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AMENDENT HISTORY

Version	Date	Description
Ver 1.0	April 21, 2003	V1.0 first issue
Ver 1.1	July 30, 2003	V1.1 Modify operation current from typ.4mA -> MAX.4mA
Ver 1.2	January 14, 2004	V1.2 Modify "TYPE" setting.
Ver 1.3	March 17, 2004	V1.3 Modify Application circuit of AD Bus Interface.
Ver 1.4	October 21, 2005	V1.4 Modify Supply Voltage from Max 6V to Max 3.6V



1. INTRODUCTION

The SNR016 is a signal power, 16M-bit, read only memory. It is organized as 2M bytes, operates for single 3V power supply, support static standby mode. The SNR016 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.

SNR016 offers automatic power-down, with power-down controlled by the chip enable "CEB". When chip enable goes to high, SNR016 will entry power-down mode in order to save the power consumption.

2. FEATURES

- ◆ Power supply: 2.4V ~ 3.6V
- ◆ Memory Size: 16M-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: 200ns @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..20]	I	Standard ROM Address [8..20]	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	NC
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 8-bit AD (address/data) bus interface, all the address and data communication between SNC710 and SNR016 are through data bus D[0..7]. SNC710 allows user to connect maximum 2 external mask ROM, and SNR016 has 4 bank select pins (BS1~BS4) to specify the memory region of each mask ROM.

BS4~BS1	Address Region
0010	0x0200000 ~ 0x02FFFFFF
0011	0x0300000 ~ 0x03FFFFFF
0100	0x0400000 ~ 0x04FFFFFF
0101	0x0500000 ~ 0x05FFFFFF
0110	0x0600000 ~ 0x06FFFFFF
0111	0x0700000 ~ 0x07FFFFFF
1000	0x0800000 ~ 0x08FFFFFF
1001	0x0900000 ~ 0x09FFFFFF
1010	0x0A00000 ~ 0x0AFFFFFF
1011	0x0B00000 ~ 0x0BFFFFFF
1100	0x0C00000 ~ 0x0CFFFFFF
1101	0x0D00000 ~ 0x0DFFFFFF
1110	0x0E00000 ~ 0x0EFFFFFF
1111	0x0F00000 ~ 0x0FFFFFFF

Table-1

Note: For the address region 0x00000~0x01FFFFFF are reserved, and the setting of bank select pins BS4~BS1 CAN'T be the range 0000~0x0001.



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	°C
Storage Temperature	T_{STG}	-55.0	125.0	°C

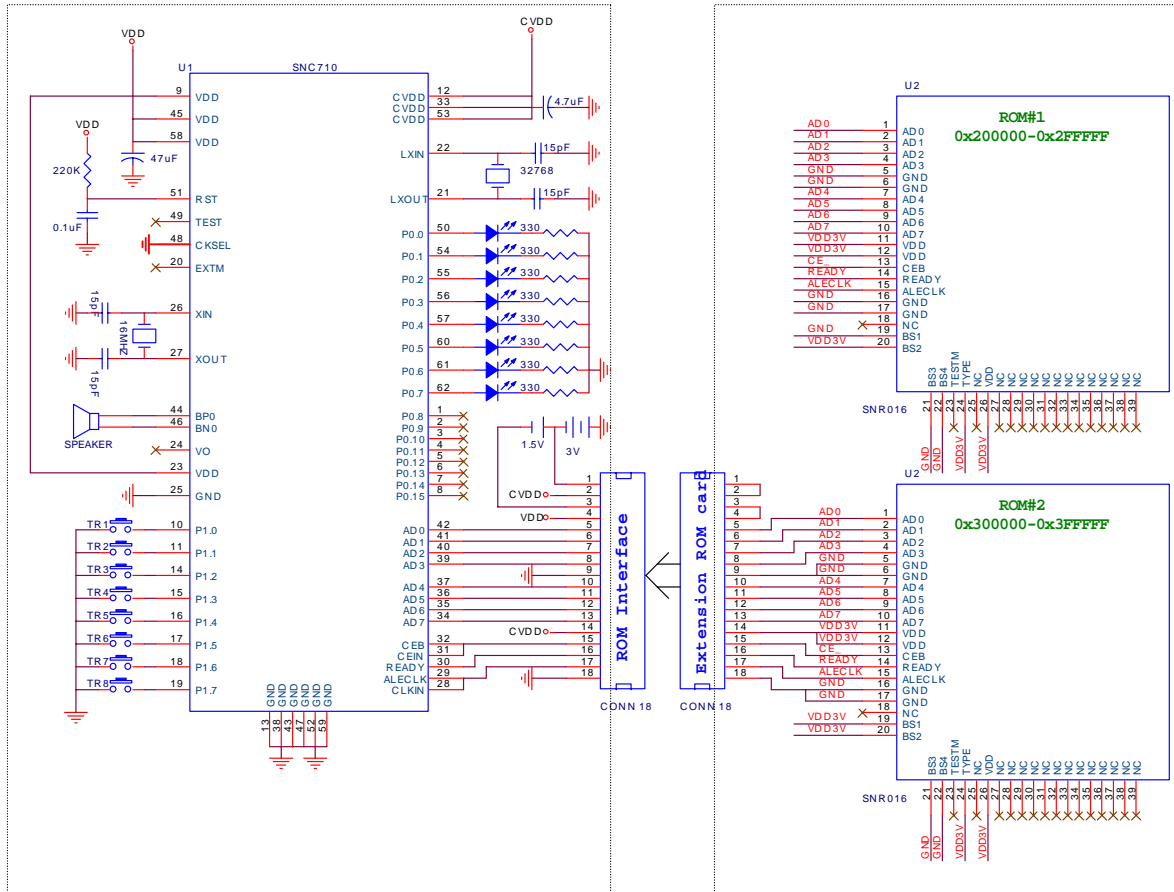
6. ELECTRICAL CHARACTERISTICS

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



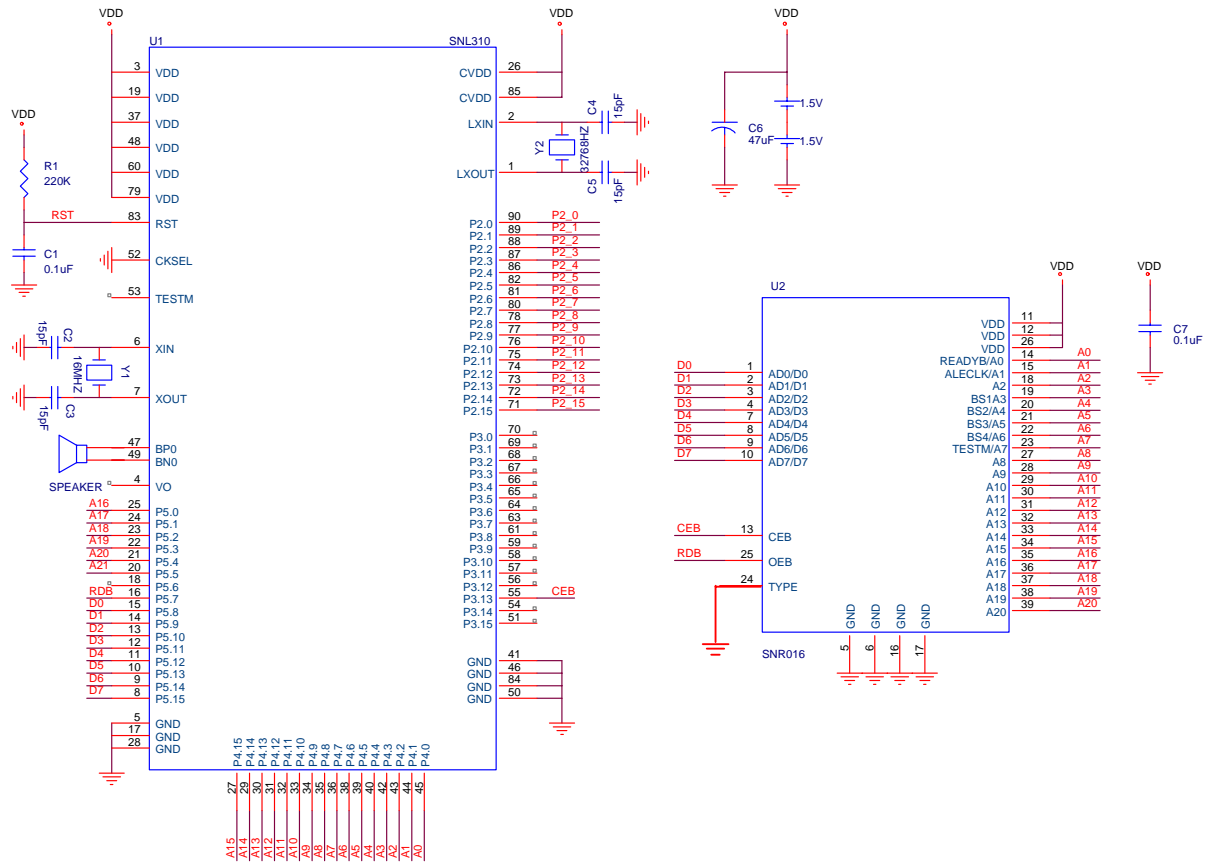
7. Application circuit

7.1 AD Bus Interface (with SNC710)



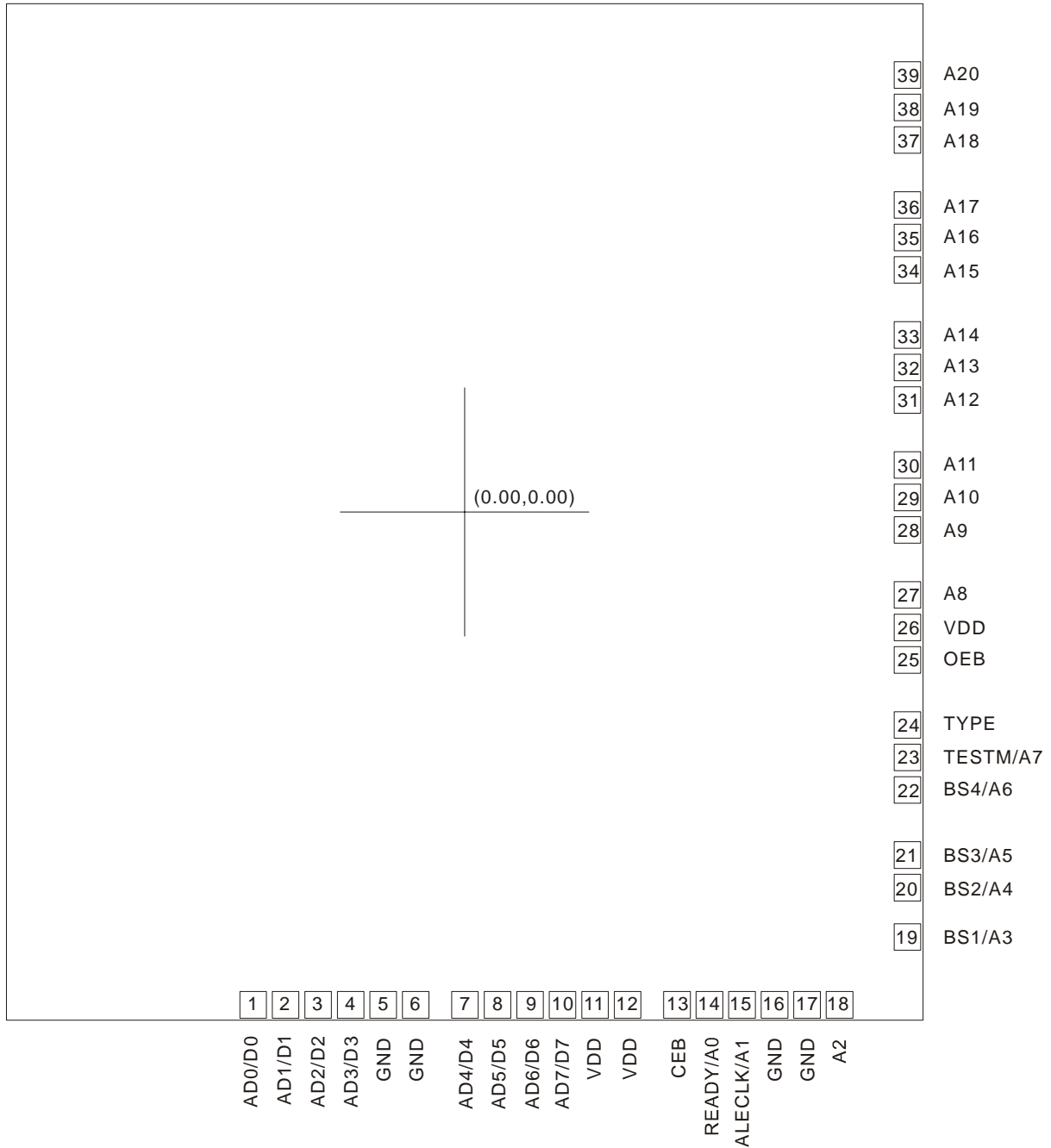


7.2 Standard ROM interface (with SNL310)





8. BONDING PAD



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

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