

82S130 82S131 2K-Bit TTL Bipolar PROM

Military Bipolar Memory Products

Product Specification

DESCRIPTION

The 82S130 and the 82S131 are field-programmable, which means that custom patterns are immediately available by following the Signetics Generic I fusing procedure. The standard 82S130 and 82S131 are supplied with all outputs at a 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 1 chip enable input for ease of memory expansion. They feature either Open collector or 3-State outputs for optimization of word expansion in bused organizations.

FEATURES

- Address access time: 60ns max
- Input loading: -150 μ A max
- On-chip address decoding
- One chip enable input
- Output options:
 - 82S130: Open collector
 - 82S131: 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

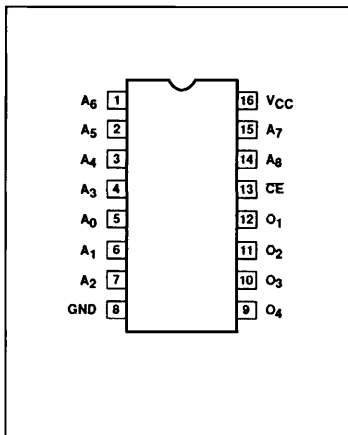
ORDERING INFORMATION

DESCRIPTION	ORDER CODE
16-pin Ceramic Dual-In-Line 300mil-wide	82S130/BEA, 82S131/BEA
16-pin Ceramic Flat Pack	82S130/BFA, 82S131/BFA

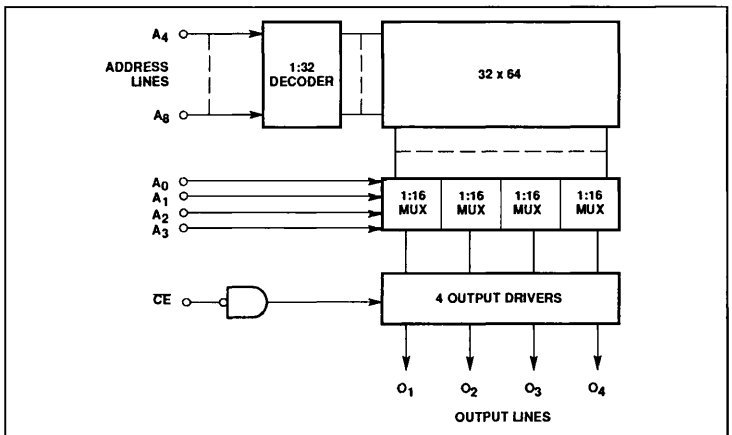
ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V _{CC}	Supply voltage	+7	V _{DC}
V _I	Input voltage	+5.5	V _{DC}
V _O	Output voltage High (82S130)	+5.5	V _{DC}
V _O	Output voltage Off-State (82S131)	+5.5	V _{DC}
T _A	Operating temperature range	-55 to +125	°C
T _{STG}	Storage temperature range	-65 to +150	°C

PIN CONFIGURATION



BLOCK DIAGRAM



2K-Bit TTL Bipolar PROM (512 × 4)

82S130, 82S131

DC ELECTRICAL CHARACTERISTICS $-55^{\circ}\text{C} \leq T_A \leq +125^{\circ}\text{C}$, $4.5\text{V} \leq V_{\text{CC}} \leq 5.5\text{V}$

SYMBOL	PARAMETER	TEST CONDITIONS ^{1,2}	LIMITS			UNIT
			Min	Typ ⁵	Max	
Input voltage						
V_{IL}	Low	$V_{\text{CC}} = 4.5\text{V}$, $I_{\text{I}} = -18\text{mA}$	2.0	0.8		V
V_{IH}	High					
V_{IK}	Clamp					
Output voltage						
V_{OL}	Low	$\overline{\text{CE}} = \text{Low}$ $I_{\text{O}} = 16\text{mA}$	2.4		0.5	V
V_{OH}	High (82S131)	$V_{\text{CC}} = 4.5\text{V}$, $I_{\text{O}} = -2\text{mA}$				
Input current						
I_{IL}	Low	$V_{\text{CC}} = 5.5\text{V}$ $V_{\text{I}} = 0.45\text{V}$			-150	μA
I_{IH}	High	$V_{\text{I}} = 5.5\text{V}$				
Output current¹						
I_{OLK}	Leakage (82S130)	$V_{\text{CC}} = 5.5\text{V}$ $\overline{\text{CE}} = \text{High}$, $V_{\text{O}} = 5.5\text{V}$	-15		40	μA
I_{OZ}	Hi-Z state (82S131)	$\overline{\text{CE}} = \text{High}$, $V_{\text{O}} = 5.5\text{V}$				
I_{OS}	Short circuit (82S131) ³	$\overline{\text{CE}} = \text{High}$, $V_{\text{O}} = 0.5\text{V}$				
		$V_{\text{CC}} = 5.5\text{V}$, $\overline{\text{CE}} = \text{Low}$, $V_{\text{O}} = 0\text{V}$, High stored				
Supply current						
I_{CC}		$\overline{\text{CE}} = \text{High}$, $V_{\text{CC}} = 5.5\text{V}$			130	mA
Capacitance⁶						
C_{IN}	Input	$\overline{\text{CE}} = \text{High}$, $V_{\text{CC}} = 5.0\text{V}$ $V_{\text{I}} = 2.0\text{V}$			5	10
C_{OUT}	Output	$V_{\text{O}} = 2.0\text{V}$				

AC ELECTRICAL CHARACTERISTICS $-55^{\circ}\text{C} \leq T_A \leq +125^{\circ}\text{C}$, $4.5\text{V} \leq V_{\text{CC}} \leq 5.5\text{V}$

SYMBOL	PARAMETER	TO	FROM	LIMITS			UNIT
				Min	Typ ⁵	Max	
t_{AA}	Access time ⁴	Output	Address			60	ns
t_{CE}	Access time ⁴	Output	Chip Enable			30	ns
t_{CD}	Disable time	Output	Chip Disable			30	ns

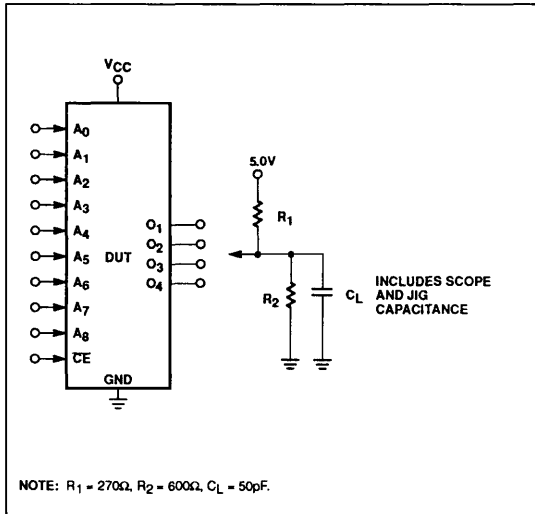
NOTES:

- Positive current is defined as into the terminal referenced.
- All voltages with respect to network ground.
- Duration of short circuit should not exceed 1 second.
- Tested at an address cycle time of $1\mu\text{s}$.
- Typical values are at $V_{\text{CC}} = 5\text{V}$, $T_A = +25^{\circ}\text{C}$.
- Guaranteed, but not tested.

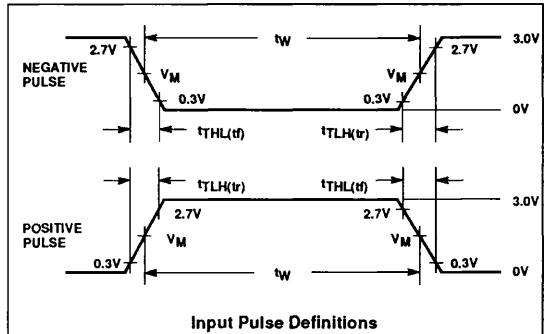
2K-Bit TTL Bipolar PROM (512 × 4)

82S130, 82S131

TEST LOAD CIRCUITS



VOLTAGE WAVEFORMS



INPUT PULSE CHARACTERISTICS				
V_M	Rep. Rate	Pulse Width	t_{TLH}	t_{THL}
1.5V	1MHz	500ns	$\leq 5ns$	$\leq 5ns$

TIMING DIAGRAMS

