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The Global Power Management IC Market 2027–2037

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Abstracts

Power management ICs are among the least visible but most strategic components in modern electronics. They convert, regulate, protect and monitor every voltage rail, from a smartphone's battery to an AI accelerator drawing more than a thousand amps. After a sharp correction in 2023 and a flat 2024, the market has entered a strong recovery led by artificial intelligence. Power design has moved from a supporting role to a primary constraint on system performance. The clearest change is in the data center. AI rack power is rising very quickly, from roughly 150kW for current GPU platforms toward 600kW and eventually megawatt-class racks. To cope, the industry is moving from 12V and 48V distribution to 800V high-voltage DC architectures, with NVIDIA working alongside a broad ecosystem of power semiconductor suppliers. Close to the processor, multiphase controllers, smart power stages and vertical power delivery are now refreshed every year, keeping pace with each new GPU generation. Consolidation reflects the stakes. Analog Devices acquired Empower Semiconductor in 2026 for its integrated voltage regulator and silicon capacitor technology, and Texas Instruments agreed to acquire Silicon Labs.

Manufacturing has become an equally important part of the story. The leading foundries are cutting 8-inch capacity, shifting investment toward advanced logic, memory and packaging. That has tightened the supply of BCD processes, the industry's main platform, and triggered price increases in 2025–2026. Integrated manufacturers are responding with 300mm analog and power fabs, including Texas Instruments in Sherman and Lehi and Infineon's new Smart Power Fab in Dresden. Meanwhile, Chinese foundries and fabless designers are expanding fast under localisation policies.

In vehicles, demand is being reshaped by 800V platforms, zonal architectures, ADAS compute and stricter battery-safety rules such as China's GB 38031-2025. Each of these adds gate drivers, isolated power, battery monitoring ICs and functionally safe PMICs per vehicle. Robotics, and humanoid robots in particular, is emerging as the next

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wave of demand, needing compact, efficient drive and power conversion in every joint. Consumer electronics is maturing, and growth there now tracks rising power draw from on-device AI rather than unit volumes. Looking ahead, the market will be shaped by several forces:

integration moving from the circuit board into the processor package

gallium nitride entering integrated power ICs

BCD processes migrating to finer nodes on 300mm wafers

intensifying competition from Chinese suppliers

geopolitics pushing supply chains toward regional self-sufficiency

Suppliers that combine process capability, packaging know-how and early alignment with AI platforms are best positioned through 2037. The Global Power Management IC Market 2027–2037 is a comprehensive analysis of the semiconductors that convert, regulate and protect power across every electronic system. Power management has become a strategic bottleneck. AI data centres are moving toward megawatt racks and 800V HVDC distribution, vehicles are adopting 800V platforms and zonal architectures, and robotics is creating demand for dense, efficient power conversion at every joint. At the same time, capacity is being restructured: 8-inch fabs are closing, BCD processes are migrating to 300mm wafers and finer nodes, and the 2025–2026 repricing cycle has changed supplier economics.

The report provides ten-year forecasts by application, IC type, process platform, BCD technology node, wafer size and region, supported by unit shipments, average selling prices and wafer demand. It explains the technology shifts redefining the industry, including vertical power delivery, integrated voltage regulators, digital multiphase control, GaN power ICs, BCD-on-SOI for isolated gate drivers, and new packaging and passive-integration approaches. Applications are analysed in depth, with content-per-system estimates for AI racks, vehicles by powertrain, smartphones and humanoid robots.

The supply-chain analysis covers integrated, fab-lite and fabless business models, the BCD foundry landscape and capacity, regional supply chains in the US, Europe, Japan and China, and the effects of export controls, tariffs and localisation policy. The

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competitive analysis ranks the leading suppliers, maps leadership by IC type and application, tracks mergers, acquisitions and partnerships, and assesses how Chinese challengers are moving into automotive, industrial and data centre markets. Bear, base and bull scenarios, a sensitivity analysis and strategic recommendations support planning for suppliers, foundries, OEMs, hyperscalers and investors. The report ends with 63 detailed company profiles.

Report contents include:

Research scope, PMIC definitions, segmentation and methodology

Executive summary with headline forecasts, key findings, and winners and losers

PMIC technology landscape:

converter topologies

LDMOS and smart power stages

BCD, BCD-on-SOI, CMOS and GaN platforms

isolation and integration

vertical power delivery and integrated voltage regulators

packaging and the roadmap to 2037

Market dynamics: drivers, restraints, trends, pricing and the 2025–2026 repricing cycle

Applications:

AI data centres and 800V HVDC

communications infrastructure

automotive, covering 800V, zonal architectures, ADAS and battery management

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industrial and robotics

consumer and mobile

medical, aerospace and defence

emerging applications

Supply chain, manufacturing, BCD foundry capacity, the 8-inch to 12-inch transition and geopolitics

Competitive landscape: market shares, concentration, M&A and partnership deal log, strategies

Regional analysis by region of consumption and by supplier headquarters

Ten-year forecasts, 2027–2037, by application, IC type, platform, node, wafers, units, ASP and region

Scenarios, sensitivities, leading indicators and strategic recommendations

63 company profiles including 3PEAK, Allegro MicroSystems, Alpha and Omega Semiconductor, Analog Devices, Apple, Awinic Technology, Cambridge GaN Devices, CanSemi, Chipown Microelectronics, Cirrus Logic, DB HiTek, Diodes Incorporated, e-peas, Efficient Power Conversion (EPC), Empower Semiconductor, Ferric, GlobalFoundries, GTA Semiconductor, Halo Microelectronics, Hua Hong Semiconductor, Infineon Technologies, Innoscience, Joulwatt Technology, LX Semicon, Maxic Technology, MediaTek/Richtek, Microchip Technology, Monolithic Power Systems, Navitas Semiconductor, Nexchip, Nexperia, Nisshinbo Micro Devices, Nordic Semiconductor and more...

Each of the company profiles includes a key-facts panel (founding year, headquarters, ownership, employees, revenue, manufacturing model, CEO and core focus), why the company matters to the PMIC market, a company description, its power management portfolio or platform technology, manufacturing and process capabilities, recent developments for 2025–2026, a

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supporting data table, a Future Markets view of its strategic significance, its competitive context, and its website.

Companion Excel data workbook

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