

Revision History

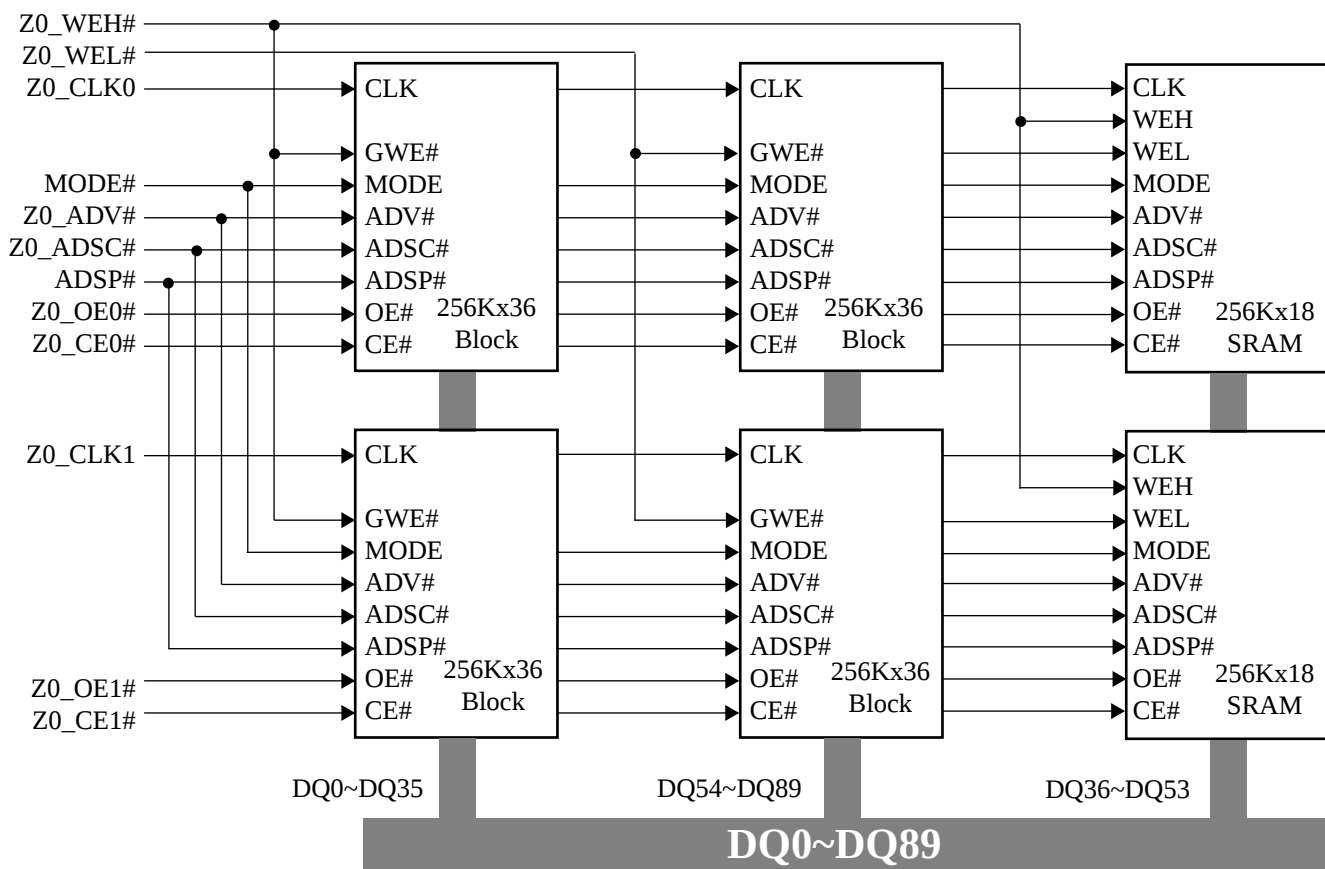
- **September 28, 1998**
Datasheet Released.

4MByte (512K x 90) Synchronous Secondary Cache SRAM Module - 256Kx18 based 168-pin DIMM

Features

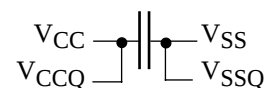
- Access Time : 10/15/20ns
- Operating Voltage : 3.3V
- Device Physicals : BGA
- Lead Finish : Gold
- Length x Height : 133.35mm x 22.22mm
- No. of sides : Double-sided

Functional Diagram



Notes :

1. Each 256Kx36 block comprises of two 256Kx18 SRAM devices.
2. A0~A17 to all SRAM devices.
3. CE2 & CE2# of all devices are tied active.
4. All other unused control signals are tied inactive except for BWE signal on parity devices, which is tied active.



Decoupling capacitors
to all devices.

(All specifications of this device are subject to change without notice.)



Pin Name

A0~A17	Addresses	AV0_CE0_N#, AV0_CE1_N#	Control Select Signals
DQ0~DQ89	Data Inputs/Outputs	AV1_CE0_N#, AV1_CE1_N#	
Z0_CLK0, Z0_CLK1	Clock Inputs	Z0_OE0#, Z0_OE1#	Output Enable Inputs
Z0_WEH#, Z0_WEL#	Write Enable Inputs	Z0_CE0#, Z0_CE1#	Chip Enable Inputs
Z0_ADSC#	Cache Address Status Input	MSIZE0_N#, MSIZE1_N#	Presence Detects
Z0_ADV#	Burst Address Advance Input	V _{CC}	Power Supply
ADSP#	Processor Address Status Input	V _{SS}	Ground
		NC	No Connection

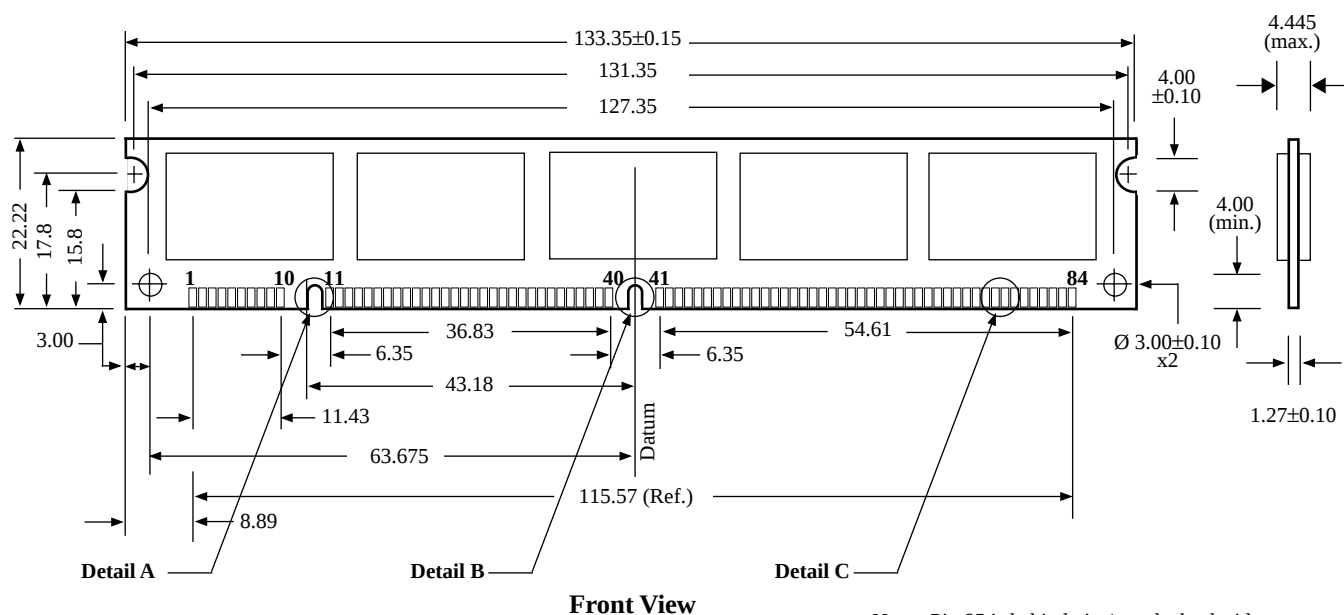
Pin No.	Pin Designation	Pin No.	Pin Designation	Pin No.	Pin Designation	Pin No.	Pin Designation
1	V _{SS}	43	Z0_ADV#	85	V _{SS}	127	Z0_ADSC#
2	DQ0	44	Z1_ADV# / NC	86	DQ9	128	Z1_ADSC# / NC
3	DQ1	45	V _{SS}	87	DQ10	129	V _{SS}
4	DQ2	46	Z0_CLK0	88	DQ11	130	Z0_CLK1
5	DQ3	47	V _{SS}	89	DQ12	131	V _{SS}
6	DQ4	48	Z1_CLK0	90	DQ13	132	Z1_CLK1 / NC
7	V _{CC}	49	V _{SS}	91	V _{CC}	133	V _{SS}
8	DQ5	50	DQ36	92	DQ14	134	DQ45
9	DQ6	51	DQ37	93	DQ15	135	DQ46
10	DQ7	52	DQ38	94	DQ16	136	DQ47
11	DQ8	53	DQ39	95	DQ17	137	DQ48
12	DQ18	54	DQ40	96	DQ27	138	DQ49
13	V _{SS}	55	V _{CC}	97	V _{SS}	139	V _{CC}
14	DQ19	56	DQ41	98	DQ28	140	DQ50
15	DQ20	57	DQ42	99	DQ29	141	DQ51
16	DQ21	58	DQ43	100	DQ30	142	DQ52
17	DQ22	59	DQ44	101	DQ31	143	DQ53
18	DQ23	60	DQ54	102	DQ32	144	DQ63
19	V _{CC}	61	V _{CC}	103	V _{CC}	145	V _{CC}
20	DQ24	62	DQ55	104	DQ33	146	DQ64
21	DQ25	63	DQ56	105	DQ34	147	DQ65
22	DQ26	64	DQ57	106	DQ35	148	DQ66
23	MSIZE0_N#	65	DQ58	107	MSIZE1_N#	149	DQ67
24	A0	66	DQ59	108	A5	150	DQ68
25	A1	67	V _{SS}	109	A6	151	V _{SS}
26	A2	68	DQ60	110	A7	152	DQ69
27	A3	69	DQ61	111	A8	153	DQ70
28	A4	70	DQ62	112	A9	154	DQ71
29	V _{SS}	71	DQ72	113	V _{SS}	155	DQ81
30	A10	72	DQ73	114	A15	156	DQ82
31	A11	73	V _{CC}	115	A16	157	V _{CC}
32	A12	74	DQ74	116	A17	158	DQ83
33	A13	75	DQ75	117	A18/NC	159	DQ84
34	A14	76	DQ76	118	A19/NC	160	DQ85
35	V _{CC}	77	DQ77	119	V _{CC}	161	DQ86
36	Z0_CE0#	78	DQ78	120	Z0_CE1#	162	DQ87
37	Z1_CE0# / NC	79	V _{SS}	121	Z1_CE1# / NC	163	V _{SS}
38	Z0_WEL#	80	DQ79	122	Z0_WEH#	164	DQ88
39	Z1_WEL# / NC	81	DQ80	123	Z1_WEH# / NC	165	DQ89
40	ADSP#	82	AV0_CE0_N#	124	MODE#	166	AV1_CE0_N#
41	Z0_OE0#	83	AV0_CE1_N#	125	Z0_OE1#	167	AV1_CE1_N#
42	Z1_OE0# / NC	84	V _{CC}	126	Z1_OE1# / NC	168	V _{CC}

Note :

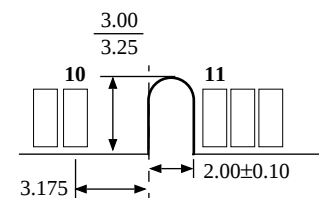
1. AV0_CE0_N#, MSIZE0_N#, and MSIZE1_N# are all grounded through a 10 ohms resistor.

Physical Dimensions

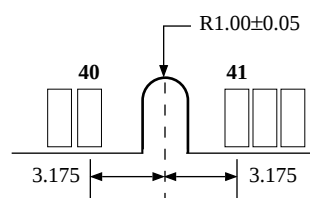
168-pin DIMM Module



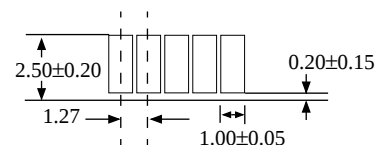
Note : Pin 85 is behind pin 1 on the back side.



Detail A : Position of Technology Notch



Detail B : Position of Voltage Notch



Detail C : Edge Connector

(All dimensions are in millimeters with $\pm 0.13\text{mm}$ tolerance unless specified otherwise.)

Ordering Information

SM	<u>3</u>	<u>90</u>	<u>H</u>	<u>G</u>	<u>SF</u>	<u>N</u>	<u>3</u>	<u>U</u>	<u>G</u>	<u>UU</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

- (1) **SMART Modular Technologies**
- (2) **Product Category**
3 : SRAM SIMM / DIMM
- (3) **Module Data Bus Width**
90 : x90
- (4) **Module Address Depth**
H : 512K
- (5) **Device Data Width**
G : x18, BGA
- (6) **Device Feature / Customer**
S : Synchronous
F : Flow-through
- (7) **Tag Bits**
N : No Tag
- (8) **Voltage**
3 : 3.3V / Standard Power
- (9) **SRAM Device Manufacturer**
H : Hitachi
M : Micron
N : NEC
R : Sharp
S : Samsung
O : Motorola
- (10) **Module Lead Finish**
G : Gold
- (11) **Cycle Time**
10 : 10ns
15 : 15ns
20 : 20ns

Note : "U" in the part number should be replaced by user specified option.

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