# ======== Contents ========

**1. INTRODUCTION ..... 3**

**2. FEATURES ..... 3**

**3. PIN ASSIGNMENTS ..... 3**

**4. Memory mapping for AD Bus Interface ..... 4**

**5. ABSOLUTE MAXIMUM RATINGS ..... 5**

**6. ELECTRICAL CHARACTERISTICS ..... 5**

**7. Application circuit ..... 6**

7.1 AD Bus Interface (with SNC710) ..... 6

7.2 Standard ROM interface (with SNL310) ..... 7

**8. BONDING PAD ..... 8**

## AMENDENT HISTORY

| Version | Date | Description |
|---|---|---|
| Ver 1.0 | March 11, 2003 | V1.0 first issue |
| Ver 1.1 | April 18, 2003 | Modify the pin assignment table<br>Add bonding pad information & application circuit |
| Ver 1.2 | April 21, 2003 | Modify application circuit & bonding pad information |
| Ver 1.3 | July 30, 2003 | Modify operation current from typ.4mA -> MAX. 4mA |
| Ver 1.5 | October 21, 2005 | According to Ver 1.4 PDF for Modify “TYPE” setting.<br>Ver 1.5 Modify Supply Voltage from Max 6V to Max 3.6V |

## 1. INTRODUCTION

The SNR008 is a signal power, 8M-bit, read only memory. It is organized as 1M bytes, operates for single 3V power supply, support static standby mode. The SNR008 embedded two different interfaces, one is a standard 8-bit interface bus which compatible with SNL310, another one is a special 8-bit AD (address/data) bus which compatible with SNC710.

SNR008 offers automatic power-down, with power-down controlled by the chip enable "CE\". When chip enable goes to high, SNR008 will entry power-down mode in order to save the power consumption.

## 2. FEATURES

- Power supply: 2.4V ~ 3.6V
- Memory Size: 8M-bit
- Totally static operation
- Embedded a standard 8-bit bus interface compatible with SNL310 or a 8-bit AD (address/data) bus interface compatible with SNC710
- Access time: 150ns @3V

## 3. PIN ASSIGNMENTS

| Symbol | I/O | Standard ROM interface | AD Bus interface |
|---|---|---|---|
| TYPE | I | 0: Standard ROM type | 1: AD Bus interface |
| A[8..19] | I | Standard ROM Address [8..19] | NC |
| A[7] | I | Standard ROM Address A7 | TESTM |
| A[6] | I | Standard ROM Address A6 | Bank Select 4 |
| A[5] | I | Standard ROM Address A5 | Bank Select 3 |
| A[4] | I | Standard ROM Address A4 | Bank Select 2 |
| A[3] | I | Standard ROM Address A3 | Bank Select 1 |
| A[2] | I | Standard ROM Address A2 | Bank Select 0 |
| A[1] | I | Standard ROM Address A1 | ALECLK |
| A[0] | I | Standard ROM Address A0 | READY |
| D[0..7] | I/O | Standard ROM Data [0..7] | Address/Data bus [0..7] |
| CEB | I | Standard ROM Chip Enable | Chip Enable |
| OEB | I | Standard ROM Output Enable | NC |
| VDD | P | 3.3volt Positive Power supply | 3.3volt Positive Power supply |
| GND | P | Ground | Ground |

## 4. Memory mapping for AD Bus Interface

For 8-bit AD (address/data) bus interface, all the address and data communication between SNC710 and SNR008 are through data bus D[0..7]. SNC710 allows user to connect maximum 2 external mask ROM, and SNR008 has 5 bank select pins (BS0~BS4) to specify the memory region of each mask ROM.

| BS4~BS0 | Address Region | BS4~BS0 | Address Region |
|---|---|---|---|
| 00100 | 0x0200000 ~ 0x027FFFF | 10010 | 0x0900000 ~ 0x097FFFF |
| 00101 | 0x0280000 ~ 0x02FFFFF | 10011 | 0x0980000 ~ 0x09FFFFF |
| 00110 | 0x0300000 ~ 0x037FFFF | 10100 | 0x0A00000 ~ 0x0A7FFFF |
| 00111 | 0x0380000 ~ 0x03FFFFF | 10101 | 0x0A80000 ~ 0x0AFFFFF |
| 01000 | 0x0400000 ~ 0x047FFFF | 10110 | 0x0B00000 ~ 0x0B7FFFF |
| 01001 | 0x0480000 ~ 0x04FFFFF | 10111 | 0x0B80000 ~ 0x0BFFFFF |
| 01010 | 0x0500000 ~ 0x057FFFF | 11000 | 0x0C00000 ~ 0x0C7FFFF |
| 01011 | 0x0580000 ~ 0x05FFFFF | 11001 | 0x0C80000 ~ 0x0CFFFFF |
| 01100 | 0x0600000 ~ 0x067FFFF | 11010 | 0x0D00000 ~ 0x0D7FFFF |
| 01101 | 0x0680000 ~ 0x06FFFFF | 11011 | 0x0D80000 ~ 0x0DFFFFF |
| 01110 | 0x0700000 ~ 0x077FFFF | 11100 | 0x0E00000 ~ 0x0E7FFFF |
| 01111 | 0x0780000 ~ 0x07FFFFF | 11101 | 0x0E80000 ~ 0x0EFFFFF |
| 10000 | 0x0800000 ~ 0x087FFFF | 11110 | 0x0F00000 ~ 0x0F7FFFF |
| 10001 | 0x0880000 ~ 0x08FFFFF | 11111 | 0x0F80000 ~ 0x0FFFFFF |

Table-1

***Note: For the address region 0x00000~0x01FFFFF are reserved, and the setting of bank select pins BS4~BS0 CAN'T be the range 0000~0x0011.***

## 5. ABSOLUTE MAXIMUM RATINGS

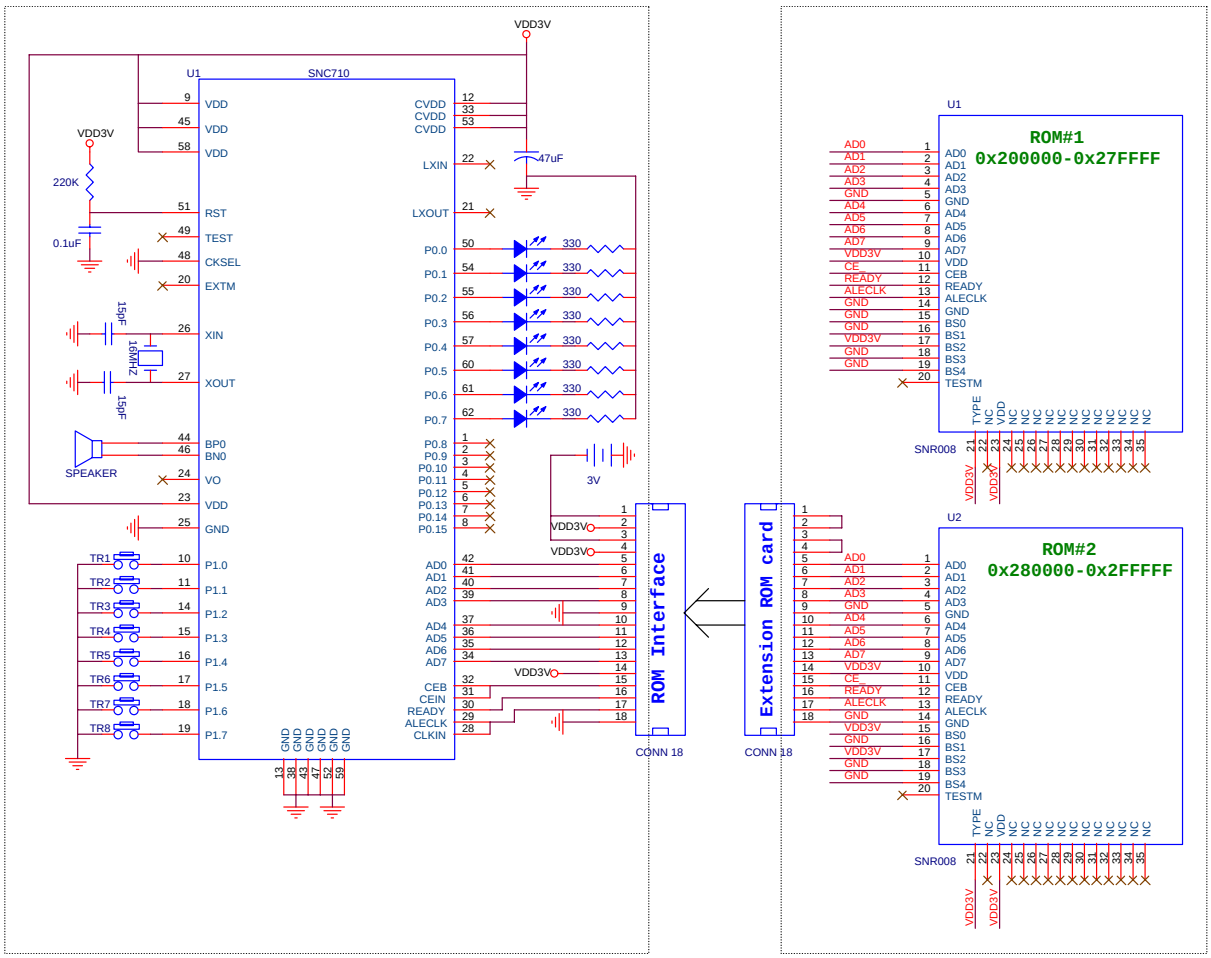
| Items | Symbol | Min | Max | Unit. |
|---|---|---|---|---|
| Supply Voltage | $V_{DD}$-V | -0.3 | 3.6 | V |
| Input Voltage | $V_{IN}$ | GND-0.3 | $V_{DD}$+0.3 | V |
| Operating Temperature | $T_{OP}$ | 0 | 55 | $^{o}$C |
| Storage Temperature | $T_{STG}$ | -55.0 | 125.0 | $^{o}$C |

## 6. ELECTRICAL CHARACTERISTICS

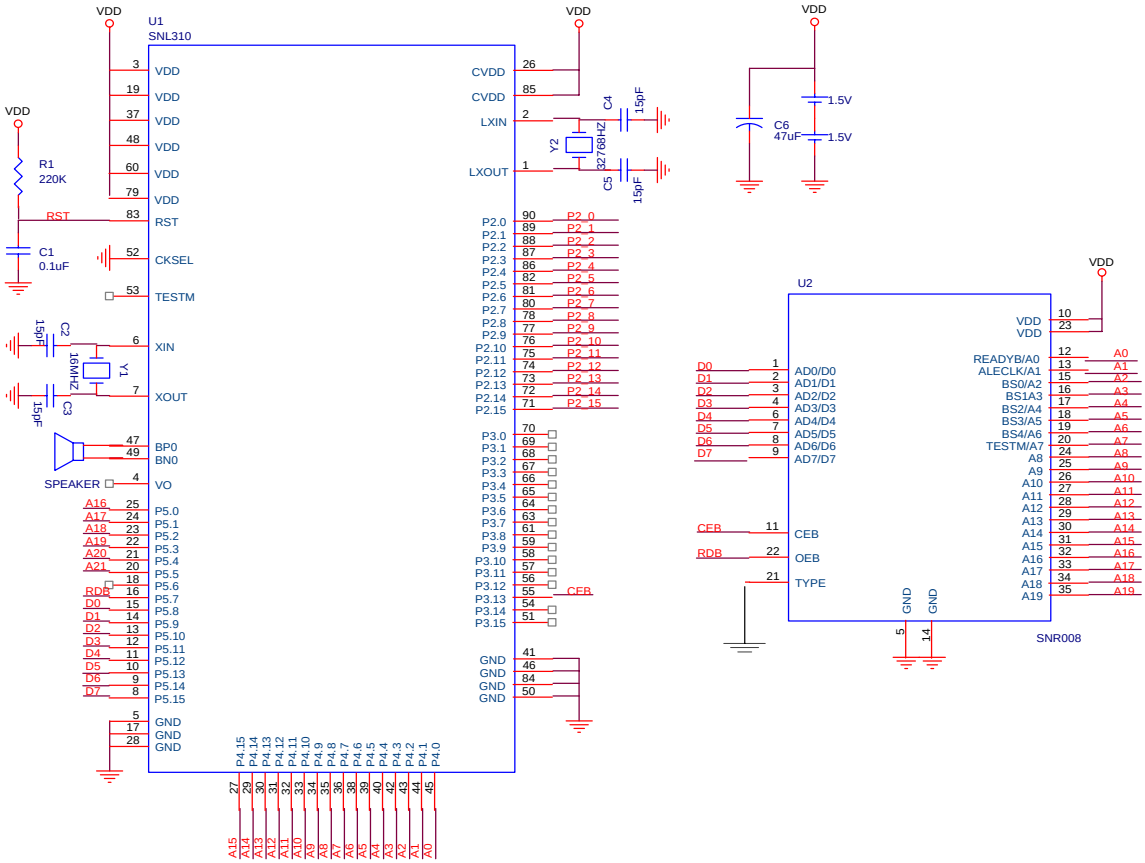
| Item | Sym. | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|
| Operating Voltage | $V_{DD}$ | 2.4 | - | 3.6 | V | |
| Standby current | $I_{SBY}$ | - | 1.5 | 2.0 | uA | $V_{DD}$=3V, no load |
| Operating Current | $I_{OPR}$ | - | 4 | - | mA | $V_{DD}$=3V, no load |
| Address access time | tAA | - | - | 150 | ns | Vdd=3V |

# 7. Application circuit

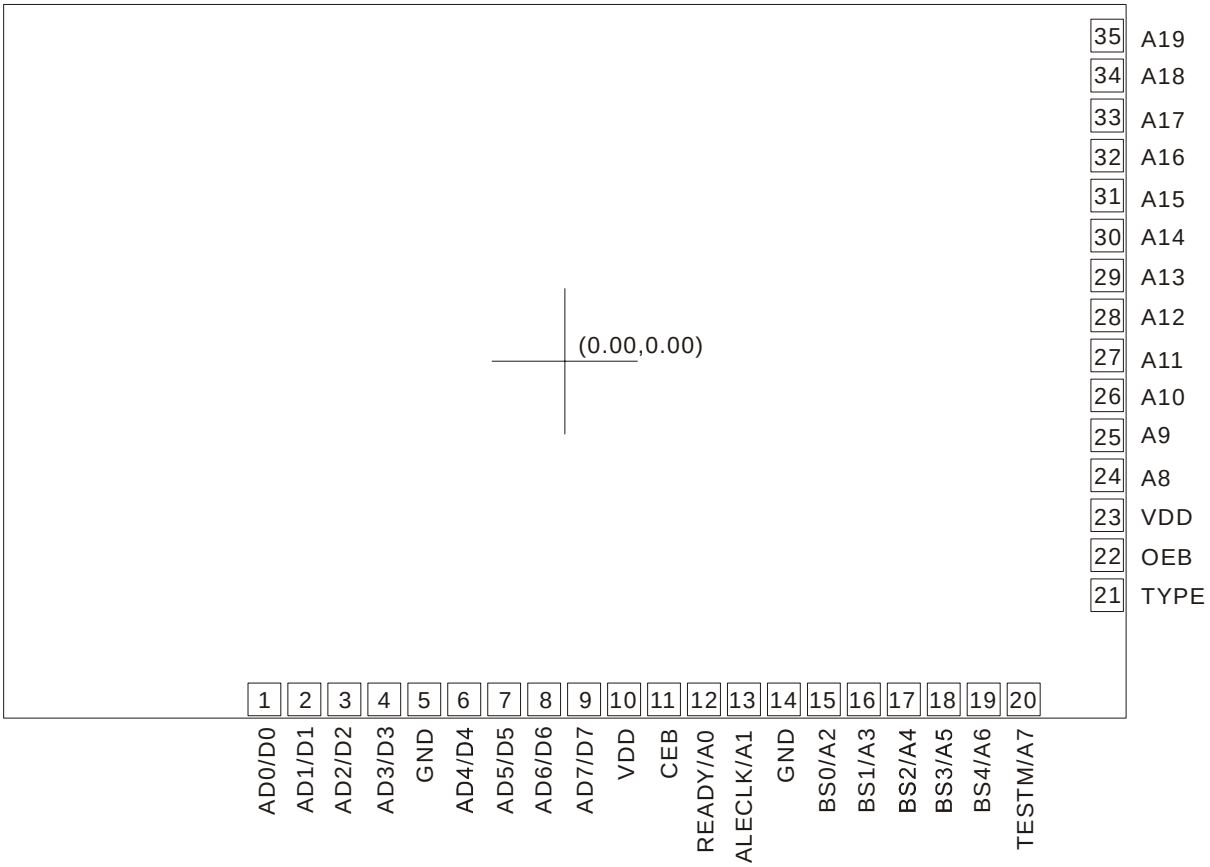
## 7.1 AD Bus Interface (with SNC710)



## 7.2 Standard ROM interface (with SNL310)



## 8. BONDING PAD




***Note: The substrate MUST be connected to Vss in PCB layout.***

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