INNOVATION WITH PURPOSE
ALLEGRO microsystems

DC FAST CHARGING: FASTER AND FARTHER

Build high-power charging infrastructure quicker with uncomplicated and robust designs

As the world transitions towards sustainable transportation, the demand for efficient and rapid electric vehicle (EV) charging solutions has never been greater. With an ever-growing number of EVs on the road, more charging stations are needed to sufficiently cover the vast road network and overcome a major consumer concern of range anxiety.

This means that charging infrastructure producers and installers need efficient designs and easy-to-install systems to fulfill the market needs. Another hindrance on the path to wider EV adoption is charging time. The only way to be competitive with the convenience of fueling traditional internal combustion engine vehicles is to deploy more publicly available fast charging stations.

These require next-generation designs with higher power throughput to match the increasing demand for battery capacity and customer expectations for charging times. Crucial in this regard are component power capability, less heat loss and greater efficiency. With this rising market pressure, the charging infrastructure is being put under more stress, so robustness becomes a key characteristic of any design, as it ensures maximum system operation time and lower maintenance costs.

What you can achieve with Allegro solutions

- **Design Simplicity:** Streamline product development using ICs that are plug-and-play by virtue of integrated voltage isolation.
- **High Power:** Rise to the challenges of the most demanding power requirements with Allegro ICs.
- **Safety and Reliability:** Ensure harsh-environment robustness and system longevity with design-in of solutions developed in accordance with automotive quality standards.
- **Efficiency:** Achieve the highest system efficiency from accurate sensing and advanced gate-switching.
- **Lower Cost and BOM Count:** When demand for charging infrastructure is strong, respond quickly, enabled by faster design cycles and simplified production logistics.

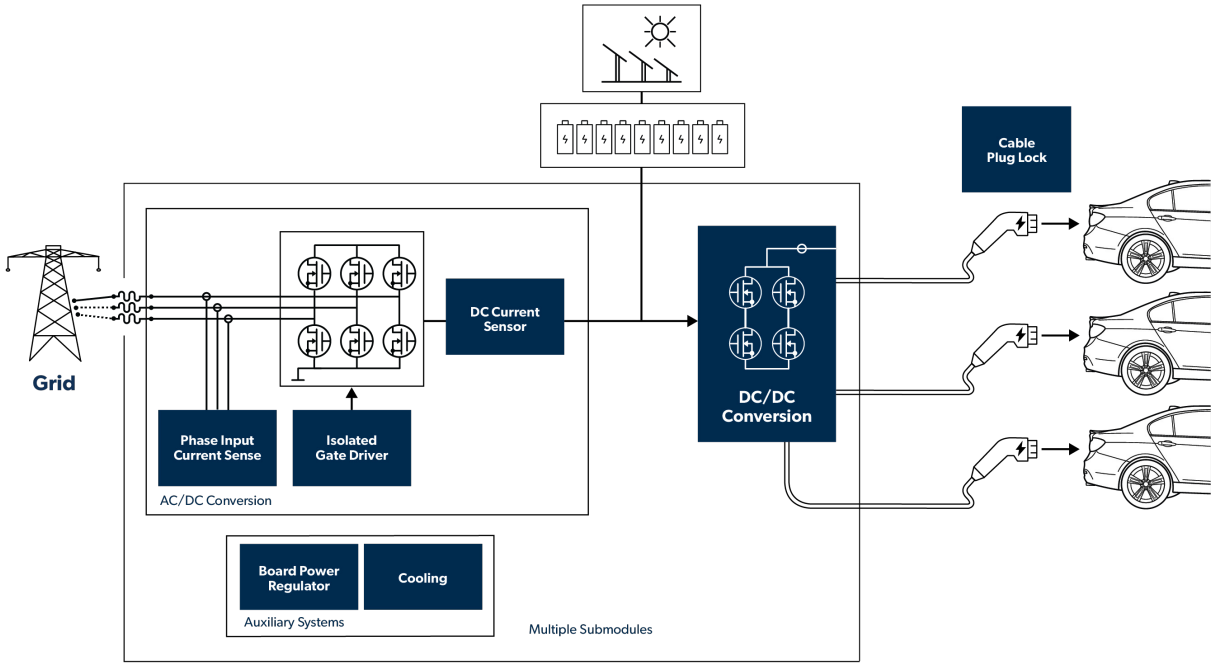
1. AC Input and AC/DC Converter
2. DC/DC Converter
3. System Cooling
4. Cable Safety

Supercharge your power systems with Allegro's cutting-edge current sensors and gate drivers, boasting superior power density while offering integrated voltage isolation and minimizing system losses.

Allegro solutions are a versatile fit for any application starting from 1 kW all the way up to 1 MW+, ensuring your power requirements are fulfilled with precision and in a compact footprint.

Market-Leading Portfolios That Sense, Regulate, and Drive

Block Diagram



Key Products and Solutions

Subsystem	Component	Allegro Parts	Key Differentiator
AC/DC Conversion	Phase Input Current Sense	ACS772/3	Heavy-duty current sensor for power systems
		CT455	Uncomplicated u-Shield design with contactless TMR sensor
		CT456	High-accuracy contactless TMR sensor
	Isolated Gate Driver	AHV85110/1	Next-generation GaN FET driver with integrated signal isolation and DC supply
	DC Current Sensor	CT43x/42x	TMR technology offering DC to 1 MHz bandwidth with high accuracy
		CT455	Contactless sensing with u-Shield from DC up to 1 MHz
		CT456	Sense with 1% accuracy from DC to 1 MHz with contactless TMR technology
DC/DC Converter	Isolated Gate Driver	AHV85110/1	Next generation GaN FET driver with integrated signal isolation and DC supply
	DC Current Sensor	CT43x/42x	TMR technology offering DC to 1 MHz bandwidth with high accuracy
		ACS37030	Unmatched bandwidth from DC to 5 MHz to control newest WBG FETs
Auxiliary Systems	Cooling	A89332	Efficient and quiet cooling controller with integrated algorithm
	Board Power Regulator	APM81911	3A sync. Buck regulator with integrated capacitors and inductor
Cable Plug Lock	Plug Insertion Detection	APS13290	Higher reliability over delicate microswitches to extend operating life
	Plug Interlock Driver	A4950	2 input pins simplify control while integrated full bridge eliminates additional MOSFETs

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