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1 Scope and Development Kit content

The DeVeLopment Kit (DVK) DVK-IMC-Hall-Shield (rev1) provides all the needed components to evaluate the performances and the functionalities of [MLX91208](#), [MLX91216](#) and MLX91218 IMC-Hall® current sensor ICs.

The kit includes:

- Ready-to-use evaluations boards provided with MLX91216LDC-CAV-001 and MLX91218LDC-ARX-300 for a quick start.
- An MLX91208/91216 evaluation board with no IC to be customized with the reference you need.
- An MLX91218 evaluation board with no IC to be customized with the reference you need.
- Additional spare sensors.
- SiFe ferromagnetic shields.
- Copper bars.
- Plastic holders in order to easily assemble all the configurations possible

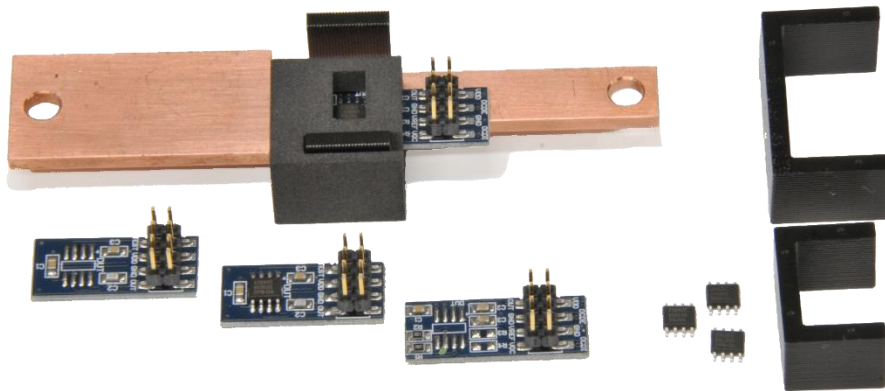


Figure 1: Content of DVK IMC-Hall Shield: plastic holder copper bar, shields and PCBs

DVK IMC-Hall® Shield

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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 shields datasheets can be downloaded from our supplier website:
<https://www.maglab.ch/products/core-lam/Sensors>

2.2 Sensor ICs

- (Programmable) high speed current sensors
- (Programmable) linear transfer characteristic
- Measurement range from 3 to 100mT
- SOIC8 package RoHS compliant
- Wideband from DC to 400kHz
- Short response time

2.3 PCB

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

DVK IMC-Hall® Shield

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3 Hardware

3.1 MLX91208/16 PCB layout

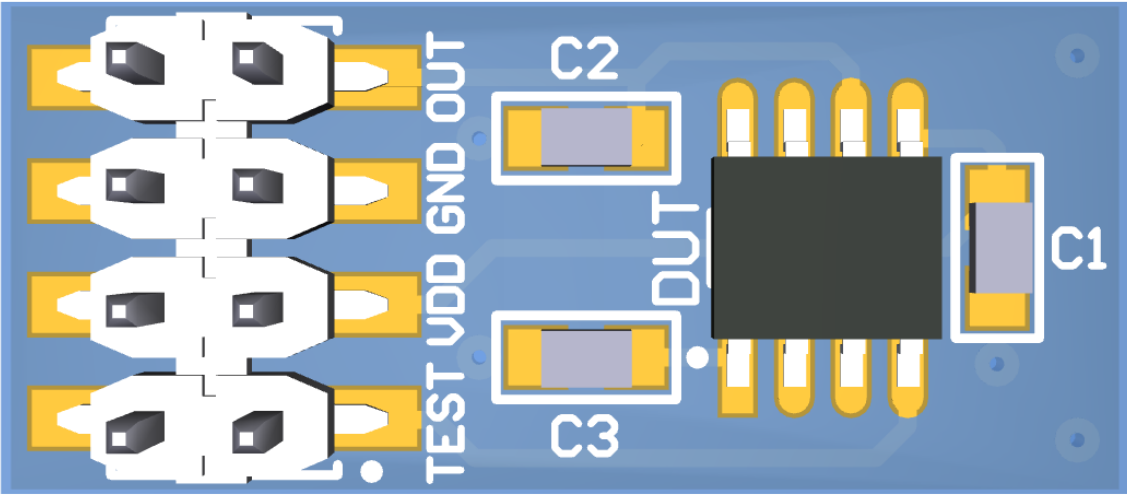


Figure 2: Layout of the PCB91208/91216

3.2 MLX91208/16 Schematics

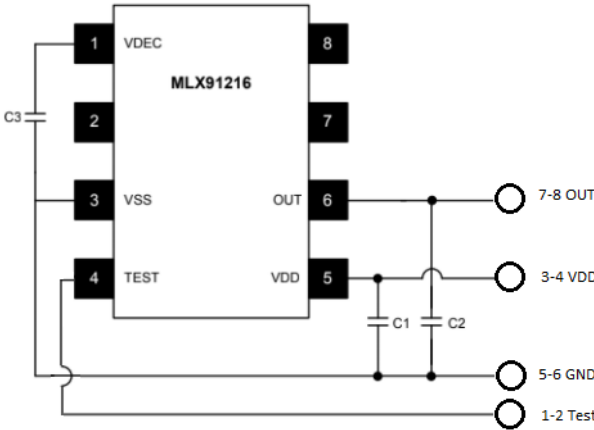


Figure 3: Schematics of the EVB91208/91216

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3.3 MLX91208/16 Pins Designation

Table 1: MLX91208/91216 pin designation

PIN	Name	Function	Type
1	VDEC	Internal digital voltage	Analog
2	NC	Not connected	-
3	VSS	Ground Voltage	Ground
4	TEST	Test pin	
5	V _{DD}	Supply Voltage	Supply
6	V _{OUT}	Output Voltage	Analog
7	NC	Not connected	-
8	NC	Not connected	-

Table 2: MLX91208/91216 connector pins designation

PIN	Function
1-2	Test pin
3-4	Supply Voltage
5-6	Ground Voltage
7-8	Output Voltage

3.4 MLX91208/16 Bill of Material

Table 3: MLX91208/91216 BOM

Part	Description	Value
C1	Reference pin decoupling capacitor EMI, ESD	100 nF
C2	Supply capacitor, EMI, ESD	2.2 nF
C3	Output pin Decoupling capacitor EMI, ESD	47 nF

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3.5 MLX91218 PCB layout

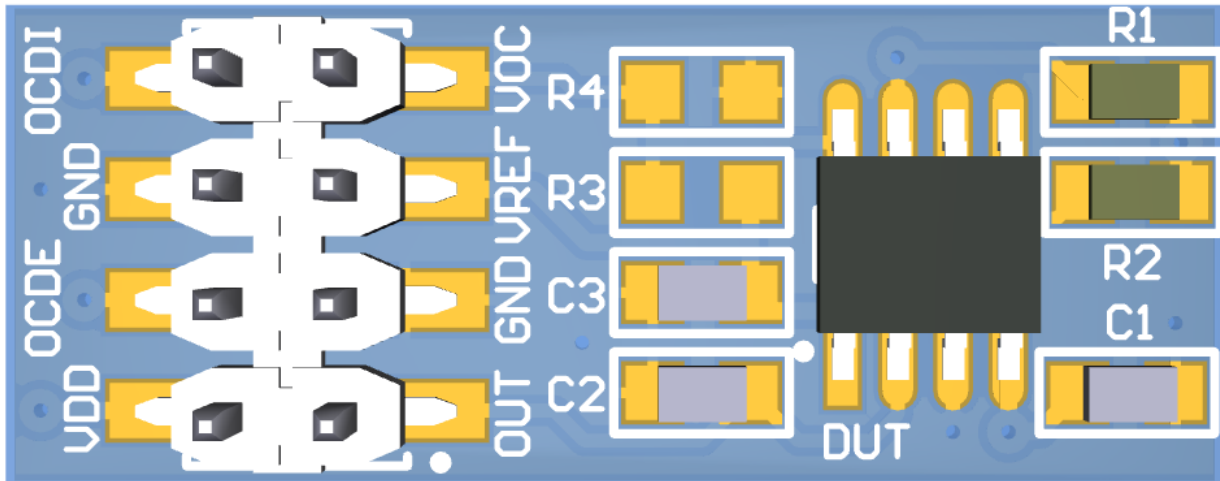


Figure 4: Layout of the PCB91218

3.6 MLX91218 Schematics

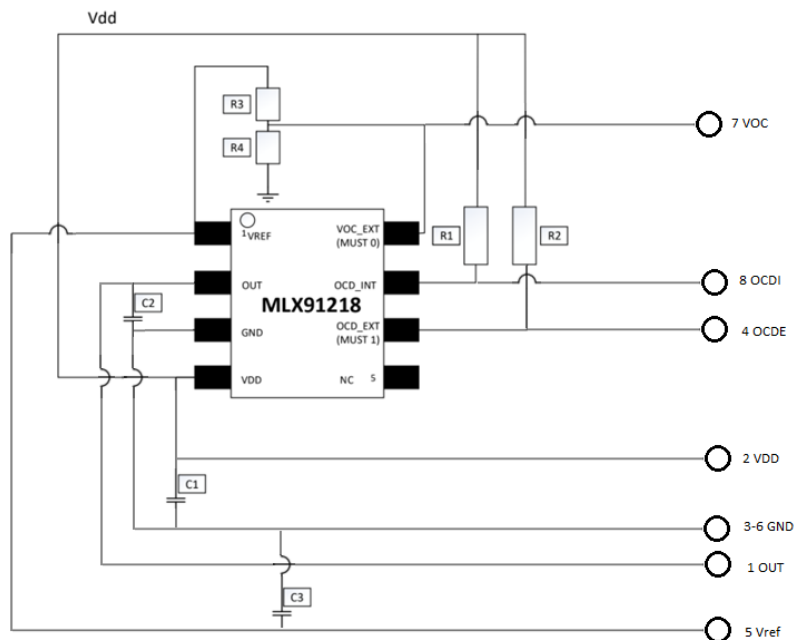


Figure 5: Schematics of the EVB91218

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3.7 MLX91218 Pins Designation

Table 4: MLX91218 pin designation

PIN	Pin	Function	Type
1	VREF	Reference voltage	Analog
2	OUT	Output voltage	Analog
3	GND	Ground Voltage	Ground
4	VDD	Supply voltage	Supply
5	NC	Not connected	-
6	OCD_EXT	Overcurrent detection based on external threshold	Analog
7	OCD_INT	Overcurrent detection based on an internal threshold	Analog
8	VOC_EXT	External threshold for the OCD	Analog

Table 5: MLX91218 connector pins designation

Pins	Function
1	Output voltage
2	Supply Voltage
3	Ground Voltage
4	OCD_EXT pin
5	Reference voltage
6	Ground voltage
7	VOC_EXT pin
8	OCD_INT pin

MLX91218 Bill of Material

Table 5: MLX91218 BOM

Part	Description	Value
C1	Reference pin decoupling capacitor EMI, ESD	47 nF
C2	Supply capacitor, EMI, ESD	4.7 nF
C3	Output pin Decoupling capacitor EMI, ESD	47 nF
R1	Internal OCD resistor	10 kΩ
R2	External OCD resistor	10 kΩ
R3/R4	Customized External OCD resistor	-

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4 Sensors characteristics

4.1 MLX 91208/16 Characteristics

The Development Kit contains four PCBs. Two are not populated. Please refer to the datasheet of MLX91208, MLX91216 or MLX91218 to find the adapted product for your application.

Table 6: MLX91216LDC-CAV-001 configuration

Product code	Legend
MLX91216	5V Supply Integrated Current Sensor
L	- 40°C to 125°C ambient temperature
DC	SOIC-8 NB (Narrow Body – 150mils) package
CAV-001	IMC size and sensitivity

4.2 MLX91218 Characteristics

Table 7: MLX91218LDC-ARX-300 configuration

Product code	Legend
MLX91218	5V Supply Integrated Current Sensor
L	- 40°C to 125°C ambient temperature
DC	SOIC-8 NB (Narrow Body – 150mils) package
ARX-001	IMC size and sensitivity

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