



PROM/ROM

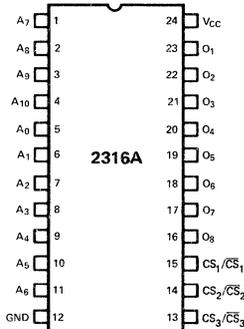
# 2316A/4316A/8316A\* 16K (2K x 8) ROM

- **Single +5 Volts Power Supply Voltage**
- **Guaranteed 850ns Access Time**
- **Directly TTL Compatible—All Inputs and Outputs**
- **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 2316A is a 16,384 bit static MOS read only memory organized as 2048 words by 8 bits. This ROM is designed for 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 by the designer and the desired chip select logic level is fixed during the masking process. These three programmable chip select inputs, as well as OR-tie compatibility on the outputs, facilitates easy memory expansion.

The 2316A 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.

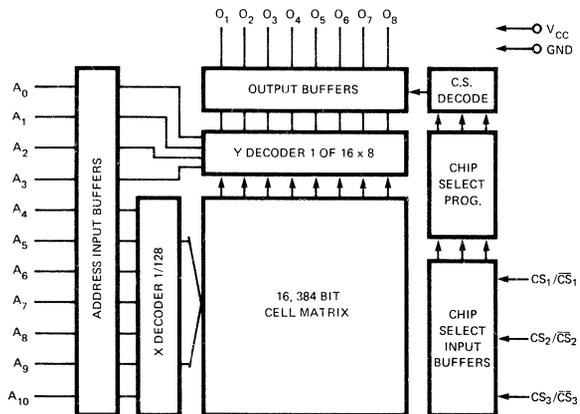
## PIN CONFIGURATION



## PIN NAMES

A <sub>0</sub> -A <sub>10</sub>	ADDRESS INPUTS
O <sub>1</sub> -O <sub>8</sub>	DATA OUTPUTS
CS <sub>1</sub> -CS <sub>3</sub>	PROGRAMMABLE CHIP SELECT INPUTS

## BLOCK DIAGRAM



\*All 4316A and 8316A specifications are identical to the 2316A specifications.

**ABSOLUTE MAXIMUM RATINGS\***

Ambient Temperature Under Bias . . . . .	-10°C to 80°C
Storage Temperature . . . . .	-65°C to +150°C
Voltage On Any Pin With Respect To Ground . . . . .	-0.5V to +7V
Power Dissipation . . . . .	1.0 Watt

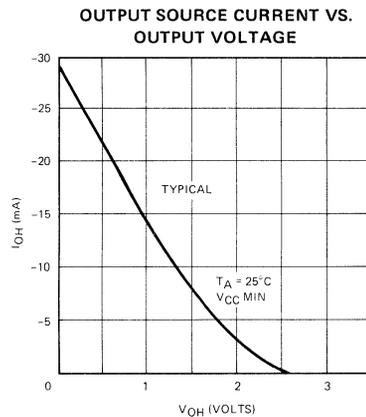
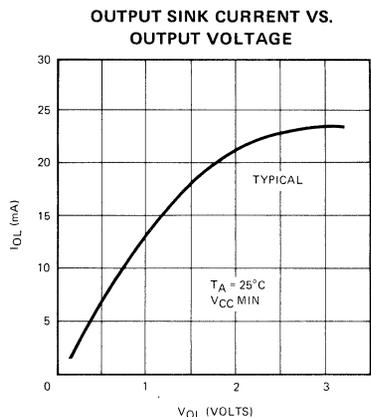
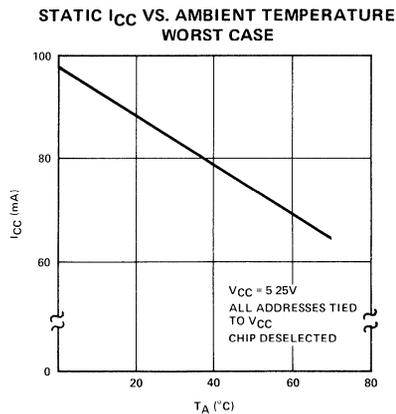
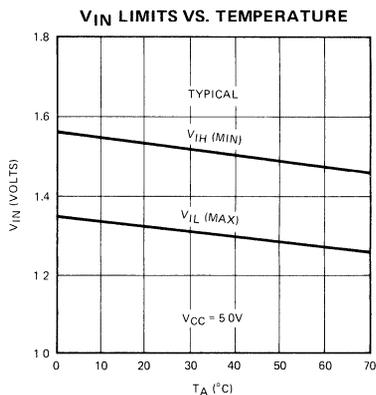
\*COMMENT: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.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

**D.C. AND OPERATING CHARACTERISTICS**  $T_A = 0^\circ\text{C}$  to  $+70^\circ\text{C}$ ,  $V_{CC} = 5\text{V} \pm 5\%$  unless otherwise specified

SYMBOL	PARAMETER	LIMITS			UNIT	TEST CONDITIONS
		MIN.	TYP. <sup>(1)</sup>	MAX.		
$I_{LI}$	Input Load Current (All Input Pins)		1	10	$\mu\text{A}$	$V_{IN} = 0$ to $5.25\text{V}$
$I_{LOH}$	Output Leakage Current			10	$\mu\text{A}$	$CS = 2.2\text{V}$ , $V_{OUT} = 4.0\text{V}$
$I_{LOL}$	Output Leakage Current			-20	$\mu\text{A}$	$CS = 2.2\text{V}$ , $V_{OUT} = 0.45\text{V}$
$I_{CC}$	Power Supply Current		40	98	$\text{mA}$	All inputs $5.25\text{V}$ Data Out Open
$V_{IL}$	Input "Low" Voltage	-0.5		0.8	V	
$V_{IH}$	Input "High" Voltage	2.0		$V_{CC} + 1.0\text{V}$	V	
$V_{OL}$	Output "Low" Voltage			0.45	V	$I_{OL} = 2.0\text{ mA}$
$V_{OH}$	Output "High" Voltage	2.2			V	$I_{OH} = -100\ \mu\text{A}$

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

**TYPICAL D.C. CHARACTERISTICS**



PROM/ROM

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

SYMBOL	PARAMETER	LIMITS			UNIT
		MIN.	TYP. <sup>(1)</sup>	MAX.	
$t_A$	Address to Output Delay Time		400	850	nS
$t_{CO}$	Chip Select to Output Enable Delay Time			300	nS
$t_{DF}$	Chip Deselect to Output Data Float Delay Time	0		300	nS

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**CONDITIONS OF TEST FOR A.C. CHARACTERISTICS**

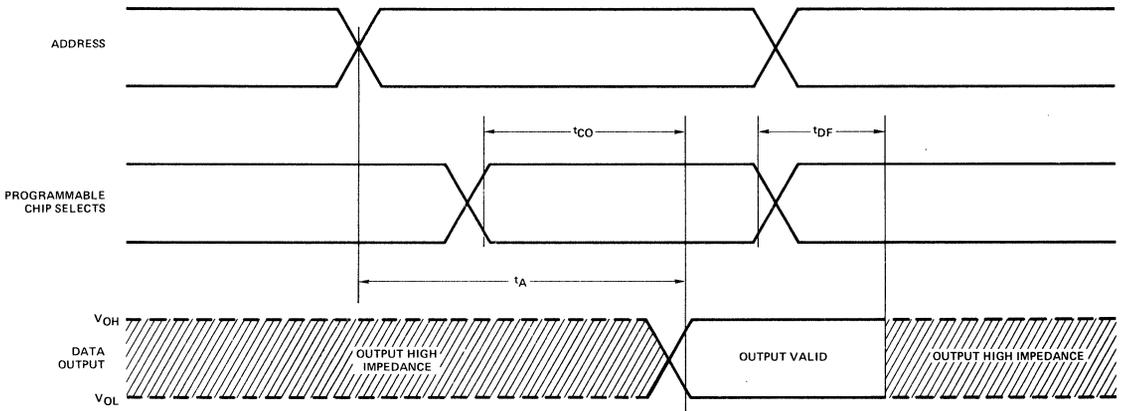
Output Load . . . 1 TTL Gate, and  $C_{LOAD} = 100\text{ pF}$   
 Input Pulse Levels . . . . . 0.8 to 2.0V  
 Input Pulse Rise and Fall Times . (10% to 90%) 20 nS  
 Timing Measurement Reference Level  
 Input . . . . . 1.5V  
 Output . . . . . 0.45V to 2.2V

**CAPACITANCE<sup>(2)</sup>  $T_A = 25^\circ\text{C}$ ,  $f = 1\text{ MHz}$**

SYMBOL	TEST	LIMITS	
		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

**A.C. Waveforms**

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



**Typical A.C. Characteristics**

