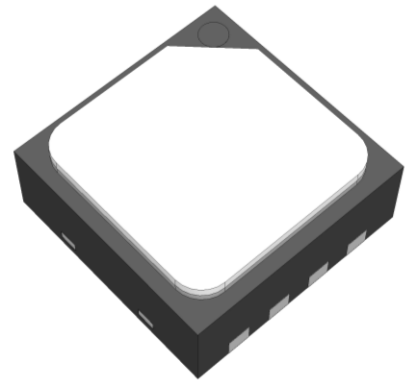


Datasheet Membrane Option

For SHT3x Humidity and Temperature Sensors

- Protects the sensor from water and dust according to IP67
- Allows for sensor use under harsh environmental conditions
- Withstands multiple standard reflow cycles
- Lasts over total sensor life time
- Delivered in T&R Packaging
- On-package membrane protected by exclusive license for several patents¹



Product Summary

The SHT3x membrane is a PTFE foil, dedicated to protect the sensor opening from water and dust according to IP67. It will thus allow for sensor use under harsh environmental conditions, where spray water and high exposure to dust is challenging for accurate sensor performance. The membrane cover is attached to the sensor package by a double faced adhesive tape, which

is designed to stay on the package over the whole sensor life time. Due to the minimum enclosed air volume, the response time of the RH signal is the same as the value achieved by the uncovered sensor. Sensirion holds an exclusive license for several patents for employing an on-package filter membrane on a humidity sensor¹.

Datasheet: Intention of Use

This datasheet is meant to provide all relevant specifications for the additional membrane option of the RH&T-sensors of type SHT3x. All SHT3x products coming with the membrane option are listed in **Table 1**,

together with their respective order number. **Any further information about sensor performance, communication protocols etc. are to be found in the respective main datasheets, only.**

1 General information

The SHT3x membrane is an optional PTFE foil, directly attached to the top surface of the sensor. It is attached to the sensor via a double faced adhesive tape, designed to last over the whole sensor life time. The membrane completely covers the sensor opening and thus acts as a reliable shield against pollution from spray water and dust, classified IP67. The whole package withstands multiple reflow cycles.

Although the membrane provides water and dust protection according to IP67, it does not in general prevent from contamination with volatile chemicals. Detailed handling and storage instructions in the

document *SHTxx handling instructions* also apply to sensors with the membrane option.

2 Specifications of the Membrane

The PTFE membrane has a thickness of 100µm, offering a filtration efficiency of >99.99% for particles of 200nm size. It is attached to the DFN package via a Polyester (PET) film supported double coated silicone adhesive tape with a nominal thickness of 100µm. The PET film has a hole in the middle to allow free air exchange between the environment and the sensor opening.

Due to the small dead volume between sensor surface and membrane layer and the high permeability of the membrane, the response time of the RH sensor stays within the specification of the sensor without membrane.

¹ EP 1810013 B1; US 7,741,950; CN 101040181 B

3 Technical Drawing

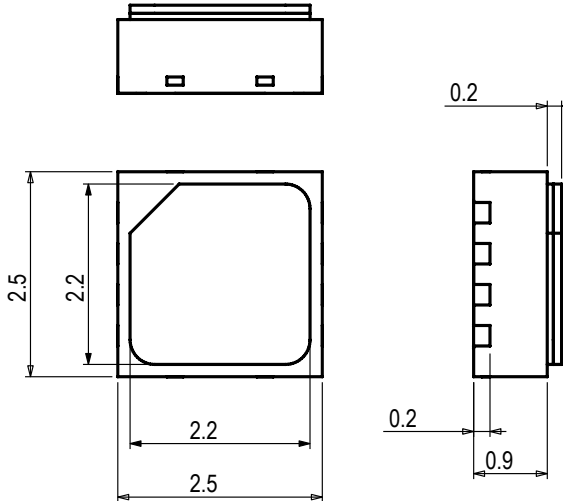


Figure 1 Dimensional drawing of SHT3x membrane sensor package. Pin 1 is indicated through the cut corner of the membrane.

4 Shipping Package

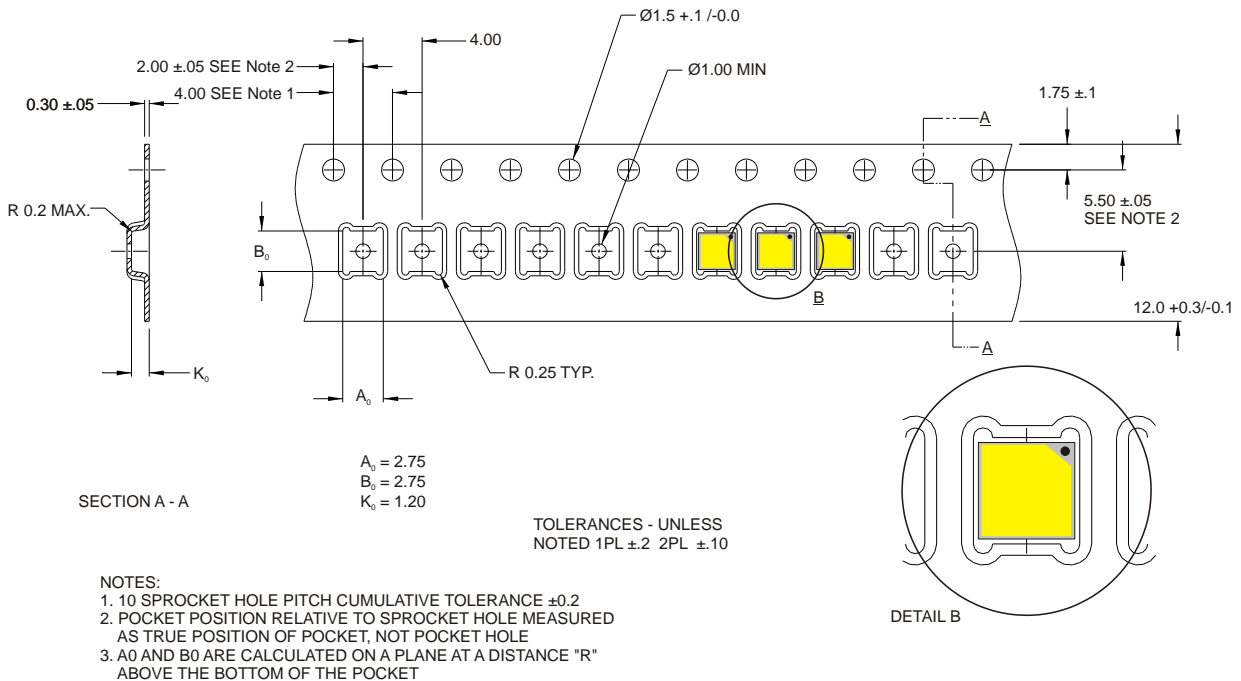


Figure 2 Technical drawing of the packaging tape with sensor orientation in tape. Header tape is to the right and trailer tape to the left on this drawing. Dimensions are given in millimeters.

5 Quality

5.1 Material Contents

The device is fully RoHS and WEEE compliant, e.g. free of Pb, Cd, and Hg.

| Name | Quantity | Order Number |
|------------------|----------|--------------|
| SHT30-DIS-F2.5kS | 2500 | 1-101466-01 |
| SHT30-DIS-F10kS | 10000 | 1-101454-01 |
| SHT31-DIS-F2.5kS | 2500 | 1-101462-01 |
| SHT31-DIS-F10kS | 10000 | 1-101463-01 |
| SHT35-DIS-F2.5kS | 2500 | 1-101465-01 |
| SHT35-DIS-F10kS | 10000 | 1-101469-01 |

Table 1 SHT3x membrane ordering options.

6 Ordering Information

Different SHT3x output versions can be ordered in tape and reel packaging as given in Table 1. The reels are delivered in sealed antistatic ESD bags.

Revision History

| Date | Version | Page(s) | Changes |
|---------------|---------|---------|---|
| February 2016 | 0.1 | all | Initial release |
| October 2016 | 1 | | Updated membrane dimensions Membrane specifications introduced |
| January 2017 | 2 | 2 | Updated shipping package |
| August 2019 | 3 | 1 | Included "Protected by exclusive license for several patents" |

Important Notices

Warning, Personal Injury

Do not use this product as safety or emergency stop devices or in any other application where failure of the product could result in personal injury. Do not use this product for applications other than its intended and authorized use. Before installing, handling, using or servicing this product, please consult the data sheet and application notes. Failure to comply with these instructions could result in death or serious injury.

If the Buyer shall purchase or use SENSIRION products for any unintended or unauthorized application, Buyer shall defend, indemnify and hold harmless SENSIRION and its officers, employees, subsidiaries, affiliates and distributors against all claims, costs, damages and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if SENSIRION shall be allegedly negligent with respect to the design or the manufacture of the product.

ESD Precautions

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation, take customary and statutory ESD precautions when handling this product.

See application note "ESD, Latchup and EMC" for more information.

Warranty

SENSIRION warrants solely to the original purchaser of this product for a period of 12 months (one year) from the date of delivery that this product shall be of the quality, material and workmanship defined in SENSIRION's published specifications of the product. Within such period, if proven to be defective, SENSIRION shall repair and/or replace this product, in SENSIRION's discretion, free of charge to the Buyer, provided that:

- notice in writing describing the defects shall be given to SENSIRION within fourteen (14) days after their appearance;

- such defects shall be found, to SENSIRION's reasonable satisfaction, to have arisen from SENSIRION's faulty design, material, or workmanship;
- the defective product shall be returned to SENSIRION's factory at the Buyer's expense; and
- the warranty period for any repaired or replaced product shall be limited to the unexpired portion of the original period.

This warranty does not apply to any equipment which has not been installed and used within the specifications recommended by SENSIRION for the intended and proper use of the equipment. EXCEPT FOR THE WARRANTIES EXPRESSLY SET FORTH HEREIN, SENSIRION MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCT. ANY AND ALL WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY EXCLUDED AND DECLINED. SENSIRION is only liable for defects of this product arising under the conditions of operation provided for in the data sheet and proper use of the goods. SENSIRION explicitly disclaims all warranties, express or implied, for any period during which the goods are operated or stored not in accordance with the technical specifications.

SENSIRION does not assume any liability arising out of any application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. All operating parameters, including without limitation recommended parameters, must be validated for each customer's applications by customer's technical experts. Recommended parameters can and do vary in different applications.

SENSIRION reserves the right, without further notice, (i) to change the product specifications and/or the information in this document and (ii) to improve reliability, functions and design of this product.

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