



# ST1331D, ST1333D ST1353D

## 6-Contact Memory Card IC 272-bit EEPROM With Advanced Security Mechanisms and Inlock System

DATA BRIEFING

- 5 V Single Supply Voltage
- Counting Capability (two options)
  - up to 32767 ( $8^5 - 1$ )
  - 8 times reloadable, up to 4095 ( $8^4 - 1$ )
- Active Authentication Function (ST1333D/53D)
- Cipher Block Chaining Function (ST1353D)
- Memory Divided into :
  - 16 bits of Circuit Identification
  - 48 bits of Card Identification
  - 40 bits of Count Data
  - 16 bits for Validation Certificate
  - 24 bits of Transport Code
  - 64 bits of Issuer Data (ST1331D) or Authentication Secret Key (ST1333D/53D)
  - 32 bits of Anti-tearing Flags (optional)
  - 56 bits of User data (optionally not erasable)
- More than 500,000 Erase/Write Cycles
- More than 10 Years Data Retention
- 3.5 ms Programming Time at 5 V (typical)
- 500  $\mu$ A Supply Current at 5 V (typical)
- 250  $\mu$ A Stand-by Current at 5 V (typical)

### DESCRIPTION

The members of the ST1331D/33D/53D family are principally designed for use in prepaid Phonecard applications. Each is a 272-bit EEPROM device, with associated security logic and special fuses to control memory access. The memory is arranged as a matrix of 34 x 8 cells, accessed in a serial bit-wise fashion for reading and programming, and in

Table 1. Signal Names

CLK	Clock
RST	Function Code
B	Function Code
I/O	Serial Data Input / Output
VCC	Supply Voltage
GND	Ground

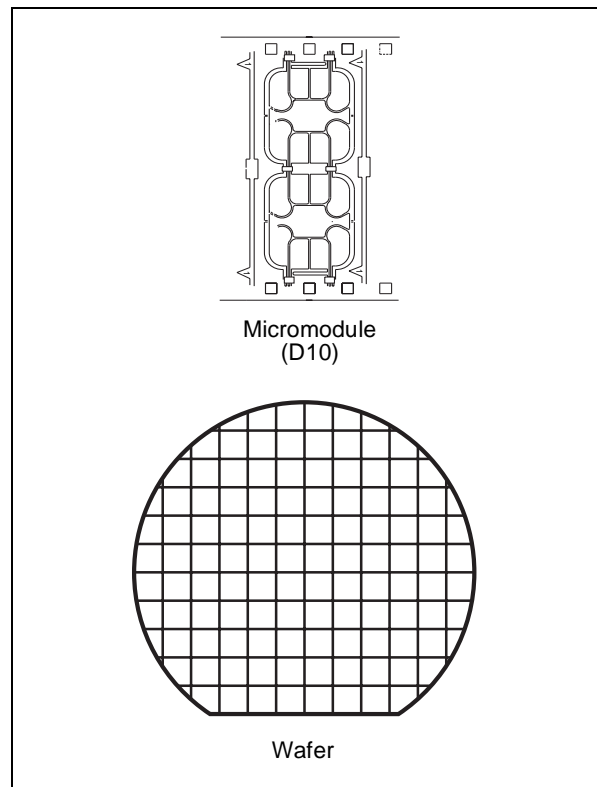


Figure 1. Logic Diagram

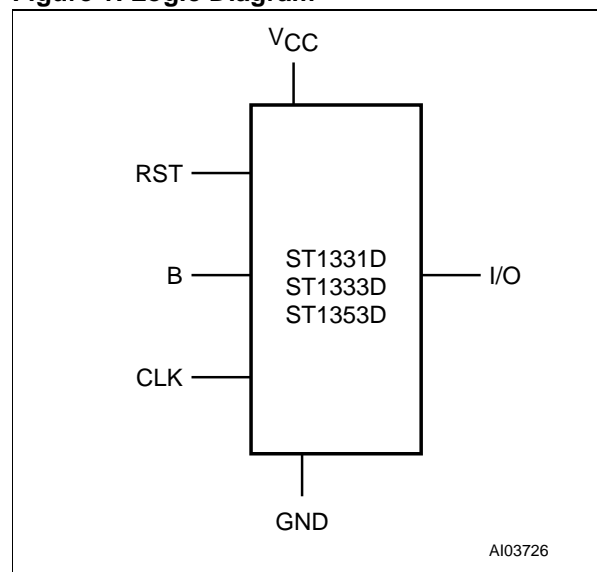
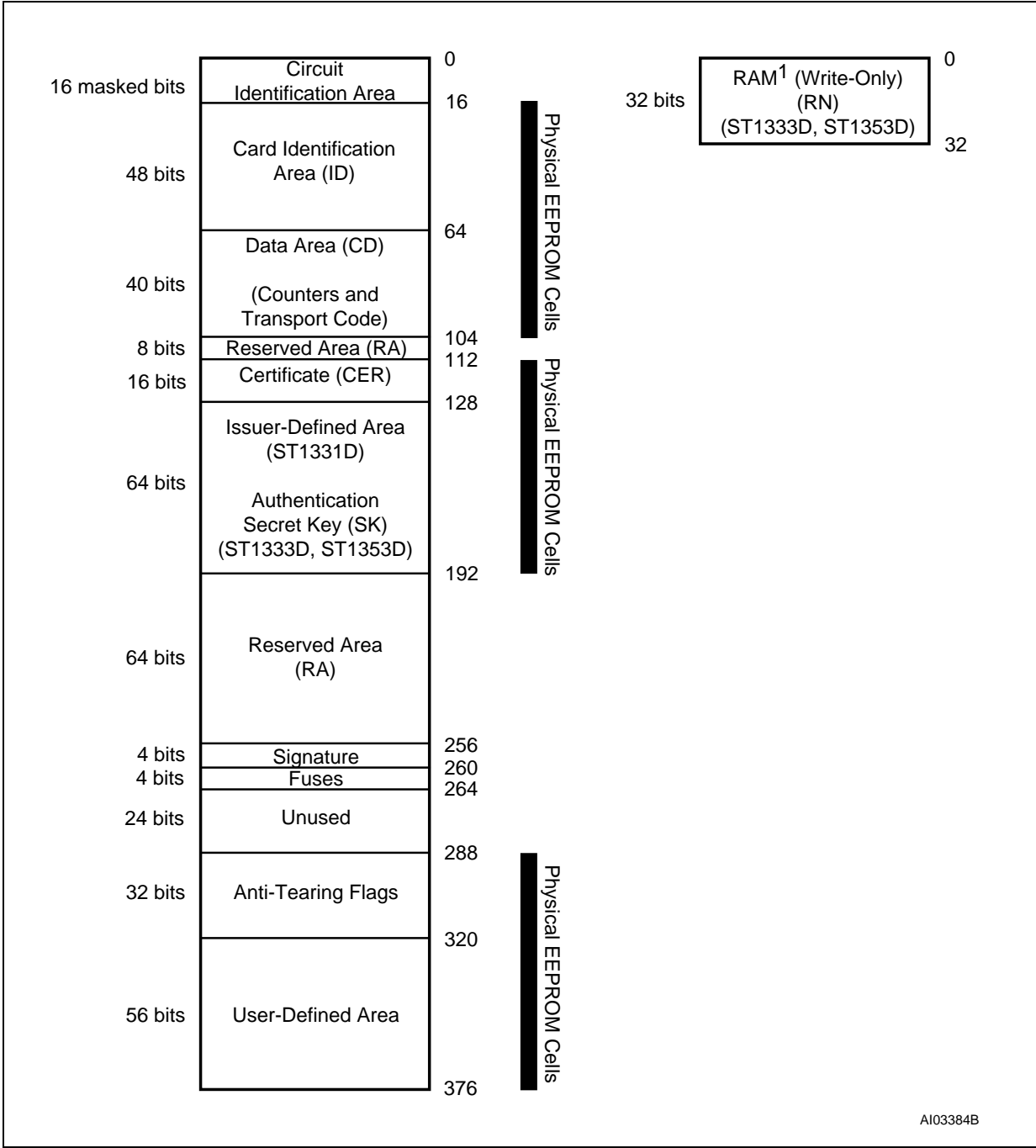




Figure 3. Memory Map



Note: 1. The write-only RAM area (RN) is applicable only for the User Mode.