



# ST16HF52

## SmartCard MCU

### With 2048 Bytes EEPROM for Contactless/Contact Applications

DATA BRIEFING

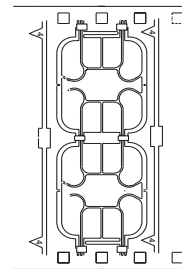
- 8 BIT ARCHITECTURE CPU
- 22 KBytes of USER ROM, SECTOR COMBINATIVE
- SYSTEM ROM
- 512 Bytes of RAM
- 2048 Bytes of EEPROM, SECTOR COMBINATIVE
  - Highly reliable CMOS EEPROM technology
  - 10 year data retention
  - 300,000 Erase/Write cycle endurance
  - Protected One Time Programmable block (32 or 64 bytes)
  - 1 to 32 bytes block either Erase or Write in single cycle programming
- POWER SAVING STANDBY MODE
- VERY HIGH SECURITY FEATURES INCLUDING EEPROM FLASH ERASE
- ESD PROTECTION GREATER THAN 5000V
- 2 OPERATING CONFIGURATIONS
  - ISSUER
  - USER

#### CONTACTLESS SPECIFIC FEATURES

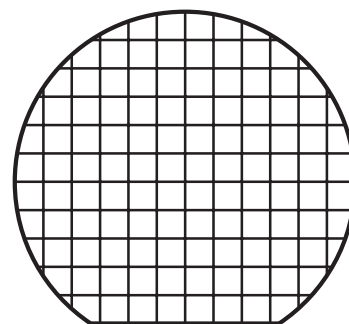
- COMPATIBLE WITH ISO 14443 TYPE B STANDARD
- 13.56 MHZ CARRIER FREQUENCY
- 106 KBIT/S DATA TRANSFER
- AMPLITUDE MODULATION READER TO CARD
- LOAD MODULATION CARD TO READER
- 3V OPERATION
- HYPERPROXIMITY™ FEATURE

#### CONTACT SPECIFIC FEATURES

- EXTENDED VOLTAGE OPERATION,  $V_{cc}$  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



Micromodule (D7)



Wafer

## DESCRIPTION

The ST16HF52, a member of the standard ST16 device family, is a serial access microcontroller especially designed for large volume contactless/contact Smartcard applications.

The ST16HF52 is based on 8 bit CPU core and includes on chip memories: 512 Bytes of RAM, 22 KBytes of USER ROM, SYSTEM ROM, and 2048 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).

The HyperProximity™ switch enables an insured connection between the card and an adequate

reader, as with contact cards. High risk transactional based applications resident on the Smart card can use the switch to require that the Smart card be in a HyperProximity™ mode for the application to complete execution.

Reliability data related to the ST16HF52 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 operation is fully compatible with the ISO standards for Smartcard applications.

**Figure 1 Block Diagram**

