Allegro MicroSystems Unveils Industry's First Safety PMIC to Integrate a Wheel-Speed Sensor Interface for Electromechanical Braking

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Pairing sensing leadership with a complete ASIL-D safety PMIC architecture, the single-chip A81415 redefines brake-by-wire design while eliminating up to nine components.

MANCHESTER, N.H., July 02, 2026 (GLOBE NEWSWIRE) -- Allegro MicroSystems, Inc. (“Allegro”) (Nasdaq: ALGM), a global leader in power and sensing solutions for motion control and energy-efficient systems, today introduced the A81415, the industry's first ASIL-D-certified Power Management IC (PMIC) to integrate a wheel-speed sensor interface. The new device provides electromechanical braking (EMB) designers with a substantially simplified, single-chip power and sensing foundation for next-generation brake-by-wire systems.

A81415 PMIC

A81415 Power Management IC

Brake-by-wire is fast becoming a foundational chassis technology in software-defined vehicles. But while much of the automotive industry’s design focus is on centralizing compute platforms, the physical act of stopping a vehicle happens at the wheel. This location places a hard set of demands on corner module electronics to deliver fail-operational power and accurate wheel-speed data in tight spaces that are vibration-prone and thermally stressed – all while meeting the highest functional safety bar.

Today, designers are forced to stitch together generic safety PMICs, separate wheel-speed decoders, and clusters of discrete power components. In addition to adding cost and consuming valuable board space, that approach multiplies potential failure points at the exact location where reliability matters most.

One Device, Built for the Task
With an on-chip wheel-speed sensor interface (WSSI), the A81415 safety PMIC decodes standard 2-level, 2-level Pulse Width Modulation (PWM), and 3-level AK protocols (standard and high-resolution) without complicated analog circuitry or a separate decoder IC. By incorporating a fully integrated buck-boost pre-regulator, five Low-Dropout (LDO) regulators, and a single-inductor architecture that requires no external switches or diodes, the A81415 eliminates up to nine external components and unlocks up to $4 in semiconductor bill-of-materials (BOM) savings per vehicle, delivering meaningful cost advantages at OEM production scale This unprecedented level of integration opens up more than 50% of usable board space to provide the brake caliper with critical design headroom.

Because the physical layer of the wheel-speed data is handled internally by the PMIC and the decoded data is shared over a Serial Peripheral Interface (SPI), the A81415 trims latency in the safety-critical loop and frees MCU bandwidth for faster braking response. Low-noise power rails are explicitly tuned to power Allegro's XtremeSense™ TMR angle sensors and ensure the entire commutation and clamping-force signal chain is optimized as one coherent, high-resolution system from wheel to caliper.

The 12V-to-48V Fast Track for Corner Modules
True brake-by-wire operation requires components capable of surviving the harshest electrical environments. Built on Allegro's proprietary automotive grade-0 process and paired with the APM81815 pre-regulator and 48V gate drivers, the A81415 forms a complete, fail-operational chipset. This modular approach provides Tier 1 suppliers with a fast track to migrate proven 12V braking architectures directly to next generation 48V corner modules without redesign or bulky external transient protection.

“Intelligent chassis systems demand that sensing and power electronics at the wheel act as one,” said Peter Wells, Business Line Director, High Performance Power at Allegro MicroSystems. “Allegro combined our wheel-speed sensing leadership and high-reliability power management expertise into our new PMIC to give our customers a simpler, safer and highly scalable foundation for modern vehicle brake-by-wire.”

A81415 Features and Benefits:

- **Integrated wheel-speed sensing:** On-chip WSSI decodes 2-level, PWM, AK, and high-definition protocols, eliminating a separate decoder IC.
- **Cost and space savings:** Eliminates up to nine external components, saving up to $4.00 in semiconductor BOM per vehicle and over 50% of PCB area.
- **ASIL-D and AEC-Q100 qualified:** Dual watchdogs and built-in fault handling meet the highest safety standards without requiring external protection circuitry.
- **12V-to-48V scalable:** Operates natively in 12V systems with a simple upgrade path to 48V corner modules when paired with the APM81815 pre-regulator.

Availability
Attendees of electronica Shanghai are invited to visit the Allegro MicroSystems booth at N5.300 to learn more. For more information, samples, or evaluation support, visit www.allegromicro.com/a81415.

About Allegro MicroSystems
Allegro MicroSystems, Inc. is leveraging more than three decades of expertise in magnetic sensing and power ICs to propel electrification, automation, AI data center, and robotics forward with solutions that enhance efficiency, performance and sustainability. Allegro's commitment to quality drives transformation across industries, reinforcing our status as a pioneer in "automotive-grade" technology and a partner in our customers' success. For additional information, visit allegromicro.com.

Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements other than statements of historical facts contained in this press release, including statements regarding the anticipated performance, customer benefits, cost savings, and market opportunities associated with our A81415 PMIC, and the adoption of brake-by-wire and 48V automotive architectures, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as "will," "expect," "anticipate," "plan," "project," "believe," "estimate," "potential," or other similar expressions. No forward-looking statement is a guarantee of future performance, and you should avoid placing undue reliance on these statements.

Forward-looking statements are based on management's current expectations and assumptions and are subject to risks and uncertainties. Actual results may differ materially from those expressed or implied in the forward-looking statements due to various factors, including, but not limited to: our ability to successfully develop and commercialize new products; customer adoption rates of emerging automotive technologies; the timing and success of customer design wins; our ability to compete effectively; and other risk factors identified in our Annual Report on Form 10-K for the year ended March 27, 2026, as updated by our Quarterly Reports on Form 10-Q and other filings with the Securities and Exchange Commission. All forward-looking statements speak only as of the date of this press release, and except as required by law, we assume no obligation to update them.

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A photo accompanying this announcement is available at https://www.globenewswire.com/NewsRoom/AttachmentNg/12550647-57b4-4e54-9067-d30578336d29