.3.4 Other developments
  - 15.1.5.4 MnM view
    - 15.1.5.4.1 Right to win
    - 15.1.5.4.2 Strategic choices
    - 15.1.5.4.3 Weaknesses and competitive threats
- 15.1.6 QUALCOMM TECHNOLOGIES, INC.
  - 15.1.6.1 Business overview
  - 15.1.6.2 Products/Solutions offered
  - 15.1.6.3 Recent developments
    - 15.1.6.3.1 Product launches/developments
    - 15.1.6.3.2 Expansions
- 15.1.7 NVIDIA CORPORATION
  - 15.1.7.1 Business overview
  - 15.1.7.2 Products/Solutions offered
  - 15.1.7.3 Recent developments

- 15.1.7.3.1 Product launches/developments
- 15.1.7.3.2 Deals
- 15.1.8 SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
  - 15.1.8.1 Business overview
  - 15.1.8.2 Products/Solutions offered
  - 15.1.8.3 Recent developments
    - 15.1.8.3.1 Product launches/developments
    - 15.1.8.3.2 Deals
    - 15.1.8.3.3 Expansions
- 15.1.9 ANALOG DEVICES, INC.
  - 15.1.9.1 Business overview
  - 15.1.9.2 Products/Solutions offered
  - 15.1.9.3 Recent developments
    - 15.1.9.3.1 Deals
    - 15.1.9.3.2 Expansions
- 15.1.10 ROBERT BOSCH GMBH
  - 15.1.10.1 Business overview
  - 15.1.10.2 Products/Solutions offered
  - 15.1.10.3 Recent developments
    - 15.1.10.3.1 Product launches/developments
    - 15.1.10.3.2 Deals
    - 15.1.10.3.3 Expansions
- 15.1.11 MICRON TECHNOLOGY, INC.
  - 15.1.11.1 Business overview
  - 15.1.11.2 Products/Solutions offered
  - 15.1.11.3 Recent developments
    - 15.1.11.3.1 Expansions
    - 15.1.11.3.2 Other developments
- 15.1.12 MICROCHIP TECHNOLOGY INC.
  - 15.1.12.1 Business overview
  - 15.1.12.2 Products/Solutions offered
  - 15.1.12.3 Recent developments
    - 15.1.12.3.1 Product launches/developments
    - 15.1.12.3.2 Deals
    - 15.1.12.3.3 Expansions
- 15.2 OTHER PLAYERS
  - 15.2.1 TOSHIBA CORPORATION
  - 15.2.2 POLAR SEMICONDUCTOR, LLC
  - 15.2.3 ROHM CO., LTD.

- 15.2.4 MARVELL
- 15.2.5 BROADCOM
- 15.2.6 MITSUBISHI ELECTRIC CORPORATION
- 15.2.7 STARPOWER SEMICONDUCTOR LTD.
- 15.2.8 SEMIKRON DANFOSS
- 15.2.9 CAMBRIDGE GAN DEVICES
- 15.2.10 HUAWEI TECHNOLOGIES CO., LTD.
- 15.2.11 BOS SEMICONDUCTORS
- 15.2.12 ENSILICA
- 15.2.13 INDIE

## **16 RESEARCH METHODOLOGY**

- 16.1 RESEARCH DATA
  - 16.1.1 SECONDARY DATA
    - 16.1.1.1 Secondary sources
    - 16.1.1.2 Key data from secondary sources
  - 16.1.2 PRIMARY DATA
    - 16.1.2.1 Primary interviews: demand and supply sides
    - 16.1.2.2 Breakdown of primary interviews
    - 16.1.2.3 Primary participants
- 16.2 MARKET SIZE ESTIMATION
  - 16.2.1 BOTTOM-UP APPROACH
  - 16.2.2 TOP-DOWN APPROACH
- 16.3 DATA TRIANGULATION
- 16.4 FACTOR ANALYSIS
- 16.5 RESEARCH ASSUMPTIONS
- 16.6 RESEARCH LIMITATIONS
- 16.7 RISK ASSESSMENT

## **17 APPENDIX**

- 17.1 INSIGHTS FROM INDUSTRY EXPERTS
- 17.2 DISCUSSION GUIDE
- 17.3 KNOWLEDGESTORE: MARKETSDMARKETS' SUBSCRIPTION PORTAL
- 17.4 CUSTOMIZATION OPTIONS
  - 17.4.1 EV SEMICONDUCTORS MARKET FOR HYBRID ELECTRIC VEHICLES AT REGIONAL LEVEL (FOR COUNTRIES COVERED IN REPORT)
  - 17.4.2 EV SEMICONDUCTORS MARKET, BY TECHNOLOGY, FOR ADDITIONAL

COUNTRIES (FOR COUNTRIES NOT COVERED IN REPORT)

17.4.3 COMPANY INFORMATION (PROFILING OF UP TO FIVE ADDITIONAL  
MARKET PLAYERS)

17.5 RELATED REPORTS

17.6 AUTHOR DETAILS

## List Of Tables

### LIST OF TABLES

- TABLE 1 MARKET DEFINITION, BY TECHNOLOGY
- TABLE 2 MARKET DEFINITION, BY PROPULSION
- TABLE 3 MARKET DEFINITION, BY APPLICATION
- TABLE 4 MARKET DEFINITION, BY COMPONENT
- TABLE 5 CURRENCY EXCHANGE RATES, 2019–2024
- TABLE 6 AUTOMOTIVE SEMICONDUCTOR QUALIFICATION STANDARDS
- TABLE 7 SI VS. SIC VS. GAN
- TABLE 8 COMPARISON BETWEEN WIDE-BANDGAP MATERIALS
- TABLE 9 GROWTH IN EV ADOPTION IN SPECIFIC MARKETS
- TABLE 10 COLLABORATIONS BETWEEN TIER 1S AND OEMS
- TABLE 11 STRATEGIC OPPORTUNITIES IN NEXT-GEN EV SILICON
- TABLE 12 VEHICULAR CYBERATTACKS
- TABLE 13 TRADE RESTRICTIONS AND TARIFF IMPACT ON AUTOMOTIVE SEMICONDUCTORS IN US
- TABLE 14 IMPACT OF MARKET DYNAMICS
- TABLE 15 UNMET TECHNOLOGY NEEDS AND WHITE SPACES IN 800V POWER ELECTRONICS
- TABLE 16 EMERGING SEMICONDUCTOR OPPORTUNITIES IN ZONAL AND SDV ARCHITECTURES
- TABLE 17 STRATEGIC MOVES BY TIER-1/2/3 PLAYERS IN EV SEMICONDUCTORS MARKET
- TABLE 18 GDP PERCENTAGE CHANGE, BY COUNTRY, 2021–2030
- TABLE 19 ROLE OF COMPANIES IN ECOSYSTEM
- TABLE 20 AVERAGE SELLING PRICE OF EV SEMICONDUCTORS OFFERED BY KEY PLAYERS, 2024 (USD)
- TABLE 21 AVERAGE SELLING PRICE TREND, BY TECHNOLOGY, 2022–2024 (USD)
- TABLE 22 AVERAGE SELLING PRICE TREND, BY REGION, 2022–2024 (USD)
- TABLE 23 KEY CONFERENCES AND EVENTS, 2025–2026
- TABLE 24 IMPORT DATA FOR HS CODE 8541-COMPLIANT PRODUCTS, BY COUNTRY, 2020–2024 (USD BILLION)
- TABLE 25 EXPORT DATA FOR HS CODE 8541-COMPLIANT PRODUCTS, BY COUNTRY, 2020–2024 (USD BILLION)
- TABLE 26 TRADE RESTRICTIONS AND EFFECT ON EV SEMICONDUCTOR SUPPLY
- TABLE 27 US-CHINA EXPORT BANS TIMELINE AND EFFECT ON AUTOMOTIVE SEMICONDUCTORS

TABLE 28 EU SUBSIDIES AND EFFECT ON AUTOMOTIVE SEMICONDUCTORS

TABLE 29 LOCALIZATION EFFECT BY SEMICONDUCTOR CATEGORY ON OEM SOURCING

TABLE 30 TARIFF SNAPSHOT FOR SEMICONDUCTOR-RELATED GOODS

TABLE 31 IMPACT OF TARIFFS ON EV COMPONENT COSTS

TABLE 32 REGIONAL EXPOSURE PROFILE

TABLE 33 INDUSTRY-LEVEL EXPOSURE AND MITIGATION ACTIONS

TABLE 34 CURRENT STATUS AND SHORT/MID/LONG-TERM PROSPECTS OF SILICON-BASED AND WIDE-BANDGAP SEMICONDUCTORS

TABLE 35 PATENTS ANALYSIS

TABLE 36 FUTURE APPLICATIONS OF EV SEMICONDUCTORS

TABLE 37 TOP USE CASES AND MARKET POTENTIAL

TABLE 38 COMPANIES IMPLEMENTING AI/GEN AI

TABLE 39 CASE STUDIES OF AI/GEN AI IMPLEMENTATION IN EV SEMICONDUCTORS MARKET

TABLE 40 ADJACENT ECOSYSTEM AND IMPACT ON MARKET PLAYERS

TABLE 41 REGIONAL SEMICONDUCTOR HOTSPOTS AND LOCALIZATION DYNAMICS

TABLE 42 SUPPLY CHAIN RISKS IN SIC AND GAN WAFER CONCENTRATION

TABLE 43 POLICY DRIVES IN MAJOR ECONOMIES AFFECTING SEMICONDUCTORS MARKET

TABLE 44 SEMICONDUCTOR SHARE OF EV BILL OF MATERIALS

TABLE 45 ANALYSIS OF OEM SEMICONDUCTOR SOURCING MODELS

TABLE 46 COMPARATIVE ANALYSIS OF SEMICONDUCTOR STRATEGIES, BY OEM

TABLE 47 EV LAUNCH PIPELINE AND SEMICONDUCTOR DEMAND

TABLE 48 NORTH AMERICA: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 49 EUROPE: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 50 ASIA PACIFIC: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 51 GLOBAL INDUSTRY STANDARDS

TABLE 52 POLICY INITIATIVES AFFECTING SUSTAINABILITY IN EV SEMICONDUCTORS MARKET

TABLE 53 CERTIFICATIONS, LABELING, AND ECO-STANDARDS

TABLE 54 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS, BY TECHNOLOGY (%)

TABLE 55 KEY BUYING CRITERIA, BY TECHNOLOGY

TABLE 56 AUTOMOTIVE SEMICONDUCTOR PROFITABILITY, BY COMPONENT

TABLE 57 TECHNOLOGY COMPARISON IN EV SEMICONDUCTORS

TABLE 58 EV SEMICONDUCTORS MARKET, BY TECHNOLOGY, 2021–2024 (USD BILLION)

TABLE 59 EV SEMICONDUCTORS MARKET, BY TECHNOLOGY, 2025–2032 (USD BILLION)

TABLE 60 SILICON-BASED SEMICONDUCTOR OFFERINGS BY KEY PROVIDERS

TABLE 61 SILICON-BASED EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 62 SILICON-BASED EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 63 WIDE-BANDGAP SEMICONDUCTOR OFFERINGS BY KEY PROVIDERS

TABLE 64 WIDE-BANDGAP EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 65 WIDE-BANDGAP EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 66 EV SEMICONDUCTORS MARKET, BY PROPULSION, 2021–2024 (USD BILLION)

TABLE 67 EV SEMICONDUCTORS MARKET, BY PROPULSION, 2025–2032 (USD BILLION)

TABLE 68 SEMICONDUCTOR LAUNCHES/AGREEMENTS FOR BEVS, 2024–2025

TABLE 69 BEV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 70 BEV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 71 SEMICONDUCTOR LAUNCHES/AGREEMENTS FOR PHEVS, 2024–2025

TABLE 72 PHEV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 73 PHEV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 74 EV SEMICONDUCTORS MARKET, BY COMPONENT, 2021–2024 (USD BILLION)

TABLE 75 EV SEMICONDUCTORS MARKET, BY COMPONENT, 2025–2032 (USD BILLION)

TABLE 76 POWER IC & MODULE: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 77 POWER IC & MODULE: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 78 MICROCONTROLLER & PROCESSOR: EV SEMICONDUCTORS

MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 79 MICROCONTROLLER & PROCESSOR: EV SEMICONDUCTORS

MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 80 DISCRETE: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 81 DISCRETE: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 82 COMMUNICATION & INTERFACE IC: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 83 COMMUNICATION & INTERFACE IC: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 84 SENSOR IC: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 85 SENSOR IC: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 86 GATE DRIVER IC: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 87 GATE DRIVER IC: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 88 MEMORY & STORAGE IC: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 89 MEMORY & STORAGE IC: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 90 OTHER SEMICONDUCTORS: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 91 OTHER SEMICONDUCTORS: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 92 EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 93 EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 94 BMS: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 95 BMS: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 96 POWERTRAIN SYSTEM: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 97 POWERTRAIN SYSTEM: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 98 ADAS: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 99 ADAS: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 100 BODY & CHASSIS: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 101 BODY & CHASSIS: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 102 INFOTAINMENT & CONNECTIVITY: EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 103 INFOTAINMENT & CONNECTIVITY: EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 104 EV SEMICONDUCTORS MARKET, BY REGION, 2021–2024 (USD BILLION)

TABLE 105 EV SEMICONDUCTORS MARKET, BY REGION, 2025–2032 (USD BILLION)

TABLE 106 ASIA PACIFIC: EV SEMICONDUCTORS MARKET, BY COUNTRY, 2021–2024 (USD BILLION)

TABLE 107 ASIA PACIFIC: EV SEMICONDUCTORS MARKET, BY COUNTRY, 2025–2032 (USD BILLION)

TABLE 108 CHINA: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 109 CHINA: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 110 INDIA: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 111 INDIA: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 112 JAPAN: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 113 JAPAN: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 114 SOUTH KOREA: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 115 SOUTH KOREA: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 116 EUROPE: EV SEMICONDUCTORS MARKET, BY COUNTRY, 2021–2024 (USD BILLION)

TABLE 117 EUROPE: EV SEMICONDUCTORS MARKET, BY COUNTRY, 2025–2032

(USD BILLION)

TABLE 118 GERMANY: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 119 GERMANY: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 120 FRANCE: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 121 FRANCE: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 122 ITALY: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 123 ITALY: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 124 SPAIN: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 125 SPAIN: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 126 UK: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 127 UK: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 128 NORTH AMERICA: EV SEMICONDUCTORS MARKET, BY COUNTRY, 2021–2024 (USD BILLION)

TABLE 129 NORTH AMERICA: EV SEMICONDUCTORS MARKET, BY COUNTRY, 2025–2032 (USD BILLION)

TABLE 130 US: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 131 US: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 132 CANADA: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 133 CANADA: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 134 MEXICO: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2021–2024 (USD BILLION)

TABLE 135 MEXICO: EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025–2032 (USD BILLION)

TABLE 136 KEY PLAYER STRATEGIES/RIGHT TO WIN, 2022–2025

TABLE 137 EV SEMICONDUCTORS MARKET: DEGREE OF COMPETITION, 2024

TABLE 138 REGION FOOTPRINT

TABLE 139 TECHNOLOGY FOOTPRINT

TABLE 140 APPLICATION FOOTPRINT

TABLE 141 PROPULSION FOOTPRINT

TABLE 142 LIST OF START-UPS/SMES

TABLE 143 COMPETITIVE BENCHMARKING OF START-UPS/SMES (1/2)

TABLE 144 COMPETITIVE BENCHMARKING OF START-UPS/SMES (2/2)

TABLE 145 EV SEMICONDUCTORS MARKET: PRODUCT LAUNCHES/DEVELOPMENTS, 2022–2025

TABLE 146 EV SEMICONDUCTORS MARKET: DEALS, 2022–2025

TABLE 147 EV SEMICONDUCTORS MARKET: EXPANSIONS, 2022–2025

TABLE 148 EV SEMICONDUCTORS MARKET: OTHER DEVELOPMENTS, 2022–2025

TABLE 149 INFINEON TECHNOLOGIES AG: COMPANY OVERVIEW

TABLE 150 INFINEON TECHNOLOGIES AG: SEMICONDUCTOR SUPPLY DEALS, BY OEM

TABLE 151 INFINEON TECHNOLOGIES AG: PRODUCTS/SOLUTIONS OFFERED

TABLE 152 INFINEON TECHNOLOGIES AG: PRODUCT LAUNCHES/DEVELOPMENTS

TABLE 153 INFINEON TECHNOLOGIES AG: DEALS

TABLE 154 INFINEON TECHNOLOGIES AG: EXPANSIONS

TABLE 155 INFINEON TECHNOLOGIES AG: OTHER DEVELOPMENTS

TABLE 156 STMICROELECTRONICS: COMPANY OVERVIEW

TABLE 157 STMICROELECTRONICS: PRODUCTS/SOLUTIONS OFFERED

TABLE 158 STMICROELECTRONICS: PRODUCT LAUNCHES/DEVELOPMENTS

TABLE 159 STMICROELECTRONICS: DEALS

TABLE 160 STMICROELECTRONICS: EXPANSIONS

TABLE 161 STMICROELECTRONICS: OTHER DEVELOPMENTS

TABLE 162 NXP SEMICONDUCTORS: COMPANY OVERVIEW

TABLE 163 NXP SEMICONDUCTORS: SEMICONDUCTOR SUPPLY DEALS, BY OEM

TABLE 164 NXP SEMICONDUCTORS: PRODUCTS/SOLUTIONS OFFERED

TABLE 165 NXP SEMICONDUCTORS: PRODUCT LAUNCHES/DEVELOPMENTS

TABLE 166 NXP SEMICONDUCTORS: DEALS

TABLE 167 NXP SEMICONDUCTORS: EXPANSIONS

TABLE 168 NXP SEMICONDUCTORS: OTHER DEVELOPMENTS

TABLE 169 TEXAS INSTRUMENTS INCORPORATED: COMPANY OVERVIEW

TABLE 170 TEXAS INSTRUMENTS INCORPORATED: PRODUCTS/SOLUTIONS OFFERED

TABLE 171 TEXAS INSTRUMENTS INCORPORATED: PRODUCT LAUNCHES/DEVELOPMENTS

TABLE 172 TEXAS INSTRUMENTS INCORPORATED: DEALS

TABLE 173 TEXAS INSTRUMENTS INCORPORATED: EXPANSIONS

TABLE 174 TEXAS INSTRUMENTS INCORPORATED: OTHER DEVELOPMENTS

TABLE 175 RENESAS ELECTRONICS CORPORATION: COMPANY OVERVIEW

TABLE 176 RENESAS ELECTRONICS CORPORATION: SEMICONDUCTOR SUPPLY DEALS, BY OEM

TABLE 177 RENESAS ELECTRONICS CORPORATION: PRODUCTS/SOLUTIONS OFFERED

TABLE 178 RENESAS ELECTRONICS CORPORATION: PRODUCT LAUNCHES/DEVELOPMENTS

TABLE 179 RENESAS ELECTRONICS CORPORATION: DEALS

TABLE 180 RENESAS ELECTRONICS CORPORATION: EXPANSIONS

TABLE 181 RENESAS ELECTRONICS CORPORATION: OTHER DEVELOPMENTS

TABLE 182 QUALCOMM TECHNOLOGIES, INC.: COMPANY OVERVIEW

TABLE 183 QUALCOMM TECHNOLOGIES, INC.: PRODUCTS/SOLUTIONS OFFERED

TABLE 184 QUALCOMM TECHNOLOGIES, INC.: PRODUCT LAUNCHES/DEVELOPMENTS

TABLE 185 QUALCOMM TECHNOLOGIES, INC.: EXPANSIONS

TABLE 186 NVIDIA CORPORATION: COMPANY OVERVIEW

TABLE 187 NVIDIA CORPORATION: PRODUCTS/SOLUTIONS OFFERED

TABLE 188 NVIDIA CORPORATION: PRODUCT LAUNCHES/DEVELOPMENTS

TABLE 189 NVIDIA CORPORATION: DEALS

TABLE 190 SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC: COMPANY OVERVIEW

TABLE 191 SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC: PRODUCTS/SOLUTIONS OFFERED

TABLE 192 SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC: PRODUCT LAUNCHES/DEVELOPMENTS

TABLE 193 SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC: DEALS

TABLE 194 SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC: EXPANSIONS

TABLE 195 ANALOG DEVICES, INC.: COMPANY OVERVIEW

TABLE 196 ANALOG DEVICES, INC.: PRODUCTS/SOLUTIONS OFFERED

TABLE 197 ANALOG DEVICES, INC.: DEALS

TABLE 198 ANALOG DEVICES, INC.: EXPANSIONS

TABLE 199 ROBERT BOSCH GMBH: COMPANY OVERVIEW

TABLE 200 ROBERT BOSCH GMBH: PRODUCTS/SOLUTIONS OFFERED

TABLE 201 ROBERT BOSCH GMBH: PRODUCT LAUNCHES/DEVELOPMENTS

TABLE 202 ROBERT BOSCH GMBH: DEALS

TABLE 203 ROBERT BOSCH GMBH: EXPANSIONS

TABLE 204 MICRON TECHNOLOGY, INC.: COMPANY OVERVIEW

TABLE 205 MICRON TECHNOLOGY, INC.: PRODUCTS/SOLUTIONS OFFERED

TABLE 206 MICRON TECHNOLOGY, INC.: EXPANSIONS

TABLE 207 MICRON TECHNOLOGY, INC.: OTHER DEVELOPMENTS

TABLE 208 MICROCHIP TECHNOLOGY INC.: COMPANY OVERVIEW

TABLE 209 MICROCHIP TECHNOLOGY INC.: PRODUCTS/SOLUTIONS OFFERED

TABLE 210 MICROCHIP TECHNOLOGY INC.: PRODUCT LAUNCHES/DEVELOPMENTS

TABLE 211 MICROCHIP TECHNOLOGY INC.: DEALS

TABLE 212 MICROCHIP TECHNOLOGY INC.: EXPANSIONS

TABLE 213 TOSHIBA CORPORATION: COMPANY OVERVIEW

TABLE 214 POLAR SEMICONDUCTOR, LLC: COMPANY OVERVIEW

TABLE 215 ROHM CO., LTD.: COMPANY OVERVIEW

TABLE 216 MARVELL: COMPANY OVERVIEW

TABLE 217 BROADCOM: COMPANY OVERVIEW

TABLE 218 MITSUBISHI ELECTRIC CORPORATION: COMPANY OVERVIEW

TABLE 219 STARPOWER SEMICONDUCTOR LTD.: COMPANY OVERVIEW

TABLE 220 SEMIKRON DANFOSS: COMPANY OVERVIEW

TABLE 221 CAMBRIDGE GAN DEVICES: COMPANY OVERVIEW

TABLE 222 HUAWEI TECHNOLOGIES CO., LTD.: COMPANY OVERVIEW

TABLE 223 BOS SEMICONDUCTORS: COMPANY OVERVIEW

TABLE 224 ENSILICA: COMPANY OVERVIEW

TABLE 225 INDIE: COMPANY OVERVIEW

## List Of Figures

### LIST OF FIGURES

FIGURE 1 EV SEMICONDUCTORS MARKET SEGMENTATION

FIGURE 2 KEY INSIGHTS AND MARKET HIGHLIGHTS

FIGURE 3 STRATEGIES ADOPTED BY KEY PLAYERS IN EV SEMICONDUCTORS MARKET

FIGURE 4 DISRUPTIVE TRENDS IMPACTING EV SEMICONDUCTORS MARKET

FIGURE 5 POWER IC AND MODULE TO BE LARGEST COMPONENT IN 2025

FIGURE 6 EUROPE TO BE FASTEST-GROWING REGION DURING FORECAST PERIOD

FIGURE 7 800V ARCHITECTURE SHIFT AND HIGH-PERFORMANCE MCUS FOR ADAS AND INFOTAINMENT TO DRIVE MARKET

FIGURE 8 WIDE-BANDGAP SEMICONDUCTOR TO RECORD HIGHER CAGR THAN SILICON-BASED SEMICONDUCTOR DURING FORECAST PERIOD

FIGURE 9 BEV TO HOLD HIGHER SHARE THAN PHEV DURING FORECAST PERIOD

FIGURE 10 POWERTRAIN SYSTEM TO SECURE LEADING POSITION DURING FORECAST PERIOD

FIGURE 11 POWER IC & MODULE TO SURPASS OTHER SEGMENTS DURING FORECAST PERIOD

FIGURE 12 ASIA PACIFIC TO BE LARGEST MARKET FOR EV SEMICONDUCTORS IN 2025

FIGURE 13 EV SEMICONDUCTORS MARKET DYNAMICS

FIGURE 14 SEMICONDUCTORS FITTED IN PASSENGER CARS

FIGURE 15 MONOLITHIC VS. CHIPLET APPROACH

FIGURE 16 EV SALES IN SELECT MARKETS, 2019–2024

FIGURE 17 CYBERATTACK TARGET AREAS IN VEHICLES

FIGURE 18 ECOSYSTEM ANALYSIS

FIGURE 19 SUPPLY CHAIN ANALYSIS

FIGURE 20 AVERAGE SELLING PRICE TREND, BY TECHNOLOGY, 2022–2024 (USD)

FIGURE 21 AVERAGE SELLING PRICE TREND, BY REGION, 2022–2024 (USD)

FIGURE 22 TRENDS/DISRUPTIONS IMPACTING CUSTOMER BUSINESS

FIGURE 23 INVESTMENT AND FUNDING SCENARIO, 2023–2025 (USD BILLION)

FIGURE 24 IMPORT DATA FOR HS CODE 8541-COMPLIANT PRODUCTS, BY COUNTRY, 2020–2024 (USD BILLION)

FIGURE 25 EXPORT DATA FOR HS CODE 8541-COMPLIANT PRODUCTS, BY COUNTRY, 2020–2024 (USD BILLION)

FIGURE 26 BLOCK DIAGRAM OF 800V SIC-BASED TRACTION INVERTER ARCHITECTURE

FIGURE 27 STRUCTURAL DIAGRAM OF GAN HEMT

FIGURE 28 ADVANCED SEMICONDUCTOR PACKAGING TECHNOLOGIES

FIGURE 29 TRANSITION FROM SILICON TO WIDE-BANDGAP SEMICONDUCTORS

FIGURE 30 PATENT ANALYSIS

FIGURE 31 AI/GEN AI USE CASES IN SEMICONDUCTOR DESIGN AND VERIFICATION

FIGURE 32 SEMICONDUCTOR BOM: ICE VS. BEV, 2024–2030

FIGURE 33 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS, BY TECHNOLOGY

FIGURE 34 KEY BUYING CRITERIA, BY TECHNOLOGY

FIGURE 35 EV SEMICONDUCTORS MARKET, BY TECHNOLOGY, 2025 VS. 2032 (USD BILLION)

FIGURE 36 EV SEMICONDUCTORS MARKET, BY PROPULSION, 2025 VS. 2032 (USD BILLION)

FIGURE 37 EV SEMICONDUCTORS MARKET, BY COMPONENT, 2025 VS. 2032 (USD BILLION)

FIGURE 38 ELECTRIC MOTOR CONTROL BLOCK DIAGRAM

FIGURE 39 MCUS FOR EV CONTROL PLATFORMS

FIGURE 40 AUTOMOTIVE-GRADE PHASE CHANGE MEMORY CELL STRUCTURE

FIGURE 41 EV SEMICONDUCTOR COST PER VEHICLE (%)

FIGURE 42 EV SEMICONDUCTORS MARKET, BY APPLICATION, 2025 VS. 2032 (USD BILLION)

FIGURE 43 BMS SEMICONDUCTOR ARCHITECTURE

FIGURE 44 DOMAIN AND ZONAL CONTROL SEMICONDUCTORS

FIGURE 45 CONNECTED VEHICLE FEATURE SEMICONDUCTORS

FIGURE 46 EV SEMICONDUCTORS MARKET, BY REGION, 2025 VS. 2032 (USD BILLION)

FIGURE 47 ASIA PACIFIC: EV SEMICONDUCTORS MARKET SNAPSHOT

FIGURE 48 EUROPE: EV SEMICONDUCTORS MARKET SNAPSHOT

FIGURE 49 UK: ELECTRIC VEHICLE ROADMAP

FIGURE 50 NORTH AMERICA: EV SEMICONDUCTORS MARKET SNAPSHOT

FIGURE 51 MARKET SHARE ANALYSIS OF KEY PLAYERS, 2024

FIGURE 52 REVENUE ANALYSIS OF TOP FIVE PLAYERS, 2020–2024 (USD BILLION)

FIGURE 53 COMPANY VALUATION (USD BILLION)

FIGURE 54 FINANCIAL METRICS (EV/EBITDA)

FIGURE 55 BRAND/PRODUCT COMPARISON

FIGURE 56 COMPANY EVALUATION MATRIX (KEY PLAYERS), 2024  
FIGURE 57 COMPANY FOOTPRINT  
FIGURE 58 COMPANY EVALUATION MATRIX (START-UPS/SMES), 2024  
FIGURE 59 INFINEON TECHNOLOGIES AG: COMPANY SNAPSHOT  
FIGURE 60 STMICROELECTRONICS: COMPANY SNAPSHOT  
FIGURE 61 NXP SEMICONDUCTORS: COMPANY SNAPSHOT  
FIGURE 62 TEXAS INSTRUMENTS INCORPORATED: COMPANY SNAPSHOT  
FIGURE 63 RENESAS ELECTRONICS CORPORATION: COMPANY SNAPSHOT  
FIGURE 64 QUALCOMM TECHNOLOGIES, INC.: COMPANY SNAPSHOT  
FIGURE 65 NVIDIA CORPORATION: COMPANY SNAPSHOT  
FIGURE 66 SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC: COMPANY SNAPSHOT  
FIGURE 67 ANALOG DEVICES, INC.: COMPANY SNAPSHOT  
FIGURE 68 ROBERT BOSCH GMBH: COMPANY SNAPSHOT  
FIGURE 69 MICRON TECHNOLOGY, INC.: COMPANY SNAPSHOT  
FIGURE 70 MICROCHIP TECHNOLOGY INC.: COMPANY SNAPSHOT  
FIGURE 71 RESEARCH DESIGN  
FIGURE 72 RESEARCH DESIGN MODEL  
FIGURE 73 KEY INDUSTRY INSIGHTS  
FIGURE 74 RESEARCH METHODOLOGY: HYPOTHESIS BUILDING  
FIGURE 75 BOTTOM-UP APPROACH  
FIGURE 76 TOP-DOWN APPROACH  
FIGURE 77 DATA TRIANGULATION  
FIGURE 78 GROWTH PROJECTIONS FROM DEMAND-SIDE DRIVERS

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