

● **INNOVATIVE
CURRENT SENSOR ICs**



Innovative Current Sensor ICs

Allegro MicroSystems has been driving innovation in the current sensor industry for more than 17 years, 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-to-DC converters and on-board chargers.

We also shine at high voltage with industry-leading galvanic isolation ratings of up to 1100 Vrms—ideal for residential and industrial solar inverter applications.

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

SIP and TSSOP Packages 0 to >1000 A Sensor ICs

- Industry-leading offset and sensitivity accuracy from -40°C to +150°C
- Customer programmable for both offset and sensitivity
- Packaged in a 1 mm thick SIP or TSSOP package for an easy assembly with a ferromagnetic core
- High bandwidth (up to 240 kHz) for short circuit and overcurrent detection
- Multiple diagnostics for safety-critical applications
- User-programmable over current fault output



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	A1363	0.6 to 14	50% VCC (Bi) 10% VCC (Uni)	120	5	L	TSSOP
Bidirectional	A1365 ⁽¹⁾	0.6 to 14	50% VCC (Bi)	120	5	L	SIP
Bidirectional, Unidirectional	ACS70310	1, 2.5, 5, 10	50% VCC (Bi) 10% VCC (Uni)	240	5	L	SIP

⁽¹⁾ A1365 has an integrated over-current fault output and self-test diagnostics

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.

50 to 400 A Integrated Conductor Sensor ICs

- High current sensor IC packages are fully integrated current sensor solutions providing high accuracy and reliability
- Automotive-grade devices deliver highly accurate open-loop current sensing
- CB package conductor resistance is 100 $\mu\Omega$ for ultralow power loss when sensing current up to 200 A (continuous) and 400 A (in-rush)
- CB package provides 4800 VRMS galvanic isolation for use in line-side or high-voltage applications
- LR package surface mount coreless sensor can handle up to 100 A continuous current in a small 6.4 x 6.4 mm footprint
- LR package resistance is only 200 $\mu\Omega$ and provides up to 120 VDC galvanic isolation
- Allegro current sensors are much smaller than bulky current transformers and have the added advantage of sensing both AC and DC currents



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	$\pm 50, \pm 100, \pm 150, \pm 200, \pm 400, 50, 100, 150, 200, 250$	4800	200	5	E,K,L	CB
Bidirectional, Unidirectional	ACS773	$\pm 50, \pm 100, \pm 150, \pm 200, 250$	4800	200	3.3	E,K,L	CB
Bidirectional, Unidirectional	ACS72981	$\pm 50, \pm 100, \pm 150, 50, 100, 150$	120	250	3.3,5	K,L	LR

0 to 50 A Integrated Conductor Sensor ICs

- Excellent magnetic coupling in a core-less package design providing best-in-class SNR and up to 4800 VRMS of galvanic isolation
- Low-profile, small form packaging
- Low resistance internal conductor allows for sensing up to 50 A continuous current
- Factory programmed to maximize device accuracy over temperature, providing typical output error <1%
- New family of 1 Mhz bandwidth automotive-grade current sensors provides an ideal replacement to current transformers
- New Voltage, Current and Power sensor IC (ACS71020), enables isolated power monitoring with a reduced BOM
- New family of GMR-based sensors (ACS70331x), with 20 times lower noise than Hall, provides an ideal solution for accurate sensing of <5 A
- User-programmable over current fault output

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	ACS720*	$\pm 15, \pm 35, > \pm 50$	3600	120	5	K	SOIC
Bidirectional, Unidirectional	ACS724LC	$< \pm 10, \pm 20, \pm 30, > \pm 50, 10, 20, 30, 40$	2400	120	5	L	SOIC
Bidirectional, Unidirectional	ACS724MA	$\pm 20, \pm 30, > \pm 50, 30, 50$	4800	120	5	K, L	SOIC
Bidirectional, Unidirectional	ACS725LC	$< \pm 10, \pm 20, \pm 30, \pm 40, > \pm 50, 10, 20, 30$	2400	120	3.3	L	SOIC
Bidirectional, Unidirectional	ACS725MA	$\pm 20, \pm 30, > \pm 50, 30$	4800	120	3.3	K, L	SOIC
Bidirectional, Unidirectional	ACS730	$\pm 20, \pm 40, > \pm 50, 40, > 50$	2400	1000	5	K	SOIC
Bidirectional, Unidirectional	ACS732LA	$\pm 20, \pm 40, > \pm 50, > 50$	3600	1000	5	K	SOIC
Bidirectional	ACS732MA	$> \pm 50$	4800	1000	5	K	SOIC
Bidirectional, Unidirectional	ACS733LA	$\pm 20, \pm 40, > 50, 40$	3600	1000	3.3	K	SOIC
Bidirectional	ACS733MA	$> \pm 50$	4800	1000	3.3	K	SOIC
Bidirectional, Unidirectional	ACS70331*	$\pm 2.5, \pm 5, 2.5, 5$	120	1000	3.3	E	QFN
Bidirectional, Unidirectional	ACS70331OL*	$\pm 2.5, \pm 5, 2.5, 5$	120	1000	3.3	E	SOIC
Bidirectional	ACS71020 ⁽¹⁾	$\pm 15, \pm 30, > \pm 50$	4800	8	3.3,5	K	SOIC
Bidirectional, Unidirectional	ACS71240EX	$< \pm 10, \pm 30, 50$	120	120	3.3,5	K	QFN
Bidirectional, Unidirectional	ACS71240LC	$< \pm 10, \pm 30, \pm 45, 50$	2400	120	3.3,5	L	SOIC

* Commercial

⁽¹⁾ ACS71020 is a current, voltage, and power sensor IC

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

Key Features

- Power dissipation much less than shunt solution
- Able to monitor both AC and DC currents
- 5 V or 3.3 V, single supply operation
- Bandwidth up to 1 MHz
- Monolithic Hall and GMR
- Differential sensing for rejection of stray magnetic fields
- Voltage isolation rating certified by UL and TUV
- Smaller form factor than shunt and current transformer solutions
- RoHS compliant



Figure 1: SIP Package



Figure 2: LR Package

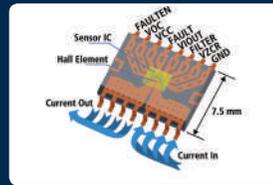


Figure 3: SOIC-16 Package

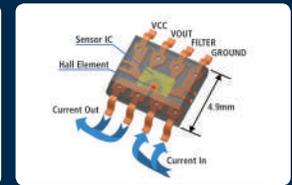


Figure 4: SOIC-8 Package

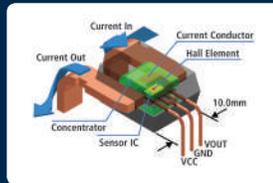


Figure 5: CB Package



Figure 6: QFN Package

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