

DRIVING THE EV POWERTRAIN OF TOMORROW - TODAY

World-class features and advanced safety diagnostics in ultra small motor drivers

Light. Safe. Reliable. Solutions for EVery System.

It's no secret that electrified vehicles are the future of automotive innovation. With the industry's largest portfolio of grade 0, 80V motor drivers, Allegro's suite of fully integrated gate drivers effectively address the critical need for efficient, flexible, reliable solutions for your hybrid and electric vehicles (EV).

Drawing on decades of experience, these robust motor drivers offer optimized architecture and performance, directly impacting vehicle weight, battery/fuel efficiency, and driver safety.

With the robust design and performance customers have come to expect, Allegro's gate drivers are prepared to suit any load configuration from half-bridge with independent high-side and low-side outputs to three-phase brushless DC (BLDC) control. Developed on a high-voltage process node for 48V systems, these devices offer world-class safety diagnostics and diagnostic verification enabled with a fully compliant ISO 26262 process.

Allegro's full solution 48V gate drivers are reliable,

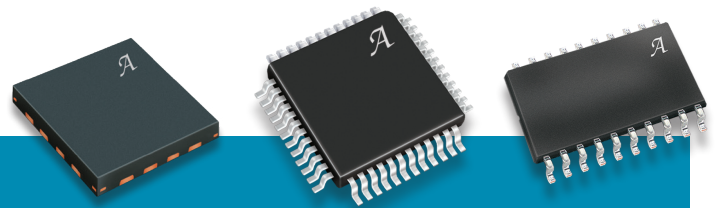
robust, and offer optimal flexibility. Augmented based on application, these devices offer multiple topologies and can support various loads (up to 10 kW) from catalytic heaters and actuators to EPS and braking applications.

Offered in ultra-small packages, these devices are designed to meet the rigorous demands of the automotive market by increasing functionality while decreasing PCB footprint. Reduce cost and save board space with integrated functions and fewer external components required.

Design without constraint.

Featured Products

- **A89500:** 100V Fast Switching Half Bridge MOSFET Driver
- **A89503:** 5.5V - 80V ASIL Half-Bridge MOSFET Gate Driver for Series Loads, such as PTC and Catalytic Heaters
- **AMT49502:** 5.5V - 80V ASIL Half-Bridge MOSFET Gate Driver
- **AMT49100 and AMT49101:** ASIL BLDC MOSFET Gate Driver for 48V Battery Systems



Features and Benefits

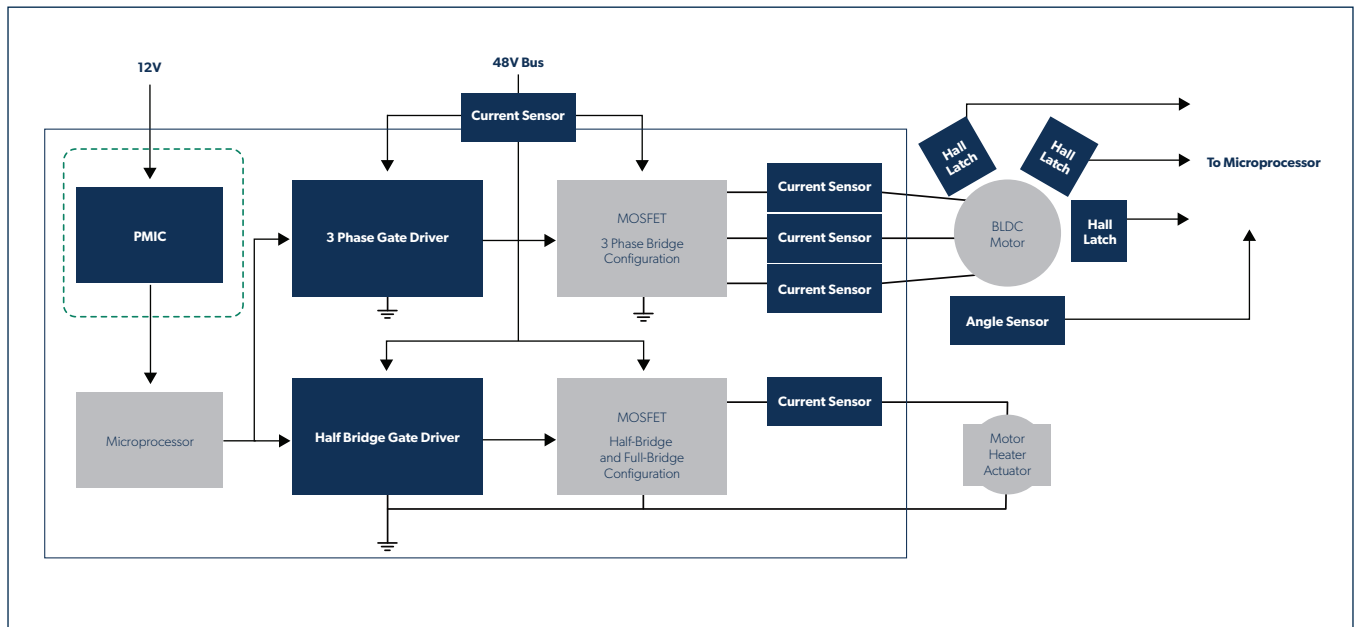
- Reliable full solution 48V gate drivers offer robust transient immunity that thrives in demanding automotive applications.
- Ideal for electrified vehicles, optimized architectures enable lighter motors with increased battery and fuel efficiency.
- Programmable drive strength optimizes EMI and efficiency to achieve the highest system performance.
- BLDC Gate drivers offer three programmable current sense amplifiers with programmable offset enabling both low torque ripple and redundancy.
- Half bridge drivers offer common platform for 12V and 48V supply's with 5.5V to 80V operation range, saving valuable design time.
- Ultra-small eLQFP, TSSOP, and DFN packages designed to meet rigorous system demands increase functionality while decreasing PCB footprint, enabling system space and cost savings.
- Integrated world-class safety diagnostics and diagnostic verification enabled with a fully compliant ISO 26262 process.

Optimized Motor Driver Solutions for your 48V and EV Applications

Applications

- Electronic Power Steering (EPS)
- Cooling Systems
- Catalytic & Seat Heaters
- Inverter Systems
- e-Turbo Superchargers
- Engine Cooling Fans
- Pumps
- Compressors
- Starter Generators
- Braking Applications

Advanced 48V Battery System Application Overview



| Part Number | Output Voltage Range | Output Current | Number of Bridges | Key Spec | Interface | Package |
|-------------|----------------------|----------------|--------------------|--|-----------|-----------|
| AMT49100 | 10 to 80 | > 10 A Typical | Three Half Bridges | ASIL-D, SPI, 3 Current Sense Amplifiers, Phase Monitors | Parallel | eLQFP-48 |
| AMT49101 | 10 to 80 | > 10 A Typical | Three Half Bridges | ASIL-D, SPI, 2 Current Sense Amplifiers, Phase Monitors | Parallel | eLQFP-48 |
| AMT49502 | 10 to 80 | > 10 A Typical | Half Bridge | ASIL-B, SPI, 1 Current Sense Amplifier | Parallel | eTSSOP-24 |
| A89503 | 10 to 80 | > 10 A Typical | Half Bridge | ASIL-B, SPI, 1 Current Sense Amplifier, Optimized for series loads | Parallel | eTSSOP-24 |
| A89500 | 8 to 100 | > 10 A Typical | Half Bridge | Single Supply, Internal Boot Diode | Parallel | DFN-10 |

For datasheets, resources, and more details on Allegro's innovative 48V solutions, including the motor driver portfolio, please visit allegromicro.com/evsolutions.