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Memory Products	

82S147 / 82S147A

4K-bit TTL bipolar PROM

DESCRIPTION

The 82S147 and 82S147A are field-programmable, which means that custom patterns are immediately available by following the Signetics Generic I fusing procedure. The standard devices are supplied with all outputs at logical Low. Outputs are programmed to a logic High level at any specified address by fusing the Ni-Cr link matrix.

The 82S147 and 82S147A include on-chip decoding and one Chip Enable input for ease of memory expansion, and feature 3-State outputs for optimization of word expansion in bused organizations.

Ordering information can be found on the following page.

The 82S147 and 82S147A devices are also processed to military requirements for operation over the military temperature range. For specifications and ordering information consult the Signetics Military Data Handbook.

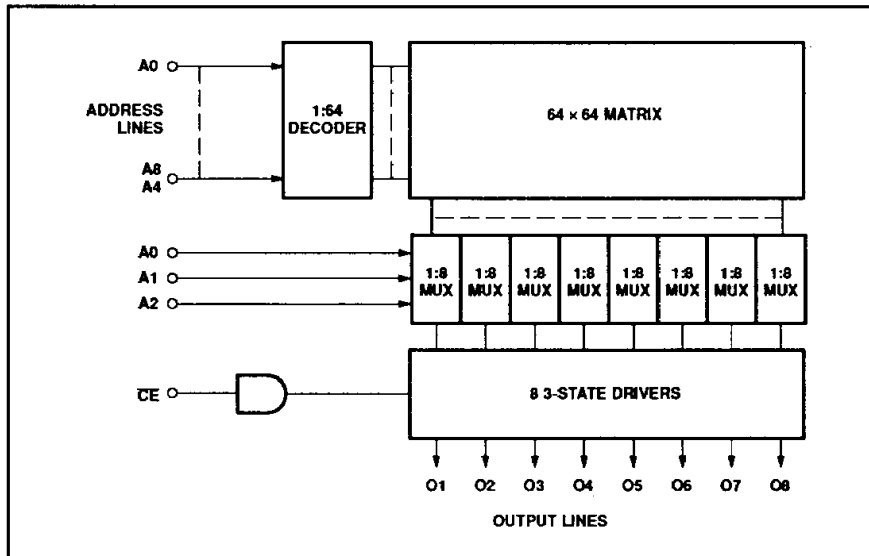
FEATURES

- Address access time:
 - N82S147: 60ns max
 - N82S147A: 45ns max
- Power dissipation: 625mW/bit typ
- Input loading: -100µA max
- One Chip Enable input
- On-chip address decoding
- No separate fusing pins
- Fully TTL compatible
- Outputs: 3-State
- Unprogrammed outputs are Low level

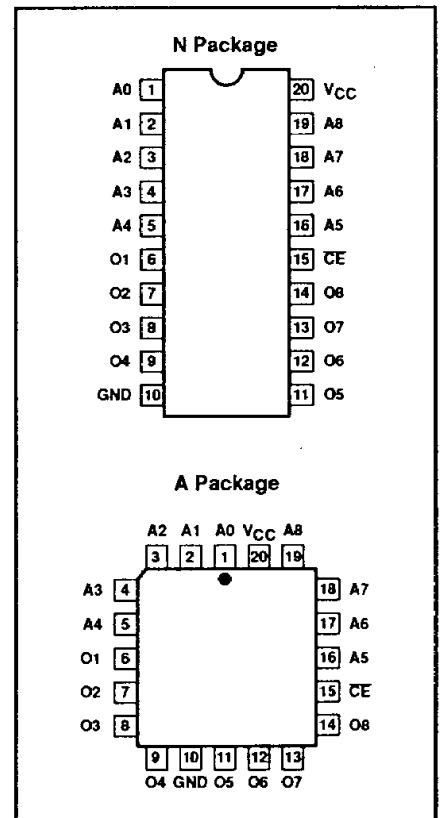
APPLICATIONS

- Prototyping/volume production
- Sequential controllers
- Microprogramming
- Hardwired algorithms
- Control store
- Random logic
- Code conversion

BLOCK DIAGRAM



PIN CONFIGURATIONS



4K-bit TTL bipolar PROM (512 × 8)**82S147 / 82S147A****ORDERING INFORMATION**

DESCRIPTION	ORDER CODE
20-Pin Plastic Dual-In-Line 300mil-wide	N82S147 N, N82S147A N
20-Pin Plastic Leaded Chip Carrier 350mil-square	N82S147 A, N82S147A A

ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V_{CC}	Supply voltage	+7.0	V_{DC}
V_{IN}	Input voltage	+5.5	V_{DC}
V_O	Output voltage Off-State	+5.5	V_{DC}
T_{amb}	Operating temperature range	0 to +75	°C
T_{stg}	Storage temperature range	-65 to +150	°C

DC ELECTRICAL CHARACTERISTICS0°C ≤ T_{amb} ≤ +75°C, 4.75V ≤ V_{CC} ≤ 5.25V

SYMBOL	PARAMETER	TEST CONDITIONS ^{1,2}	LIMITS			UNIT
			Min	Typ ³	Max	
Input voltage						
V_{IL}	Low	$I_{IN} = -12mA$	2.0		0.8	V
V_{IH}	High					
V_{IC}	Clamp					
Output voltage						
V_{OL}	Low	$\overline{CE} = \text{Low}$ $I_{OUT} = 9.6mA$ $I_{OUT} = -2mA$	2.4		0.45	V
V_{OH}	High					
Input current						
I_{IL}	Low	$V_{IN} = 0.45V$ $V_{IN} = 5.5V$			-100	μA
I_{IH}	High					
Output current						
I_{OZ}	Hi-Z state	$\overline{CE} = \text{High}, V_{OUT} = 5.5V$ $\overline{CE} = \text{High}, V_{OUT} = 0.5V$ $\overline{CE} = \text{Low}, V_{OUT} = 0V$	-15		40	μA
I_{OS}	Short circuit ⁴					
Supply current⁵						
I_{CC}		$V_{CC} = 5.25V$		125	155	mA
Capacitance						
C_{IN}	Input	$\overline{CE} = \text{High}, V_{CC} = 5.0V$ $V_{IN} = 2.0V$ $V_{OUT} = 2.0V$			5	pF
C_{OUT}	Output					

NOTES:

- All voltages with respect to network ground.
- Positive current is defined as into the terminal referenced.
- Typical values are at $V_{CC} = 5V$, $T_{amb} = +25^\circ C$.
- Duration of the short circuit should not exceed 1 second.
- Measured with all inputs grounded and all outputs open.

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82S147 / 82S147A

AC ELECTRICAL CHARACTERISTICS

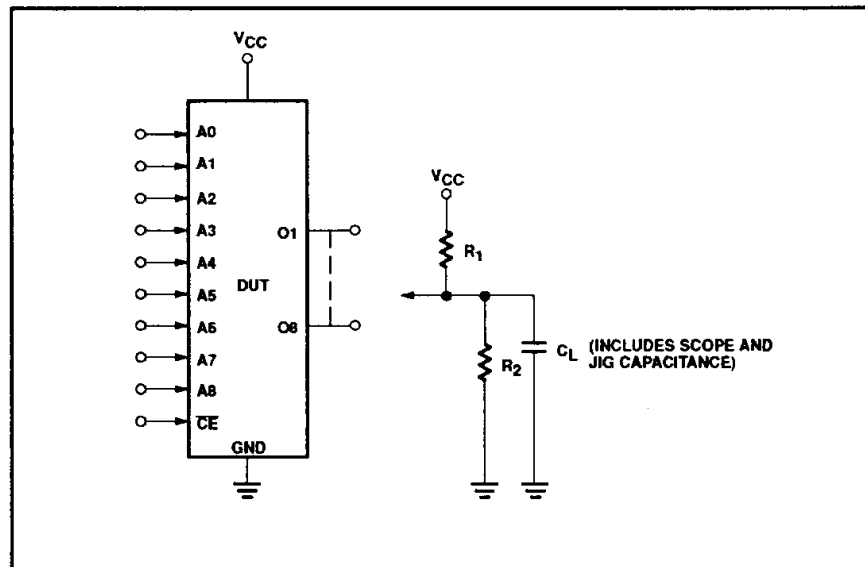
$R_1 = 270\Omega$, $R_2 = 600\Omega$, $C_L = 30\text{pF}$, $0^\circ\text{C} \leq T_{\text{amb}} \leq +75^\circ\text{C}$, $4.75\text{V} \leq V_{\text{CC}} \leq 5.25\text{V}$

SYMBOL	PARAMETER	TO	FROM	N82S147			N82S147A			UNIT
				Min	Typ ¹	Max	Min	Typ ¹	Max	
Access time²										
t_{AA}		Output	Address		45	60		40	45	ns
t_{CE}		Output	Chip Enable		20	35		20	30	ns
Disable time³										
t_{CD}		Output	Chip Disable		20	35		20	30	ns

NOTES:

1. Typical values are at $V_{\text{CC}} = 5\text{V}$, $T_{\text{amb}} = +25^\circ\text{C}$.
2. Tested at an address cycle time of $1\mu\text{s}$.
3. Measured at a delta of 0.5V from Logic Level with $R_1 = 750\Omega$, $R_2 = 750\Omega$, $C_L = 5\text{pF}$.

TEST LOAD CIRCUIT



VOLTAGE WAVEFORMS

