VDIC ASYNCHRONOUS STATIC RAM

VDSR16M08XS44XX4C12 USER MANUAL

Version : A0

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VDIC-SRAM

HIGH-SPEED 5.0V 2M × 8 bit

ASYNCHRONOUS STATIC RAM

1 Description

The VDSR16M08XS44XX4C12 is a high-speed access time, high-density Static Random Access Memory with 16Mbit. Manufactured with VDIC Very Dense SIP technology, this block is stacked by four SRAM chips employing CMOS process. It is organized as 2M×8bit wide data interface .The chip can be selected separately with dedicated #CS.

Low interconnect parasitic capacitance of the stacking technology, by reducing the connection length, allows this SRAM module to be useful for a variety of high bandwidth, high performance and high density memory system applications.

The VDSR16M08XS44XX4C12 is available in a 44-pin SOP package.

2 Features

- High-speed access time: 12ns
- TTL compatible inputs and outputs
- Organized as 2M x 8-bit
- Single +5 ± 0.5V power supply
- Fully Static Operation

  No clock or refresh required
- Three state Outputs.
- Centre Power/Ground Pin Configuration
- Available Temperature Range:
  - 0°C to 70°C
  - 40°C to+85°C
  - 55°C to +125°C

3 Block Diagram

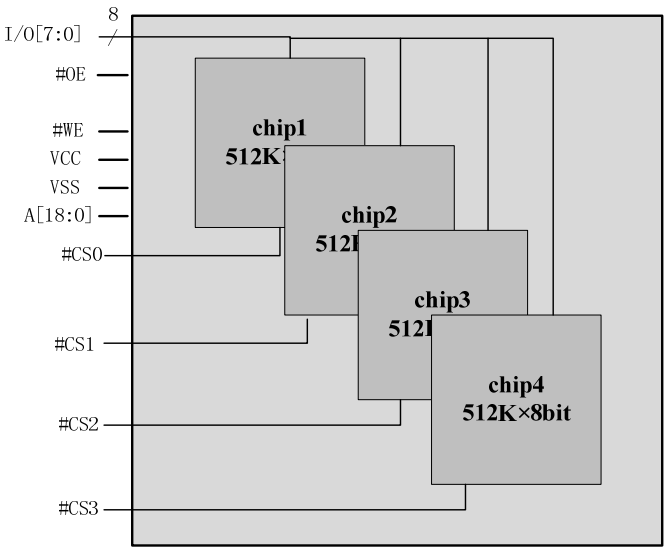

Figure 1 Block diagram

4 Pin Descriptions

Pin Id	Pin #		Pin Id
#CS2	1	44	**NC**
#CS1	2	43	**NC**
A0	3	42	**NC**
A1	4	41	**A18**
A2	5	40	**A17**
A3	6	39	**A16**
A4	7	38	**A15**
#CS0	8	37	**#OE**
I/O0	9	36	**I/O7**
I/O1	10	35	**I/O6**
VCC	11	34	**VSS**
VSS	12	33	**VCC**
I/O2	13	32	**I/O5**
I/O3	14	31	**I/O4**
#WE	15	30	**A14**
A5	16	29	**A13**
A6	17	28	**A12**
A7	18	27	**A11**
A8	19	26	**A10**
A9	20	25	**NC**
#CS3	21	24	**NC**
NC	22	23	**VSS**

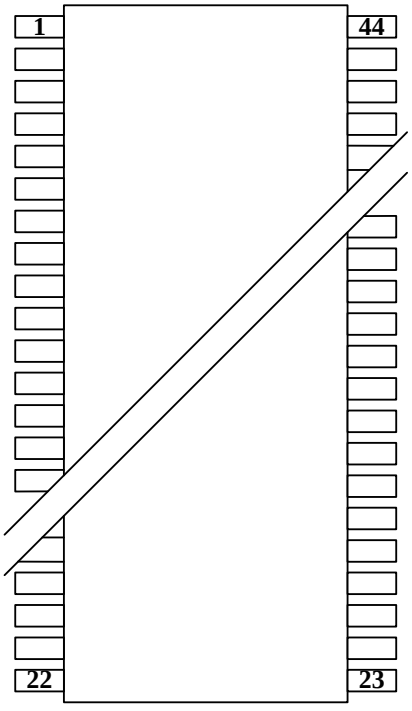

Figure 1 Pin configuration

Table 1 Pin description

Pin	Name	Function
#CS0~#CS3	chip select	Chip Enable Input
A0 ~ A18	Address	Address Inputs
#WE	Write enable	Write Enable Input
#OE	Output enable	Output Enable Input
I/O0~I/O7	Data input/output	Data inputs/outputs 8-bit wide bus
Vcc/Vss	Power supply/ground	Power and ground for the input/output buffers and core logic.
NC	No connection	This pin is recommended to be left No Connection on the device.

5 Command Operation

5.1 Absolute Maximum Ratings

Table 2 Absolute maximum ratings

Parameter	Symbol	Maximum ratings	Unit
Voltage on V_{CC} supply relative to Vss	VCC	-0.5 ~ VCC+0.5	V
Voltage on any pin relative to Vss	V_{IN}	-0.5 ~ VCC+0.5	V
Power Dissipation	P_D	1.4	W
Thermal Resistance Junction to Case	R_{J-C}	<20	℃/W
Manual Soldering Temperature Range	T_M	+250 ~ +280	℃
Reflow Soldering Temperature	T_{SOL}	215	℃
Operating Temperature Range	T_{OPR}	-55 ~ +125	℃
Storage Temperature Range	T_{STG}	-65 ~ +150	℃

5.2 Recommended DC Operating Conditions

Table 3 Recommended DC operating condition

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage	VCC	4.5	5.0	5.5	V
Input high voltage	V_{IH}	2.0	—	V_{CC}+0.5	V
Input low voltage	V_{IL}	-0.5	—	0.8	V

5.3 DC Electrical Characteristics

Table 4 DC characteristics

Parameter	Symbol	TEST CONDITIONS	Min	Max	Unit
Output voltage low level	V_{OL}	VCC=4.5V,I_{OL} = 4mA	——	0.4	V
Output voltage high level	V_{OH}	VCC=4.5V,I_{OH}= -4.0mA	2.4	——	V

6 TYPICAL APPLICATION

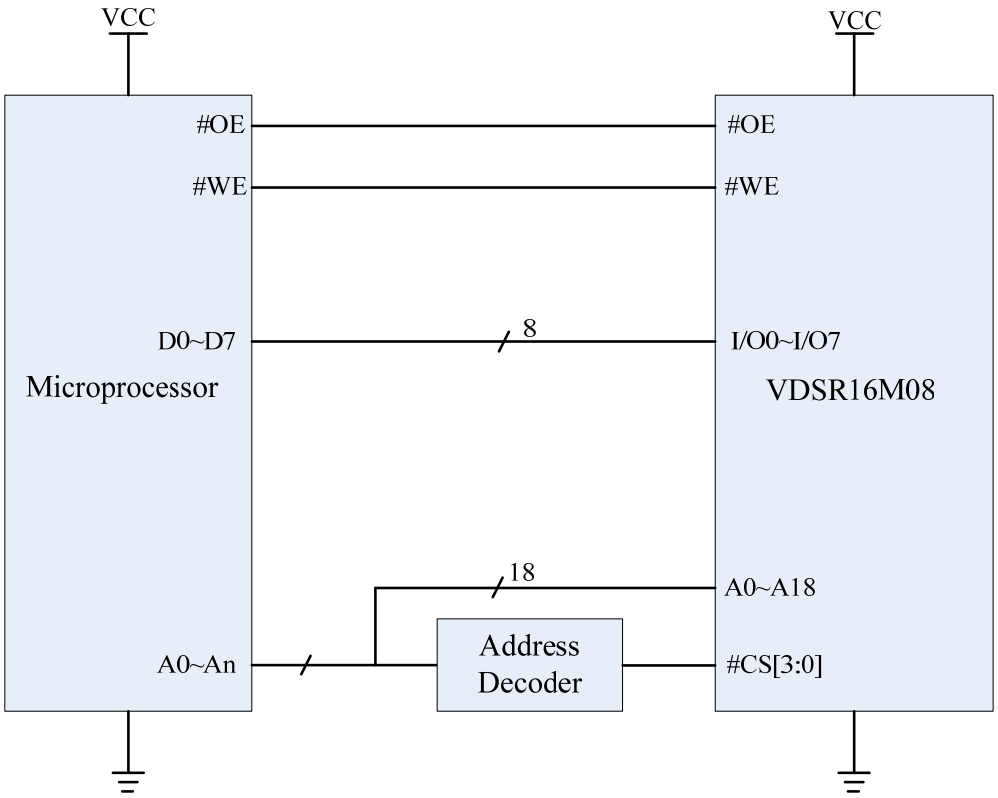

Figure 2 Typical application

7 Ordering Information

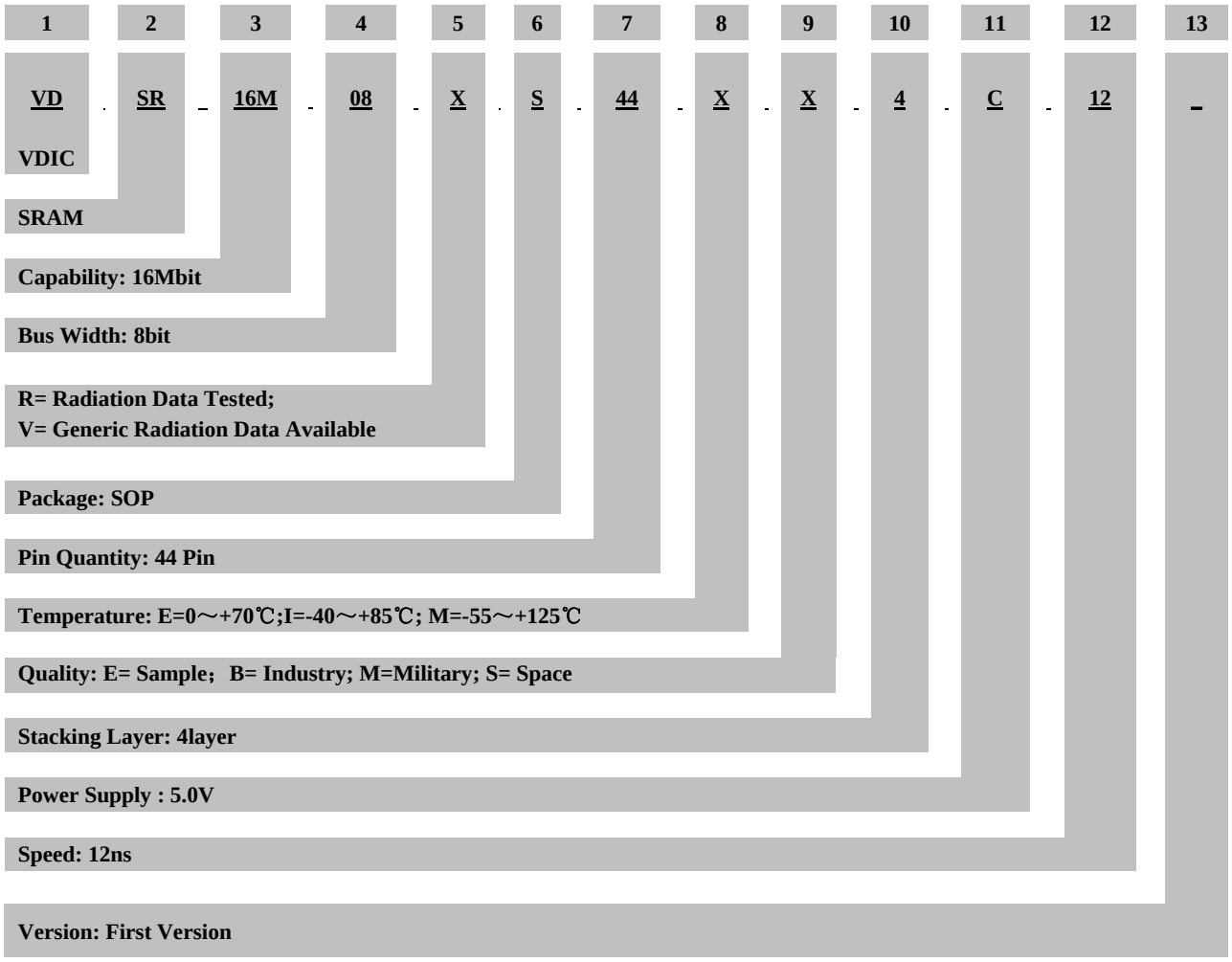

Table 5 Ordering information

Part Number	Capacity (bit)	Bus Width (bit)	Radiation			Packaging	Temperature (℃)
			TID[1]	SEL[2]	SEU[3]		
VDSR16M08VS44EE4V12	16M	8	-	-	-	SOP44	0 ~ + 70
VDSR16M08VS44IB4V12	16M	8	-	-	-	SOP44	-40 ~ + 85
VDSR16M08VS44MM4V12	16M	8	-	-	-	SOP44	-55 ~ + 125
VDSR16M08RS44MS4V12	4M	8	> 100	> 59	> 0.2	SOP44	-55 ~ + 125

[1] TID: Total Dose（Krads(Si)）
[2] SEL: LET Threshold（Mev.cm2/mg）
[3] SEU:SEU Threshold （Mev.cm2/mg）

8 Package Dimensions

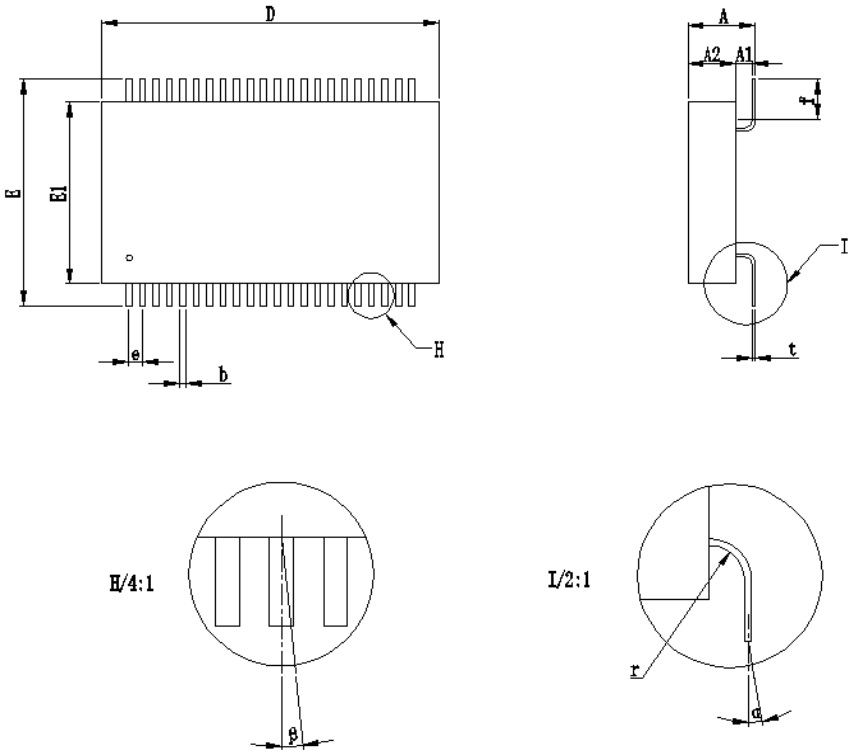

Figure 3 Package dimensions

Table 6 Dimensions information

	Min	Max
A	3.70	4.40
A2	2.50	3.10
D	19.80	20.20
E	13.40	13.80
E1	10.80	11.20
f	2.00	
b	0.35	
e	0.80	
r	1.00	
t	0.20	
α	≤3°	
β	≤3°	
NOTE: 1. Unit: mm 2. A1= A - A2		

9 REVISION HISTORY

Table 7 Revision history

Revision	Date	Description of Change
A0	Oct 24,2018	First Created