Small Form Factor, High Bandwidth Hall-Effect Sensor IC Solutions

Key Features

- Industry's highest bandwidth, up to 1 MHz
- Lower power loss than shunt-based solutions
- Industry-Leading accuracy, as high as 1% typical
- Monolithic Hall and GMR sensors offer full integration
- Smaller form factor than shunt and current transformer solutions
- Able to measure both AC and DC currents
- Differential sensing for rejection of stray magnetic fields
- Up to 5 kV_{RMS} certfied isolation rating
- Single supply operation, 3.3 V and 5 V available

Figure 1: SIP Package

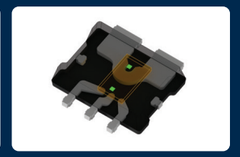

Figure 2: LR Package

Figure 3: SOIC-16 Package

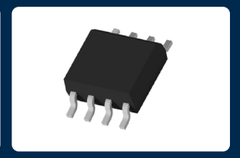

Figure 4: SOIC-8 Package

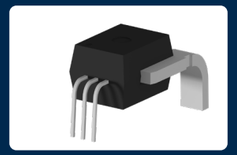

Figure 5: CB Package

Figure 6: QFN Package

SEE HOW ALLEGRO IS MOVING THE WORLD TOWARD A SAFE AND SUSTAINABLE FUTURE

INNOVATION WITH PURPOSE

ALLEGRO microsystems

Learn more about Allegro Current Sensor ICs at

www.allegromicro.com/currentsensors

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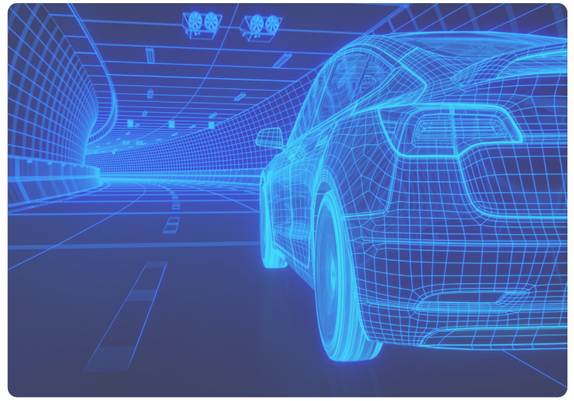


INNOVATIVE CURRENT SENSING FOR VEHICLE ELECTRIFICATION

CHARGE INTO THE FUTURE OF VEHICLE ELECTRIFICATION WITH THE WORLD'S #1 SUPPLIER OF CURRENT SENSOR ICS FOR LEADING EV APPLICATIONS

INNOVATION WITH PURPOSE

ALLEGRO microsystems

Innovative Current Sensor ICs

Allegro MicroSystems has been driving innovation in the current sensor industry for nearly two decades, with a history of first-to-market products that give our customers a competitive edge. Our advanced ICs help you achieve higher efficiency and power density in your designs.

We're leading the market in main traction motor and auxiliary inverters for electric vehicles, and OEMs trust Allegro for applications like DC-DC converters and on-board chargers.

We also shine at high voltage with industry-leading galvanic isolation ratings of up to 1100 VRMS.

Wherever current sensing is needed, an Allegro sensor IC can provide a solution.

0 to >1000 A Sensor ICs

- Industry-leading offset and sensitivity accuracy from –40°C to 150°C.
- With typical accuracy of 1% over temperature, our current sensors enable precise electric drive, steering, and braking with higher efficiency
- Customer programmable for both offset and sensitivity
- Packaged in a 1 mm thick SIP or TSSOP package for easy assembly
- High bandwidth (up to 240 kHz) for short circuit and overcurrent detection
- Integrated safety features, like integrated fault outputs, reduce BOM and system complexity
- User-programmable overcurrent fault output

Industry-first core free and shield free current sensing solutions - Allegro's coreless current sensors are safe, accurate, and easy to use. Eliminate the core in traction motor inverters, lowering cost and enabling higher power density solutions

See figure 1 illustration on back cover

Type	Part Number	Typical Sensitivity (mV/G)	Quiescent Output (V)	Bandwidth (kHz)	Supply Voltage (V)	Temperature Ranges	Packages
Bidirectional, Unidirectional	ACS37610	5,10	50% VCC	250	5	L	TSSOP
Bidirectional, Unidirectional	ACS37612	5, 10, 15	50% VCC (Bi) 10% VCC (Uni)	120	3.3, 5	L	TSSOP
Bidirectional	ACS70311	0.5 to 11.5	50% VCC (Bi) 10% VCC (Uni)	240	5	L	SIP

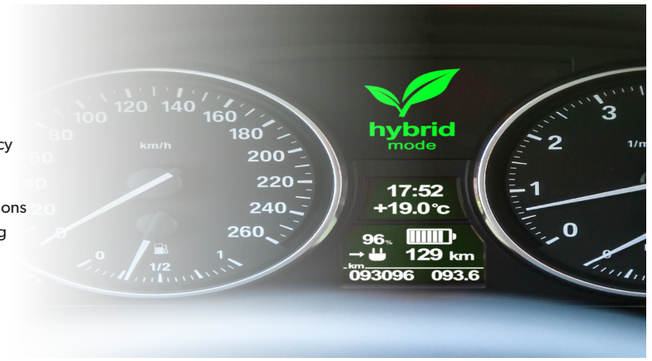
Temperature range codes: S = –20°C to 85°C, E = –40°C to 85°C, K = –40°C to 125°C, L = –40°C to 150°C
For full product selection guides, visit www.allegromicro.com/currentsensors

The current sensor IC families are innovative, monolithic, isolated Hall-effect-based devices that provide a fully-integrated solution in industry-leading, small-sized packages.

Innovative Current Sensor ICs

0 to 400 A Integrated Conductor Sensor ICs

- Innovative, fully integrated current sensor solutions are safe, accurate, and easy to use
- Automotive-grade devices deliver highly accurate open-loop current sensing
- Broad sensing range with 0.1 to 1 mΩ resistance improves efficiency across a variety of EV systems
- Reliable packages provide high galvanic isolation, making for flexible solutions ideal for use in line-side or high-voltage applications
- CB package integrated core sensors increase ease of use, reducing development and integration time and effort
- Allegro current sensors are much smaller than bulky current transformers, reducing footprint within systems and increasing overall efficiency



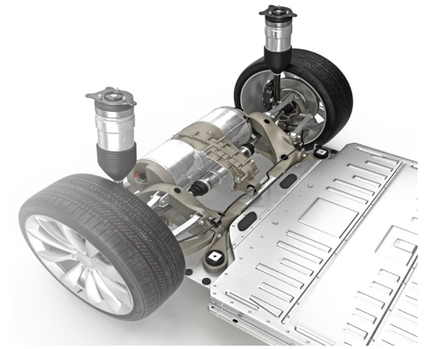
Allegro's 0 to 400 A sensors offer highly accurate, industry-proven, fully integrated solutions that can help minimize footprint and BOM for resource-conscious users.

See figures 2 and 5 illustrations on back cover

Type	Part Number	Measurement Range (A)	Isolation Voltage (VRMS)	Bandwidth (kHz)	Vcc	Temperature Ranges	Packages
Bidirectional, Unidirectional	ACS772	±50, ±100, ±150, ±200, ±250, ±300 ±400, 50, 100, 150, 200, 250, 400	4800	200	5	E,K,L	CB
Bidirectional, Unidirectional	ACS773	±50, ±100, ±150, ±200, 250, ±250	4800	200	3.3	E,K,L	CB
Bidirectional, Unidirectional	ACS72981	±50, ±100, ±150, ±200, 50, 100, 150, 200	100	250	3.3,5	E, K,L	LR

0 to 50 A Integrated Conductor Sensor ICs

- Factory programmed to maximize device accuracy over temperature, providing typical output error as low as 1%
- Grade 0 Automotive-qualified current sensors provide an ideal replacement to current transformers in a reliable, minimal package
- User-programmable overcurrent fault output reduces BOM
- Excellent magnetic coupling in a coreless package design providing best-in-class SNR and up to 5000 VRMS of galvanic isolation
- Small packaging and full integration does not require shunts, enhancing reliability
- Low resistance internal conductor allows for sensing up to 50 A continuous current, lowering heat budgets and enabling higher power densities



Allegro's 0 to 50 A sensors enable efficient and accurate charging systems and DC-DC Converters, used in various systems across EVs.

See figures 3,4 and 6 illustrations on back cover

Type	Part Number	Measurement Range (A)	Isolation Voltage (VRMS)	Bandwidth (kHz)	Vcc	Temperature Ranges	Packages
Bidirectional, Unidirectional	ACS71240EX	<±10, ±30, 50	120	120	3.3, 5	K	QFN
Bidirectional, Unidirectional	ACS71240LC	<±10, ±30, ±45, 50	2400	120	3.3, 5	L	SOIC
Bidirectional, Unidirectional	ACS37002MA	±33, ±40, ±50, ±66, ±80, ±100, ±133, 33, 40, 50, 66, 80, 100, 133	5000	400	3.3, 5	K. L	SOIC
Bidirectional, Unidirectional	ACS37002LA	±10, ±12, ±15, ±20, ±25,±30, ±37.5, ±50, 25, 30, 37.5, 50	3600	400	3.3, 5	L	SOIC
Bidirectional, Unidirectional	ACS37002MC	±33.3, ±40, ±50, ±66.7, ±80 ±100, ±108, ±133.3, ±135, ±180, 33.3, 40, 50, 66.7	5000	400	3.3, 5	L	SOIC