

WIRELESS & SENSING
GENERAL DESCRIPTION

The SX9306 is an ultra-low power capacitive Specific Absorption Rate (SAR) controller that accurately discriminates between an inanimate object and human body proximity. The resulting detection is used in portable electronic devices to reduce and control radio-frequency (RF) emission power in the presence of a human body, enabling significant performance advantages for manufacturers of electronic devices with electro-magnetic radiation sources to meet stringent emission regulations' criteria and Specific Absorption Rate (SAR) standards. Operating directly from an input supply voltage of 2.7 to 5.5V, the SX9306 outputs its data via a 1.65 – 5.5V host compatible I2C serial bus.

The I2C serial communication bus port is compatible with 1.8V host control to report body detection/proximity and to facilitate parameter settings adjustment. Upon proximity detection, the NIRQ output asserts, enabling the user to either determine the relative proximity distance, or simply obtain an indication of detection.

The SX9306 includes an on-chip auto-calibration controller that regularly performs sensitivity adjustments to maintain peak performance over a wide variation of temperature, humidity and noise environments, providing simplified product development and enhanced performance.

In QFN package, a dedicated transmit enable (TXEN) pin is available to synchronize capacitive measurements for applications that require synchronous detection, enabling very low supply current and high noise immunity by only measuring proximity when requested.

KEY PRODUCT FEATURES

- ◆ **2.7 – 5.5V Input Supply Voltage**
- ◆ **Up to 4 Capacitive Sensor Inputs**
 - ❖ Patented On-Chip Smart Engine for Human Detection and Advanced SAR Control
 - ❖ High Resolution Capacitive Sensing down to 0.08fF
 - ❖ Capacitance Offset Compensation up to 30pF
 - ❖ Configurable Proximity Detection (single/combined)
 - ❖ Integrated High Performance RF Shield for Enhanced Noise Immunity
 - ❖ Extremely Low Temperature Drift for Stable Measurement
 - ❖ Reduced VDD Ripple Susceptibility
- ◆ **Active Sensor Guarding**
- ◆ **Automatic Calibration**
- ◆ **Ultra Low Power Consumption:**
 - ❖ Active Mode: 170 uA
 - ❖ Doze Mode: 18 uA
 - ❖ Sleep Mode: 2.5 uA
- ◆ **400kHz I2C Serial Interface**
 - ❖ Four programmable I2C Sub-Addresses
 - ❖ Input Levels Compatible with 1.8V Host Processors
- ◆ **Open Drain NIRQ Interrupt pin**
- ◆ **Up to Three Reset Sources: POR, Soft Reset, NRST**
- ◆ **-40°C to +85°C Operation**
- ◆ **1.63x1.23 mm WLCSP or 3x3mm Thin QFN package**
- ◆ **QFN version pin-to-pin compatible with SX9300/SX9500**
- ◆ **Pb & Halogen Free, RoHS/WEEE compliant**

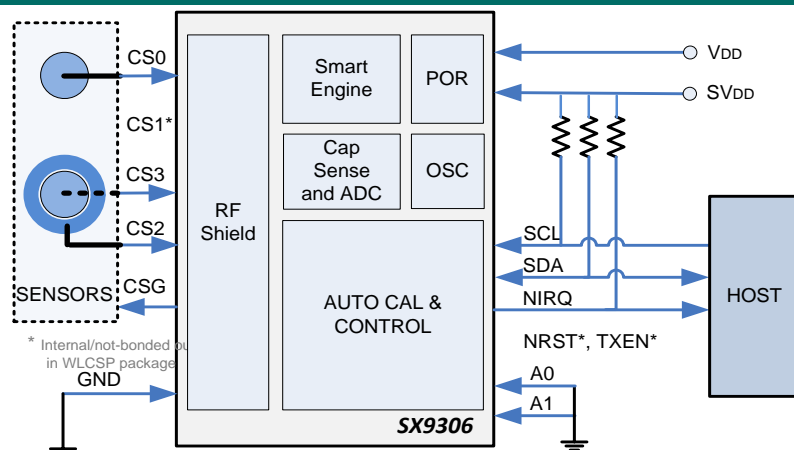
APPLICATIONS

- SAR Compliant Systems
- Tablets/Phablets
- Mobile Phones
- Wearable Devices

ORDERING INFORMATION

Part Number	Package	Marking
SX9306ICSTRT ⁽¹⁾	WLCSP-12	MH06
SX9306ICBTRT ⁽²⁾	WLCSP-12	MB06
SX9306IULTRT	QFN-20	A39E
SX9306EVKA	Eval. Kit	-

⁽¹⁾ Without Backside Coating ⁽²⁾ With Backside Coating

TYPICAL APPLICATION CIRCUIT


WIRELESS & SENSING

© Semtech 2014

All rights reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent or other industrial or intellectual property rights. Semtech assumes no responsibility or liability whatsoever for any failure or unexpected operation resulting from misuse, neglect improper installation, repair or improper handling or unusual physical or electrical stress including, but not limited to, exposure to parameters beyond the specified maximum ratings or operation outside the specified range.

SEMTECH PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORIZED OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS. INCLUSION OF SEMTECH PRODUCTS IN SUCH APPLICATIONS IS UNDERSTOOD TO BE UNDERTAKEN SOLELY AT THE CUSTOMER'S OWN RISK. Should a customer purchase or use Semtech products for any such unauthorized application, the customer shall indemnify and hold Semtech and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs damages and attorney fees which could arise.

Notice: All referenced brands, product names, service names and trademarks are the property of their respective owners.

Contact Information

Semtech Corporation
Wireless and Sensing Products Division
200 Flynn Road, Camarillo, CA 93012
Phone: (805) 498-2111 Fax: (805) 498-3804

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Proximity Sensors](#) category:

Click to view products by [Semtech](#) manufacturer:

Other Similar products are found below :

[01.001.5653.1](#) [70.340.1028.0](#) [70.360.2428.0](#) [70.364.4828.0](#) [70.810.1053.0](#) [72.360.1628.0](#) [73.363.6428.0](#) [8027AL20NL2CPXX](#) [FYCC8E1-2](#)
[9221350022](#) [922AA2W-A9P-L](#) [PLS2](#) [GL-12F-C2.5X10\(LOT3\)](#) [972AB2XM-A3N-L](#) [972AB3XM-A3P-L](#) [PS3251](#) [980659-1](#) [QT-12](#) [E2E2-](#)
[X5M41-M4](#) [E2E-X14MD1-G](#) [E2E-X2D1-G](#) [E2EX2ME2N](#) [E2EX3D1SM1N](#) [E2E-X4MD1-G](#) [E2E-X5E1-5M-N](#) [E2E-X5Y2-N](#) [E2E-X7D1-](#)
[M1J-T-0.3M-N](#) [E2FMX1R5D12M](#) [E2K-F10MC1](#) [5M](#) [EH-302](#) [EI3010TBOP](#) [EI5515NPAP](#) [MS605AU](#) [EP175-32000](#) [IFRM04N35B1/L](#)
[IFRM04P1513/S35L](#) [IFRM06P1703/S35L](#) [IFRM08P1501/S35L](#) [IFRM12N17G3/L](#) [IFRM12P17G3/L](#) [IFRM12P3502/L](#) [IFRM12P37G1/S14L](#)
[ILFK12E9189/I02](#) [ILFK12E9193/I02](#) [IMM2582C](#) [OISN-013](#) [25.161.3253.0](#) [25.332.0653.1](#) [25.352.0653.0](#) [25.352.0753.0](#)