Philips Components-Signetics

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Status	Product Specification
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 locical 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.

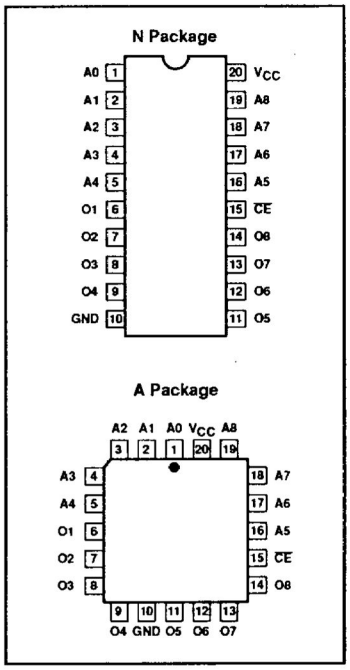
FEATURES

- 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

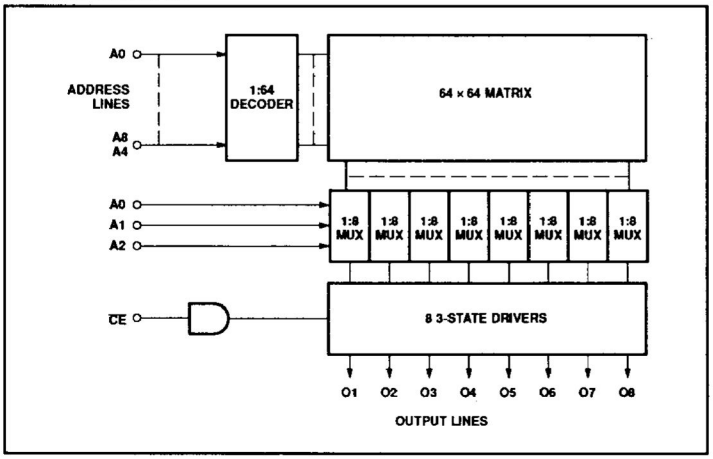
APPLICATIONS

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

PIN CONFIGURATIONS



BLOCK DIAGRAM



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 CHARACTERISTICS

$0°C \leq T_{amb} \leq +75°C$, $4.75V \leq V_{CC} \leq 5.25V$

SYMBOL	PARAMETER	TEST CONDITIONS[1,2]	LIMITS Min	LIMITS Typ[3]	LIMITS Max	UNIT
Input voltage						
V_{IL}	Low				0.8	V
V_{IH}	High		2.0			V
V_{IC}	Clamp	I_{IN} = -12mA		-0.8	-1.2	V
Output voltage						
		$\overline{CE}$ = Low				
V_{OL}	Low	I_{OUT} = 9.6mA			0.45	V
V_{OH}	High	I_{OUT} = -2mA	2.4			V
Input current						
I_{IL}	Low	V_{IN} = 0.45V			-100	µA
I_{IH}	High	V_{IN} = 5.5V			40	µA
Output current						
I_{OZ}	Hi-Z state	$\overline{CE}$ = High, V_{OUT} = 5.5V			40	µA
		$\overline{CE}$ = High, V_{OUT} = 0.5V			-40	µA
I_{OS}	Short circuit[4]	$\overline{CE}$ = Low, V_{OUT} = 0V	-15		-70	mA
Supply current[5]						
I_{CC}		V_{CC} = 5.25V		125	155	mA
Capacitance						
		$\overline{CE}$ = High, V_{CC} = 5.0V				
C_{IN}	Input	V_{IN} = 2.0V		5		pF
C_{OUT}	Output	V_{OUT} = 2.0V		8		pF

NOTES:

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

AC ELECTRICAL CHARACTERISTICS

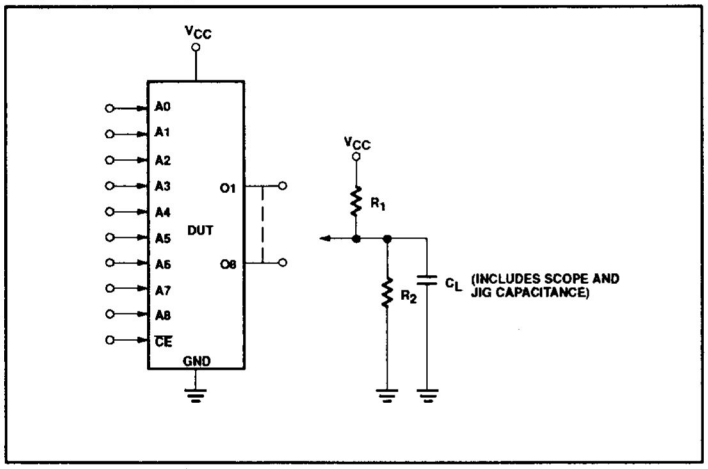
$R_1 = 270\Omega$, $R_2 = 600\Omega$, $C_L = 30pF$, $0°C \leq T_{amb} \leq +75°C$, $4.75V \leq V_{CC} \leq 5.25V$

SYMBOL	PARAMETER	TO	FROM	N82S147			N82S147A			UNIT
				Min	Typ[1]	Max	Min	Typ[1]	Max	
Access time[2]										
t_{AA}		Output	Address		45	60		40	45	ns
t_{CE}		Output	Chip Enable		20	35		20	30	ns
Disable time[3]										
t_{CD}		Output	Chip Disable		20	35		20	30	ns

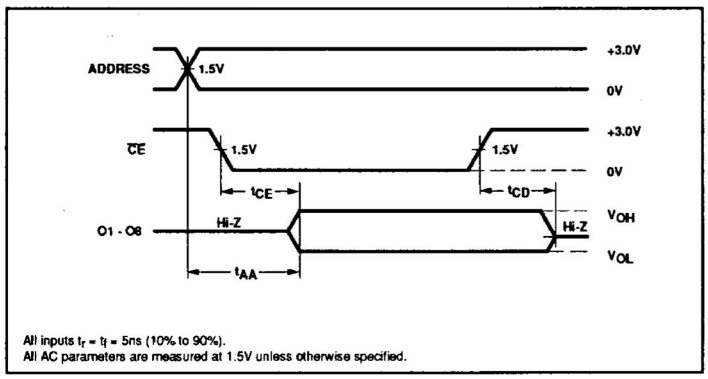
NOTES:

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

TEST LOAD CIRCUIT



VOLTAGE WAVEFORMS



All inputs $t_r = t_f = 5ns$ (10% to 90%).
All AC parameters are measured at 1.5V unless otherwise specified.