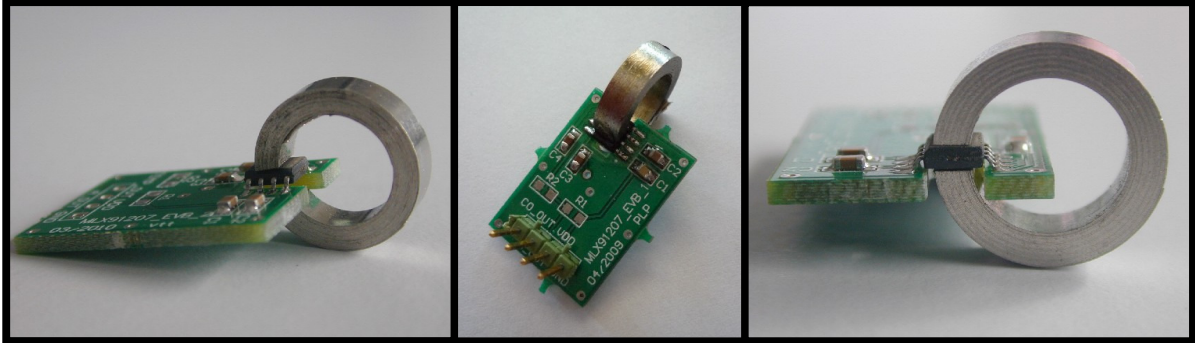


# Development Kit

## MLX91207

REV001



### **1 Description**

The development kit provides the needed information and components to develop the current sensors MLX91207. The main goal is to show the functionalities and the features of the parts in a simple and effective way, without the need of investing precious time and money for develop design.

#### **1.1 Content**

The kit includes:

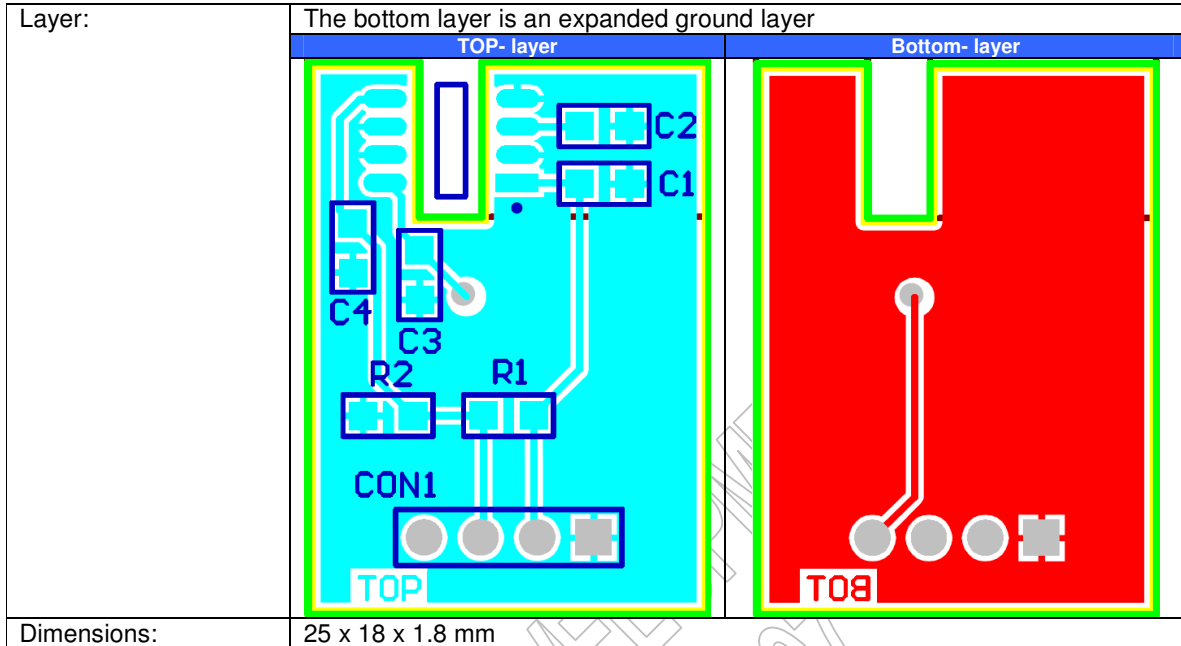
- 2 MLX91207 mounted on PCB
- 2 separate MLX91207
- 2 separate PCB
- 1 core for high current
- 1 core for low current

Datasheet and Application Note can be found on [www.melexis.com](http://www.melexis.com)

#### **1.2 Core ordering details**

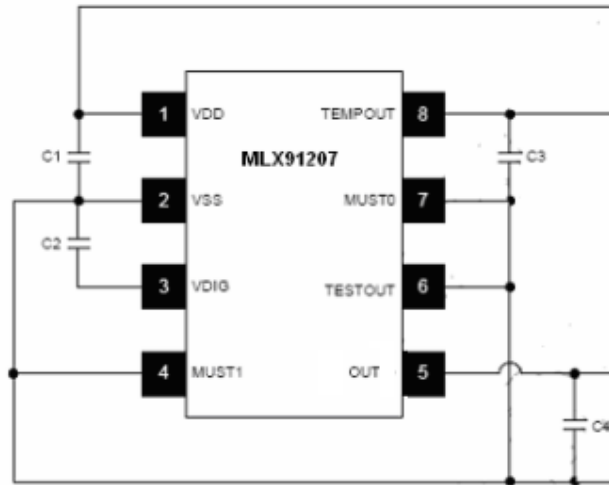
Company: Beijing Shouye Magnetic Material  
Contact: Mr. Rainbow  
E-Mail: [sales@shouye.sina.net](mailto:sales@shouye.sina.net)

## 2 Specification of the PCB



CON 1	
Pin 1:	Supply Common (Vss)
Pin 2:	Pos. Power Supply (Vdd)
Pin 3:	Analog Sensor Output (Out)
Pin 4:	Temperature Output (Temp)

### 3 Schematic



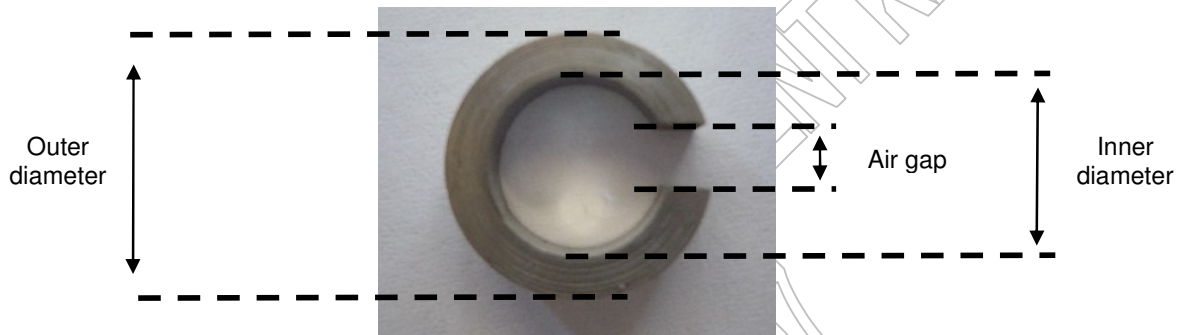
VDD:	pos. supply voltage
VSS:	supply common
OUT:	analog sensor output
TEMPOUT:	temperature output

## 4 Cores specification

### 4.1 Material properties

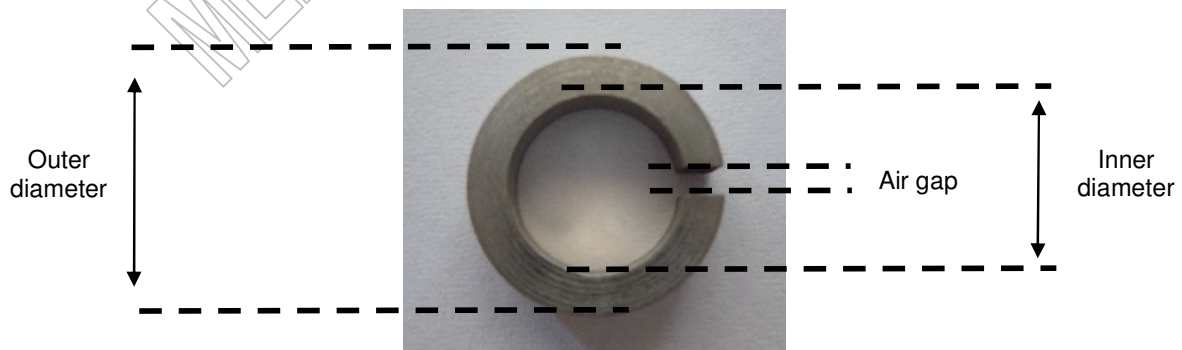
- Name: Fe-based amorphous
- Permeability > 100000
- Saturation > 1.5 T
- Hysteresis < 6 A/m
- Curie temperature: 410 degrees C

### 4.2 Big air gap magnetic core – high current solution



- Outer diameter: 15mm
- Inner diameter: 10mm
- Height: 4mm
- Air gap: 3.5mm
- Saturation limit: 200A

### 4.3 Small air gap magnetic core – low current solution



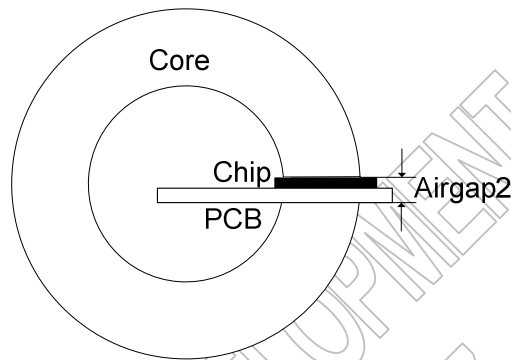
- Outer diameter: 15mm
- Inner diameter: 10mm
- Height: 4mm
- Air gap: 1.68mm
- Saturation limit: 100A

## 5 OUPUT measurement

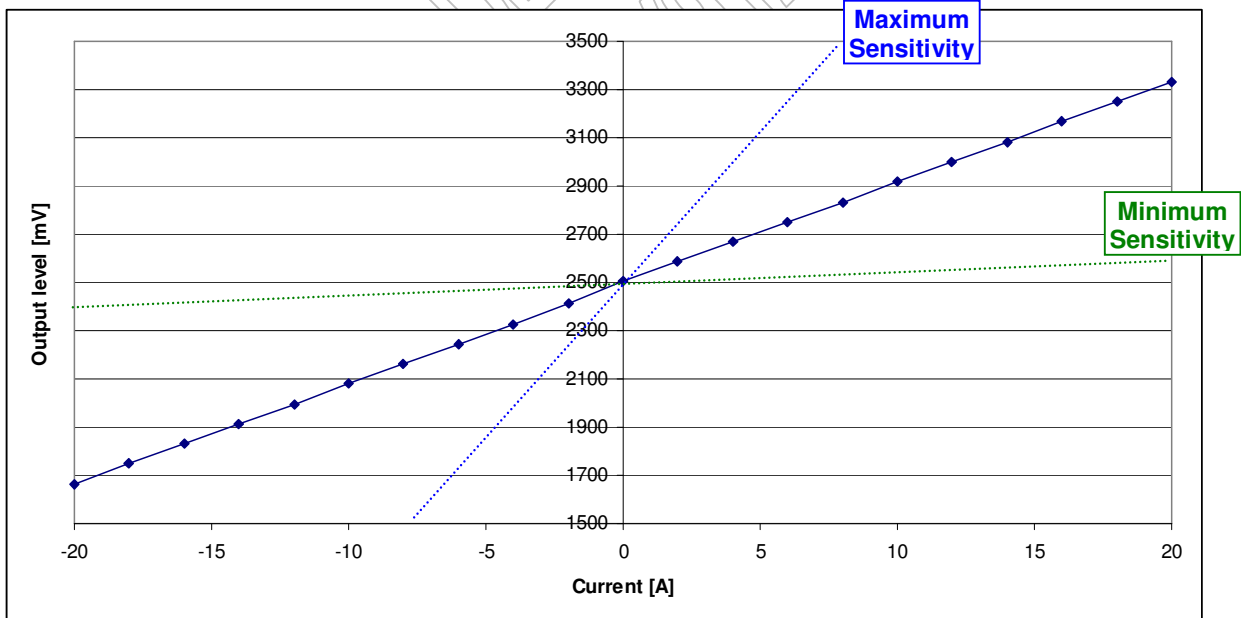
### 5.1 Sensor programming

All MLX91207 current sensors which are included in the development kit are calibrated to a sensitivity of 50V/T. The following measurements are based on 50V/T. However, the MLX91207 is a fully custom programmable current sensor. The sensitivity can be calibrated within a range from 5 up to 150 V/T.

### 5.2 Typical output characteristics with big air gap core – high current solution



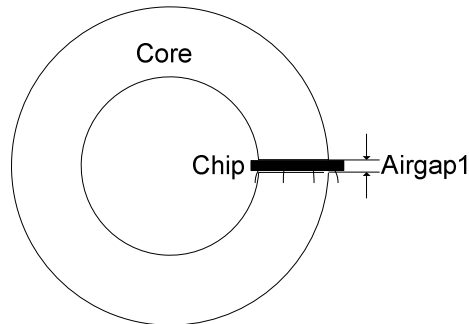
The following graph shows the results obtained with a MLX91207 current sensor mounted with the big air gap core:



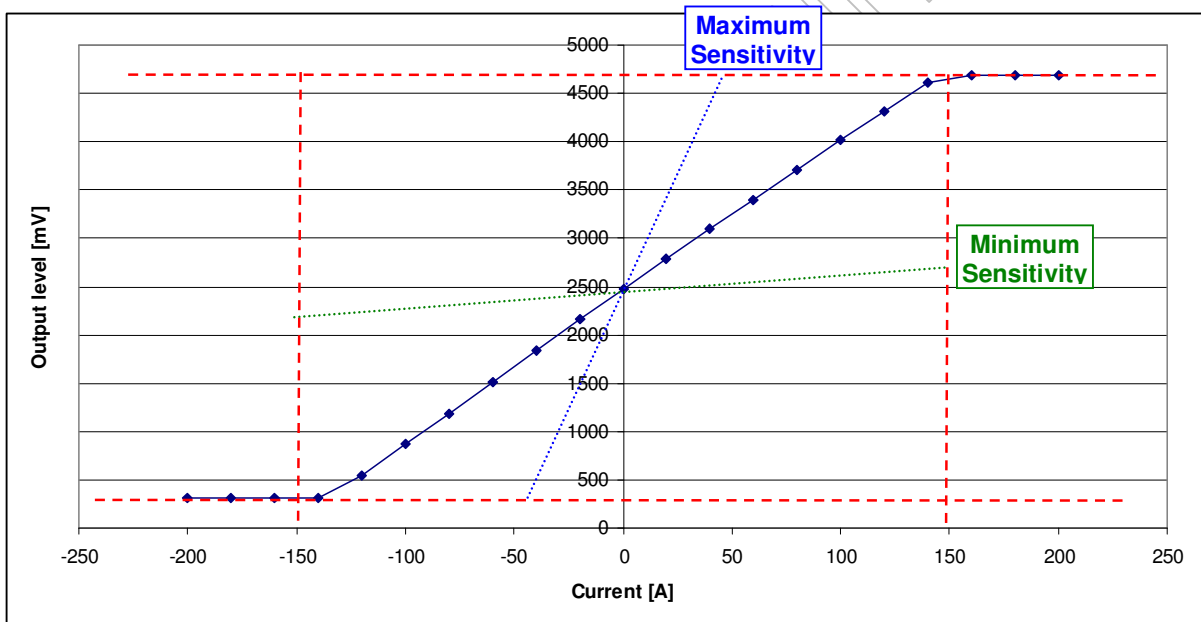
- ⇒ The sensitivity of the sensor is around 40mV/A and could be programmed between 4 and 120mV/A
- ⇒ Note that the small air gap magnetic core saturates at 100A

Typical output with maximum sensitivity (120mV/A): .....  
 Typical output with minimum sensitivity (4mV/A): .....

**5.3 Typical output characteristics with small air gap core – low current solution**



The following graph shows the results obtained with a MLX91207 current sensor mounted with the small air gap core:



- ⇒ The sensitivity of the sensor is around 15mV/A and could be programmed between 1.5 and 45mV/A
- ⇒ Note that the big air gap magnetic core saturates at 200A

Typical output with maximum sensitivity (45mV/A): .....  
 Typical output with minimum sensitivity (1.5mV/A): .....

Melexis will be happy to support your design-in. Please feel free to contact us for further questions.  
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 Application Engineer  
[sgt@melexis.com](mailto:sgt@melexis.com)