DALLAS
SEMICONDUCTOR

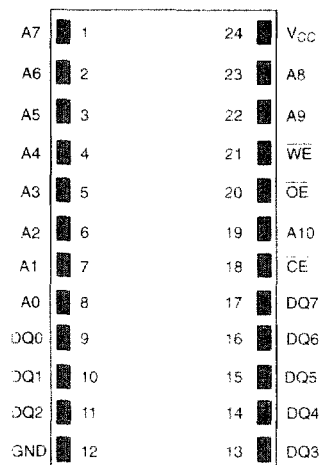# DS1220AB/AD
16K Nonvolatile SRAM

FEATURES

- 10 years minimum data retention in the absence of external power

- Data is automatically protected during power loss

- Directly replaces 2K x 8 volatile static RAM or EEPROM

- Unlimited write cycles

- Low–power CMOS

- JEDEC standard 24–pin DIP package

- Read and write access times as fast as 100 ns

- Lithium energy source is electrically disconnected to retain freshness until power is applied for the first time

- Full ±10% V_{CC} operating range (DS1220AD)

- Optional ±5% V_{CC} operating range (DS1220AB)

- Optional industrial temperature range of –40°C to +85°C, designated IND

PIN ASSIGNMENT

A7	1	24	V_{CC}
A6	2	23	A8
A5	3	22	A9
A4	4	21	$\overline{WE}$
A3	5	20	$\overline{OE}$
A2	6	19	A10
A1	7	18	$\overline{CE}$
A0	8	17	DQ7
DQ0	9	16	DQ6
DQ1	10	15	DQ5
DQ2	11	14	DQ4
GND	12	13	DQ3

24–PIN ENCAPSULATED PACKAGE
720 MIL EXTENDED

PIN DESCRIPTION

A0–A10	–	Address Inputs
DQ0–DQ7	–	Data In/Data Out
$\overline{CE}$	–	Chip Enable
$\overline{WE}$	–	Write Enable
$\overline{OE}$	–	Output Enable
V_{CC}	–	Power (+5V)
GND	–	Ground

DESCRIPTION

The DS1220AB and DS1220AD are 16,384–bit, fully static, nonvolatile SRAMs organized as 2048 words by 8 bits. Each NV SRAM has a self–contained lithium energy source and control circuitry which constantly monitors V_{CC} for an out–of–tolerance condition. When such a condition occurs, the lithium energy source is automatically switched on and write protection is unconditionally enabled to prevent data corruption. The NV SRAMs can be used in place of existing 2K x 8 SRAMs directly conforming to the popular bytewide 24–pin DIP standard. The devices also match the pinout of the 2716 EPROM and the 2816 EEPROM, allowing direct substitution while enhancing performance. There is no limit on the number of write cycles that can be executed and no additional support circuitry is required for microprocessor interfacing.