

Power Management Integrated Circuit - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The Power Management Integrated Circuit Market size is estimated at USD 35.94 billion in 2024, and is expected to reach USD 44.05 billion by 2029, growing at a CAGR of 4.16% during the forecast period (2024-2029).

Key Highlights

-This growth is largely owing to the fact that every electronic component needs to be controlled and powered, irrespective of the required voltage or the final application. The market has been gaining momentum as major players have been looking toward pushing the limits of power by developing new processes, packaging, and circuit design technologies for delivering suitable devices as per the application. Power management IC has been gaining usability in enhancing power density, extending battery life, reducing electromagnetic interference, preserving power and signal integrity, and maintaining safety in the presence of high voltages.

-Starting with the power density factor, the board area and height are becoming limiting factors as power demands increase. Power designers are squeezing more circuitry into their applications to differentiate their products while also increasing efficiency and enhancing thermal performance. Moreover, in battery-operated systems, the need to achieve high efficiency at no or light-load conditions has been paving the way for power solutions to regulate the output while maintaining ultra-low supply current tightly.

-Electromagnetic interference (EMI) is a key requirement of increasing importance in electronic systems, especially in new applications such as automotive and industrial. Thus, designing for low EMI IC can save significant development cycle times while also reducing board area and solution cost. The ability to monitor, condition, and process signals in the power chain is critical in order to maximize system performance and reliability. High-precision systems require accurate low-noise references, as well as supply rails with low noise and ripple. Thus, advanced power management ICs are significantly required for increased accuracy and minimum distortion.

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- Power management integrated circuits are crucial components in electronic devices and are designed to achieve efficiency in power management. However, in the PMIC design process, designers often face multiple challenges ranging from power losses to thermal management, affecting the electronic device's efficiency and performance. Such factors are expected to hinder the growth of the market.
- In the post-COVID scenario, the start of 2022 was crucial as well as highly difficult for the global consumer electronics market due to numerous factors. For instance, the impact of the war in Ukraine and runaway inflation led consumer sentiment to plummet across the board. Additionally, in spring 2022, there were lockdowns in the largest sales market, China, which further negatively impacted sales.
- For instance, the shortage of power management ICs (PMIC) was compounded by a recent surge in COVID-19 infections in China's Suzhou that caused many semiconductor firms to temporarily suspend production. Notably, the football World Cup in the fourth quarter was expected to offer an opportunity to compensate for the weak first half of the year, but experience has shown that major events such as increased demand, particularly for TVs. However, given the poor consumer sentiment, this effect was not big enough to keep sales in the consumer electronics market from decreasing during 2022 overall.

Power Management Integrated Circuit (PMIC) Market Trends

Automotive to be the Fastest Growing End-user Industry

- The automotive is one of the significant end users of the market studied. The advancement in automotive and its manufacturing is also driving the need for compact, power-efficient devices. The growing automotive production and the addition of advanced features in the automotive are some of the major factors driving the demand for power management ICs in the automotive sector.
- Power in automotive applications demands high reliability, efficiency, and different safety functionality. The growing need for broad voltage input or multiphase power, support for automotive safety integrity level (ASIL), or full-system energy for high-powered system-on-chips (SoCs) is fueling the demand for power management integrated circuits (PMICs) in the automotive sector. Advanced driver assistance systems (ADAS) encompassing camera and radar technologies, infotainment and cluster systems, active safety features, body electronics and lighting control, as well as electric, hybrid, and powertrain systems, represent some of the significant scopes for PMIC applications.
- Considering the growing demand from the automobile industry, vendors are launching innovative solutions regularly, which is supporting the growth of the market studied. For instance, in March 2022, Allegro MicroSystems Inc., a provider of motion control and energy-efficient systems sensing and power solutions, shipped the three billionth motor driver integrated circuit (IC), demonstrating the strength of its motion control business.
- In recent years, the electric vehicle industry has witnessed remarkable growth, driven by growing consumer awareness and supporting government regulations as global environmental concerns rise. For instance, according to the International Energy Agency (IEA), there were approximately 25.9 million electric vehicles worldwide in 2022. All-electric vehicles accounted for about 69.5% of plug-in electric vehicles that year.
- Furthermore, according to IEA, between 2026 and 2022, the sales share of electric vehicles in the passenger car segment increased from 0.89% to 14%. As the demand for EVs in the passenger segment continues to grow, the studied market will witness a higher demand during the forecast period.

Asia-Pacific to Dominate the Market

- The market in Asia-Pacific is expected to increase owing to rising consumer electronics sales, government initiatives to boost

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electronics manufacturing, the presence of several companies, and investments in other industries.

- The Asia-Pacific region has gained prominence in the Power Management IC Market, owing to the presence of major semiconductor manufacturers, the rapid expansion of consumer electronics markets, and the growing adoption of smart devices. Key players in the region's market include China, India, South Korea, and Japan, which have made significant strides in the semiconductor industry. The region commands a substantial market share due to the widespread adoption of advanced electronic devices.

- Moreover, the region's adoption of the 5G network and the rising investments in the telecom sector are expected to drive the market for PMICs. According to a survey conducted by the Taiwan Network Information Center, in 2022, 19% of Taiwanese respondents have availed themselves of 5G, a significant increase from 2% in 2020. This rapid adoption is anticipated to fuel the telecom industry in the region, resulting in a substantial demand for potent chips, thereby necessitating OSTA services.

- As per the GSMA, the Asia-Pacific region is projected to witness approximately 1.4 billion 5G connections by the conclusion of 2030. This growth is expected to be propelled by a decline in the average cost of 5G devices, swift network expansion in numerous nations, and concerted efforts by prominent governments. Furthermore, the 5G domain advancements have also contributed to market expansion. The Ministry of Science and ICT has reported that as of February 2023, the nation has 29.13 million 5G subscribers, indicating a 113% surge compared to 13.66 million 5G subscribers in February 2021.

- Moreover, the rising region's automotive sector across various countries like India, China, Japan, and others is expected to drive the demand for the market further. For instance, The automotive industry in China is expanding rapidly, and the region is assuming a more prominent position in the global auto industry. China is among the leading nations in adopting electric vehicles, which are gaining popularity. In 2022, the China Passenger Car Association reported that 5.67 million EVs and plug-ins were sold in China as consumers shifted from gas-guzzling models due to government incentives and elevated oil prices. The EV industry is expected to drive a rapid increase in demand for car power management solutions, thereby driving the need for PMIC devices.

Power Management Integrated Circuit (PMIC) Industry Overview

The power management integrated circuit (IC) market is characterized by a high degree of fragmentation, featuring prominent players like Texas Instruments Incorporated, Semiconductor Components LLC (onsemi), Analog Devices Inc., ROHM Co. Ltd, and Vishay Intertechnology Inc. These key players in the market are actively pursuing various strategies, including partnerships and acquisitions, to enhance their product portfolios and establish sustainable competitive advantages.

In April 2023, Texas Instruments made a significant announcement regarding its latest offering, the SimpleLink family of Wi-Fi 6 companion integrated circuits (ICs). These ICs are designed to cater to applications operating in high-density or high-temperature environments, with the capability to withstand temperatures up to 105°C. The initial products within TI's new CC33xx family encompass options for Wi-Fi 6 connectivity alone, as well as Wi-Fi 6 paired with Bluetooth Low Energy 5.3 connectivity, all integrated into a single IC. This innovative solution facilitates a secure IoT connection with dependable RF performance when interfacing with a microcontroller unit (MCU) or processor, particularly in industrial sectors like grid infrastructure, medical, and building automation.

In May 2023, Semiconductor Components LLC (onsemi) announced a strategic partnership with Vitseco Technologies aimed at bolstering SiC (Silicon Carbide) technology capacity expansion. The two companies have entered into a substantial 10-year long-term supply agreement valued at USD 1.9 billion, primarily centered on SiC products. Under the terms of this agreement, Vitseco will inject USD 250 million in investment to Onsemi for the acquisition of new equipment dedicated to SiC wafer production, boule growth, and epitaxy processes. This strategic move is intended to secure a stable and robust SiC capacity for the future, ensuring both companies are well-positioned to meet growing market demands.

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