Philips Components-Signetics

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Status	Product Specification
Memory Products	

82S137A
82S137B
4K-bit TTL bipolar PROM

DESCRIPTION

The 82S137A and 82S137B are field programmable, which means that custom patterns are immediately available by following the Signetics Generic I fusing procedure. The 82S137A and 82S137B 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.

These devices include on-chip decoding and 2 Chip Enable inputs for ease of memory expansion. They feature 3-State outputs for optimization of word expansion in bused organizations.

Ordering information can be found on the following page.

The 82S137A 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

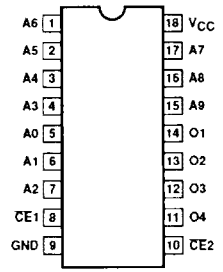
- Address access time:
  - N82S137A: 45ns max
  - N82S187B: 35ns max
- Power dissipation: 0.13mW/bit typ
- Input loading: -100μA max
- On-chip address decoding
- No separate fusing pins
- Unprogrammed outputs are Low level
- Fully TTL compatible
- Two Chip Enable inputs
- Outputs: 3-State

APPLICATIONS

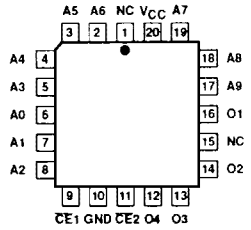
- Control store
- Sequential controllers
- Random logic
- Code conversion

PIN CONFIGURATIONS

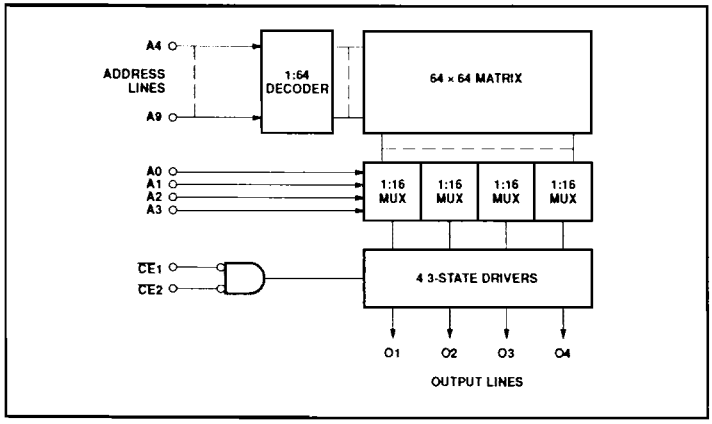
N Package



A Package



BLOCK DIAGRAM



4K-bit TTL bipolar PROM (1024 × 4) — 82S137A / 82S137B

ORDERING INFORMATION

DESCRIPTION	ORDER CODE
18-Pin Plastic Dual-In-Line 300mil-wide	N82S137A N, N82S137B N
20-Pin Plastic Leaded Chip Carrier 350mil-square	N82S137A A, N82S137B 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						
		$\overline{CE}1,2$ = Low				
V_{OL}	Low	I_{OUT} = 16mA			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	$\overline{CE}1,2$ = High, V_{OUT} = 0.5V			40	µA
		$\overline{CE}1,2$ = High, V_{OUT} = 5.5V			-40	µA
I_{OS}	Short circuit[3]	$\overline{CE}1,2$ = Low, V_{OUT} = 0V, High stored	-15		-70	mA
Supply current[4]						
I_{CC}		V_{CC} = 5.25V		85	140	mA
Capacitance						
		$\overline{CE}1,2$ = 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. Positive current is defined as into the terminal referenced.
2. All voltages with respect to network ground.
3. Typical values are at V_{CC} = 5V, T_{amb} = +25°C.
4. Measured with all inputs grounded and all outputs open.

4K-bit TTL bipolar PROM (1024 × 4) — 82S137A / 82S137B

AC ELECTRICAL CHARACTERISTICS

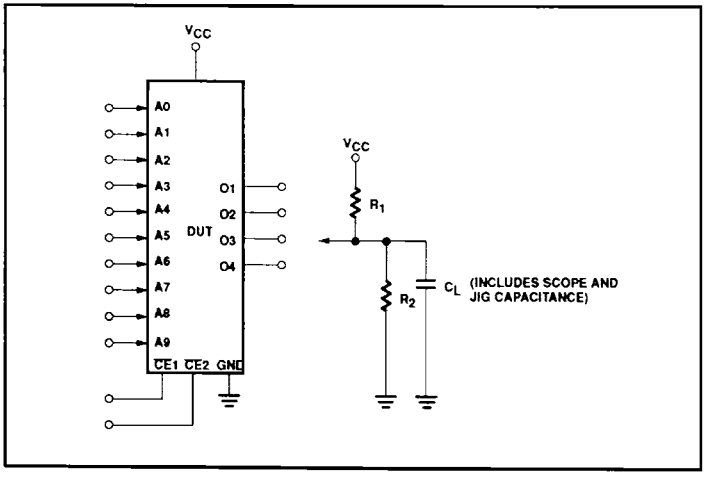
$R_1 = 270\Omega$, $R_2 = 600\Omega$, $C_L = 30pF$, $0°C \leq T_{amb} \leq +75°C$, $4.75V \leq V_{CC} \leq 5.25V$

SYMBOL	PARAMETER	TO	FROM	N82S137A			N82S137B			UNIT
				Min	Typ[1]	Max	Min	Typ[1]	Max	
Access time[2]										
t_{AA}		Output	Address		35	45		30	35	ns
t_{CE}		Output	Chip Enable		20	30		15	25	ns
Disable time[3]										
t_{CD}		Output	Chip Disable		20	30		15	25	ns

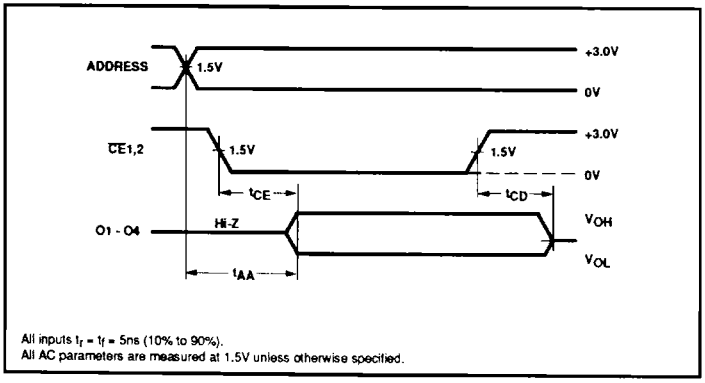
NOTES:

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 $R_1 = 750\Omega$, $R_2 = 750\Omega$, $C_L = 5pF$.
4. Duration of short circuit should not exceed 1 second.

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.