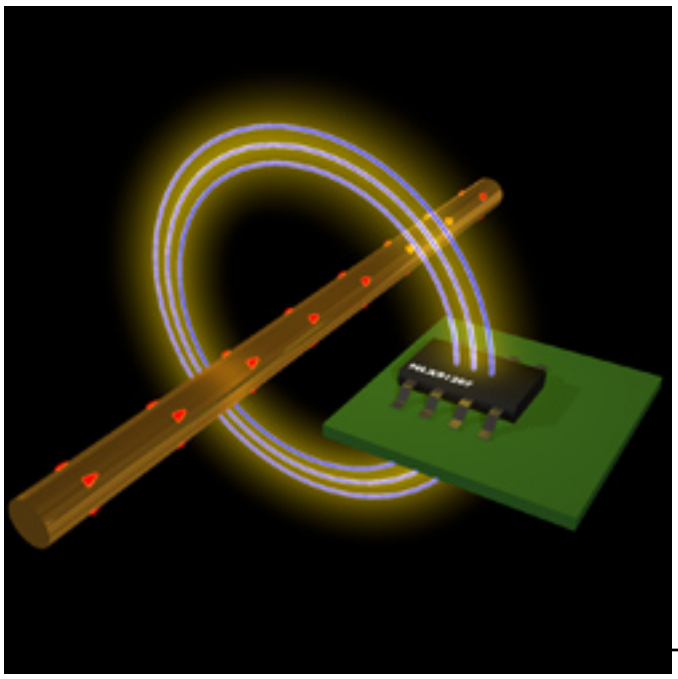
High speed current sensor serves hybrid and electric vehicles



The drive for green power and mobility demands next generation current sensor technology. Melexis' introduction of its MLX91207 high speed custom programmable Hall-Sensor delivers that next generation sensor.

Melexis takes a next step into helping cars go greener by opening new opportunities for contact-less current sensing in Hybrid Electric Vehicles (HEV) and Electric Vehicle (EV) as well as in renewable energy applications. The MLX91207 is a fully customer programmable monolithic Sensor IC in standard SO-8 package. The Hall-Sensor provides a high speed analog output signal proportional to the external applied flux density. The MLX91207 enables the user to construct a robust current sensor solution with fast response times. The 91207 features an additional thermometer output.

The MLX91207 current sensor is particularly appropriate for DC and/or AC current measurements up to 70kHz with ohmic isolation, very low insertion loss, fast response time, small package size and low assembly cost requirements. The SO-8 package is machine mountable and features higher reliability than SIP packages.

Designed to meet the demand for power management in the widespread use of electronics, the MLX91207 is suitable for automotive applications, renewable power conversion (solar and wind power), power supplies, motor control, and overload protection. Typical applications are particularly found in Battery Current Monitoring, in Solar Power Converters and Automotive Inverters driving the traction motor in Hybrid Vehicles HEV/EV. The MLX91207 features over voltage and reverse voltage protection including broken track diagnostics and can therefore be used as a "stand-

alone” current sensor being connected directly to a cable.

The MLX91207 senses the current by converting the magnetic field generated by currents flowing through a conductor to a voltage, which is proportional to the field. The transfer characteristic of the MLX91207 is fully customer programmable (offset, gain, clamping levels and more). The linear analog output permits to use the sensor in applications where a very fast response of <10 ?sec is required. An additional thermometer output signal helps to monitor the ambient temperature in the application.

The custom calibration can be performed in-situ after the sensor is fixed with respect to the current conductor and ferromagnetic core so that a calibrated current sensitivity is achieved. Typical accuracy of a current sensing system based on the MLX91207 is better than +/-1% at room temperature or +/-2.5% over the full temperature range from (-40..125 deg C) with an in-circuit end of line calibration.

Product versions, Packaging and availability

Two product versions are available. The MLX91207CA-E with a sensitivity range of S=5-20mv/mT, and the MLX91207CA-G with sensitivity range of S=15-40mv/mT. The 91207CA is packaged in a SOIC8, RoHS compliant, lead-free package for SMD assembly. The device is available for high volume production with engineering samples available on request.

www.melexis.com [1]

Links:
[1] http://www.melexis.com