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Memory Products	

# 82S181 / 82S181A

## 8K-bit TTL bipolar PROM

### DESCRIPTION

The 82S181 and 82S181A are field programmable, which means that custom patterns are immediately available by following the Signetics Generic I fusing procedure. The 82S181 and 82S181A 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.

This device includes on-chip decoding and four Chip Enable inputs for ease of memory expansion. It features 3-State outputs for optimization of word expansion in bused organizations.

Ordering information can be found on the following page.

The 82S181 and 82S181A 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.

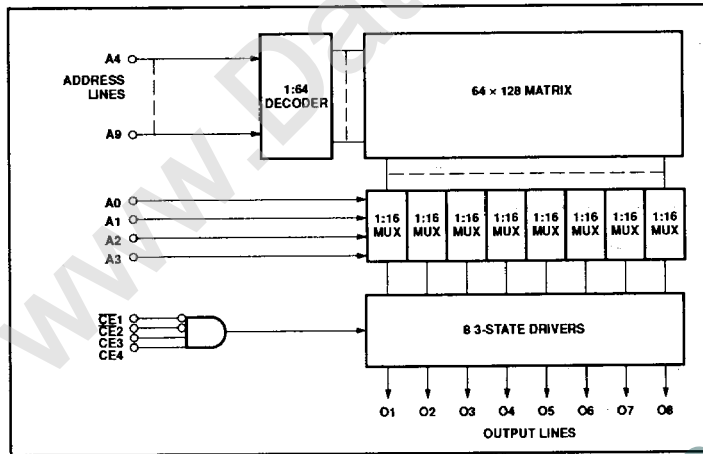
### FEATURES

- Address access time:
  - N82S181: 70ns max
  - N82S181A: 55ns max
- Power dissipation: 76 $\mu$ W/bit typ
- Input loading: -100 $\mu$ A max
- On-chip address decoding
- Four Chip Enable inputs
- Outputs: 3-State
- No separate fusing pins
- Unprogrammed outputs are Low level
- Fully TTL compatible

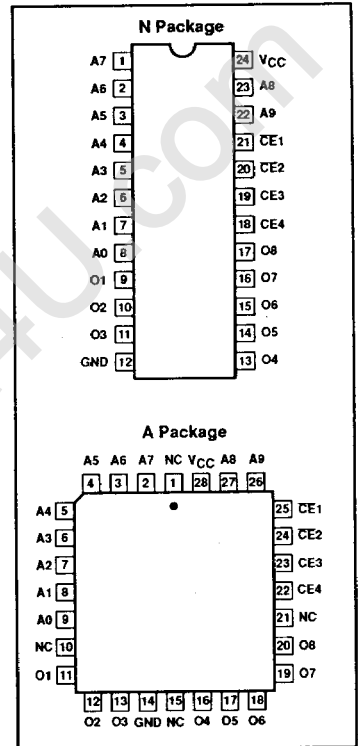
### APPLICATIONS

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

### BLOCK DIAGRAM



### PIN CONFIGURATIONS



**8K-bit TTL bipolar PROM (1024 × 8)****82S181 / 82S181A****ORDERING INFORMATION**

DESCRIPTION	ORDER CODE
24-Pin Plastic Dual-In-Line 600mil-wide	N82S181 N, N82S181A N
28-Pin Plastic Leaded Chip Carrier 450mil-square	N82S181 A, N82S181A A

**ABSOLUTE MAXIMUM RATINGS**

SYMBOL	PARAMETER	RATING	UNIT
V <sub>CC</sub>	Supply voltage	+7.0	V <sub>DC</sub>
V <sub>IN</sub>	Input voltage	+5.5	V <sub>DC</sub>
V <sub>O</sub>	Output voltage Off-State	+5.5	V <sub>DC</sub>
T <sub>amb</sub>	Operating temperature range	0 to +75	°C
T <sub>stg</sub>	Storage temperature range	-65 to +150	°C

**DC ELECTRICAL CHARACTERISTICS**0°C ≤ T<sub>amb</sub> ≤ +75°C, 4.75V ≤ V<sub>CC</sub> ≤ 5.25V

SYMBOL	PARAMETER	TEST CONDITIONS <sup>1,2</sup>	LIMITS			UNIT
			Min	Typ <sup>3</sup>	Max	
<b>Input voltage<sup>2</sup></b>						
V <sub>IL</sub>	Low	I <sub>IN</sub> = -12mA	2.0	-0.8	0.8	V
V <sub>IH</sub>	High				V	
V <sub>IC</sub>	Clamp				-1.2	V
<b>Output voltage<sup>2</sup></b>						
V <sub>OL</sub>	Low	CE1,2 = Low, CE3,4 = High I <sub>OUT</sub> = 9.6mA	2.4		0.45	V
V <sub>OH</sub>	High	I <sub>OUT</sub> = -2.0mA			V	
<b>Input current<sup>1</sup></b>						
I <sub>IL</sub>	Low	V <sub>IN</sub> = 0.45V			-100	μA
I <sub>IH</sub>	High	V <sub>IN</sub> = 5.5V			40	μA
<b>Output current<sup>1</sup></b>						
I <sub>OZ</sub>	Hi-Z state	CE1,2 = High, CE3,4 = Low, V <sub>OUT</sub> = 5.5V CE1,2 = High, CE3,4 = Low, V <sub>OUT</sub> = 0.5V	-15		40	μA
I <sub>OS</sub>	Short circuit <sup>4</sup>	CE1,2 = Low, CE3,4 = High, V <sub>OUT</sub> = 0V			-40	μA
		High stored			-70	mA
<b>Supply current<sup>5</sup></b>						
I <sub>CC</sub>		V <sub>CC</sub> = 5.25V		125	175	mA
<b>Capacitance</b>						
C <sub>IN</sub>	Input	CE1,2 = High, V <sub>CC</sub> = 5.0V V <sub>IN</sub> = 2.0V		5		pF
C <sub>OUT</sub>	Output	V <sub>OUT</sub> = 2.0V		8		pF

**NOTES:**

- Positive current is defined as into the terminal referenced.
- All voltages with respect to network ground.
- Typical values are at V<sub>CC</sub> = 5V, T<sub>amb</sub> = +25°C.
- Duration of the short circuit should not exceed 1 second.
- Measured with all inputs grounded and all outputs open.

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## AC ELECTRICAL CHARACTERISTICS

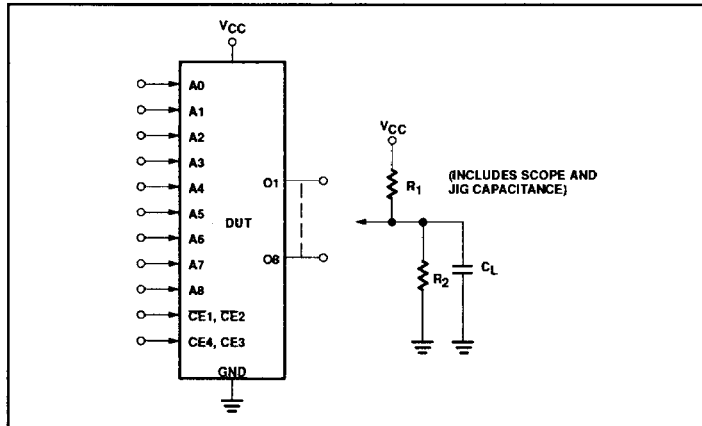
$R_1 = 470\Omega$ ,  $R_2 = 1k\Omega$ ,  $C_L = 30pF$ ,  $0^\circ C \leq T_{amb} \leq +75^\circ C$ ,  $4.75V \leq V_{CC} \leq 5.25V$

SYMBOL	PARAMETER	TO	FROM	N82S181			N82S181A			UNIT
				Min	Typ <sup>1</sup>	Max	Min	Typ <sup>1</sup>	Max	
<b>Access time<sup>2</sup></b>										
$t_{AA}$		Output	Address		50	70		45	55	ns
$t_{CE}$		Output	Chip Enable		25	40		25	40	ns
<b>Disable time<sup>3</sup></b>										
$t_{CD}$		Output	Chip Disable		25	40		25	40	ns

**NOTES:**

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

## TEST LOAD CIRCUIT



## VOLTAGE WAVEFORM

