

# SHT1x

## Humidity & Temperature

### Sensmitter

## Application Note

### Soldering Procedure

#### 1 Introduction

The SHT 1x precision relative humidity (RH) and temperature sensor requires specific handling during and after the soldering process to prevent damage to its sensing elements.

The SHT 1x can be soldered using standard reflow ovens (including lead free soldering) at maximum 260°C for 30 seconds.

#### 2 Handling Procedure

##### 2.1 Solder Paste

Please use "No-Clean" solder paste only.

##### 2.2 Recommended Soldering Profile

	Convection or IR/Convection	VPR
Average ramp-up rate (183°C to Peak)	4°C/second max.	10°C/second max.
Preheat temperature 160(±10)°C	90 seconds max.	
Temperature maintained above 183°C	60 seconds	
Time within 5°C of actual peak temperature	30 seconds	60 seconds
Peak temperature	260°C (lead free soldering) <sup>1</sup>	233°C (lead free soldering) <sup>2</sup>
Ramp-down rate	6°C/second max.	10°C/second max.
Time 25°C to peak temperature	6 minutes max.	

Note: All temperatures refer to top side of the package, measured on the package body surface.

##### 2.3 PCB cleaning

Please do not clean or wash the Printed Circuit Board (PCB) after soldering. Due to the use of "No-Clean" solder paste cleaning is not necessary.

##### 2.4 Post soldering treatment

After the soldering process is completed, a temporary change of the humidity signal can be observed. This is caused by the extreme temperatures during the soldering process.

For a rapid return of the humidity sensor to its nominal condition it is recommended to store the soldered device for at least 48h at >74% RH and >20°C.

##### 2.5 Manual soldering

Contact time must be limited to 5 seconds at up to 350°C.

##### 2.6 Soldering Quality

For best connection to the PCB the solder connection should fill the via almost to the top.

##### 2.7 Warning

Exposure of capacitive relative humidity sensors to solvents (e.g. during soldering) may temporarily offset the signal. Recondition the sensor by heating it up to 100°C for one day may return it to calibration conditions.

<sup>1</sup> For devices with date code before '144' (=week 14 of 2004) 235°C is peak temperature

<sup>2</sup> For devices with date code before '144' (=week 14 of 2004) 219°C is peak temperature

### 3 Revision history

Date	Revision	Changes
August 22, 2001	1.0	Initial revision
January 17, 2002	1.1	added manual soldering instructions, soldering quality
February 19, 2002	1.11	New CI
June 18, 2002	1.2	Added PCB cleaning paragraph
Oct. 16, 2003	1.3	Added lead free soldering capability
Oct. 17, 2003	1.4	Changed download link
Feb. 02, 2004	1.5	Changed PCB cleaning paragraph, only use "No-Clean" solder paste
Feb. 24, 2004	1.51	Increased peak temperature for reflow to 250°C
May 25, 2005	1.52	Changed company address
September 20, 2005	1.6	Corrected Peak Temperature for lead-free soldering
Sept 22, 2006	1.7	Corrected Peak Temperature for VPR lead-free soldering
Oct 03, 2006	1.8	Sensirion Inc. address added

The latest version of this document and all application notes can be found at:

[www.sensirion.com/humidity](http://www.sensirion.com/humidity)

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### Headquarters and Sales Office

SENSIRION AG  
Laubisruestr. 50  
CH-8712 Staefa ZH  
Switzerland

Phone: + 41 (0)44 306 40 00  
Fax: + 41 (0)44 306 40 30  
e-mail: [info@sensirion.com](mailto:info@sensirion.com)  
<http://www.sensirion.com/>

SENSIRION Inc  
Westlake Pl. Ctr. I, suite 240  
2801 Townsgate Road  
Westlake Village, CA 91361  
USA

Phone: 805-409 4900  
Fax: 805-435 0467  
e-mail: [michael.karst@sensirion.com](mailto:michael.karst@sensirion.com)  
<http://www.sensirion.com/>