Philips Components-Signetics

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Status	Product Specification
Memory Products	

82HS641
82HS641A
82HS641B
64K-bit TTL bipolar PROM

DESCRIPTION

The 82HS641, 82HS641A and 82HS641B are field-programmable, which means that custom patterns are immediately available by following the Signetics Generic II fusing procedure. The 82HS641 devices are supplied with all outputs at logical High. Outputs are programmed to a logic Low level at any specified address by fusing the vertical junction matrix.

These devices include on-chip decoding with 1 Chip Enable input 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.

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.

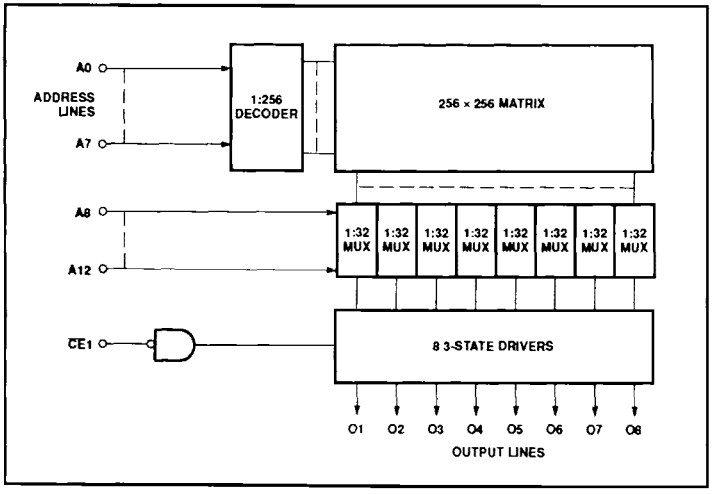
FEATURES

- Address access time:
  - N82HS641: 55ns max
  - N82HS641A: 45ns max
  - N82HS641B: 35ns max
- Power dissipation: 10μW/bit typ
- Input loading: -250μA max
- One Chip Enable input
- On-chip address decoding
- No separate fusing pins
- Unprogrammed outputs are High level
- Fully TTL compatible
- Outputs: 3-State

APPLICATIONS

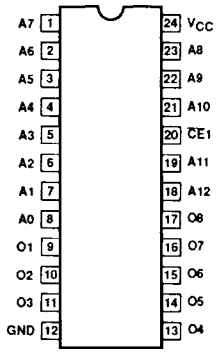
- Prototyping/volume production
- Sequential controllers
- Microprogramming
- Hardwired algorithms
- Control store
- Random logic
- Code conversion

BLOCK DIAGRAM



PIN CONFIGURATIONS

N and F Packages



64K-bit TTL bipolar PROM (8192 × 8)

82HS641 / 82HS641A / 82HS641B

ORDERING INFORMATION

DESCRIPTION	ORDER CODE
24-Pin Plastic Dual-In-Line 600mil-wide	N82HS641 N, N82HS641A N, N82HS641B N
24-Pin Ceramic Dual-In-Line 600mil-wide	N82HS641 F, N82HS641A F, N82HS641B F

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			UNIT
			Min	Typ[3]	Max	
Input voltage						
V_{IL}	Low[4]				0.8	V
V_{IH}	High[4]		2.0			V
V_{IC}	Clamp	I_{IN} = -18mA		-0.8	-1.2	V
Output voltage						
		$\overline{CE}1$ = Low				
V_{OL}	Low	I_{OUT} = 16mA			0.5	V
V_{OH}	High	I_{OUT} = -2.0mA	2.4			V
Input current						
I_{IL}	Low	V_{IN} = 0.45V			-250	µA
I_{IH}	High	V_{IN} = 5.25V			40	µA
Output current						
I_{OZ}	Hi-Z state	$\overline{CE}1$ = High, V_{OUT} = 0.5V			-40	µA
		$\overline{CE}1$ = High, V_{OUT} = 5.25V			40	µA
I_{OS}	Short circuit[5]	$\overline{CE}1$ = Low, V_{OUT} = 0V	-15		-70	mA
Supply current[6]						
I_{CC}		V_{CC} = 5.25V		130	175	mA
Capacitance						
		$\overline{CE}1$ = 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 are with respect to network ground.
3. Typical values are at V_{CC} = 5V, T_{amb} = +25°C.
4. Measured with one output switching from a Logic "1" to a Logic "0".
5. Duration of the short circuit should not exceed 1 second.
6. Measured with all inputs grounded and all outputs open.

64K-bit TTL bipolar PROM (8192 × 8)

82HS641 / 82HS641A / 82HS641B

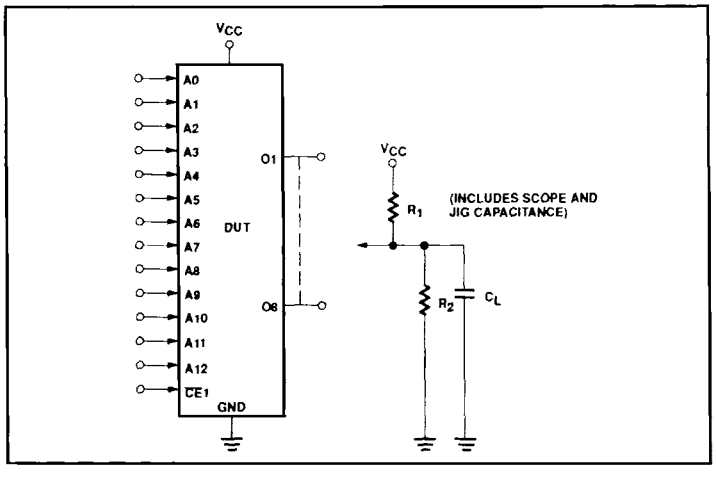
AC ELECTRICAL CHARACTERISTICS

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

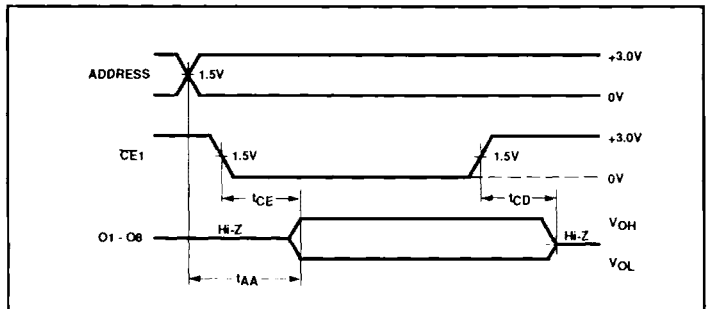
SYMBOL	PARAMETER	TO	FROM	N82HS641			N82HS641A			N82HS641B			UNIT
				Min	Typ[1]	Max	Min	Typ[1]	Max	Min	Typ[1]	Max	
Access time[2]													
t_{AA}		Output	Address		50	55		40	45		30	35	ns
t_{CE}		Output	Chip Enable		30	35		20	25		15	20	ns
Disable time[3]													
t_{CD}		Output	Chip Disable		30	35		20	25		15	20	ns

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

TEST LOAD CIRCUIT



VOLTAGE WAVEFORM



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