



Next Generation, 120 kHz Bandwidth, 50-200 A Current Sensor with a 100 μΩ, Integrated Current Conductor for Reduced Power Loss

The ACS758 is a thermally enhanced, high-current, Hall-effect-based linear current sensor that provides an economical and precise solution for AC or DC current sensing. This device offers considerably higher bandwidth and reduced output noise when compared to Allegro's older generation current sensor products. Typical applications include

motor control, load detection and management, power supply and DC-to-DC converter control, inverter control, and over-current fault detection.

The device consists of a precision, low-offset linear Hall sensor circuit with a copper conduction path located near the Hall sensor 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, and through the integration of a high performance ferromagnetic core into Allegro's custom CB package. A precise, proportional voltage is provided by the low-offset, chopper-stabilized BiCMOS Hall IC, which is programmed for accuracy at the factory.

The high level immunity to current conductor dV/dt signals and stray electric fields, offered by Allegro® proprietary integrated shield technology, guarantees low output ripple and low offset drift in high-side, high voltage applications. The internal resistance of this conductive path is 100 mΩ typical, providing low power loss. The terminals of the conductive path are electrically isolated from the sensor leads (pins 1 through 3). This allows the ACS758 family of sensors to be used in applications requiring electrical isolation without the use of opto-isolators or other costly isolation techniques.

The ACS758 family is lead (Pb) free. All leads are plated with 100% matte tin, and there is no Pb inside the package. The heavy gauge lead-frame is made of oxygen-free copper.

ACS758

- Industry-leading noise performance through proprietary amplifier and filter design techniques
- Integrated shield greatly reduces capacitive coupling from current conductor to die due to high dV/dt signals, and prevents offset drift in high-side, high voltage applications
- Total output error improvement through gain and offset trim over temperature
- Small package size, with easy mounting capability
- Monolithic Hall IC for high reliability