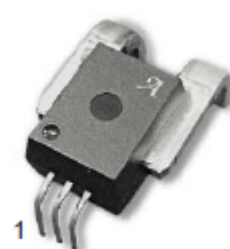




ACS756 – Hall Effect-Based Linear Current Sensor IC with 3 KVRMS Voltage Isolation

General 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.

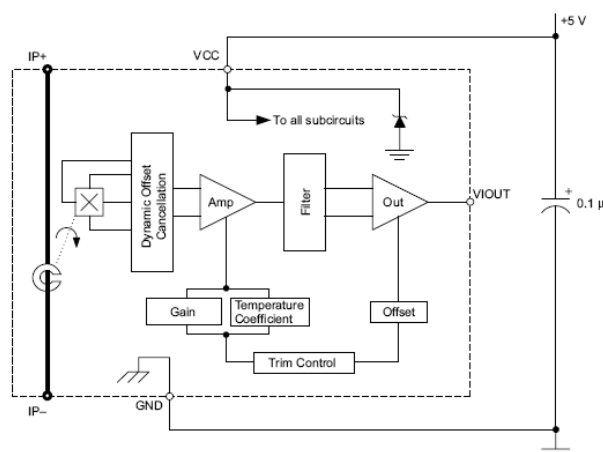


The device consists of a precision, low-offset linear Hall sensor circuit with a copper conduction path located near the die. Applied current flowing through this copper conduction path generates a magnetic field which is sensed by the integrated Hall IC and converted into a proportional voltage. Device 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 $130 \mu\Omega$ typical, providing low power loss.

The thickness of the copper conductor allows survival of the device at up to $5\times$ 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.



Key Features:

- Industry-leading noise performance through proprietary amplifier and filter design techniques
- Total output error 0.8% at $T_A = 25^\circ\text{C}$
- Small package size, with easy mounting capability
- Monolithic Hall IC for high reliability
- Ultra-low power loss: $130\ \mu\Omega$ 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

Applications:

- Motor control,
- Load detection and management,
- Power supplies, and
- Overcurrent fault protection

Related Products Information:

Mfr Part #	Farnell #	Newark #	Description
ACS756KCA-050B-PFF-T	1688971	97M3899	Hall Effect-Based Linear Current Sensor IC, 3-lead CA
ACS756SCA-050B-PFF-T	1791390	97M3900	Hall Effect-Based Linear Current Sensor IC, 3-lead CA
ACS756SCA-100B-PFF-T	1671572	97M3901	Hall Effect-Based Linear Current Sensor IC, 3-lead CA