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Memory Products	

# 82HS321C

## 32K-bit TTL bipolar PROM

### DESCRIPTION

The 82HS321C is field-programmable, which means that custom patterns are immediately available by following the Signetics Generic II fusing procedure. The 82HS321C is supplied with all outputs at logical High. Outputs are programmed to a logic Low level at any specified address by fusing a programmable matrix.

This device includes on-chip decoding and 2 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.

This device is also processed to military requirements for operation over the military temperature range. For specifications and ordering information consult the Signetics Military Data Handbook.

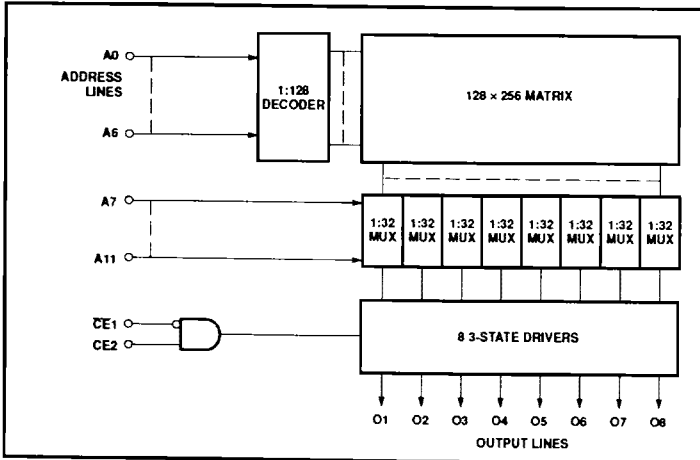
### FEATURES

- Address access time: 25ns max
- Power dissipation: 20µW/bit typ
- Input loading: -250µA max
- Two Chip Enable inputs
- On-chip address decoding
- No separate fusing pins
- Unprogrammed outputs are High level
- 300mil-wide plastic DIP
- Fully TTL compatible
- Outputs: 3-State

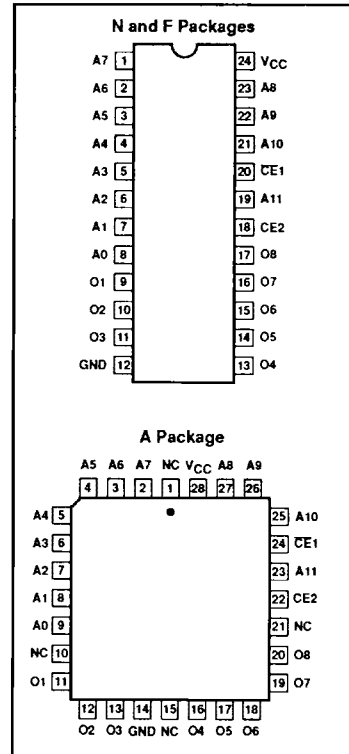
### APPLICATIONS

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

### BLOCK DIAGRAM



### PIN CONFIGURATIONS



**32K-bit TTL bipolar PROM (4096 × 8)****82HS321C****ORDERING INFORMATION**

DESCRIPTION	ORDER CODE
24-Pin Plastic Dual-In-Line 600mil-wide	N82HS321C N
24-Pin Plastic Dual-In-Line 300mil-wide	N82HS321C N3
24-Pin Ceramic Dual-In-Line 600mil-wide	N82HS321C F
28-Pin Plastic Leaded Chip Carrier 450mil-square	N82HS321C 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 ≤  $T_{amb}$  ≤ +75°C, 4.75V ≤  $V_{CC}$  ≤ 5.25V

SYMBOL	PARAMETER	TEST CONDITIONS <sup>1,2</sup>	LIMITS			UNIT
			Min	Typ <sup>3</sup>	Max	
<b>Input voltage</b>						
$V_{IL}$	Low <sup>4</sup>	$I_N = -18mA$	2.0		0.8	V
$V_{IH}$	High <sup>4</sup>				-1.2	V
$V_{IC}$	Clamp					V
<b>Output voltage</b>						
$V_{OL}$	Low	$CE1 = \text{Low}, CE2 = \text{High}$ $I_{OUT} = 16mA$	2.4		0.5	V
$V_{OH}$	High				$I_{OUT} = -2.0mA$	V
<b>Input current</b>						
$I_{IL}$	Low	$V_{IN} = 0.45V$			-250	μA
$I_{IH}$	High	$V_{IN} = 5.25V$			40	μA
<b>Output current</b>						
$I_{OZ}$	Hi-Z state	$CE1 = \text{High}, CE2 = \text{Low}, V_{OUT} = 0.5V$			-40	μA
$I_{OS}$	Short circuit <sup>5</sup>	$CE1 = \text{High}, CE2 = \text{Low}, V_{OUT} = 5.25V$	-15		40	μA
		$CE1 = \text{Low}, CE2 = \text{High}, V_{OUT} = 0V$			-70	mA
<b>Supply current<sup>6</sup></b>						
$I_{CC}$		$V_{CC} = 5.25V$		130	175	mA
<b>Capacitance</b>						
$C_{IN}$	Input	$CE1 = \text{High}, CE2 = \text{Low}, V_{CC} = 5.0V$ $V_{IN} = 2.0V$		5		pF
$C_{OUT}$	Output		$V_{OUT} = 2.0V$		8	

**NOTES:**

- Positive current is defined as into the terminal referenced.
- All voltages are with respect to network ground.
- Typical values are at  $V_{CC} = 5V$ ,  $T_{amb} = +25°C$ .
- Measured with one output switching from a Logic "1" to a Logic "0".
- 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

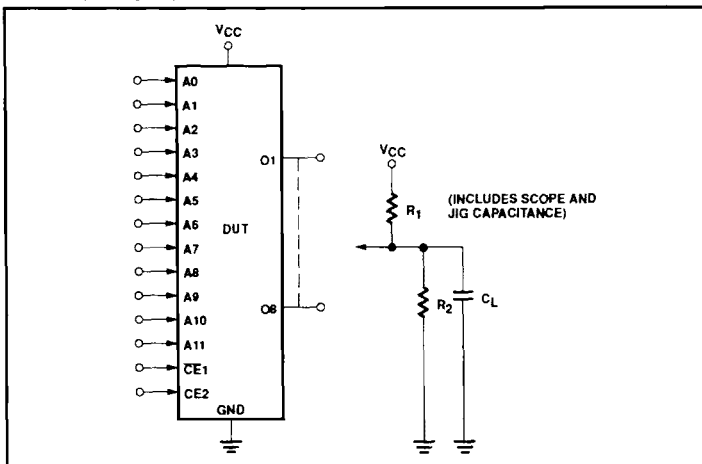
$R_1 = 270\Omega$ ,  $R_2 = 600\Omega$ ,  $C_L = 30\text{pF}$ ,  $0^\circ\text{C} \leq T_{\text{amb}} \leq +75^\circ\text{C}$ ,  $4.75\text{V} \leq V_{\text{CC}} \leq 5.25\text{V}$

SYMBOL	PARAMETER	TO	FROM	LIMITS			UNIT
				Min	Typ <sup>1</sup>	Max	
<b>Access time<sup>2</sup></b>							
$t_{\text{AA}}$		Output	Address		20	25	ns
$t_{\text{CE}}$		Output	Chip Enable		10	15	ns
<b>Disable time<sup>3</sup></b>							
$t_{\text{CD}}$		Output	Chip Disable		10	15	ns

### NOTES:

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

## TEST LOAD CIRCUIT



## VOLTAGE WAVEFORM

