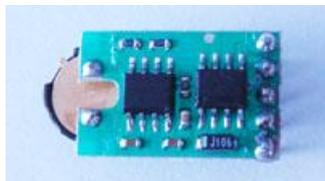


HUMIDITY SENSOR MODULE

2010-5-31

PRELIMINARY

Version: 2.0



- Relative humidity sensor
- Two point calibrated with capacitor type sensor, excellent performance
- Frequency output type, can be easily integrated with user application system
- Very low power consumption
- No extra components needed

Summary

The HH10D relative humidity sensor module is comprised with a capacitive type humidity sensor, a CMOS capacitor to frequency converter and an EEPROM used to holding the calibration factors. Due to the characteristics of capacitor type humidity sensor, the system can respond to humidity change very fast. Each sensor is calibrated twice at two different accurate humidity chambers, two unique sensor related coefficients are stored onto the EEPROM on the module. The data is used for humidity calculation.

FEATURES

- Relative humidity sensor
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Applications

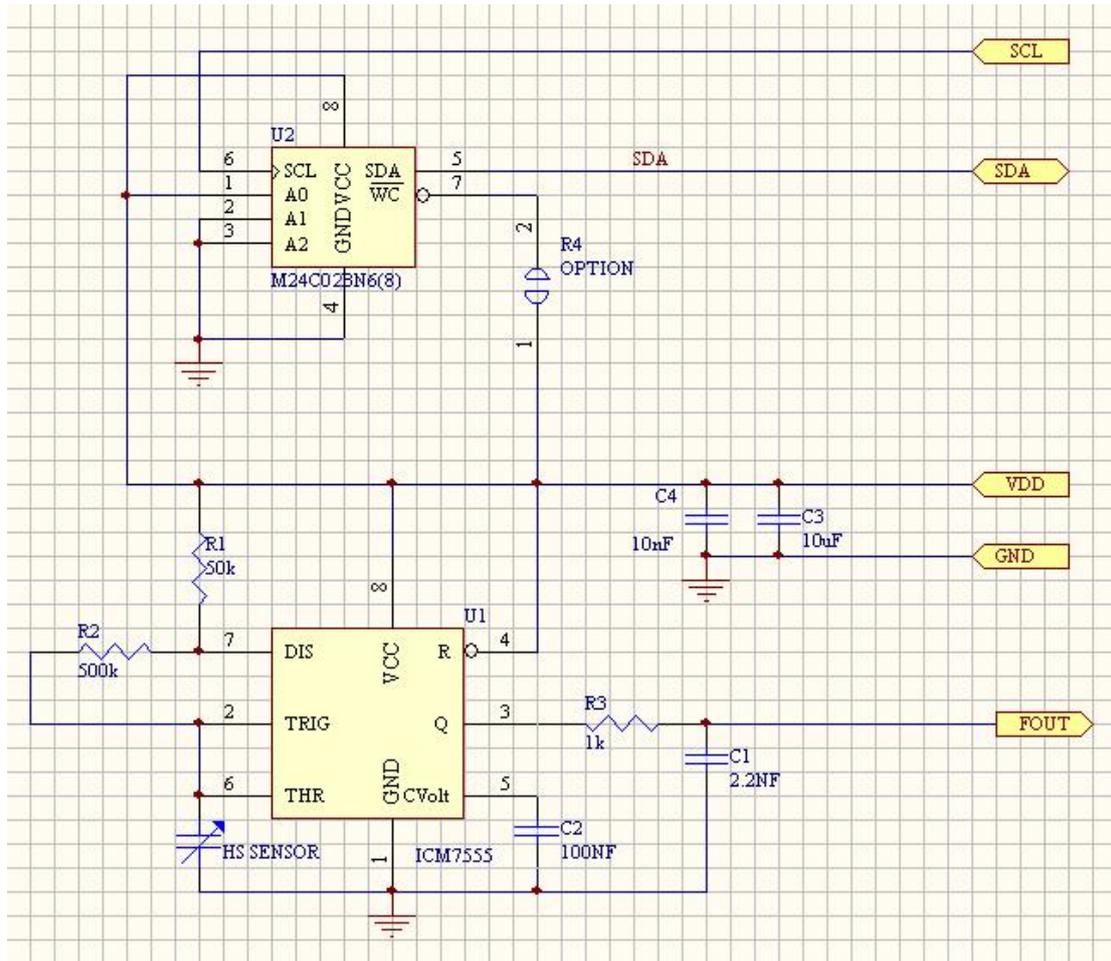
- HVAC
- Consumer Goods
- Dehumidifiers
- Test & measurement
- Automation
- Automotive
- Weather Stations
- Humidifiers
- Data Logging
- White Goods- Medical

HUMIDITY SENSOR MODULE

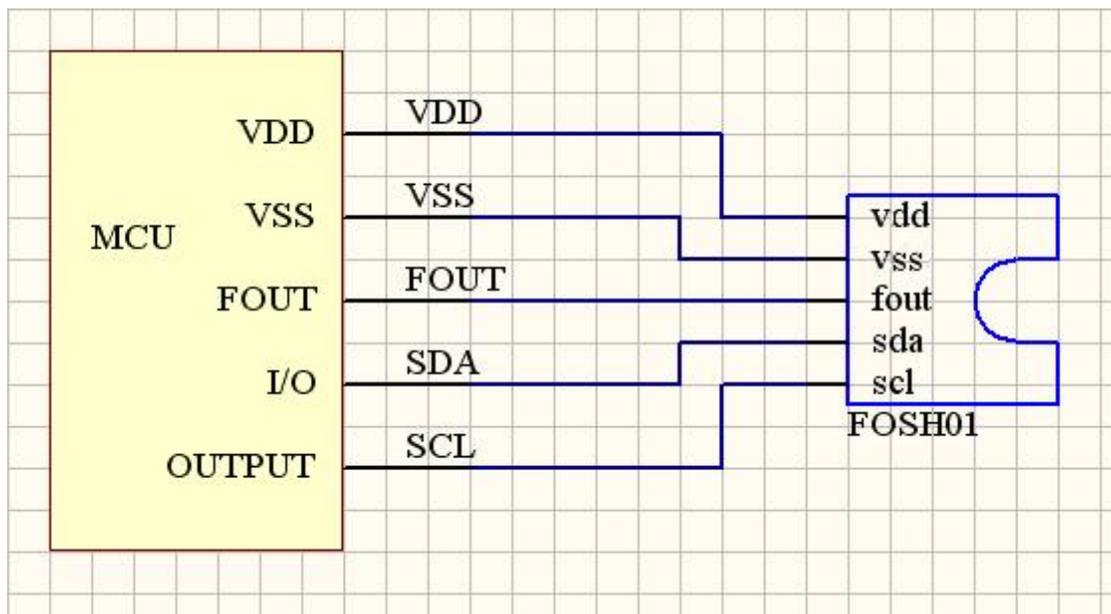
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Circuit Diagram



Application Circuit

HUMIDITY SENSOR MODULE**Sensor Performance Specification**

Parameters	Conditions	Min	Typ	Max	Units
Resolution		0.3	0.08	0.05	%
Accuracy			3		%
Repeatability		-0.3		0.3	%
Uncertainty			2		%
Range		0		99	%
Response Time			8		S
Hysteris			1		%
Long Term Stability		-0.5		0.5	%
Interchangeability		Fully Interchangeable			

HH10D Humidity Module Characteristic

Parameter	min	nominal	max	unit
humidity range	1		99	%
accuraccy	-3		+3	%
temperature range	-10		+60	C
working voltage	2.7	3	3.3	V
stability versus time		1%		per year
power consumption	120	150	180	uA
Output Frequency Range	5.0	6.5	10	KHZ

Calculation

In order to read out the correct humidity, 4 calibration factors need to be read out from the EEPROM at address of 10 and 11,12 and 13 for sensitivity, offset.

Once the frequency output from the sensor is measured, then the correct humidity value can be calculated in the following method:

HH10D Humidity Calculation Algorithm

Data Definition		eeeprom address
sensitivity	Sens(2byte value)	10
Offset	2 byte value	12
RH(%)=	(offset-Soh)*sens/2^12	

- * RH(%) linear humidity value
- * RH_corr temperature compensated humidity value
- * Soh is the measured frequency value at Fout port
- the eeeprom physical address is fixed to 01.

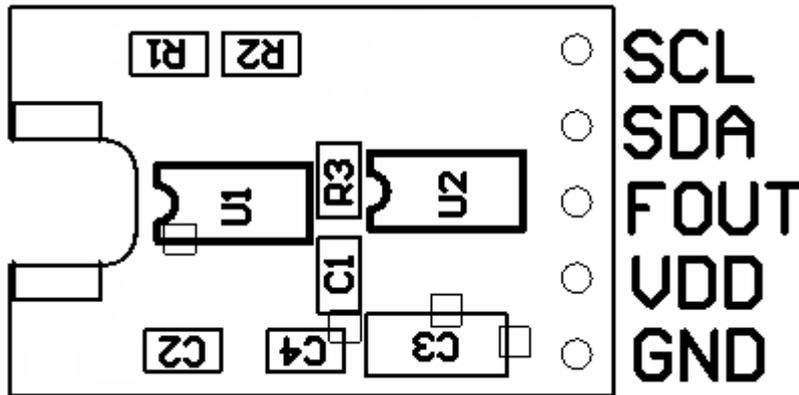
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Module PCB Layout:



L: 24mm
 W: 8mm
 Pin Pitch: 2.54mm

 <p>HOPE MICROELECTRONICS CO.,LTD Add:4/F, Block B3, East Industrial Area, Huaqiaocheng, Shenzhen, Guangdong, China Tel: 86-755-82973805 Fax: 86-755-82973550 Email: sales@hoperf.com trade@hoperf.com Website: http://www.hoperf.com http://www.hoperf.cn http://hoperf.en.alibaba.com</p>	<p>This document may contain preliminary information and is subject to change by Hope Microelectronics without notice. Hope Microelectronics assumes no responsibility or liability for any use of the information contained herein. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Hope Microelectronics or third parties. The products described in this document are not intended for use in implantation or other direct life support applications where malfunction may result in the direct physical harm or injury to persons. NO WARRANTIES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MECHANABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE OFFERED IN THIS DOCUMENT.</p> <p>©2006, HOPE MICROELECTRONICS CO.,LTD. All rights reserved.</p>
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