SIC4343

236-Byte ISO14443A NFC Voltage Sensor AFE

REV 1.1

Features Summary

Highlight Features

- **Measurement mode**
  - Single-ended
  - Differential
  - Open Circuit Potential (OCP)
- **Channels: 3 I/O**
- **Biasing Voltage**
  - 8-bit DACs
  - V-DC/ V ref: 0.2 V to 1.2 V
- **Voltage Measurement Range**
  - ADC accuracy ± 2.5 mV
  - Input buffer is enabled
    - Single: 0.2 V to 1.2 V
    - Differential: -1 V to +1 V
  - Input buffer is disabled
    - Single: 0 V to 1.2 V
    - Differential: -1.2 V to +1.2 V
- **Input impedance**
  - Buffer is enabled: > 10 MΩ
  - Buffer is disabled: 18-42 kΩ
- **Data Conversion: Sampling rate 10 sps**

Connectivity

- RF interface based on ISO14443A - 106 kbps
- NFC Forum tag type 2 compatible

Memory

- 236 bytes addressable EEPROM
- 48 bytes for calibration parameters
- 44 bytes System configuration
  - 64-bit UID
  - Lock memory
  - Internal system configuration
- 144 bytes user memory EEPROM
- EEPROM organization enabling NDEF format
- EEPROM for initializing register (Automatically reload after power up)
- Up to 100,000 times erase/write cycles
- Up to 10 years memory retention at 70°C

Operating Condition

- Operating temperature 0 to 55°C
- Storage temperature -40 to 85°C

Package

- QFN 3x3 - 16 leads
- Au-bumped 12-inch die on wafer ring Bump size: 80 µm x 80 µm
- PCB 85.6 mm x 54.1 mm x 0.8 mm

Application

- Industrial sensor (force, strain)
- pH, ions (Na^+, K^+, Ca^{2+}, Mg^{2+}, etc.)
- Chemical sensor
- Biochemical sensor

Description

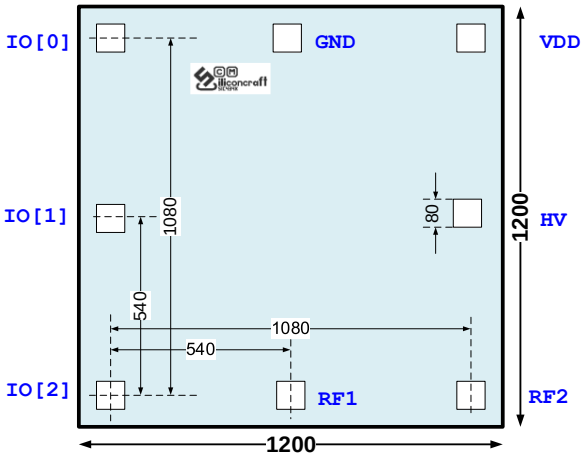
SIC4343 is NFC type 2 tag with built-in Digital-to-analog (DACs) and Analog-to-digital (ADC) for voltage measurement. Chip bias voltage and measure voltage in response to changes across a sensor

Ordering Information

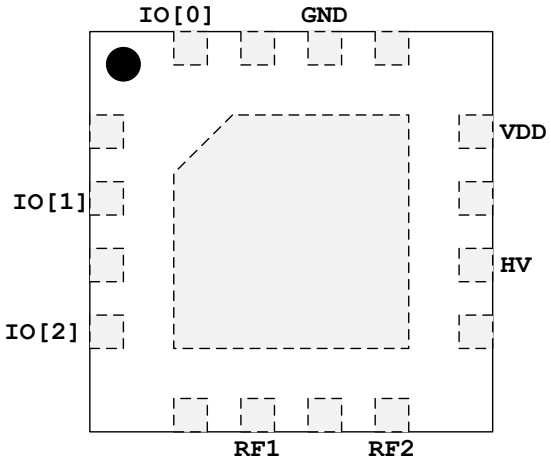
For more information, please contact Silicon Craft Sales representative or email us info@sic.co.th

Part No.	Description	Package	Standard Packing
P40CDC60DU0UT4B10R6	SIC4343-10, Voltage sensor interface with NFC type 2 DOWTB, UV sheet, Wafer ring, Dice	DOWTB	1 wafer (~30,000 dies/ wafer)
P40CVQK4P20UT4B10C2	SIC4343-10, Voltage sensor interface with NFC type 2 QFN 0.85 mm, Canister, IC	QFN	1,000 units/ canister
P40CK5CREF0S14B10CB	SIC4343, Voltage sensor AFE, PCB, RFID tag	PCB Development Kit	1 pc/ box

Die and Package Information



Die pad with Au-bump (top view from die surface, dimension in µm)



QFN 3x3-16 Pin configuration (top view)

Die Pad	Pkg Pin No.	Symbol	Type	Description
1	16	**IO[0]**	Analog	Sensor electrode connection Pad 0
2	2	**IO[1]**	Analog	Sensor electrode connection Pad 1
3	4	**IO[2]**	Analog	Sensor electrode connection Pad 2
4	6	**RF1**	Power	RF-Coil Connection Pad 1
5	8	**RF2**	Power	RF-Coil Connection Pad 2
6	10	**HV**	Power	Unregulated power supply
7	12	**VDD**	Power	ADC power supply
8	14	**GND**	Power	Ground