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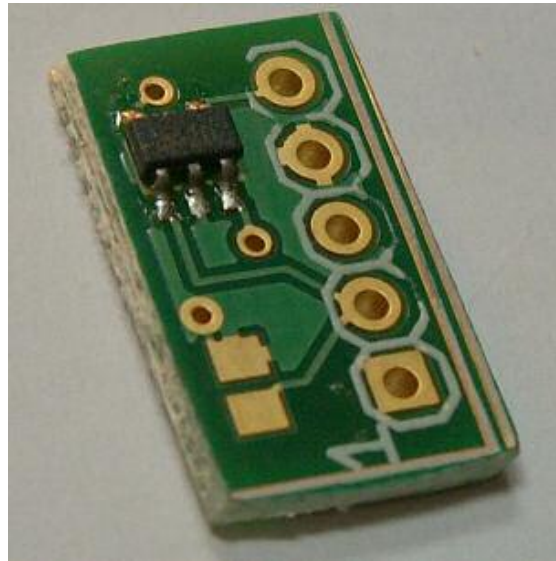
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# I2C- Temperature Sensor

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# BV4235



**BV4235**

**I2C-Temperature Sensor**

Product specification

February 2009 V0.a

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# I2C- Temperature Sensor

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# BV4235

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# I2C- Temperature Sensor

# BV4235

Rev	Change
Feb. 2009	Preliminary

## 1. Introduction

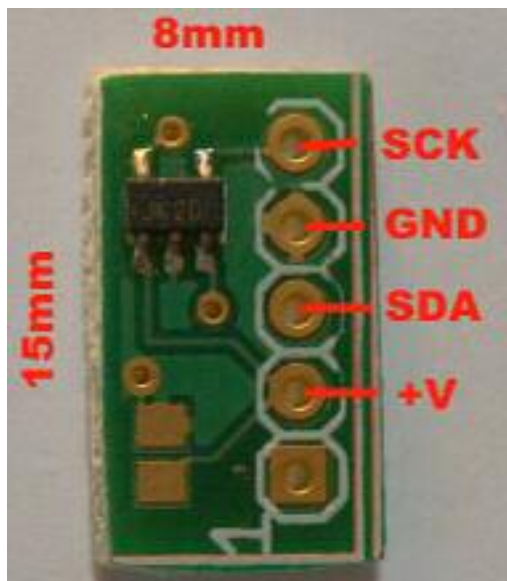
The BV4235 is a small circuit board that contains an MCP9802 High Accuracy Temperature Sensor.

Note this datasheet only covers the aspects of the external connectivity, for details on how to use the device consult the MCP9802 datasheet that can be found at [www.byvac.co.uk](http://www.byvac.co.uk) in the downloads section.

## 2. Features Temp. Sens.

- I2C up to 400kHz
- 12 bit resolution
- Operating Current 1uA
- Power saving mode
- -55 C to +125 C

## 3. Electrical Specification



The board has 4 connections for the I2C interface, connection number, the square hole 1 is not used.

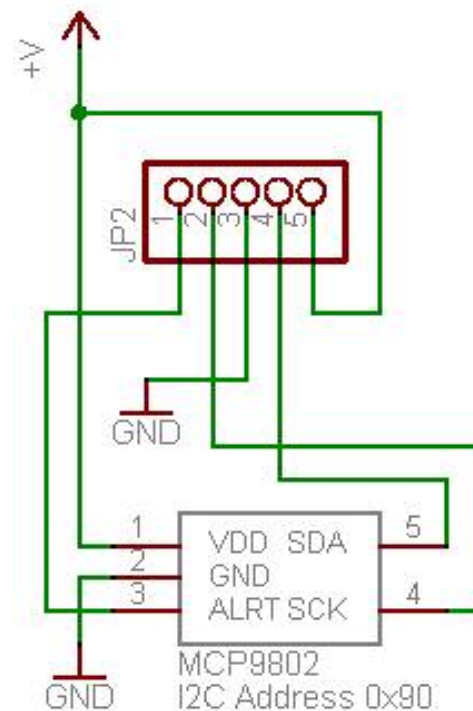
A pin head array can be connected to this or simply soldered direct to wire, this makes a more compact unit for when space may be tight.

NOTE that as in all I2C devices there must be somewhere on the bus two pull up resistors, one for the clock and one for the data line. The resistors are not included on this board.

## 4. Circuit Diagram

As can be seen the circuit diagram is very straightforward. The circuit board simply acts as a carrier for the MCP9802. The alert pin is connected to pin 1, this is not used for the I2C interface.

If the alert is required it is an open collector output and a resistor from +V needs to be connected to it. Refer to the MCP9802 datasheet.



## 5. Data Sheet

This data sheet should be read in conjunction with the MPC9802 data sheet from the chip manufactures. The sheet is can be found in the downloads section of [www.byvac.co.uk](http://www.byvac.co.uk).

## 6. Examples

The following examples are using the BV4221, USB to I2C convertor to drive the BV4235. The arrangement is shown in the picture. For this purpose a 90 degree pin head connector has been soldered in place.

The BV4221 incorporates the I2C pull up resistors that are required.

## I2C- Temperature Sensor

**BV4235**

### 6.1. The temperature sensor

The temperature sensor address is 0x90 and has 4 writeable addresses 0-3 that control how it works.

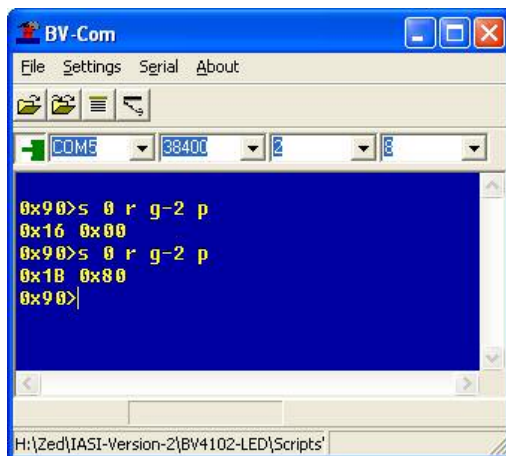
For this example the default setting of 9 bit resolution is taken. To read the temperature, write 0 first thus:

#### **BV4221 Example**

```
0x90>s 0 r g-2 p
```

The above, first writes 0 which selects the temperature register and then it reads from address 0x91 two bytes.

The temperature will be displayed in hex.



The first reading shows a temperature of 0x16 (22 C) and the second reading, after warming the IC with the fingers reads 27.5 C.

The 0x1b is 27 and the 0x80 is 0.5, this is the default 9bit resolution, the 9<sup>th</sup> bit is either 0.0 or 0.5 degrees.