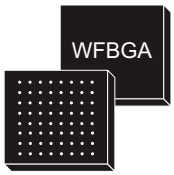
ST54E

NFC controller and Secure Element system-in-package

Data brief



WFBGA 64-pin

Features

- SIP (system-in-package) with ST21NFCC controller and ST33G1M2 32-bit secure microcontroller for UICC / SE applications

NFC controller

- 36 Kbytes of EEPROM
- RF digital interface for connection with external RF active Front-End IC.
- Optimized power consumption modes
- Battery voltage monitoring
- Support for up to 3 external Secure Elements
- Enhanced testability

Package

- WFBGA 64-pin 4x4x0.8, MSL 1, ECOPACK®2

RF communications

- Passive mode – Card Emulation
  - ISO/IEC 14443 Type A & B
  - JIS X 6319 – 4

Communication interfaces

- Three SWP interfaces
- I²C Slave interface up to 1 Mbit/s
- Dedicated SPI master interface for external RF active Front-End control

Secure microcontroller

- ARM® SecurCore® SC300™ 32-bit RISC core
- 1280 Kbytes of Flash memory available
- ISO/IEC 7816-3 interface for T=0 and T=1 protocols (master/slave mode)
- Single wire protocol (SWP) Interface for communications with NFC router
- SPI master/slave interface

Secure operating system

- Supports state of the art Secure Element operating systems:
  - JavaCard™ 3.0.1 Classical Edition
  - GlobalPlatform™ 2.2 with Amdts. A and C
  - EMVCo™ certification

Electrical characteristics

- Single power supply pin (V_{BAT})
- Battery voltage support from 0 V to 5 V
- Supports Class B and C operating conditions for UICC
- Ambient operating temperature -25 to + 85 °C

Applications

- Mobile devices
- Wearable devices
- SmartWatch
- Secure Connected Devices

1 Description

The ST54E is an all-in-one solution including NFC controller and Secure Element with the highest security level (EAL5+ and EMVCo certified hardware).

Connected to a NFC active RF Front-End, the NFC controller offers a complete solution for 13.56 MHz contactless communication.

Fully manufactured in a secure environment, it provides the highest performance levels thanks to its ARM® SC300® core and advanced 90-nm e-Flash technology.

The 64-ball WFBGA (4 x 4 x 0.8 mm) ECOPACK® package provides a reduced footprint and pin-to-pin compatibility with the STMicroelectronics NFC standalone solution. There is no internal direct connection between the two devices inside the package.

A complete range of memory sizes from 128 to more than 600 Kbytes (depending on profile) is available on the Secure Element.

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: *www.st.com*. ECOPACK® is an ST trademark.

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
26-Feb-2015	1	Initial release.