PRELIMINARY DATA

# H3500
## 64 x 4 CMOS Nonvolatile RAM

HUGHES AIRCRAFT COMPANY

**SEMICONDUCTOR DIVISION**
Industrial Electronics Group

## DESCRIPTION

Hughes 3500 is a CMOS Nonvolatile RAM organized as 64 x 4. The device consists of a conventional static CMOS RAM paralleled by a background Nonvolatile EEPROM array. This combination is useful for applications where the fast data access time and unlimited reprogramming capabilities of RAMs and the nonvolatile data storage of EEPROMs is required; for example, reconfigurable systems or fault protection (without battery back up).

Four modes of operation are provided: Read, Write, Store and Recall. Both Read and Write options are performed as in standard RAMs. A read is initiated by taking Chip Select ($\overline{CS}$) low or by a change of address while $\overline{CS}$ is low. A Write is initiated with $\overline{CS}$ low and pulsing the Write Enable ($\overline{WE}$) low.

Nonvolatile operations: A $\overline{Store}$ pulse transfers all of the data in the RAM cells, in parallel, to the background nonvolatile array. The $\overline{Recall}$ pulse restores this data from the nonvolatile array to the RAM cells.

All operations are performed at 5V supply voltage with TTL level data, address and control inputs.

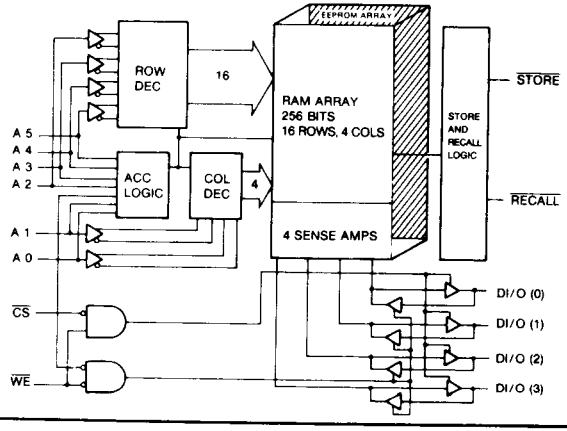
The 3500 is available in an 18 lead hermetic dual-in-line ceramic package (D suffix), plastic package (P suffix), or leadless chip carrier (L suffix).

## FEATURES



- Nonvolatile Data Storage
- 64 x 4 Bit Organization
- Single 5V operation in all modes
- Fast access/Cycle time
  - Access time — 300ns typical (from $\overline{CS}$)
  - Cycle time — 500ns typical
- Standard pinout — 18 pin package
- Nonvolatile store operation — 10ms
- Recall operation — 1 µs
- Wide temperature range
  - -55°C to + 125°C — Ceramic Package
  - -40°C to + 85°C — Plastic Package
- Very Low Current
  - Operational — 2ma typical
  - Standby — 100 µa typical

## FUNCTIONAL BLOCK DIAGRAM




## PIN CONFIGURATION