Melexis

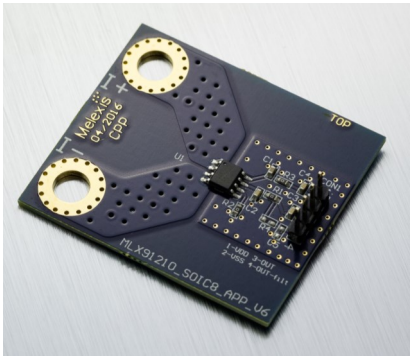
Integrated Current Sensor

Development Kit MLX91210

www.melexis.com/MLX91210

Development Kit 91210-SO08

The MLX91210 development kit provides all the needed components to evaluate the performances and the functionalities of MLX91210 integrated current sensor.



The kit includes:

- 1 demo PCB with 1 MLX91210 current sensor calibrated for 40mV/A
- 3 extra MLX91210 current sensors calibrated for 40mV/A

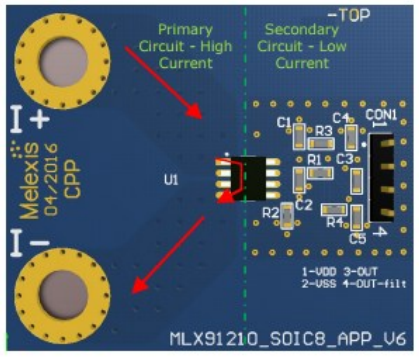
Key features

Sensor:

- Isolated current measurement demo factory calibrated for 50A
- Qualified to voltage isolation 2.1-2.5kV in ref to UL and IEC norms
- Fully differential and stray field immune (insensitive to external field)

PCB:

- PCB design adapted to high current measurements[1]
- Ground Layer and Decoupling capacitors for high EMC performances
- Extra room for output filter implementation

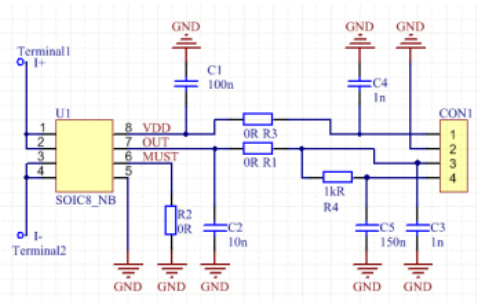


PCB top view

Sensor pin-out and connections

PCB components descriptions:

Part	Description	Value
C1	Supply capacitor, EMI , ESD	100nF
C2	Decoupling capacitor, EMI, ESD	10nF
C3, C4	Decoupling capacitor EMI, ESD	1nF
R1, R3	Extra Resistors for CRC filter	0 Ω
R2	Must-to-Gnd resistor	0 Ω
R4, C5	Extra RC filter	TBD



PCB schematic

Pins designation:

VDD	Vout	Must	Vss	Ip+	Ip-
Supply	Analog	Digital	Ground	Analog	Analog
Supply Voltage (+5V)	Current Sensor Output (+/-2V)	Test and Factory Calibration	Supply Voltage	Current Input	Current Output

[1]To avoid sensor overheating, max continuous RMS current < 30A. Detailed layout information on request (shu@melexis.com)

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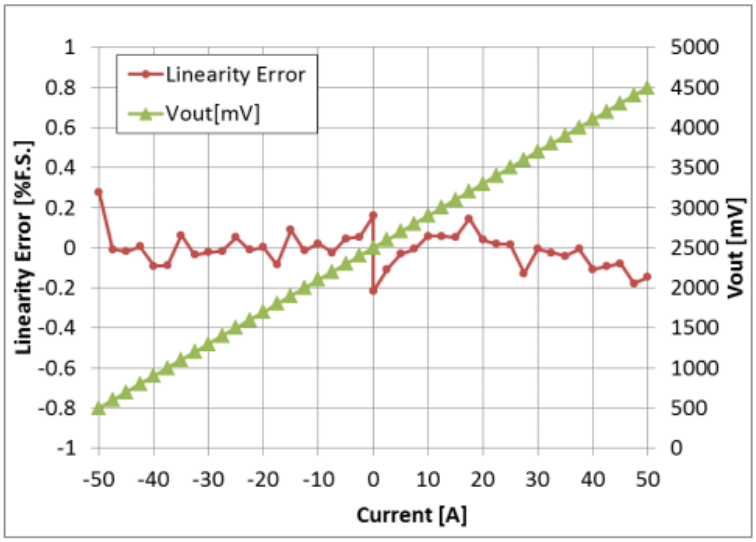
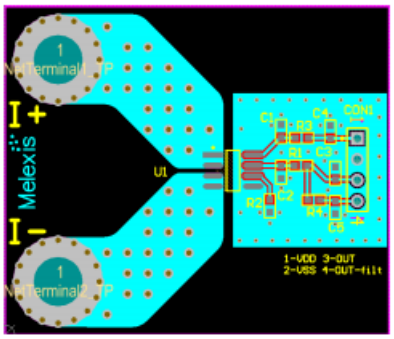
Sensor Performances

- Very good non-linearity < 1%F.S.

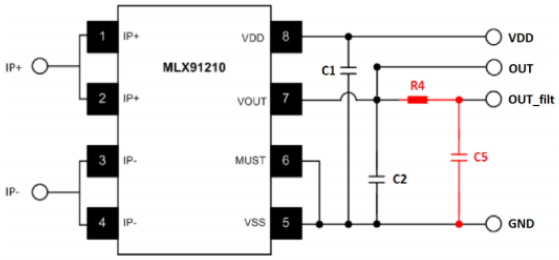




PCB Layout

- Typical response time 5us
- Additional RC filter:

Output R4	Filter C5	Bandwidth [kHz]	Noise [Arms]
n.a.	n.a.	100	0.15
100	150	10	0.05
1000	150	1	0.02



Pin-out for MLX91210-SOIC08 (R1, R2, R3, R4, C3,C4, no represented)

- On-chip Sensitivity Drift and Offset Drift compensation over lifetime and temperature
  - ⇒ Sensitivity Drift : +/-1%
  - ⇒ Offset Drift : +/-0.12A