INNOVATION WITH PURPOSE
ALLEGRO microsystems

ROBUST AND EFFICIENT POWER SUPPLY UNITS (PSUs) FOR CLOUD INFRASTRUCTURE

Advanced ICs for improved energy efficiency

In the ever-evolving landscape of cloud computing, efficient and dependable Power Supply Units (PSUs) are more critical than ever. Allegro MicroSystems recognizes the multifaceted challenges faced by PSU engineers, from maximizing power capacity and efficiency to ensuring redundancy and seamless thermal management.

We boast an advanced portfolio of ICs that are specifically designed to provide tangible benefits for PSU engineers, directly enabling them to maximize power capacity and efficiency while ensuring redundancy and seamless thermal management. Our state-of-the-art current sensors facilitate precise real-time monitoring and control for both input and low-voltage DC output stages, contributing to phenomenal power density. Our isolated gate drivers, optimized for next-generation wide-bandgap devices, minimize power losses and allow for compact designs. Furthermore, our efficient fan motor drivers contribute to optimal cooling performance and reduced acoustic noise. These product innovations are crucial for developing PSUs that offer precise load monitoring for dynamic fan control, robust power conversion to achieve higher efficiency ratings, and comprehensive system protection, all within a minimized footprint.

What you can achieve with Allegro solutions

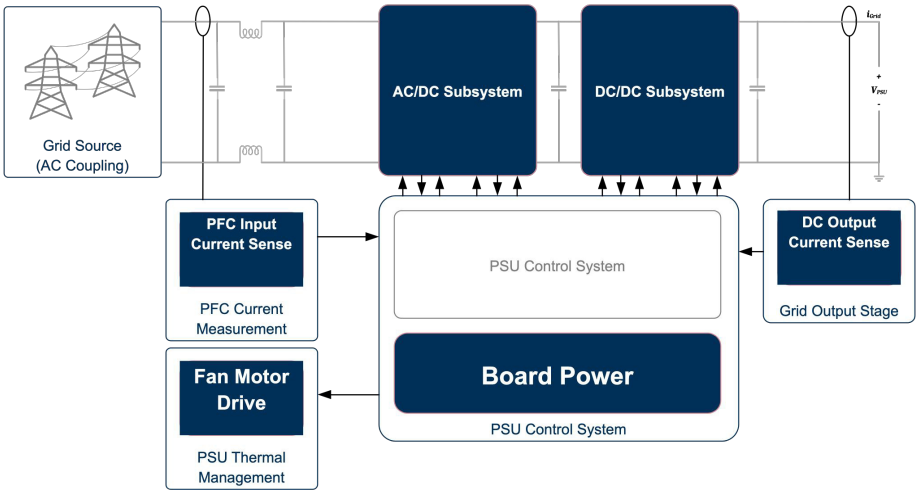
- **Power Capacity & Efficiency:** Allegro's current sensors and gate drivers minimize power losses, enabling higher efficiency ratings (80 PLUS Platinum/Titanium) and maximizing power delivery within a compact footprint.
- **Redundancy & Reliability:** Our integrated power monitoring ICs facilitate real-time system monitoring, enabling N+1 redundancy configurations and proactive fault detection for continuous operation.
- **Thermal Management:** Allegro's advanced motor driver enable efficient dynamic fan control, optimizing cooling performance and minimizing noise.

As cloud infrastructure continues to expand and data centers push for greater efficiency and reliability, the power supply units (PSUs) that drive them become increasingly critical.

Allegro MicroSystems' advanced current sensors, gate drivers, and thermal management solutions provide the precision, efficiency, and robustness required to optimize power delivery and ensure uninterrupted operation in modern data centers.

Market-Leading Portfolios that Sense, Regulate and Drive

Block Diagram



Key Products and Solutions

Subsystem	Component	Allegro Parts	Key Differentiator
AC/DC Conversion	Input Current Sensor	ACS71010	High-accuracy current sensor with reinforced isolation, suitable for PFC stages in PSUs aiming for high efficiency with overcurrent fault detection
		ACS37035	Offers even higher bandwidth (up to 1 MHz), suitable for very high-frequency designs requiring minimal energy losses
	Isolated Gate Drive	AHV85110/1	Self-powered GaN FET driver with unparalleled power efficiency
	DC Link Current Sensor	ACS71010	Provides precise current measurement with reinforced isolation for monitoring DC link currents
		ACS772/3	Features extremely low resistance, ideal for high-current and high-voltage applications needing a compact PCB layout
DC/DC Conversion	Input Current Sensor	ACS71010	Offers high accuracy and isolation, suitable for high-voltage DC/DC conversion stages
	Primary/Secondary Current Sense	ACS37030	Ultra-high bandwidth (up to 5 MHz) current sensor, ideal for replacing current transformers in high-frequency DC/DC converters
		ACS37035	Ideal for high-frequency & high accuracy applications with reinforced isolation for safety compliance
	Isolated Gate Driver	AHV85110/1	Self-powered GaN FET driver with unparalleled power efficiency
PSU Thermal Management	Fan Motor Driver	A89333	High-efficiency, three-phase BLDC fan driver with integrated control algorithms, reducing acoustic noise and enhancing thermal management
		A5931	Cost-effective fan driver with minimal external components, simplifying design and reducing PCB space
PSU Control System	Board Power	APM81515	Compact and highly-efficient, ultra-low EMI and quiescent current, supports 48V power rails directly
DC Output Current Sense		ACS37220	Low-voltage current sensor with phenomenal power density

To learn more about the Allegro family of products and to explore available design resources, visit allegromicro.com