1-177-464/465/466/467

Hakuto

MEMORY CARD TYPES

SRAM

● Full CMOS utilising full CMOS die

Type	Capacity (KBytes)	Write protect switch	Battery	Battery life	Pin assignment	Dimensions
BS8D1-A	8	No	BR2016 lithium battery	5Y	1-1	Fig. 8
BS16D1-A	16			5Y		
BS24D1-A	24			5Y		
BS32D1-A	32			5Y		
BS8E1-A	8	Yes	BR2016 lithium battery	5Y	1-1	Fig. 9
BS16E1-A	16			5Y		
BS24E1-A	24			5Y		
BS32E1-A	32			5Y		

Chip enable access time = 250ns. Output enable access time = 100ns.

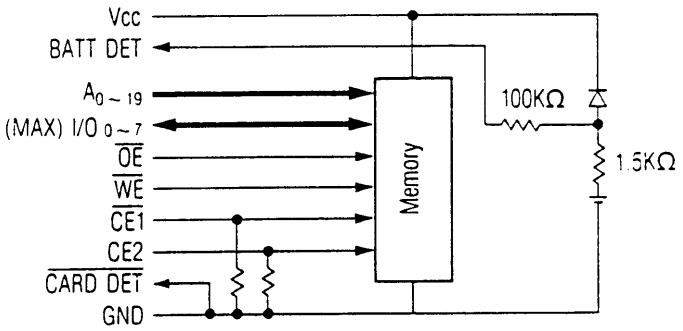
● Mix CMOS utilising mix CMOS die

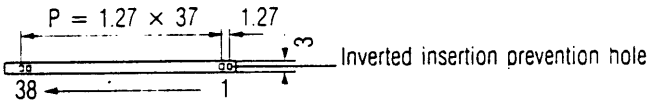
Type	Capacity (KBytes)	Memory	Write protect switch	Battery	Battery life	Pin assignment	Dimensions
BS32D1-B	32	L Version	No	BR2016 lithium battery	1.3Y	1-1	Fig. 8
BS64D1-B	64				8M		
BS96D1-B	96				6M		
BS128D1-B	128				4M		
BS160D1-B	160				3M		
BS192D1-B	192				2.5M		
BS32D1-C	32	LL Version	No	BR2016 lithium battery	5Y	1-1	
BS64D1-C	64				3.9Y		
BS96D1-C	96				2.7Y		
BS128D1-C	128				2Y		
BS160D1-C	160				1.6Y		
BS192D1-C	192				1.4Y		
BS32E1-B	32	L Version	Yes	BR2016 lithium battery	1.3Y	1-1	Fig. 9
BS64E1-B	64				8M		
BS96E1-B	96				6M		
BS128E1-B	128				4M		
BS32E1-C	32	LL Version	Yes	BR2016 lithium battery	5Y	1-1	
BS64E1-C	64				3.9Y		
BS96E1-C	96				2.7Y		
BS128E1-C	128				2Y		
BS32F1-C	32	LL Version	No	BR2325 lithium battery	5Y	1-1	Fig. 10
BS64F1-C	64				5Y		
BS96F1-C	96				5Y		
BS128F1-C	128				4.3Y		
BS160F1-C	160				3.5Y		
BS192F1-C	192				2.9Y		
BS256F1-C	256				2.2Y		
BS512F1-C	512				1.1Y		
BS32G1-C	32	LL Version	Yes	BR2016 lithium battery	5Y	1-1	Fig. 11
BS64G1-C	64				5Y		
BS96G1-C	96				5Y		
BS128G1-C	128				4.3Y		
BS160G1-C	160				3.5Y		
BS192G1-C	192				2.9Y		
BS256G1-C	256				2.2Y		
BS512G1-C	512				1.1Y		

Chip enable access time = 200ns. Output enable access time = 70ns.

*DRAM CARDS of 512K and 1M byte (without built-in battery) are also available. Y = Years and M = months in the table.

SRAM BLOCK DIAGRAM AND CARD DIMENSIONS





● SRAM using BR2016 battery
BS[ ]D1-A
BS[ ]D1-B
BS[ ]D1-C

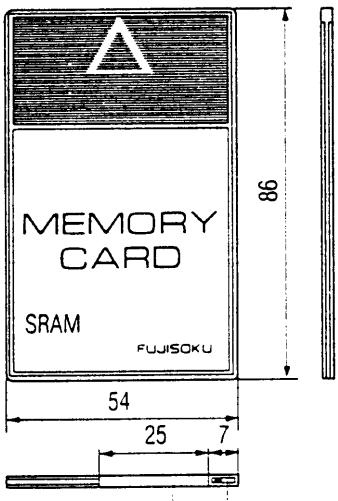


Fig. 8

● SRAM using BR2016 battery with write protect switch
BS[ ]E1-A
BS[ ]E1-B
BS[ ]E1-C

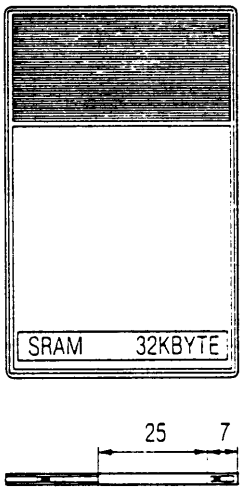
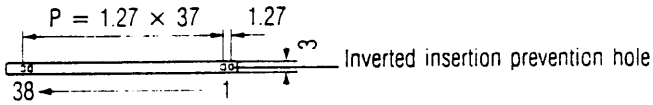


Fig. 9



● SRAM using BR2325 battery
BS[ ]F1-C

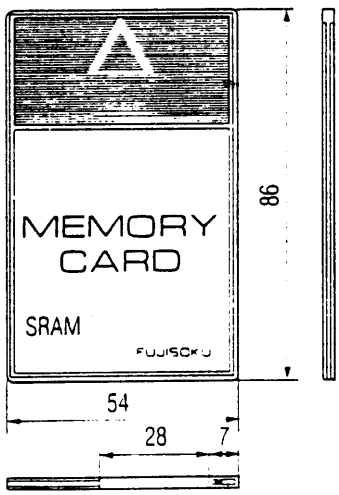


Fig. 10

● SRAM using BR2325 battery with write protect switch

● BS[ ]G1-C

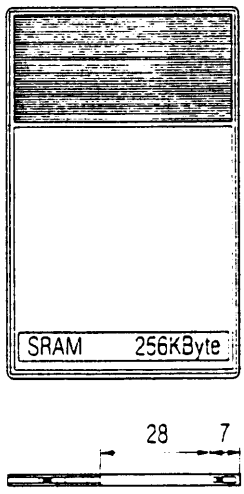


Fig. 11

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PIN ASSIGNMENT TABLE

Type of MEMORY / Pin No. / Table No.	SRAM		OTP/EPROM		EEPROM	MASKROM
	1-1	1-2	1-3	1-4	1-5	1-6
1	GND	GND	GND	GND	GND	GND
2	BATT DET	NC	NC	NC	NC	NC
3	Vcc	Vcc	Vcc	Vcc	Vcc	Vcc
4	$\overline{CE1}$	$\overline{CE}$	$\overline{CE}$	$\overline{CE}$	$\overline{CE}$	$\overline{CE}$
5	CE2	NC	NC	PGM	NC	NC
6	$\overline{WE}$	Vpp	NC	Vpp	WE	NC
7	$\overline{OE}$	$\overline{OE}$	$\overline{OE}$/Vpp	$\overline{OE}$	$\overline{OE}$	$\overline{OE}$
8	I/O_0	I/O_0	I/O_0	I/O_0	I/O_0	I/O_0
9	I/O_1	I/O_1	I/O_1	I/O_1	I/O_1	I/O_1
10	I/O_2	I/O_2	I/O_2	I/O_2	I/O_2	I/O_2
11	I/O_3	I/O_3	I/O_3	I/O_3	I/O_3	I/O_3
12	I/O_4	I/O_4	I/O_4	I/O_4	I/O_4	I/O_4
13	I/O_5	I/O_5	I/O_5	I/O_5	I/O_5	I/O_5
14	I/O_6	I/O_6	I/O_6	I/O_6	I/O_6	I/O_6
15	I/O_7	I/O_7	I/O_7	I/O_7	I/O_7	I/O_7
16	A_0	A_0	A_0	A_0	A_0	A_0
17	A_1	A_1	A_1	A_1	A_1	A_1
18	A_2	A_2	A_2	A_2	A_2	A_2
19	A_3	A_3	A_3	A_3	A_3	A_3
20	A_4	A_4	A_4	A_4	A_4	A_4
21	A_5	A_5	A_5	A_5	A_5	A_5
22	A_6	A_6	A_6	A_6	A_6	A_6
23	A_7	A_7	A_7	A_7	A_7	A_7
24	A_8	A_8	A_8	A_8	A_8	A_8
25	A_9	A_9	A_9	A_9	A_9	A_9
26	A_{10}	A_{10}	A_{10}	A_{10}	A_{10}	A_{10}
27	A_{11}	A_{11}	A_{11}	A_{11}	A_{11}	A_{11}
28	A_{12}	A_{12}	A_{12}	A_{12}	A_{12}	A_{12}
29	A_{13}	A_{13}	A_{13}	A_{13}	A_{13}	A_{13}
30	A_{14}	A_{14}	A_{14}	A_{14}	A_{14}	A_{14}
31	A_{15}	A_{15}	A_{15}	A_{15}	A_{15}	A_{15}
32	A_{16}	A_{16}	A_{16}	A_{16}	A_{16}	A_{16}
33	A_{17}	A_{17}	A_{17}	A_{17}	A_{17}	A_{17}
34	A_{18}	A_{18}	A_{18}	A_{16}	A_{18}	A_{18}
35	A_{19}	A_{19}	A_{19}	A_{19}	A_{19}	A_{19}
36	Vcc	Vcc	Vcc	Vcc	Vcc	Vcc
37	$\overline{CARD\ DET}$	$\overline{CARD\ DET}$	$\overline{CARD\ DET}$	$\overline{CARD\ DET}$	$\overline{CARD\ DET}$	$\overline{CARD\ DET}$
38	GND	GND	GND	GND	GND	GND

Either $\overline{OE}$ or $\overline{CE}$ will be selected for 128 kbytes of the masked ROM.