

## EVB102 SOT23-6 Evaluation Board User Guide

### DESCRIPTION

The CT100 is a 1D linear sensor in full-bridge configuration from Allegro developed on its patented XtremeSense™ TMR technology. The total magnetic field range for the CT100 is from  $-50$  mT to  $50$  mT, providing XtremeSense performance to achieve unparalleled temperature stability across the full temperature range. The device supports a wide operating voltage range of  $1.0$  to  $5.5$  V. The EVB102 SOT23-6 has applications for linear measurements, proximity sensing, and current sensing. This user guide describes how to connect and use the EVB102 SOT23-6 evaluation board.

### FEATURES

- Operating magnetic field range  $\pm 50$  mT
- Stable magnetic performance over temperature
- Differential outputs
- Supply Voltage:  $1.0$  V to  $5.5$  V
- Operating temperature:  $-40^{\circ}\text{C}$  to  $150^{\circ}\text{C}$

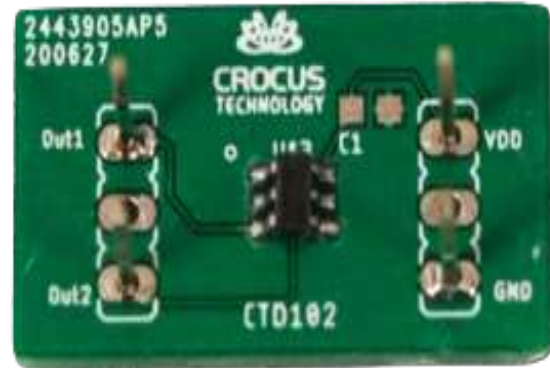


Figure 1: EVB102 SOT23-6 Evaluation Board

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Table 1: EVB102 SOT23-6 Evaluation Board Configurations

| Configuration Name | Part Number | Output Voltage Range (mV) | Output Current Range (mV) |
|--------------------|-------------|---------------------------|---------------------------|
| EVB102 SOT23-6     | CT100LW-HS6 | $\pm 1430$                | 0–200                     |

Table 2: General Specifications

| Specification               | Min.   | Typ. | Max | Units |
|-----------------------------|--------|------|-----|-------|
| Input Operating Voltage     | 2.7    | –    | 5.0 | V     |
| Input Operating Temperature | $-5.0$ | –    | 5.0 | A     |
| Cutoff Frequency (3 dB)     | –      | 10   | –   | kHz   |

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## USING THE EVALUATION BOARD

This section provides an overview of the connections and configuration options of the EVB102 SOT23-6 evaluation board. Figure 2 highlights the proper configuration and is detailed below. The CT100 datasheet contains detailed information on the use and functionality of each pin, detailed specifications about the sensor, and should be consulted for more detailed information than is contained in this user guide.

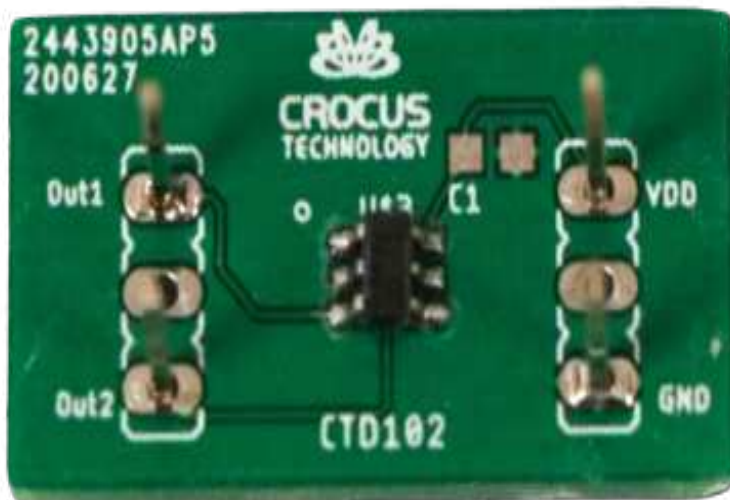


Figure 2: EVB102 SOT23-6 Evaluation Board

### Power Input and Board Configuration

Connect the power supply to VDD and GND. Apply voltage not exceeding 5.5 V<sub>DC</sub>. Apply 3.3 V<sub>DC</sub> to VDD and GND for general use. Attach a multimeter to OUT1 and OUT2. Steadily pass the magnet over the IC to obtain a reading; the output should read 0 mV to 200 mV. Allow the magnet to travel from VDD over to GND. The current output should immediately rise and then decline when it reaches GND. Use short cables that are at least 18 AWG.

## SCHEMATIC

Figure 3 below shows the schematic of the EVB102 SOT23-6 evaluation board.

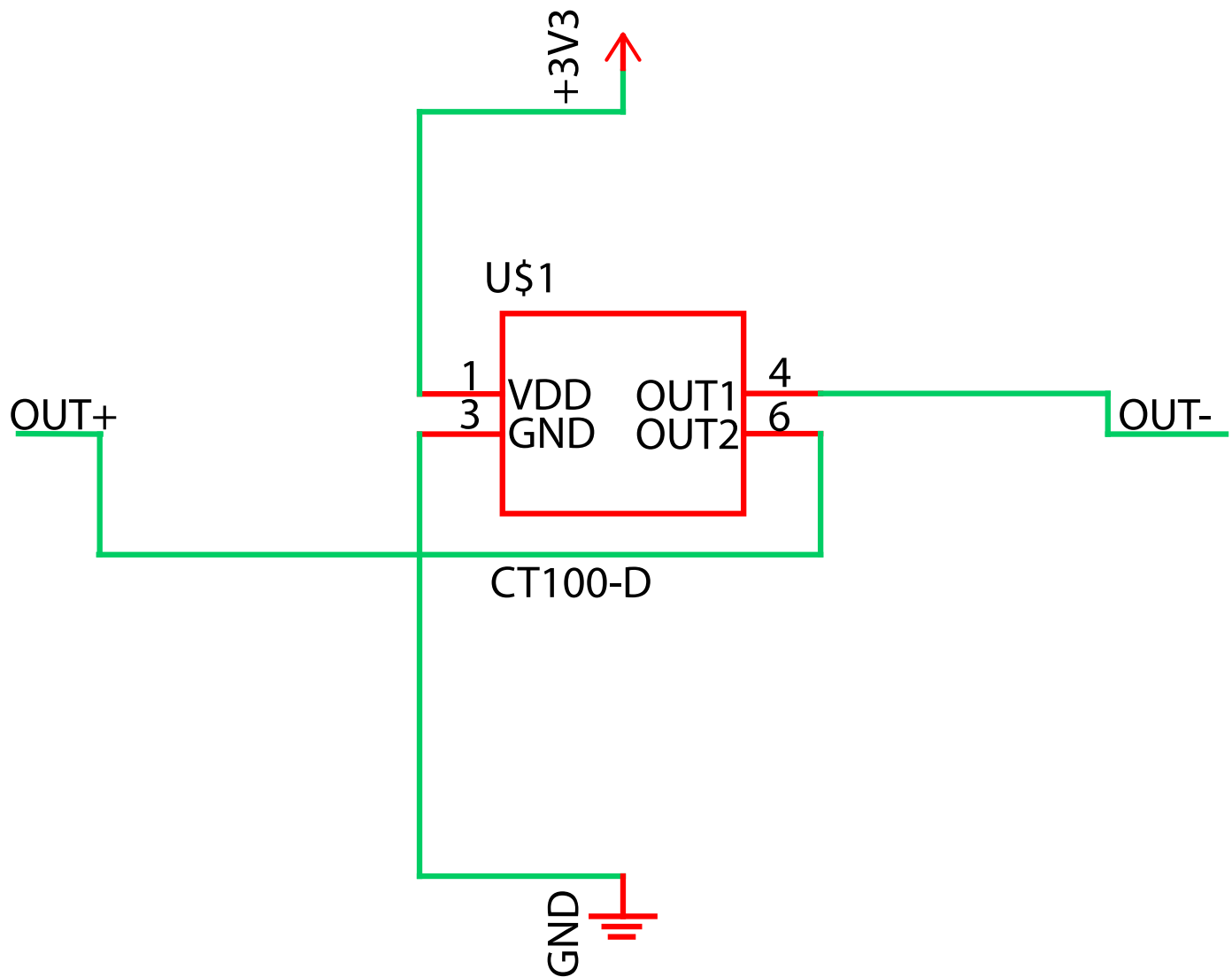


Figure 3: EVB102 SOT23-6 evaluation board schematic

## LAYOUT

Figures 4 and 5 below show the top and bottom layers of the EVB102 SOT23-6 evaluation board.

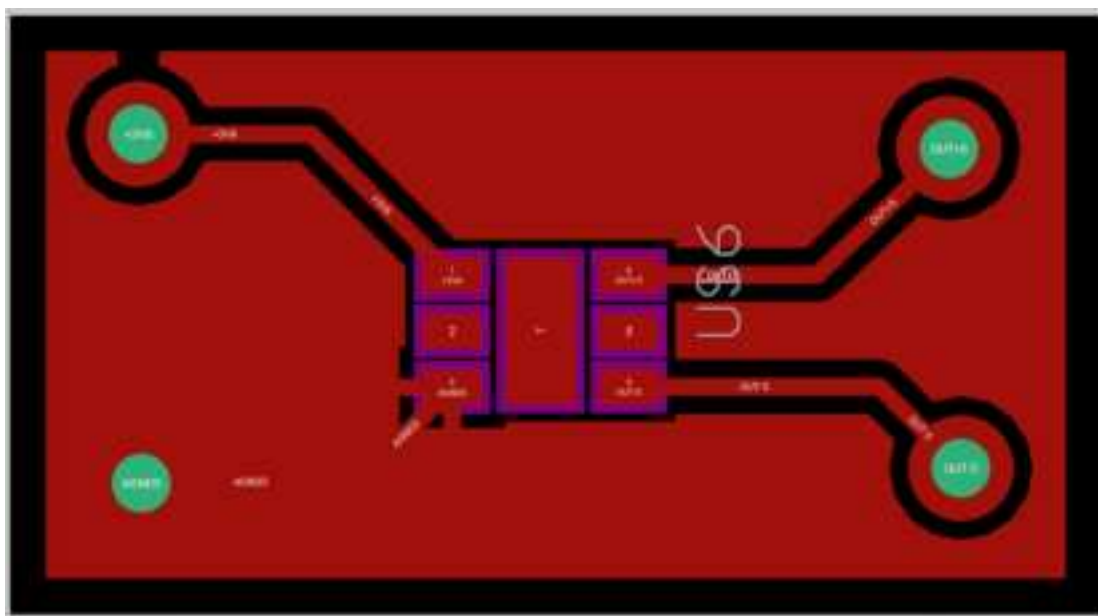


Figure 4: EVB102 SOT23-6 evaluation board top layer

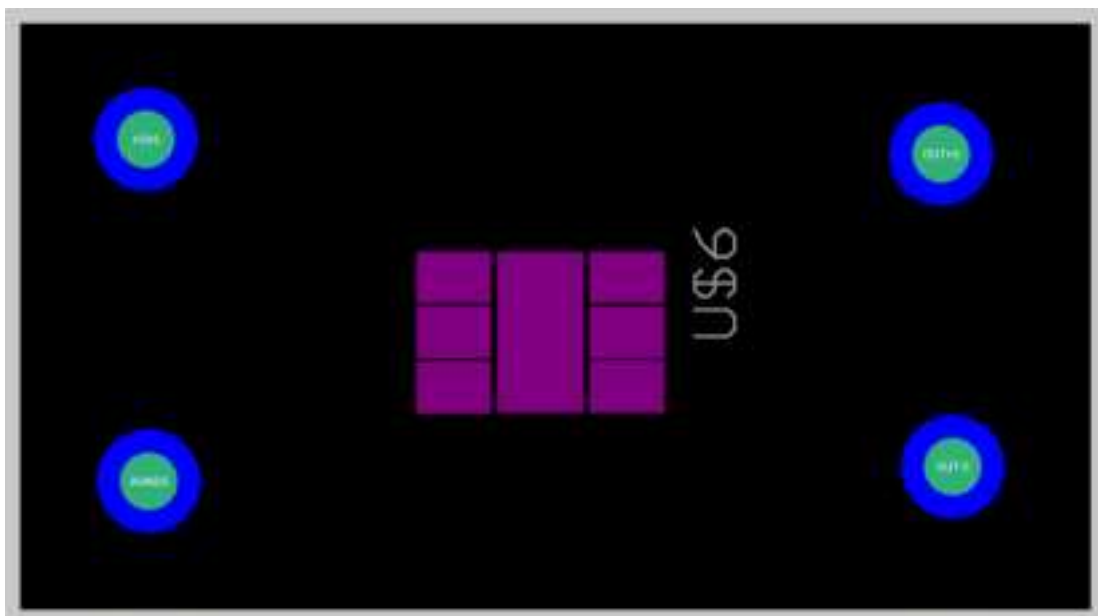


Figure 5: EVB102 SOT23-6 evaluation board bottom layer

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## BILL OF MATERIALS

Table 3: CT100LW-HS6 Evaluation Board Bill of Materials

| ELECTRICAL COMPONENTS |          |                                |                      |                          |
|-----------------------|----------|--------------------------------|----------------------|--------------------------|
| Designator            | Quantity | Description                    | Manufacturer         | Manufacturer Part Number |
| PCB                   | 1        | EVb102 SOT23-6 EVAL PCB        | Allegro MicroSystems | –                        |
| U\$6                  | 1        | CT100 Sensor                   | Allegro MicroSystems | –                        |
| J1, J2, J3, J4        | 4        | Header, vertical, through-hole | TE                   | 9-146285-0-01            |

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## RELATED LINKS

<https://www.allegromicro.com/en/products/sense/linear-and-angular-position/linear-position-sensor-ics/ct100>

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## Revision History

| Number | Date               | Description     |
|--------|--------------------|-----------------|
| –      | September 27, 2024 | Initial release |

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