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Memory Products	

82S135

2K-bit TTL bipolar PROM

DESCRIPTION

The 82S135 is 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 82S135 includes on-chip decoding and two Chip Enable inputs for ease of memory expansion, and features 3-State outputs for optimization of word expansion in bused organizations.

Ordering information can be found on the following page.

The 82S135 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.

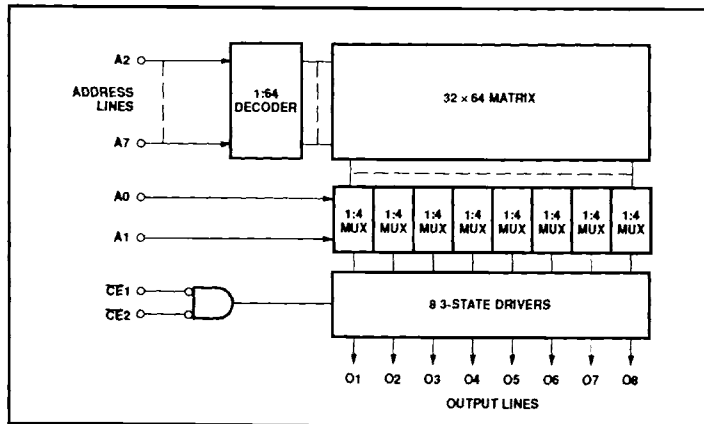
FEATURES

- Address access time: 45ns max
- Power dissipation: 329 μ W/bit typ
- Input loading: \sim 100 μ A max
- Two Chip Enable inputs
- On-chip address decoding
- No separate fusing pins
- Fully TTL compatible
- Outputs: 3-State
- Unprogrammed outputs are Low level

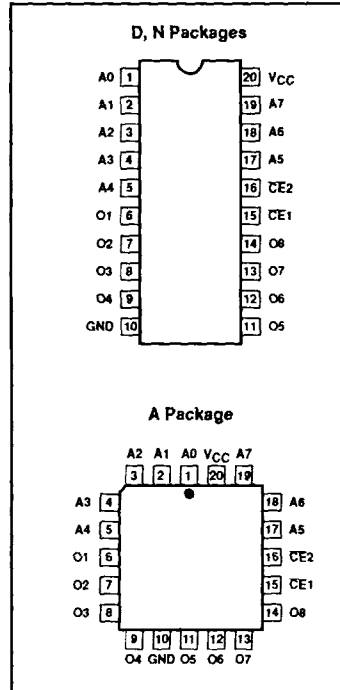
APPLICATIONS

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

BLOCK DIAGRAM



PIN CONFIGURATIONS



2K-bit TTL bipolar PROM (256 × 8)**82S135****ORDERING INFORMATION**

DESCRIPTION	ORDER CODE
20-Pin Plastic Dual-In-Line 300mil-wide	N82S135 N
20-Pin Plastic Small Outline 300mil-wide	N82S135 D
20-Pin Plastic Leaded Chip Carrier 350mil-square	N82S135 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 $0^{\circ}\text{C} \leq T_{amb} \leq +75^{\circ}\text{C}$, $4.75\text{V} \leq V_{CC} \leq 5.25\text{V}$

SYMBOL	PARAMETER	TEST CONDITIONS ^{1,2}	LIMITS			UNIT
			Min	Typ ³	Max	
Input voltage						
V_{IL}	Low	$V_{CC} = 4.75\text{V}$	2.0		0.8	V
V_{IH}	High	$V_{CC} = 5.25\text{V}$			V	
V_{IC}	Clamp	$I_{IN} = -12\text{mA}$			-1.2	V
Output voltage						
V_{OL}	Low	$I_{OUT} = 9.6\text{mA}$	2.4		0.5	V
V_{OH}	High	$CE1, CE2 = \text{Low}, I_{OUT} = -2\text{mA}, \text{High stored}$			V	
Input current						
I_{IL}	Low	$V_{IN} = 0.45\text{V}$			-100	μA
I_{IH}	High	$V_{IN} = 5.5\text{V}$			40	μA
Output current						
I_{OZ}	Hi-Z state	$CE1, CE2 = \text{High}, V_{OUT} = 0.5\text{V}$	-15		-40	μA
I_{OS}	Short circuit ⁴	$CE1, CE2 = \text{High}, V_{OUT} = 5.5\text{V}$			40	μA
		$CE1, CE2 = \text{Low}, V_{OUT} = 0\text{V}, \text{High stored}$			-75	mA
Supply current⁵						
I_{CC}		$V_{CC} = 5.25\text{V}$		135	150	mA
Capacitance						
C_{IN}	Input	$V_{CC} = 5.0\text{V}, CE = \text{High}$			5	pF
C_{OUT}	Output	$V_{IN} = 2.0\text{V}$ $V_{OUT} = 2.0\text{V}$			8	pF

NOTES:

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

2K-bit TTL bipolar PROM (256 × 8)

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AC ELECTRICAL CHARACTERISTICS

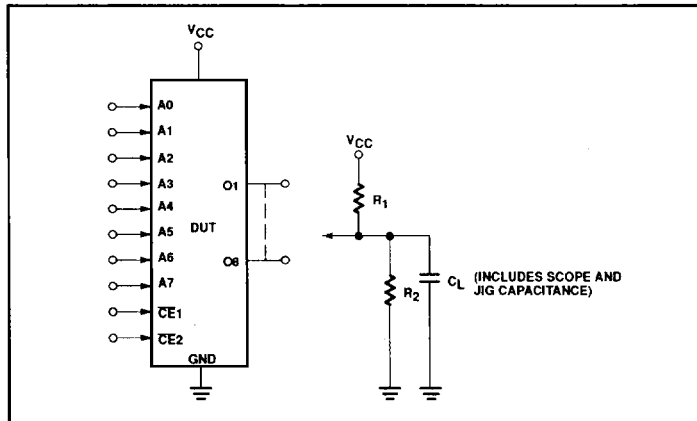
$R_1 = 470\Omega$, $R_2 = 1k\Omega$, $C_L = 30pF$, $0^\circ C \leq T_{amb} \leq +75^\circ C$, $4.75V \leq V_{CC} \leq 5.25V$

SYMBOL	PARAMETER	TO	FROM	LIMITS			UNIT
				Min	Typ ¹	Max	
Access time²							
t_{AA}		Output	Address		40	45	ns
t_{CE}		Output	Chip Enable		20	25	ns
Disable time³							
t_{CD}		Output	Chip Disable		20	25	ns

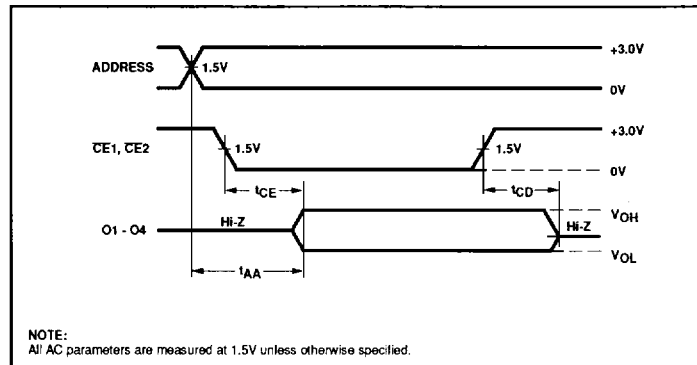
NOTES:

1. Typical values are at $V_{CC} = 5V$, $T_{amb} = +25^\circ C$.
2. Tested at an address cycle time of $1\mu s$.
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



NOTE:
All AC parameters are measured at 1.5V unless otherwise specified.