DVK Conventional Hall Core

User Guide

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1 Scope and Development Kit content

The DeVelopment Kit (DVK) DVK-Conventional-Hall (rev1) provides all the needed components to evaluate the performances and the functionalities of MLX91209, MLX91211, MLX91217 and MLX91219 conventional Hall current sensor family. It includes:

- Ready-to-use evaluations boards provided with MLX91209LVA-CAR-000, MLX91211LUA-ABT-500 and MLX91219LVA-AAR-502 for a quick start.
- One evaluation boards with no IC to be customized with the reference you need.
- Additional spare sensors
- SiFe ferromagnetic cores.
- Copper bars.
- Plastic holders in order to easily assemble all the configurations possible

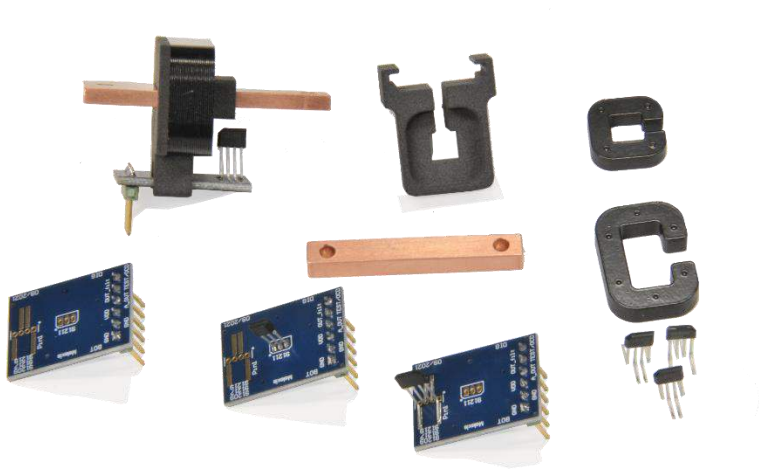

Figure 1: Content of DVK Conventional Hall Core: plastic holder copper bar, shields and PCBs

2 Key features

2.1 DVK

- Plug and play DVK (all included from copper bar to sensor)
- DVK provided with extra PCBs to connect any other variant
- Build and test different configurations (shields, sensors, sensitivity)

All the core datasheets can be downloaded from our supplier website:
https://www.maglab.ch/products/shields-and-cores/u-shield-lam/

2.2 Sensor ICs

- (Programmable) high speed current sensor
- (Programmable) linear transfer characteristic
- Selectable analog ratiometric output
- Measurement range from 15 to 450mT
- Single die VA package RoHS compliant
- Wideband: DC to 400kHz
- Short response time

2.3 PCB

- Extra room for output filter implementation
- Ground Layer and Decoupling capacitors for high EMC performances

3 Hardware

3.1 PCB layout

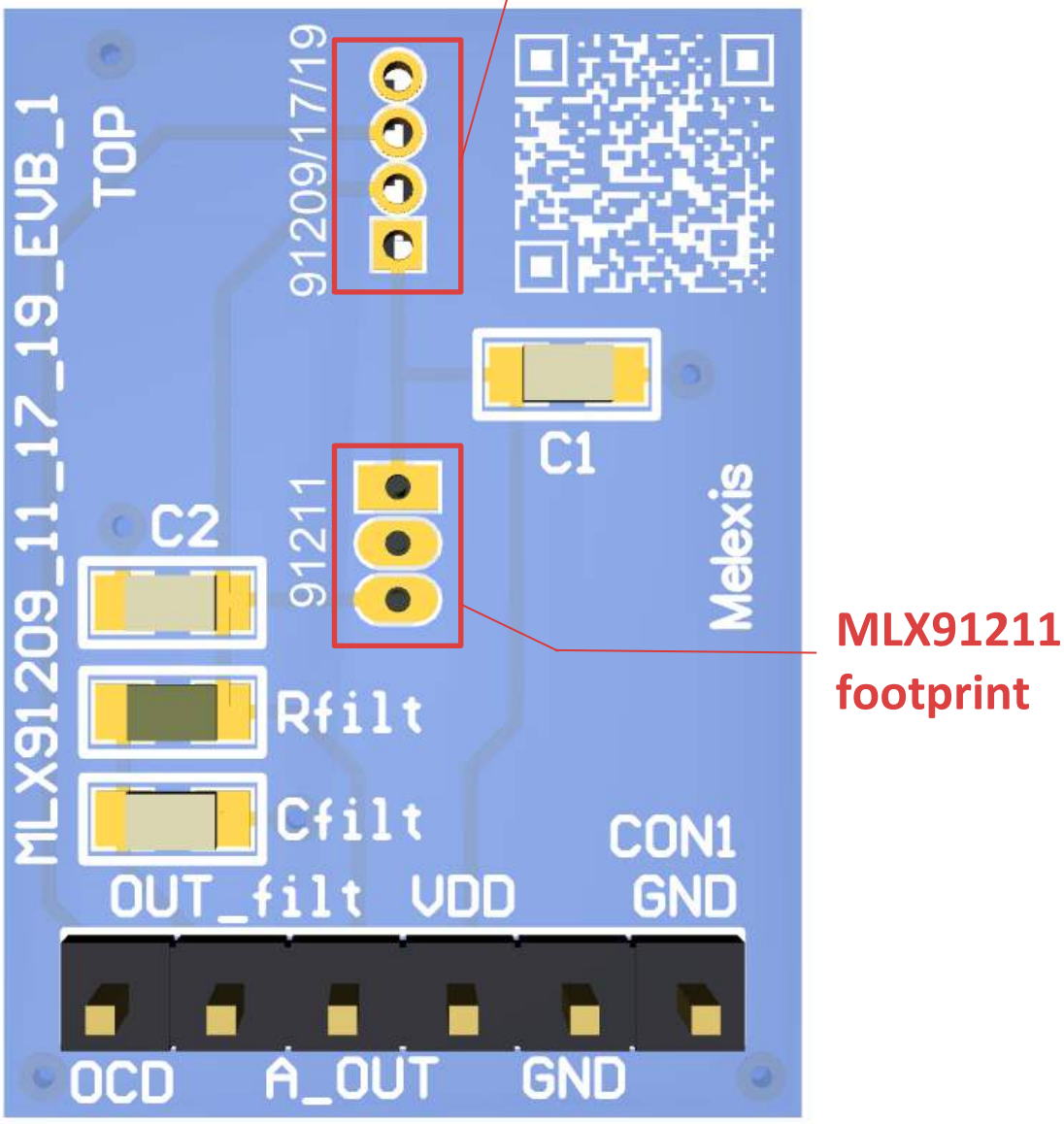

Figure 2: Layout of the PCB

3.2 Schematics

3.2.1 MLX91209/17/19 schematic

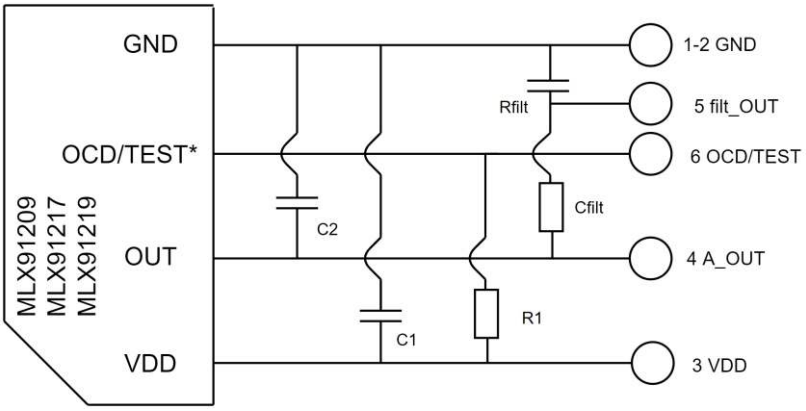

Figure 3: Schematics of the four pins sensors

3.2.2 MLX91211 schematic

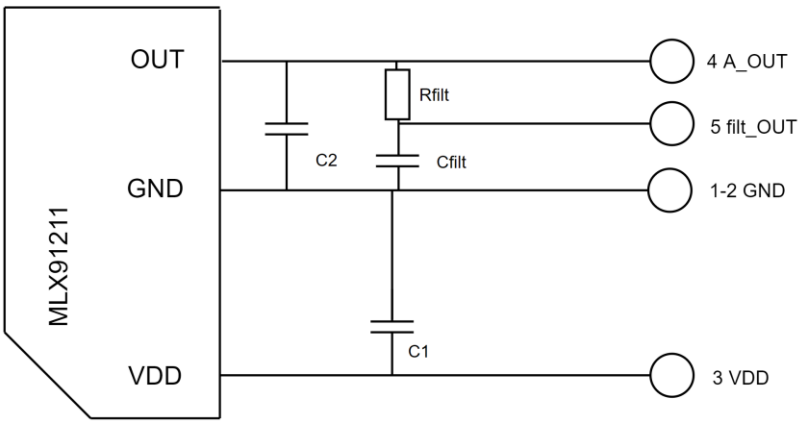

Figure 4: Schematics of the three pins sensor

*OCD only available on MLX91217 and MLX91219, TEST pin only available on MLX91209, no OCD/TEST pin on MLX91211

3.3 Pins Designation

Table 1: Pin designation

PIN	Name	Function	Type
1	VDD	Supply voltage	Analog
2	OUT	Output voltage	Analog
3	OCD/TEST*	Overcurrent detection based on internal voltage/ Test pin	Analog
4	GND	Ground voltage	Analog

Table 2: Connector pins designation

PIN	Function
1-2	Ground Voltage
3	Supply Voltage
4	Output Voltage
5	Filtered Output Voltage (not populated)
6	OCD/TEST pin*

*OCD only available on MLX91217 and MLX91219, TEST pin only available on MLX91209, no OCD/TEST pin on MLX91211

3.4 Bill of Material

Table 3: BOM

Part	Description	Value
C1	Supply capacitor, EMI , ESD	47 nF
C2	Reference pin decoupling capacitor EMI, ESD	10 nF
R1	Internal OCD resistor	10kΩ
Cfilt	Customized capacitor for filtered output (not populated)	-
Rfilt	Customized resistor for filtered output (not populated)	-

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