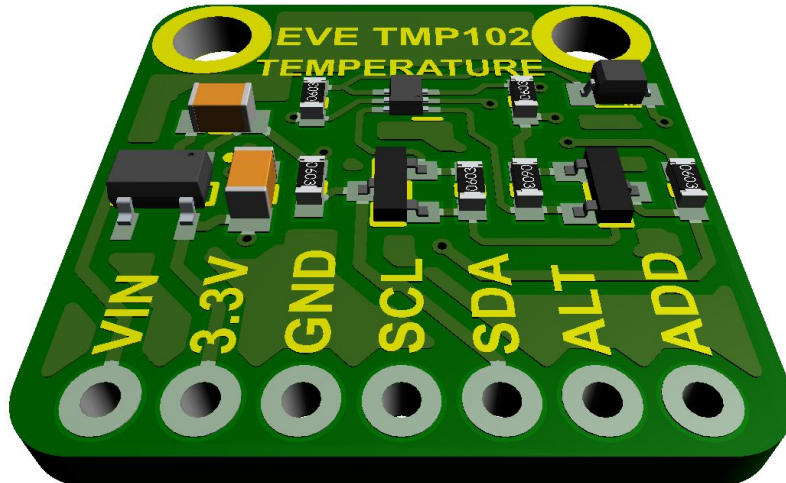


Evelta TMP102 Digital Temperature Sensor Breakout User Manual

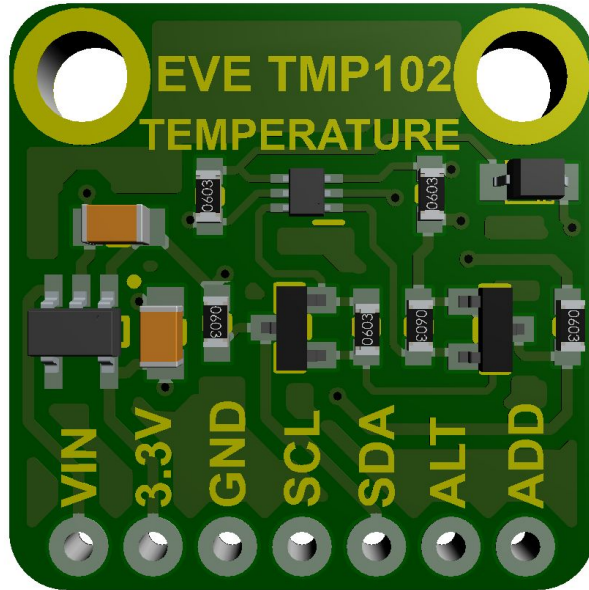
Overview

The Evelta TMP102 breakout board helps designers evaluate the operation and performance of the TMP102. The TMP102 is an easy-to-use digital temperature sensor from Texas Instruments. While some temperature sensors use an analog voltage to represent the temperature, the TMP102 uses the I2C bus of the Arduino to communicate the temperature.

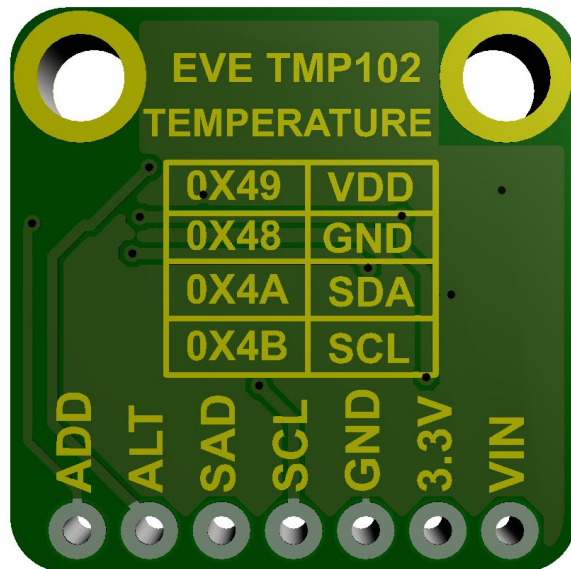
The TMP102 device is a digital temperature sensor ideal for NTC/PTC thermistor replacement where high accuracy is required. The device offers an accuracy of $\pm 0.5^{\circ}\text{C}$ without requiring calibration or external component signal conditioning. Device temperature sensors are highly linear and do not require complex calculations or lookup tables to derive the temperature. The on-chip 12-bit ADC offers resolutions down to 0.0625°C .



Evelta TMP102 Breakout



Front Side



Back Side

Board Features

- Uses the I2C, SMBus and 2-Wire interface
- 12-bit, 0.0625°C temperature resolution
- NIST traceable
- Typical temperature accuracy of $\pm 0.5^{\circ}\text{C}$

- Accuracy Without Calibration:
 - 2.0°C (max) from -25°C to 85°C
 - 3.0°C (max) from -40°C to 125°C
- Supports up to four TMP102 sensors on the I2C bus at a time
- Power Supply Range: 1.8 to 5.5 V
- Board Size - 20mm x 20mm

Board Pinouts

Vin - this is the power pin. Since the sensor chip uses 3 VDC for logic, we have included a voltage regulator on board that will take 3-5VDC and safely convert it down. To power the board, give it the same power as the logic level of your microcontroller - e.g. for a 5V micro like Arduino, use 5V

3.3V - this is the 3.3V output from the voltage regulator, you can grab up to 100mA from this if you like.

GND - common ground for power and logic.

SCL - I2C clock pin, connect to your microcontrollers I2C clock line. Can use 3V or 5V logic.

SDA - I2C data pin, connected to your microcontrollers I2C data line. Can use 3V or 5V logic.

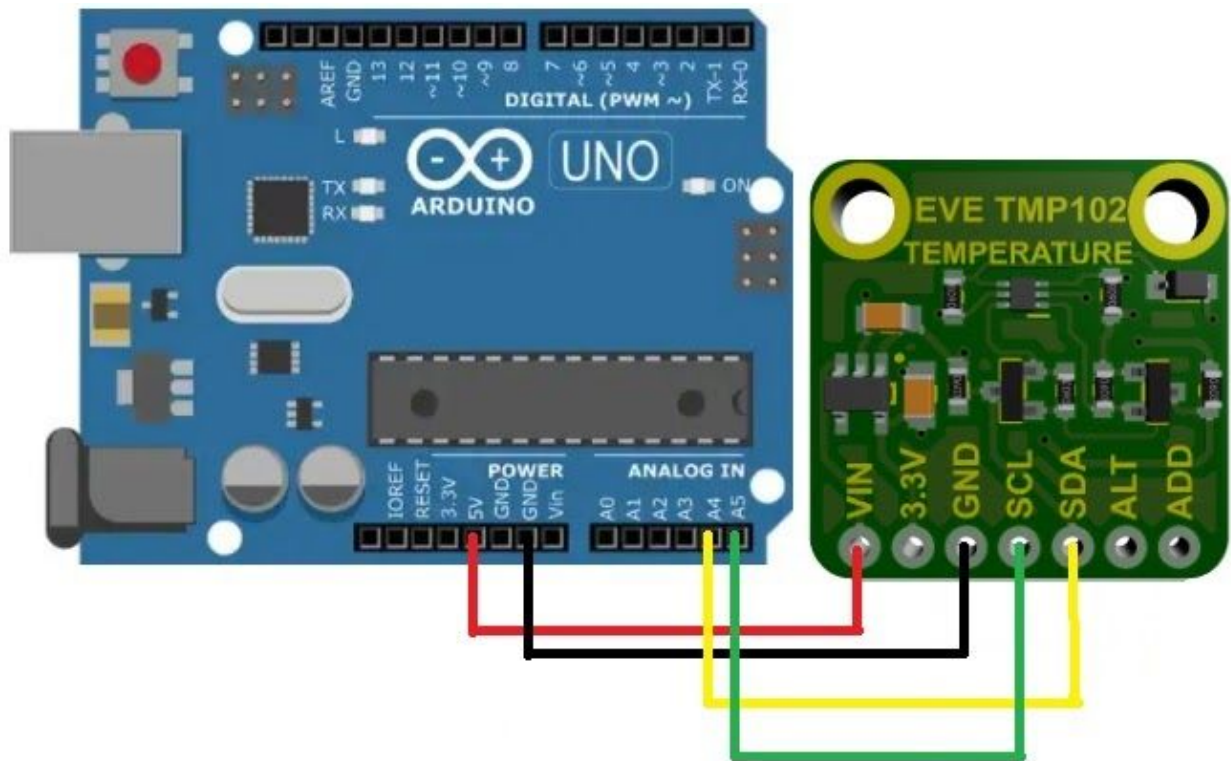
ALT (a.k.a. Alert Pin / Interrupt Pin)

The ALT pin on the board is connected to the TMP102's "alert" pin. When the pin is active, it will be pulled LOW by default. If the TMP102's temperature limits are configured and the sensor exceeds the values, the alert pin will be pulled LOW.

ADD

The default address of the board is 0x48. If you need to adjust the address of the sensor, you can cut the trace connecting to the default address and add a solder jumper to the respective pads to change the address to 0x49, 0x4A, or 0x4B.

Arduino I2C Connection Diagram



Arduino Pin	Board Pin
5 V	Vin
GND	GND
A4	SDA
A5	SCL