

NEW PRODUCT BRIEF

Bourns® Model BPS230



INTRODUCTION

Bourns® Precision Sensor (BPS) portfolio has one of the smallest, most dependable sensors for measuring relative humidity. Quality, performance and reliability are the core values of this family of environmental condition sensors.

BPS humidity sensors are based on innovative capacitive technology which provides extremely accurate condition readings in a miniature package size. As with other Sensors & Controls products, our BPS models can be modified to fit the customer's specific application. Ask our FAEs for information regarding customization.

MARKET SEGMENT OVERVIEW

Sensors have become the most critical component of information collection. Features such as self-diagnostics, network compatibility, small form factor and self-calibration are considered essential. "Real-time" data analytics are driving the evolution of sensors and sensor networks.

Dependable sensors for every type of pressure and environment compatible with high temperatures are used in applications across multiple market segments.

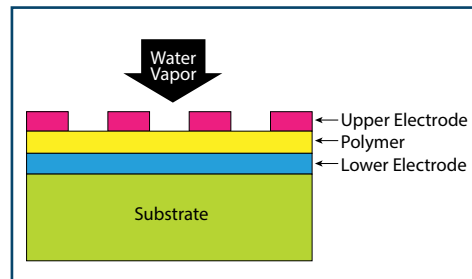
FEATURES

- Accuracy: $\pm 3.0\%$ RH
- Operating range: 0 to 100 % RH
- Temperature range:
-30 °C to +100 °C
- Supply voltage range:
1.62 to 5.5 VDC
- Output: Digital I²C
(temperature and humidity)
- RoHS and REACH compliant*

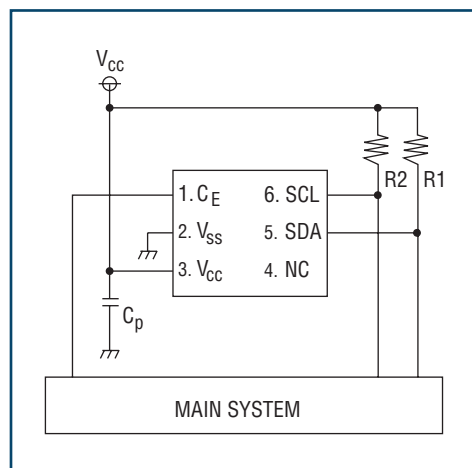
BENEFITS

- High reliability and stable performance over the life of the sensor
- High sensitivity for relative humidity sensing
- Low voltage operation capability
- Extremely small package size
(2.0 mm x 2.0 mm x 0.75 mm)
- Low current consumption for battery supported applications

BASIC CONSTRUCTION



CIRCUIT DIAGRAM



PRODUCT FIT & APPLICATIONS

These products are best suited for applications where precision is essential and customers understand the value proposition of the product in the following market segments:

Industrial

- HVAC—RH and temperature monitoring
- Food processing
- Equipment cabinets
- Agriculture field and silo sensors
- Packaging automation

Medical Devices (low/medium risk)**

- Portable oxygen generators
- Nebulizer
- CPAP equipment
- Gas chromatography equipment

Consumer

- White goods
- Office automation

*RoHS3 Directive 2015/863

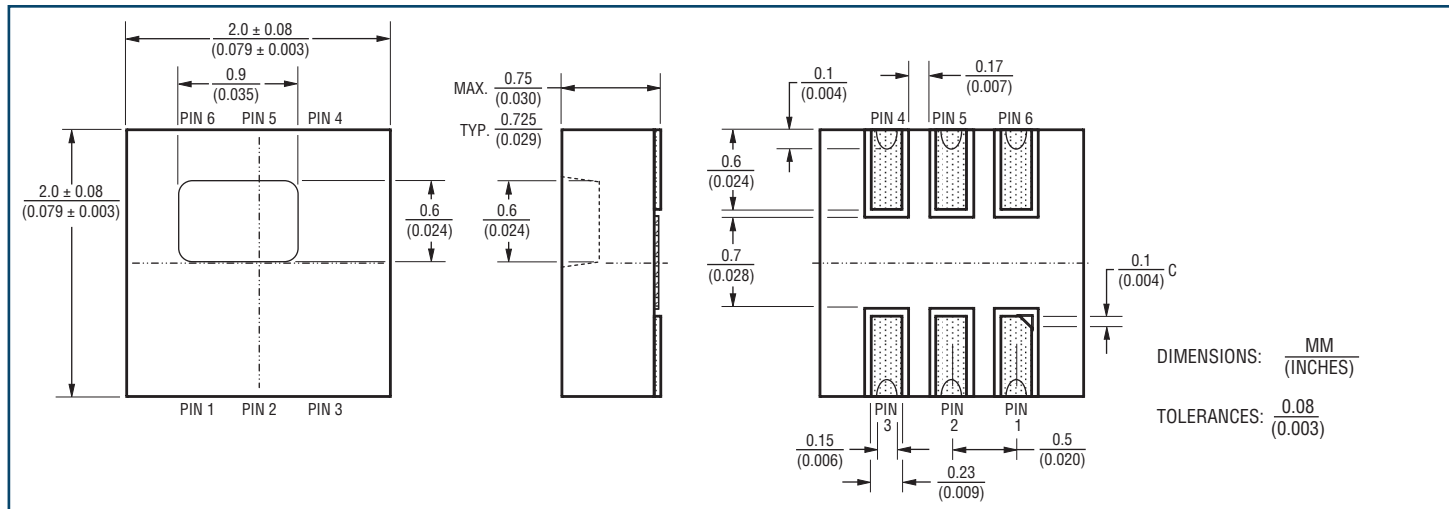
Amendments of Annex II on March 31, 2015.

*** Bourns® products have not been designed for and are not intended for use in "lifesaving," "life-critical" or "life-sustaining" applications nor any other applications where failure or malfunction of the Bourns® product may result in personal injury or death. See Legal Disclaimer Notice:
<http://www.bourns.com/docs/legal/disclaimer.pdf>.

Bourns® Model BPS230



PRODUCT DIMENSIONS



PRODUCT CHARACTERISTICS

Series	Photo	Operating Range	Temperature Range	Output	Accuracy	Features
BPS230		0 to 100 % RH	-40 °C to 105 °C	I ² C, 10 bit	±3.0 % RH	<ul style="list-style-type: none"> • Low voltage • 2.0 x 2.0 x 0.75 mm package • Temperature and humidity output • RoHS compliant*

CONVERSION OF SIGNAL OUTPUT

Humidity

$$RH = \frac{100}{2^{10}} \times RH_{IC} \quad (0 \sim 100 \% RH)$$

RH_{IC} : IC Humidity Output Data (10 bit)

Refer to Register Map:

RH_{IC} = Data of the addresses 04H and 05H (000h ~ 3FFh)
It changes into a decimal and is operation.

Temperature

$$T = [T_{IC} - (2^{10} - \frac{25}{0.1})] \times 0.1 \quad (-30 \sim 100 \text{ } ^\circ\text{C})$$

T_{IC} : IC Temperature Output Data (11 bit)

Refer to Register Map:

T_{IC} = Data of the addresses 06H and 07H (000h ~ 7FFh)
It changes into a decimal and is operation.

*RoHS3 Directive 2015/863 Amendments of Annex II on March 31, 2015.

BOURNS®

Americas: Tel +1-951 781-5500
Email americus@bourns.com

EMEA: Tel +36 88 520 390
Email eurocus@bourns.com

Asia-Pacific: Tel +886-2 256 241 17
Email asiacus@bourns.com

www.bourns.com

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