240-Bytes ISO14443A RFID Tag IC with UART interface

Features Summary

Highlight Features

- Write/Read through NFC smart Phone / RFID reader
- Direct Data transfer from RFID to UART or vice versa
- Operating from either RFID power or external DC
- 3.3V On-chip regulator for power harvesting mode
- Up to 10 mA source to power external circuit*
  *Depending on harvesting power from RF
- Compatible with NFC Tag Type 2
- +/-2% 1.8432MHz On-chip factory trim oscillator

Interface and Peripheral

- RF interface based on ISO14443A - 106 kbps
- UART interface speed from 9600 to 115200 bps
- UART interface with hand checking option
- 8 programmable GPIOs
- Activity indicator pin
  - RFdetect
  - RFBusy
  - Power Ready

Memory

- 240 bytes EEPROM accessible from RF and UART
- 196 bytes user memory
- EEPROM organization enabling NDEF format
- EEPROM Erase/Write Cycle up to 100,000 times
- EEPROM Memory Retention up to 10 years at 70°C
- 2 x 64-bytes deep FIFO for UART data transfer – TX/RX

Operating Conditions

- Operating temperature from -40 to 85°C
- 10 uA in standby mode

Package

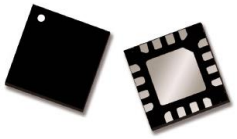
- QFN3x3 - 16-Pin Package with Heat sink pad
- Die on wafer

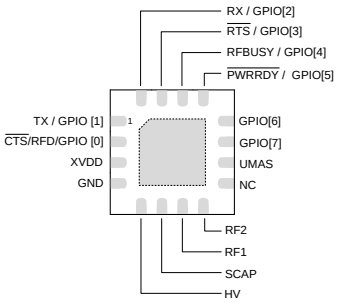
Reference Design/Evaluation kit

- Ready-to-use USB module and generic module
- Demonstration Software/Sample firmware available

Applications

- Firmware Upgrade via NFC
- NFC bridge for embedded system
- NFC powering sensor
- Non-invasive medical device
- Metering/Vending machine
- Smart Interactive Poster
- Smart Home Appliance
- Wireless Industrial Machine Interface
- Customized/Proprietary system RFID
- Smart Toy
- Display-less Home appliance





8-Pin QFN2x2 Package

General Description

SIC4310 is a dual-port EEPROM memory, accessible and programmable wirelessly via RFID/NFC devices. The SIC4310 mainly consists of EEPROM memory, an RFID analog-front-end interfacing circuit supporting ISO14443A, an UART controller with two 64-bytes FIFO and an on-chip regulator. To serve the trend of internet of thing, the SIC4310 provides the quickest way to connect smart objects to internet via NFC mobile phone. By relying on display in mobile devices and communication through RFID/NFC, the SIC4310 offers the cheapest method to configure smart things wirelessly such as firmware upgrade or parameter update.

The RFID interface protocol is based on world-popular 13.56-MHz ISO14443A at speed of 106 kbps. Based on the ISO14443A, wide variety range of readers from low cost RFID reader to NFC mobile phone available in market can read/write/transfer data from/to the SIC4310.

The UART interface provides flexibility to connect to variety of devices like host-style devices such as MCU or UART-controlled slave end points. Equipped with direct data transfer mode, the SIC4310 can directly pass data from RFID to UART, or vice versa, without wasting time in programming content into EEPROM and then transferring.

The UART signal can be simply converted to various communication standards such as RS-232, RS-485, USB, I2C via particular bridge devices. The UART speed can be configured to be from 9600 bps to 115.2 kbps to match the application. Two 64-bytes FIFO buffers for both UART-TX and UART-RX are embedded to provide free time for processors to perform other tasks.

The device's input/output pin can be configured for user interactive indicator such as LED. The SIC4310 can operate in both passive mode as an ordinary RFID where power source is from RF and peripheral device where power source is from embedded system. Provided that power from source is enough, each I/O has driving capability up to 4 mA each and regulator can source maximum current up to 10mA. Stand by power is kept lower than 10 uA which is the same level of self leakage of super capacitor.

The SIC4310 is offered in a low-profile QFN3x3-16pin and dice-on-wafer.