ST16RF52

CONTACTLESS ISO 14443-B
Smartcard IC WITH 2048 Bytes EEPROM

DATA BRIEFING

- 8-BIT ARCHITECTURE CPU
- 22 KBytes of USER ROM, SECTOR COMBINATIVE
- SYSTEM ROM
- 512 Bytes of RAM
- 2048 Bytes of EEPROM, SECTOR COMBINATIVE
  - Highly reliable CMOS EEPROM technology
  - 10 year data retention
  - 300,000 Erase/Write cycle endurance
  - Protected One Time Programmable block (32 or 64 bytes)
  - 1 to 32 bytes block Erase or Write in single cycle programming
- POWER SAVING STANDBY MODE
- VERY HIGH SECURITY FEATURES INCLUDING EEPROM FLASH ERASE
- ESD PROTECTION GREATER THAN 4000V
- 2 OPERATING CONFIGURATIONS
  - ISSUER
  - USER
- UNIQUE SERIAL NUMBER ON EACH DIE

CONTACTLESS SPECIFIC FEATURES

- ISO 14443 TYPE B COMPLIANT
- 13.56 MHZ OPERATION
- NOMINAL106 KBIT/S DATA TRANSFER
- 10%AMPLITUDE MODULATION RECEPTION(READER TO CARD)
- BPSK-NRZ-L LOAD MODULATION CARD TO READER
- 3V OPERATION
- MORE THAN 1,000,000 RF CYLES ENDURANCE

**CONTACT SPECIFIC FEATURES**

- EXTENDED VOLTAGE OPERATION, Vcc Range: 2.7V to 5.5V
- SERIAL ACCESS, ISO 7816-3 COMPATIBLE
- UP TO 5 MHz INTERNAL OPERATING FREQUENCY
- CONTACT ASSIGNMENT COMPATIBLE ISO 7816-2

Figure 1 Pin Connection

SCP 075a/AI

Table 1 Contact mode

CLK	Clock
RST	Reset
I/O1	Data Input/Output
VCC	Supply Voltage
GND	Ground
AC1	Antenna coil
AC0	Antenna coil

September 2000
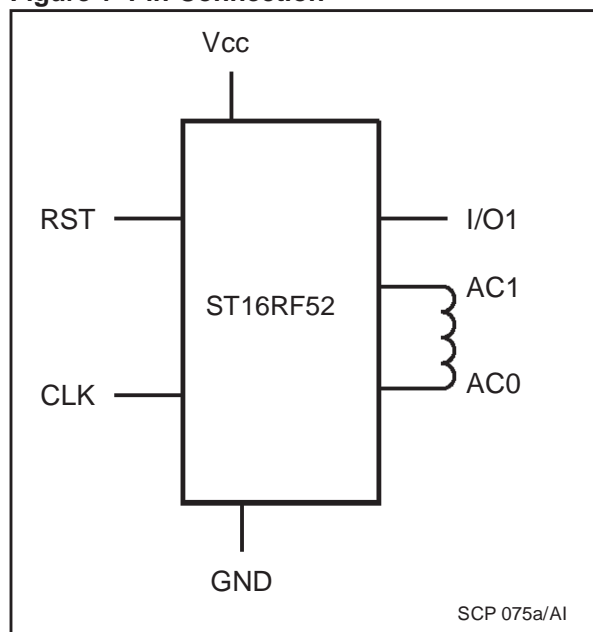
INTRODUCTION

The ST16RF52, a member of the standard ST16 device family, is a serial access microcontroller specially designed for high volume contactless/contact Smartcard applications.

The ST16RF52 is based on 8-bit CPU core and includes on chip memories: 512 Bytes of RAM, 22 KBytes of USER ROM, a SYSTEM ROM, and 2078 Bytes of EEPROM.

Both ROM and EEPROM memories can be configured into two sectors. Access rules from any memory section or sector to any other are set-up by the User's defined Memory Access Control Matrix (MACM).

Reliability data related to the ST16RF52 product, manufactured using STMicroelectronics' advanced CMOS EEPROM technology, confirm data retention of up to 10 years and endurance up to 300,000 Erase/Write cycles.

Contact / contactless operations are fully compatible with the ISO standards for Smartcard applications.

Figure 2 Block Diagram

.SCP 119d/DS