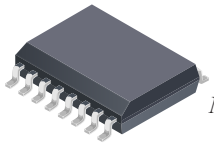
ACS37035

1 MHz, High Accuracy Chopped Current Sensor
with Low Output Offset in SOICW-16 Package

FEATURES AND BENEFITS

- High operating bandwidth for fast control loops or where high-speed currents are monitored
  - □ 1 MHz bandwidth
  - □ 0.45 µs typical response time
- High performance for optimized energy applications
  - □ ±3% sensitivity error over temperature (–40°C to 125°C)
  - □ ±15 mV maximum offset voltage over temperature
  - □ Non-ratiometric operation
  - □ Differential sensing for high immunity to external magnetic fields
  - □ No magnetic hysteresis
- Adjustable fast overcurrent fault
  - □ 0.5 µs typical response time
  - □ Overcurrent fault available between 50% and 200% full scale current
- Low internal primary conductor resistance 1 mΩ for better power efficiency
- UL 62368 (edition 3) certification, highly isolated compact SOICW-16 surface mount package
  - □ 4242 V_{RMS} rated withstand voltage
  - □ 1000 V_{RMS} /1414 V_{DC} basic isolation
  - □ 500 V_{RMS} /707 V_{DC} reinforced isolation
- High-withstand surge power ratings
- Wide operating temperature, –40°C to 125°C
- AEC-Q100 Grade 1, automotive qualified (pending)

PACKAGE: 16-Pin SOICW (suffix LA)



Not to scale

DESCRIPTION

The ACS37035 is a fully integrated Hall-effect current sensor in a SOICW-16 package that is factory-trimmed to provide high accuracy over the entire operating range without the need for customer programming. This sensor provides a compact, fast, and accurate solution for measuring high-frequency currents in a wide array of applications.

The package construction of the LA provides high isolation by magnetically coupling the field generated by the current in the conductor to the monolithic Hall sensor IC which has no physical connection to the integrated current conductor. Applied current flowing through the copper conduction path generates a magnetic field that is sensed by the IC and converted to a proportional voltage. Current is sensed differentially in order to reject external common-mode fields. A precise, proportional voltage is provided by the Hall IC.

The ACS37035 offers high bandwidth Hall-effect-based current sensing with a user-configurable overcurrent FAULT detection allowing short-circuit detection for system protection with a fault threshold that is proportional to the current range.

The ACS37035 is suitable for all markets, including automotive, industrial, commercial, and communications systems.

Devices are RoHS compliant and lead (Pb) free with 100% matte-tin-plated leadframes.

APPLICATIONS

- Motor Control
- Load detection and management
- Switch-mode power supplies

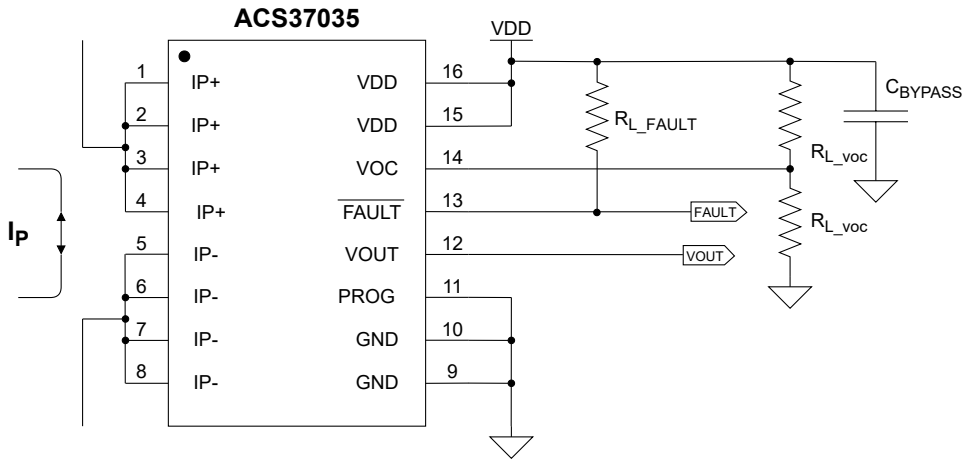


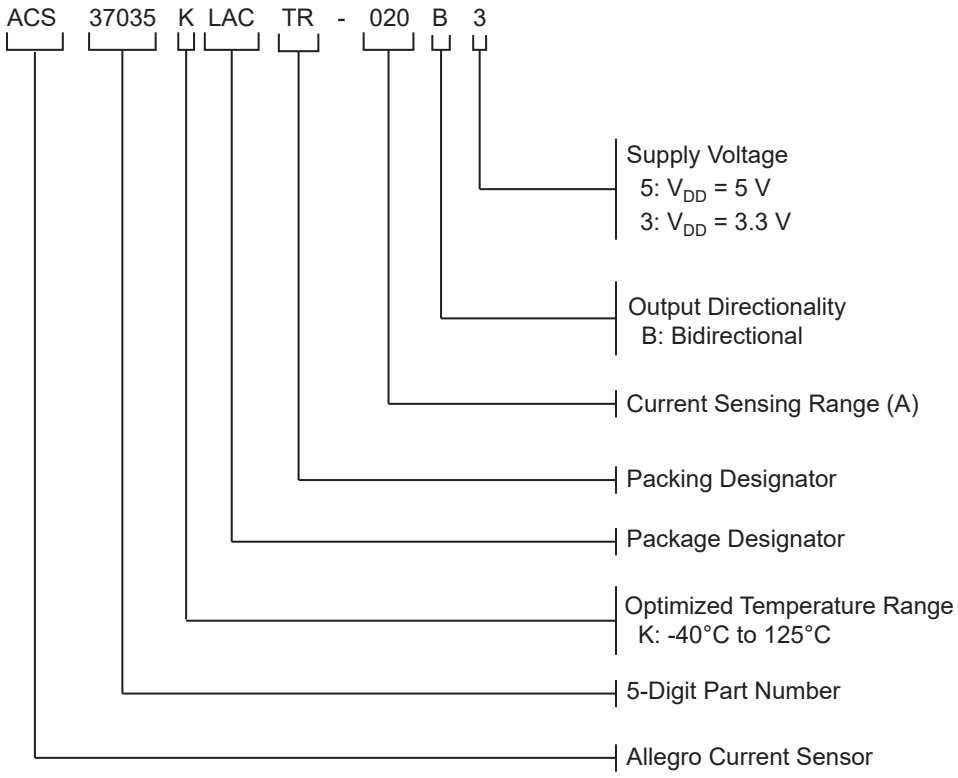
Figure 1: Typical Application Circuit

The device outputs an analog signal at VOUT that varies linearly with the primary current, I_P, within the specified ranges.

SELECTION GUIDE

Part Number	Current Sensing Range (A)	Sensitivity (mV/A)	Supply Voltage V_{DD} (V)	Quiescent Voltage Output V_{QVO} (V)	Optimized Temperature Range T_A (°C)	Packing
ACS37035KLACTR-065B3	±65	20	3.3	1.65	–40°C to 125°C	1000 pieces per 13-inch reel
ACS37035KLACTR-020B5	±20	100	5	2.5		
ACS37035KLACTR-040B5	±40	50				

PART NAMING SPECIFICATION



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NOTE: This is a short-form datasheet for preview purposes. Pages 3-17 have been removed. Contact Allegro MicroSystems to request complete datasheet.

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PACKAGE OUTLINE DRAWING

For Reference Only – Not for Tooling Use

(Reference Allegro DWG-0000388, Rev. 1 and JEDEC MS-013AA)
NOT TO SCALE
Dimensions in millimeters
Dimensions exclusive of mold flash, gate burrs, and dambar protrusions
Exact case and lead configuration at supplier discretion within limits shown

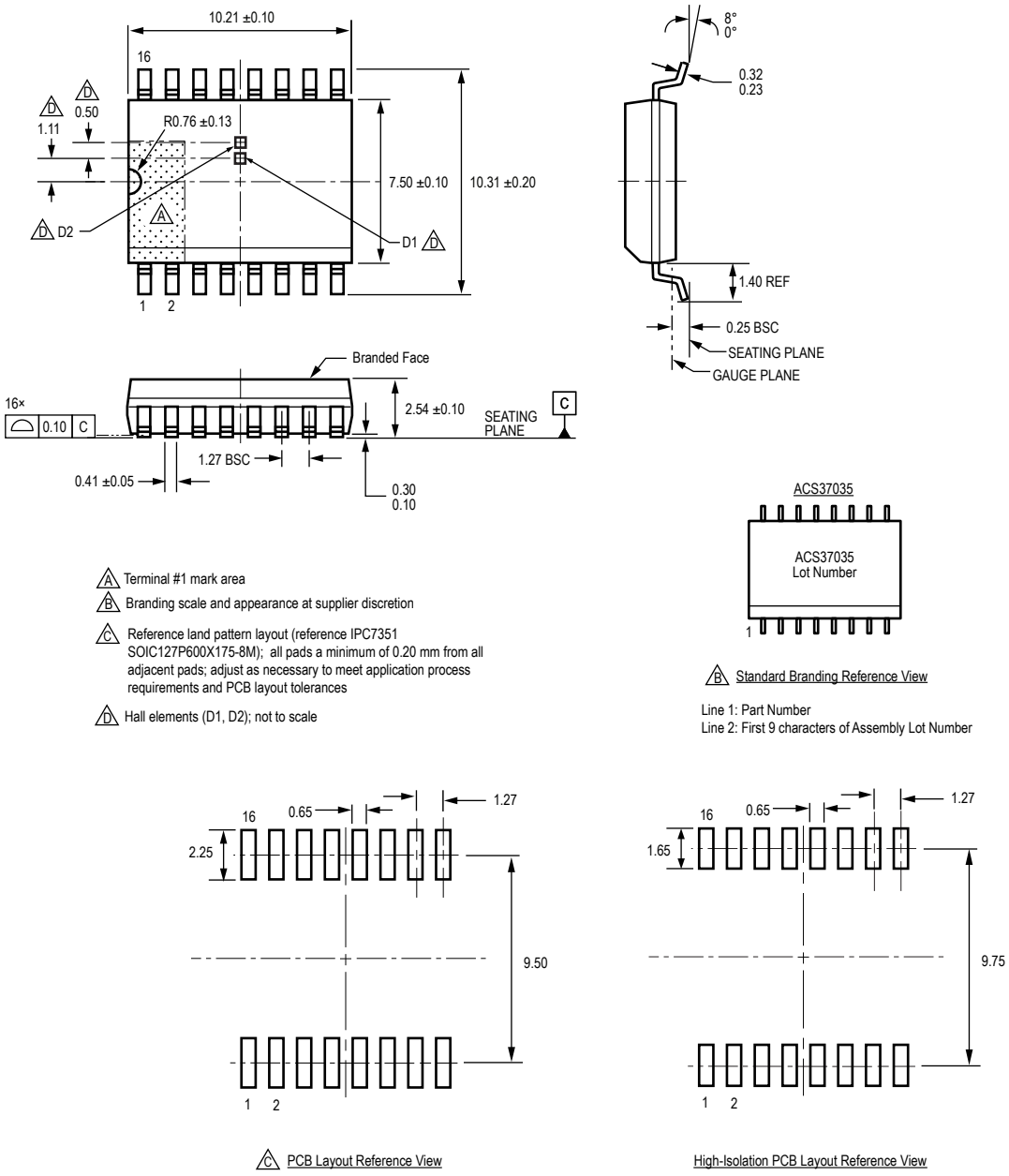

Figure 2: Package LA, 16-PIN SOICW

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Revision History

Number	Date	Description
–	March 7, 2025	Initial release
1	March 13, 2025	Updated Sensitivity Drift Over Lifetime value (pages 8-10); fixed Part Naming Specification diagram (page 2)

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