

# GW8313

## 3-Channel Proximity Sensor for SAR Applications

### Description

The GW8313 is an advanced 3-channel capacitive sensor designed specifically for SAR (Specific Absorption Rate) applications. Operating at a high-performance level with a voltage input of 2.7 ~ 3.6V, this intelligent and smart sensor excels in sensing user presence at multiple distances, thereby significantly enhancing SAR functionalities.

The primary purpose of the GW8313 is to detect the presence of users at varying distances, enabling the optimization of radio frequency (RF) emission power in the presence of the human body. The GW8313 empowers manufacturers of portable electronic devices with electromagnetic radiation sources to comply with stringent emission regulations and SAR standards, resulting in notable performance advantages.

The GW8313 communicates its data through the I2C serial bus, which is compatible with both 1.2V and 1.8V operation. This communication allows for reporting body detection/proximity and facilitates easy adjustment of parameters. When proximity is detected, the NIRQ output is activated, offering users the option to determine the relative proximity distance or receive a detection indication only.

Equipped with an on-chip auto-calibration controller, the GW8313 can maintain peak performance across a wide range of temperature, humidity, and noise conditions. This feature ensures regular sensitivity adjustments, leading to simplified product development and enhanced overall performance.

### Features

- A flexible 2.7 ~ 3.6V supply voltage
- 400KHz I2C serial interface (supports both 1.2V and 1.8V operation)
- Two programmable I2C sub-addresses
- Up to 3 capacitive sensing inputs

- Separate configurations per sensing input
- Multiple sensing thresholds per sensing input
- Capacitance resolution: 2.1aF
- Capacitance offset compensation: up to 300pF
- Configurable proximity detection (single/combined)
- Automatic sensor calibration
- Advanced temperature compensation
- Low power consumption for mobile application:
  - Active mode: < 29µA
  - Doze mode: < 7µA
  - Sleep mode: < 1.2µA
- Open drain NIRQ interrupt pin
- Two reset sources: POR, Soft Reset

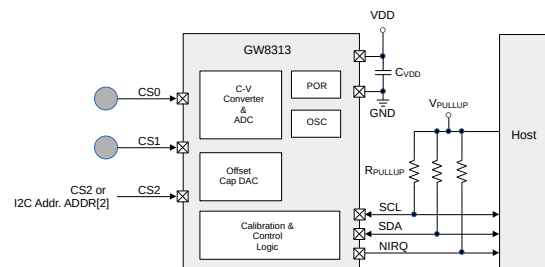
### Physical Characteristics

- Supply voltage: 2.7 ~ 3.6V
- Operating temperature: -40°C ~ 85°C
- Available in a compact 1.125mm x 0.74mm mLGA-8 package
- Pb & Halogen Free, RoHS/WEEE compliant

### Typical Applications

- Smartphones
- Tablets
- Laptops
- Hotspots
- Other wireless portable devices

### Basic Application Diagram



## Block Diagram

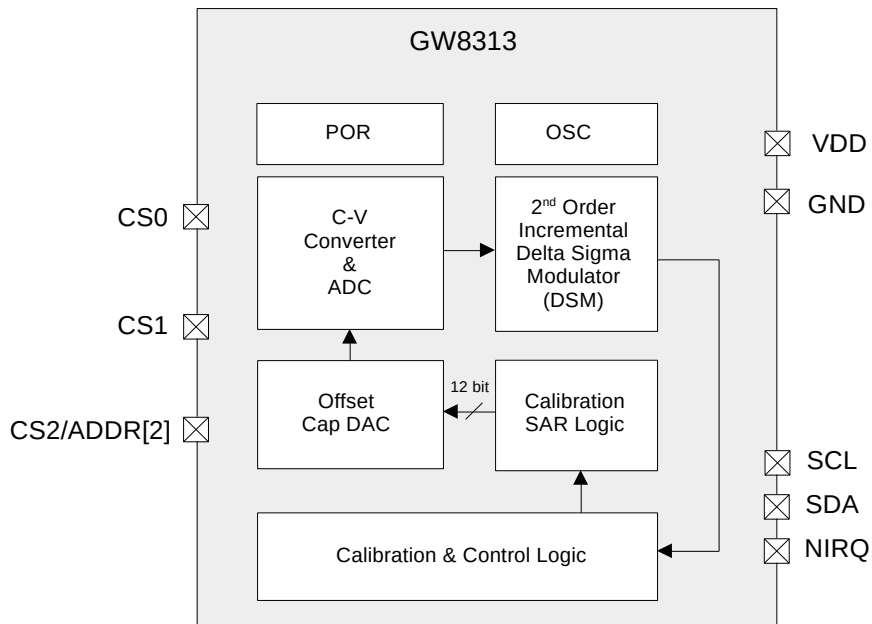
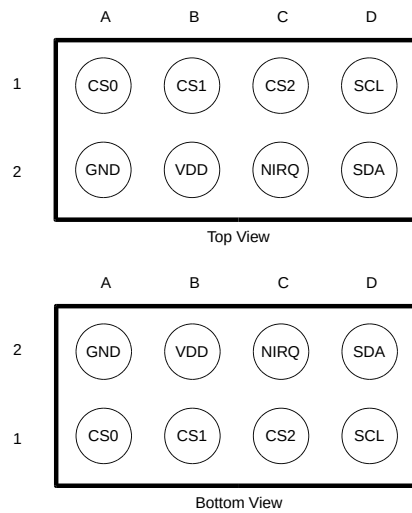


Figure 1 Functional Block Diagram of the GW8313

## Package Information



## Ordering Information

Device name	Package	Remark
GW8313	1.125mm x 0.74mm mLGA-8	Preliminary

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