8316A 16,384 BIT STATIC MOS READ ONLY MEMORY

Organization—2048 Words x 8 Bits Access Time-850 ns max

- Single + 5 Volts Power Supply Voltage
- Directly TTL Compatible All Inputs and Outputs
- Low Power Dissipation of 31.4 µW/Bit Maximum
- Three Programmable Chip Select Inputs for Easy Memory Expansion
- Three-State Output OR-Tie Capability
- Fully Decoded On Chip Address Decode
- Inputs Protected All Inputs Have Protection Against Static Charge

The Intel^{8316A} is a 16,384-bit static MOS read only memory organized as 2048 words by 8 bits. This ROM is designed for microcomputer memory applications where high performance, large bit storage, and simple interfacing are important design objectives.

The inputs and outputs are fully TTL compatible. This device operates with a single +5V power supply. The three chip select inputs are programmable. Any combination of active high or low level chip select inputs can be defined and the desired chip select code is fixed during the masking process. These three programmable chip select inputs, as well as OR-tie compatibility on the outputs, facilitate easy memory expansion.

The 8316A read only memory is fabricated with N-channel silicon gate technology. This technology provides the designer with high performance, easy-to-use MOS circuits. Only a single +5V power supply is needed and all devices are directly TTL compatible.



| A0 A10 | ADDRESS INPUTS |
|---------|---------------------------------|
| 01.08 | DATA OUTPUTS |
| CS1 CS3 | PROGRAMMABLE CHIP SELECT INPUTS |

ABSOLUTE MAXIMUM RATINGS*

| Temperature Under Bias |) |
|-----------------------------------|---|
| Storage Temperature65°C to +150°C |) |
| Voltage on Any Pin | |
| With Respect to Ground | ļ |
| Power Dissipation 1.00 | I |

PROGRAMMING: The programming specifications are in the ROM and PROM Programming Instructions (see page 6-74).

*COMMENT: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

D.C. AND OPERATING CHARACTERISTICS T_A = 0°C to +70°C, V_{CC} = 5V ±5% unless otherwise specified

| | | | LIMITS | | | TEST CONDITIONS | | |
|-----------------|--|------|---------------------|-----------------------|------|-------------------------------------|--|--|
| SYMBOL | PARAMETER | MIN. | TYP. ⁽¹⁾ | MAX. | UNIT | | | |
| I _{LI} | Input Load Current (All Input Pins) | | 1 | 10 | μA | V _{IN} = 0 to 5.25V | | |
| LOH | Output Leakage Current | | | 10 | μΑ | CS = 2.2V, V _{OUT} = 4.0V | | |
| LOL | Output Leakage Current | | | -20 | μA | CS = 2.2V, V _{OUT} = 0.45V | | |
| Icc | Power Supply Current | | 40 | 98 | mA | All inputs 5.25V Data Out Open | | |
| VIL | Input "Low" Voltage | -0.5 | | 0.8 | V | | | |
| VIH | Input "High" Voltage | 2.0 | | V _{CC} +1.0V | V | | | |
| V _{OL} | Output "Low" Voltage | | | 0.45 | V | I _{OL} = 2.0 mA | | |
| V _{OH} | Output ''High'' Voltage | 2.2 | | | V | I _{OH} = -100 μA | | |

(1) Typical values for $T_A = 25^{\circ}C$ and nominal supply voltage.

TYPICAL D.C. CHARACTERISTICS











OUTPUT SOURCE CURRENT VS. OUTPUT VOLTAGE



| A.C. | CHARACTERISTICS | $T_A = 0^\circ C$ to $+70^\circ C$, | $V_{CC} = +5V$ | $\pm 5\%$ unless otherwise specified |
|------|-----------------|--------------------------------------|----------------|--------------------------------------|
|------|-----------------|--------------------------------------|----------------|--------------------------------------|

| SYMBOL | PARAMETER | MIN. | TYP. ⁽¹⁾ | MAX. | UNIT |
|----------------|---|-------|---------------------|------|------|
| t _A | Address to Output Delay Time | ,, ,, | 400 | 850 | nS |
| tco | Chip Select to Output Enable Delay Time | | | 300 | nS |
| tDF | Chip Deselect to Output Data Float Delay Time | 0 | | 300 | nS |

CONDITIONS OF TEST FOR A.C. CHARACTERISTICS

CAPACITANCE ⁽²⁾ $T_A = 25^{\circ}C, f = 1 \text{ MHz}$

| Input , | • | | • | | | • | • | | | • • | | | | | 1.5 | 5V | |
|---------|---|--|---|--|--|---|---|--|--|-----|----|----|---|----|-----|----|--|
| Output | | | | | | | | | | 0 | .4 | 5١ | V | to | 2.2 | 2V | |

| | | LIMITS | | | | | |
|------------------|---|--------|-------|--|--|--|--|
| SYMBOL | TEST | TYP. | MAX. | | | | |
| C _{IN} | All Pins Except Pin Under Test Tied to AC Ground | 4 pF | 10 pF | | | | |
| C _{OUT} | All Pins Except Pin Under Test Tied to AC Ground | 8 pF | 15 pF | | | | |

(2) This parameter is periodically sampled and is not 100% tested.





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