SENSIRION
THE SENSOR COMPANY

Datasheet SHT20
Humidity and Temperature Sensor IC

- Fully calibrated
- Digital output, I²C interface
- Low power consumption
- Excellent long term stability
- DFN type package – reflow solderable

Product Summary

SHT20, the new humidity and temperature sensor of Sensirion is about to set new standards in terms of size and intelligence: Embedded in a reflow solderable Dual Flat No leads (DFN) package of 3 x 3mm foot print and 1.1mm height it provides calibrated, linearized signals in digital, I²C format.

With a completely new designed CMOSens® chip, a reworked capacitive type humidity sensor and an improved band gap temperature sensor the performance has been lifted even beyond the outstanding level of the previous sensor generation (SHT1x and SHT7x). For example, measures have been taken to stabilize the behavior at high humidity levels.

Every sensor is individually calibrated and tested. Lot identification is printed on the sensor and an electronic identification code is stored on the chip – which can be read out by command. Furthermore, the resolution of SHT20 can be changed by command (8/12bit up to 12/14bit for RH/T), low battery can be detected and a checksum helps to improve communication reliability.

With made improvements and the miniaturization of the sensor the performance-to-price ratio has been improved – and eventually, any device should benefit from the cutting edge energy saving operation mode. For testing SHT20 a new evaluation Kit EK-H4 is available.

Dimensions
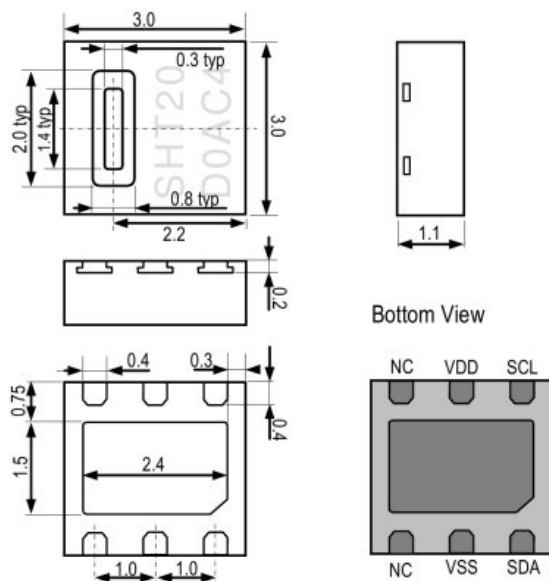
Figure 1: Drawing of SHT20 sensor package, dimensions are given in mm (1mm = 0.039inch), tolerances are ±0.1mm. The die pad (center pad) is internally connected to VSS. The NC pads must be left floating. VSS = GND, SDA = DATA. Numbering of E/O pads starts at lower right corner (indicated by notch in die pad) and goes clockwise (compare Table 2).

Sensor Chip

SHT20 features a generation 4C CMOSens® chip. Besides the capacitive relative humidity sensor and the band gap temperature sensor, the chip contains an amplifier, A/D converter, OTP memory and a digital processing unit.

Material Contents

While the sensor itself is made of Silicon the sensors' housing consists of a plated Cu lead-frame and green epoxy-based mold compound. The device is fully RoHS and WEEE compliant, e.g. free of Pb, Cd and Hg.

Additional Information and Evaluation Kits

Additional information such as Application Notes is available from the web page www.sensirion.com/SHT20. For more information please contact Sensirion via info@sensirion.com.

For SHT20 two Evaluation Kits are available: EK-H4, a four-channel device with Viewer Software, that also serves for data-logging, and a simple EK-H5 directly connecting one sensor via USB port to a computer.