

MLX91218

IMC-HALL® HIGH-SPEED CURRENT SENSOR



The snout of the platypus is a sensory organ with electroreceptors in the skin of the bill, which allow him to detect the electrical field that gets generated when his prey contracts its muscles. With his 40,000 sensitive electronic sensors, this unique semi-aquatic egg-laying mammal represents our current sensors.

DUAL OCD, LOW NOISE AND FLEXIBLE SUPPLY FOR INVERTER, DCDC AND BATTERY APPLICATIONS

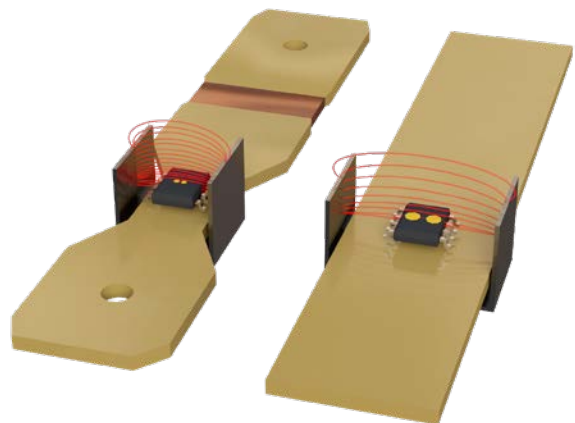
MLX91218

The MLX91218 is a high-speed high-accuracy IMC-Hall® current sensor simplifying module designs with a dual OverCurrent Detection (OCD) functionality, a flexible supply 3.3V/5V and an improved SNR. With the IMC-Hall® technology - using a flexible U-shield for crosstalk immunity - currents can be measured in the ranges of 200A to 2000A.

In a typical current sensing application, the sensor is used in combination with a U-shaped shield which facilitates the mechanical assembly of the current sensor over traditional ferromagnetic cores. This shield is recommended to be laminated for high bandwidth applications. The MLX91218 can then be mounted over the bus bar and separated from it by the PCB. As the shield does not serve the primary purpose of concentration, it can be made smaller and lighter than ferromagnetic cores without losing signal thanks to the integrated magnetic concentrator (IMC). As a result, dense power electronics can be achieved enabling system savings and surface mount assembly.

APPLICATIONS

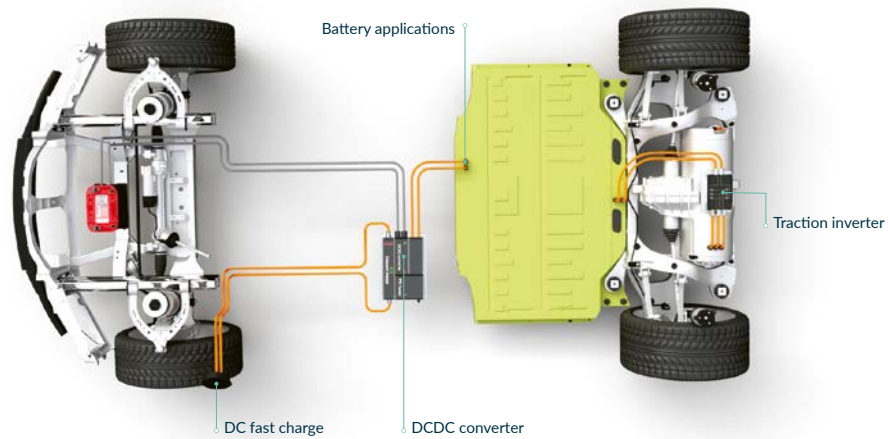
- ✓ Redundant monitoring of battery-management system (BMS)
- ✓ High Voltage Traction inverters (HV)
 - Phase current measurement
 - DC link current measurement
- ✓ 48V Boost-recuperation machines (48V)
 - Phase current measurement
 - DC link current measurement
- ✓ DCDC Converter
- ✓ Smart Battery Junction Boxes
- ✓ Smart Fuse Overcurrent Detection



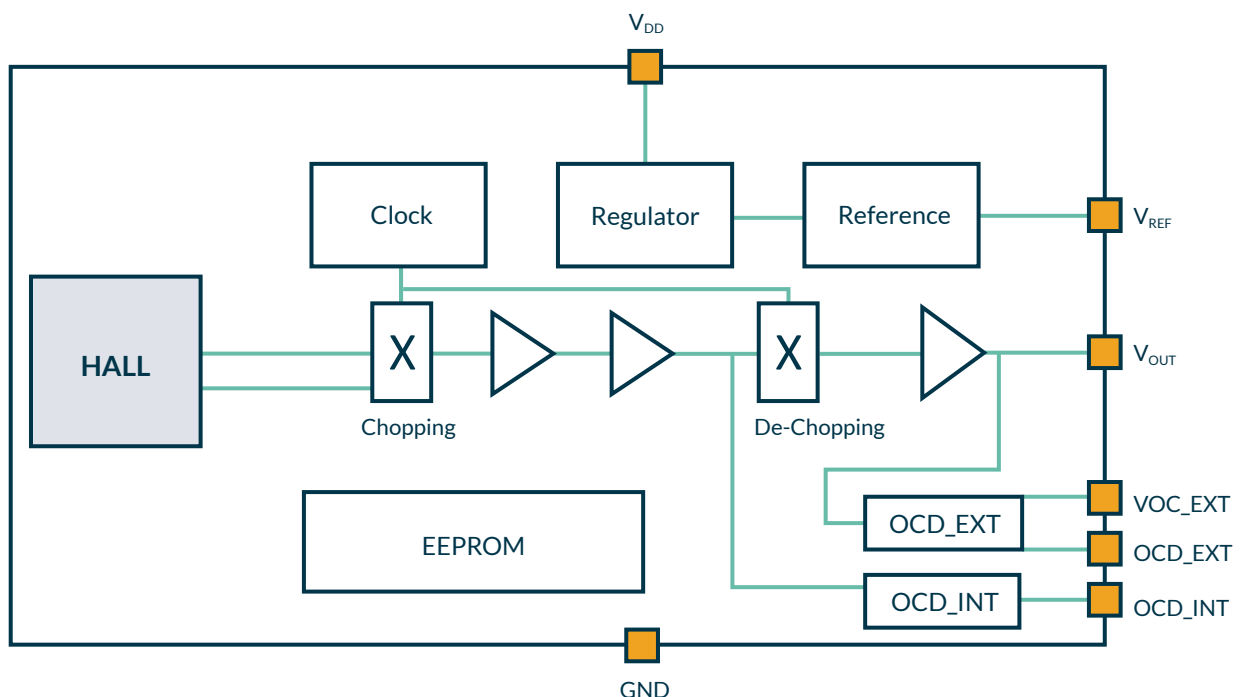
XHF and VHF examples with standard shields

KEY FEATURES

- ✓ Dual overcurrent detection
 - Internal threshold
 - External threshold
- ✓ Flexible Supply Voltage
 - 5V mode and 3.3V mode (factory selectable)
- ✓ Selectable analog output
 - Ratiometric or fixed (Vref)
- ✓ High speed
 - DC to 400 kHz bandwidth
 - 2µs response time
- ✓ Measurement range
 - MLX91218 AxV versions (Very high field):
for current from 200 to 1200 A
 - MLX91218 AxX versions (eXtra high field):
for current from 200 to 2000 A
- ✓ Low noise
- ✓ IMC-Hall® Technology
 - Smaller, lighter solution than conventional Hall solutions.
 - Easy mechanical integration
 - Vertical stacking possible w/ existing control boards (PCBs)
- ✓ End-of-line programmable sensor
- ✓ High linearity down to ±0.5% full scale
- ✓ Very low thermal drift for wide temperature range
 - Offset drift (<5mV)
 - Sensitivity drift (<1.5%)
- ✓ Package RoHS compliant
 - SOIC-8 (DC) package, MSL-3
- ✓ AEC-Q100 – Grade 0 Automotive Qualified



BLOCK DIAGRAM



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