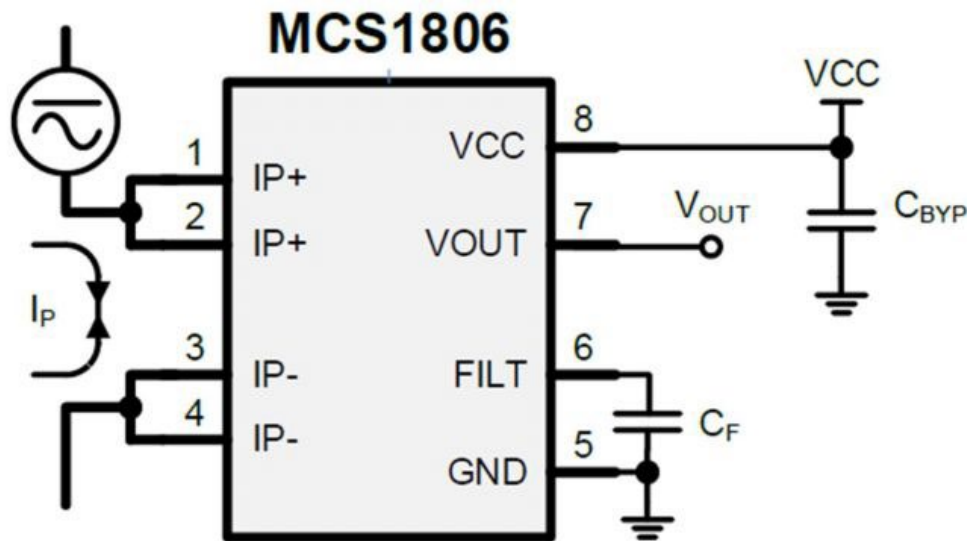


Linear Hall-Effect Current Sensor with $\pm 2.5\%$ Accuracy



The MCS1806 is a linear Hall-effect current sensor for AC or DC current sensing. The Hall array is differential, which cancels out any stray magnetic field. A primary conductor with a low resistance allows current to flow close to the IC, which contains high-accuracy Hall-effect sensors. This current generates a magnetic field that is sensed at two different points by the integrated Hall-effect transducers. The magnetic field difference between these two points is then converted into a voltage that is proportional to the applied current. A spinning current technique is used for a low stable offset.

The galvanic isolation between the pins of the primary conductive path and the sensor leads allows the MCS1806 to replace optoisolators or other isolation devices.

The MCS1806 requires a minimal number of readily available, standard external components. The device's small footprint saves board area and makes it well-suited for space-constrained applications. The MCS1806 is available in an SOIC-8 package.

Features & Benefits

- 3.3V or 5V Single Supply Optional
- Immune to External Magnetic Fields by Differential Sensing
- 2.6kV_{RMS} Minimum Isolation Voltage
- 500V_{RMS} Maximum Working Voltage
- $\pm 2.5\%$ Total Accuracy from $T_J = 25^\circ\text{C}$ to 125°C
- 0.9m Ω Internal Conductor Resistance
- 5A to 50A Bidirectional Range
- Adjustable Bandwidth Up to 100kHz
- Ratiometric Output from Supply Voltage
- Output Proportional to AC or DC Currents

- Factory-Trimmed for Accuracy
- No Magnetic Hysteresis
- Integrated Shield Suppressing Capacitive
- Coupling from Current Conductor to Die (Up to 10V/ns)
- Available in an SOIC-8 Package