

# Sensirion SHTC1 Humidity and Temperature Sensor

REVERSE COSTING ANALYSIS by SYSTEM PLUS CONSULTING – JULY 2013

*A humidity and temperature sensor made from a tiny die using Sensirion's CMOSens® process. This sensor is targeting portable devices and can be found in the Samsung Galaxy S4 smartphone.*

Humidity and temperature sensors are equipping more and more portable devices. These components sense the humidity and the temperature of the atmosphere. New specific Android APIs have been developed to use this sensor for mobile weather station, sports, cosmetic – sense humidity of skin, etc.

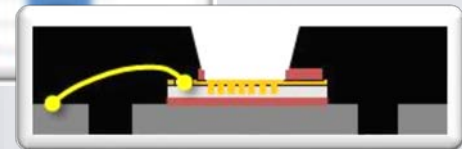
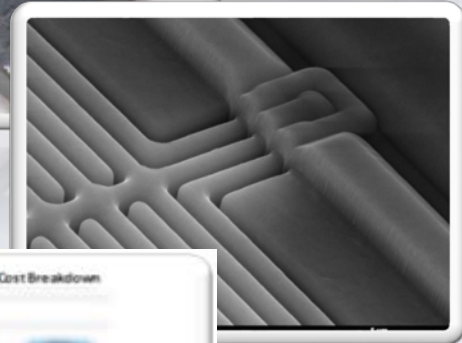
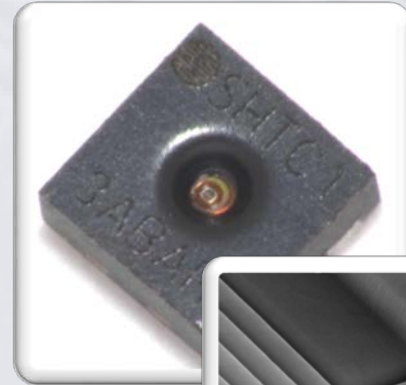
Sensirion SHTC1 humidity and temperature-sensing device is manufactured using a proprietary MEMS technology, called "CMOSens®", which allows the sensor and the signal processing circuitry on a single integrated circuit without perturbation for a high accuracy.

The sensing element in the SHTC1 is a capacitor with an organic dielectric. The organic dielectric absorbs or desorbs the humidity thereby modifying the electrical permittivity of the dielectric.

The new technology allows a shrink of 3 of the die surface and of the sensor surface, for only a loss of 0.5% accuracy. The sensor is packaged in a 2x2x0.8mm QFN.

This report provides a complete teardown of the MEMS gyro with:

- Detailed photos
- Material analysis
- Schematic assembly description
- Manufacturing Process Flow
- In-depth manufacturing cost analysis
- Supply chain evaluation
- Selling price estimation



## TABLE OF CONTENTS (91 pages)

### Glossary

#### 1. Overview / Introduction

- Executive Summary
- Reverse Costing Methodology

#### 2. Company Profile

#### 3. Physical Analysis

- Synthesis of the Physical Analysis
- Physical Analysis Methodology
- Samsung Galaxy S4
- Package Characteristics & Markings
- Package Opening & Bonding Number
- Protective Layer
- Capacitive Layer
- ASIC Dimensions
- ASIC Minimal Dimension and Metal Layers
- ASIC Transistor Details
- Capacitive Sensor
- Heater
- Capacitive Fingers

#### 4. Manufacturing Process Flow

- Overview
- ASIC Process Flow
- Humidity & Temperature Sensor Process Flow
- Package Process Flow
- Description of the Wafer Fabrication Units

#### 5. Cost Analysis

- Synthesis of the Cost Analysis
- Main Steps of Economic Analysis
- Supply Chain Analysis
- Yields Explanation
- ASIC Wafer Cost Hypothesis
- ASIC Wafer Cost
- Humidity & Temp. Sensor Wafer Cost Hypothesis
- Humidity & Temp. Sensor Wafer Cost
- Humidity & Temp Sensor Wafer : Equipment Cost per Family
- Humidity & Temperature Sensor Wafer : Material Cost per Family
- Humidity & Temp Sensor Probe Cost
- Humidity & Temp Sensor Dicing Cost
- Humidity & Temp Sensor Die cost
- SHTC1 Packaging Cost Hypothesis
- SHTC1 Packaging Process Flow
- SHTC1 Packaging Cost Details
- SHTC1 Final Test Cost
- SHTC1 Component Manufacturing Cost
- Yield Synthesis
- SHTC1 Cost Analysis Evolution

#### 6. Estimated Manufacturer Price Analysis

- Manufacturers ratios
- Estimated manufacturer Price

#### Contact

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# ORDER FORM

Please process my order for "Sensirion SHTC1" Reverse Costing Analysis:

Ref.: SP13130

Multi-User License Price: EURO 2,990\*

\*For price in dollars please use the day's exchange rate

\*All reports are delivered electronically in pdf format

\*For French customer, add 20 % for VAT

## SHIP TO

Name (Mr/Ms/Dr/Pr):

.....

Job Title:

.....

Company:

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Address:

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City: State:

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Postcode/Zip:

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Country\*:

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\*VAT ID Number for EU members:

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Tel:

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Date:

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Signature :

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## BILLING CONTACT

Name: .....

Email: .....

Phone: .....

## ABOUT SYSTEM PLUS CONSULTING

System Plus Consulting specializes in the **cost analysis** of electronics, from **semiconductor devices** to **electronic systems**, and has developed a complete range of services and costing tools to provide **in-depth production cost studies** and to estimate the **objective selling price** of a product.

### COSTING SERVICES

- ✓ **On demand Reverse Costing studies** are performed on ICs, ASICs, MEMs, Power Devices, ECUs, electronic boards and full electronic systems.
- ✓ **The catalog of available reports** includes cost analyzes on MEMS, LEDs, Modules and Electronic systems.

All these analyses are performed using in-house developed, proprietary costing tools and their technological databases.

### COSTING TOOLS

#### « Purchaser » tools

- ✓ IC Price+ to estimate the cost of any integrated circuit
- ✓ Power Price+ for any power component or module
- ✓ PCB Price+ for printed circuit boards
- ✓ SYSCost+ for electronic boards and systems

#### Cost Simulation Tools, process flow based

- ✓ MEMS CoSim+
- ✓ LED CoSim+
- ✓ Power CoSim+
- ✓ TSV CoSim+ (thru silicon vias)
- ✓ Sapphire CoSim+

Other costing models can be developed according to customer specifications

## PAYMENT

### DELIVERY on receipt of payment:

#### By credit card:

Number: \_\_\_\_\_ Expiration date: \_\_/\_\_/\_\_

Card Verification Value: \_\_\_\_\_



#### By bank transfer:

**HSBC** – CAE- Le Terminal -2 rue du Charron- 44800 St Herblain France  
BIC code : CCFRFRPP

#### In EUR

Bank code : 30056 - Branch code : 00955 - Account : 09550003234  
IBAN : FR76 3005 6009 5509 5500 0323 439

#### In USD

Bank code : 30056 - Branch code : 00955 - Account : 09550003247  
IBAN : FR76 3005 6009 5509 5500 0324 797

#### Return order by:

FAX: +33 (0)253 55 10 59

MAIL: SYSTEM PLUS CONSULTING

21 rue La Nouë Bras de Fer

44200 Nantes – France

#### Contact:

[sales@systemplus.fr](mailto:sales@systemplus.fr) - Tel: +33 (0)240 18 09 16

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## 1. INTRODUCTION

The present terms and conditions apply to the offers, sales and deliveries of services managed by System Plus Consulting except in the case of a particular written agreement.

Buyer must note that placing an order means an agreement without any restriction with these terms and conditions.

## 2. PRICES

Prices of the purchased services are those which are in force on the date the order is placed. Prices are in Euros and worked out without taxes. Consequently, the taxes and possible added costs agreed when the order is placed will be charged on these initial prices.

System Plus Consulting may change its prices whenever the company thinks it necessary. However, the company commits itself in invoicing at the prices in force on the date the order is placed.

## 3. REBATES and DISCOUNTS

The quoted prices already include the rebates and discounts that System Plus Consulting could have granted according to the number of orders placed by the Buyer, or other specific conditions. No discount is granted in case of early payment.

## 4. TERMS OF PAYMENT

System Plus Consulting delivered services are to be paid within 30 days end of month by bank transfer except in the case of a particular written agreement.

If the payment does not reach System Plus Consulting on the deadline, the Buyer has to pay System Plus Consulting a penalty for late payment the amount of which is three times the legal interest rate. The legal interest rate is the current one on the delivery date. This penalty is worked out on the unpaid invoice amount, starting from the invoice deadline. This penalty is sent without previous notice.

When payment terms are over 30 days end of month, the Buyer has to pay a deposit which amount is 10% of the total invoice amount when placing his order.

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System Plus Consulting remains sole owner of the delivered services until total payment of the invoice.

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The delivery schedule on the purchase order is given for information only and cannot be strictly guaranteed. Consequently any reasonable delay in the delivery of services will not allow the buyer to claim for damages or to cancel the order.

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The transport costs and risks are fully born by the Buyer. Should the customer wish to ensure the goods against lost or damage on the base of their real value, he must imperatively point it out to System Plus Consulting when the shipment takes place. Without any specific requirement, insurance terms for the return of goods will be the carrier current ones (reimbursement based on good weight instead of the real value).

## 8. FORCE MAJEURE

System Plus Consulting responsibility will not be involved in non execution or late delivery of one of its duties described in the current terms and conditions if these are the result of a force majeure case. Therefore, the force majeure includes all external event unpredictable and irresistible as defined by the article 1148 of the French Code Civil?

## 9. CONFIDENTIALITY

As a rule, all information handed by customers to system Plus Consulting are considered as strictly confidential.

A non-disclosure agreement can be signed on demand.

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The Buyer is responsible for the use and interpretations he makes of the reports delivered by System Plus Consulting. Consequently, System Plus Consulting responsibility can in no case be called into question for any direct or indirect damage, financial or otherwise, that may result from the use of the results of our analysis or results obtained using one of our costing tools.

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Any dispute that may arise about the interpretation or execution of the current terms and conditions shall be resolved applying the French law.

If the dispute cannot be settled out-of-court, the competent Court will be the Tribunal de Commerce de Nantes.