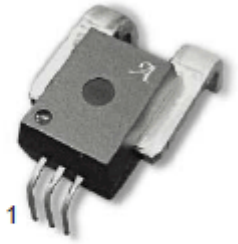
ACS756
Fully Integrated, Hall Effect-Based Linear Current Sensor IC with 3 kVRMS Voltage Isolation and a Low-Resistance Current Conductor

Features and Benefits

- Industry-leading noise performance through proprietary amplifier and filter design techniques
- Total output error 0.8% at T_A = 25°C
- Small package size, with easy mounting capability
- Monolithic Hall IC for high reliability
- Ultra-low power loss: 130 µΩ internal conductor resistance
- 3 kVRMS minimum isolation voltage from pins 1-3 to pins 4-5
- 3.0 to 5.0 V, single supply operation
- 3 µs output rise time in response to step input current
- 20 or 40 mV/A output sensitivity
- Output voltage proportional to AC or DC currents
- Factory-trimmed for accuracy
- Extremely stable output offset voltage
- Nearly zero magnetic hysteresis

Package: 5 pin package (suffix PFF)



Additional leadforms available for qualifying volumes

TÜV America
Certificate Number:
U8V 09 05 54214 021

Description

The Allegro ACS756 family of current sensor ICs provides economical and precise solutions for AC or DC current sensing in industrial, automotive, commercial, and communications systems. The device package allows for easy implementation by the customer. Typical applications include motor control, load detection and management, power supplies, and overcurrent fault protection.

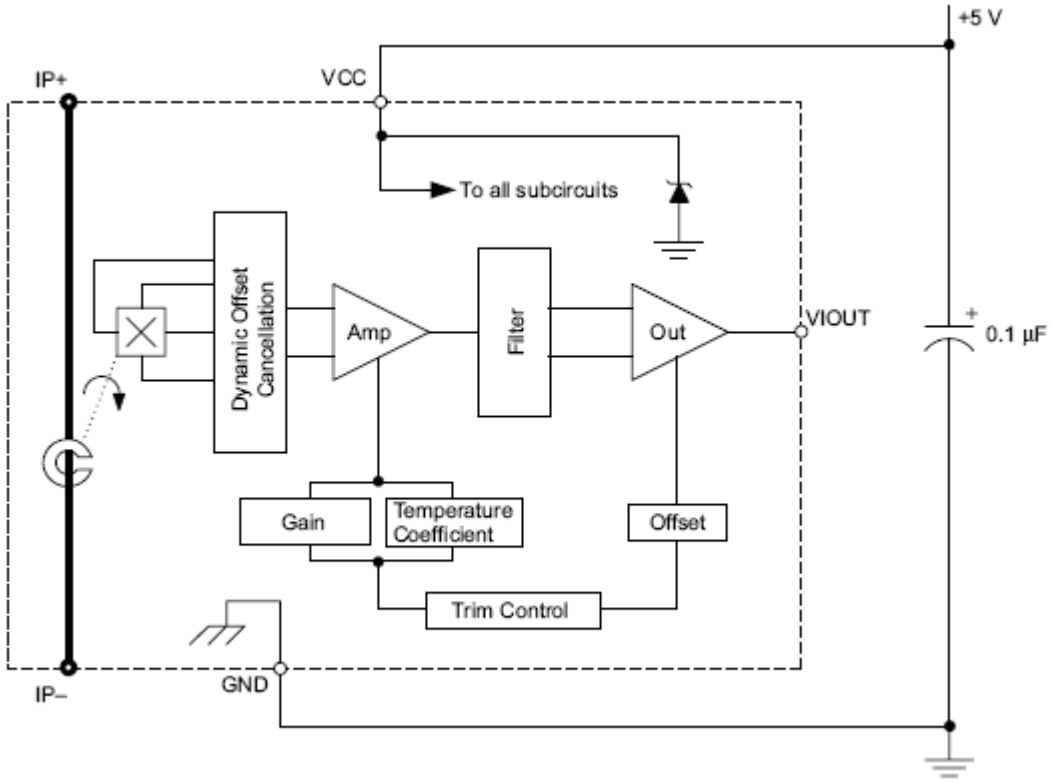
The device consists of a precision, low-offset linear Hall sensor circuit with a copper conduction path located near the die. Applied current flowing through this copper conduction path generates a magnetic field which is sensed by the integrated Hall IC and converted into a proportional voltage. Device accuracy is optimized through the close proximity of the magnetic signal to the Hall transducer. A precise, proportional voltage is provided by the low-offset, chopper-stabilized BiCMOS Hall IC, which is programmed for accuracy at the factory.

The output of the device has a positive slope (>V_{CC} / 2) when an increasing current flows through the primary copper conduction path (from terminal 4 to terminal 5), which is the path used for current sensing. The internal resistance of this conductive path is 130 µΩ typical, providing low power loss.

The thickness of the copper conductor allows survival of the device at up to 5× overcurrent conditions. The terminals of the conductive path are electrically isolated from the sensor leads (pins 1 through 3). This allows the ACS756 family of sensor ICs to be used in applications requiring electrical isolation without the use of opto-isolators or other costly isolation techniques.

The device is fully calibrated prior to shipment from the factory. The ACS75x family is lead (Pb) free. All leads are plated with 100% matte tin, and there is no Pb inside the package. The heavy gauge leadframe is made of oxygen-free copper.

Functional Block Diagram



Complete Part Numbers

Part Number	Package Type	RoHS Compliant	Part Composition/ RoHS Data	Temperature	Comments	Samples/Demo	Distributor Stock
ACS756SCA-050B-PFF-T	3-lead CA	Yes	view data	-20 °C to 85 °C		Contact Local Sales Representative or check distributor stock	All Check Stock
ACS756SCA-100B-PFF-T	3-lead CA	Yes	view data	-20 °C to 85 °C		Contact Local Sales Representative or check distributor stock	All Check Stock
ACS756KCA-050B-PFF-T	3-lead CA	Yes	view data	-40 °C to 125 °C		Contact Local Sales Representative or check distributor stock	All Check Stock

Allegro's products are not to be used in life support devices or systems, if a failure of an Allegro product can reasonably be expected to cause the failure of that life support

device or system, or to affect the safety or effectiveness of that device or system.