

FEBRUARY 1975

DIGITAL 8000 SERIES TTL/MEMORY

DESCRIPTION

The 82S226 (Open Collector Outputs) and the 82S229 (Tri-State Outputs) are Bipolar 1024-Bit Read Only Memories, organized as 256 words by 4 bits per word. They are fully TTL compatible, and include on-chip decoding and two chip enable inputs for ease of memory expansion. They feature either Open Collector or Tri-State outputs for optimization of word expansion in bussed organizations.

Both the 82S226 and 82S229 are also fully compatible with the 82S126/129, Signetics' 1024-Bit Programmable Read Only Memories.

Both 82S226 and 82S229 devices are available in the commercial and military temperature ranges. For the commercial temperature range (0°C to +75°C) specify N82S226/229, B or F. For the military temperature range (-55°C to +125°C) specify S82S226/229, F only.

FEATURES

- ORGANIZATION — 256 X 4
- ADDRESS ACCESS TIME:
S82S226/229 — 70ns, MAXIMUM
N82S226/229 — 50ns, MAXIMUM
- POWER DISSIPATION — 0.5mW/BIT, TYPICAL
- INPUT LOADING:
S82S226/229 — (-150μA) MAXIMUM
N82S226/229 — (-100μA) MAXIMUM
- TWO CHIP ENABLE INPUTS
- ON-CHIP ADDRESS DECODING
- OUTPUT OPTIONS:
82S226 — OPEN COLLECTOR
82S229 — TRI-STATE
- 16-PIN CERAMIC PACKAGE
- FULLY COMPATIBLE WITH 82S126/129, SIGNETICS' 256 X 4 PROM

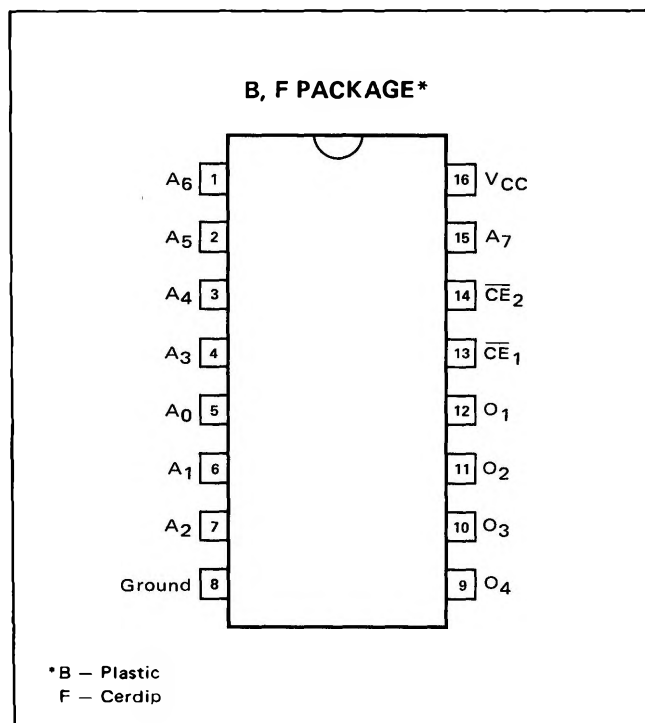
APPLICATIONS

VOLUME PRODUCTION
SEQUENTIAL CONTROLLERS
MICROPROGRAMMING
HARDWIRED ALGORITHMS
CONTROL STORE
RANDOM LOGIC
CODE CONVERSION

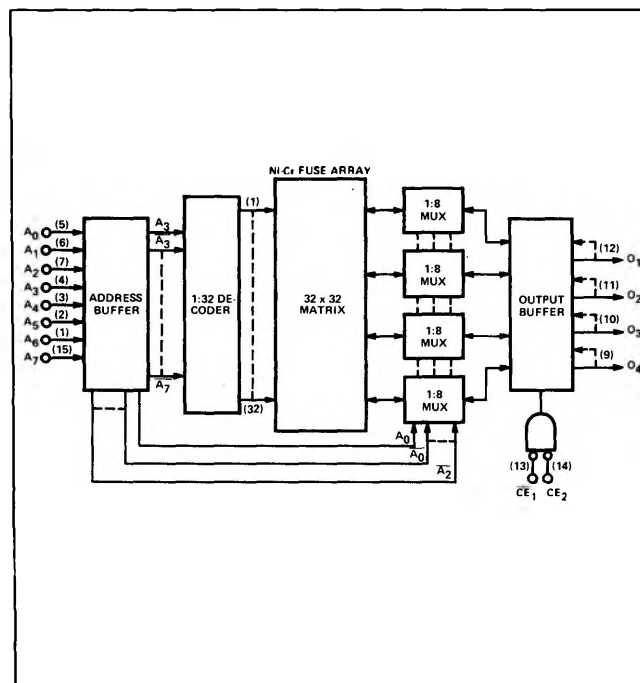
ORDERING INFORMATION

Customer may specify patterns for the 1024-Bit Read Only Memory by completing the truth table/order blank in Signetics' Digital/Linear/MOS data book.

PIN CONFIGURATION



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
V_{CC} Power Supply Voltage	+7	Vdc
V_{IN} Input Voltage	+5.5	Vdc
V_{OH} High Level Output Voltage (82S226)	+5.5	Vdc
V_O Off-State Output Voltage (82S229)	+5.5	Vdc
T_A Operating Temperature Range (N82S226/229)	0° to +75°	°C
(S82S226/229)	-55° to +125°	°C
T_{stg} Storage Temperature Range	-65° to +150°	°C

ELECTRICAL CHARACTERISTICS

S82S226/229 -55°C ≤ T_A ≤ +125°C, 4.5V ≤ V_{CC} ≤ 5.5N82S226/229 0°C ≤ T_A ≤ +75°C, 4.75V ≤ V_{CC} ≤ 5.25

PARAMETER	TEST CONDITIONS ¹	S82S226/229			N82S226/229			UNIT
		MIN	TYP ²	MAX	MIN	TYP ²	MAX	
V_{IL} Low Level Input Voltage				.80			.85	V
V_{IH} High Level Input Voltage		2.0			2.0			V
V_{IC} Input Clamp Voltage	$I_{IN} = -18\text{mA}$		-0.8	-1.2		-0.8	-1.2	V
V_{OL} Low Level Output Voltage	$I_{OUT} = 16\text{mA}$			0.5			0.5	V
V_{OH} High Level Output Voltage (82S229)	$\overline{CE}_1 = \overline{CE}_2 = "0"$, $I_{OUT} = -2\text{mA}$, "1" STORED	2.4			2.4			V
I_{OLK} Output Leakage Current (82S226)	$\overline{CE}_1$ or $\overline{CE}_2 = "1"$, $V_{OUT} = 5.5\text{V}$			60			40	μA
$I_{O(OFF)}$ Hi-Z State Output Current (82S229)	$\overline{CE}_1$ or $\overline{CE}_2 = "1"$, $V_{OUT} = 5.5\text{V}$			60			40	μA
	$\overline{CE}_1$ or $\overline{CE}_2 = "1"$, $V_{OUT} = 0.5\text{V}$			-60			-40	μA
I_{IL} Low Level Input Current	$V_{IN} = 0.45\text{V}$			-150			-100	μA
I_{IH} High Level Input Current	$V_{IN} = 5.5\text{V}$			50			40	μA
I_{OS} Output Short Circuit Current (82S229)	$V_{OUT} = 0\text{V}$	-15		-85	-20		-70	mA
I_{CC} V_{CC} Supply Current			105	125		105	120	mA
C_{IN} Input Capacitance	$V_{CC} = 5.0\text{V}$, $V_{IN} = 2.0\text{V}$		5			5		pF
C_{OUT} Output Capacitance	$V_{CC} = 5.0\text{V}$, $V_{OUT} = 2.0\text{V}$		8			8		pF

SWITCHING CHARACTERISTICS

S82S226/229 -55°C ≤ T_A ≤ +125°C, 4.5V ≤ V_{CC} ≤ 5.5VN82S226/229 0°C ≤ T_A ≤ +75°C, 4.75V ≤ V_{CC} ≤ 5.25V

PARAMETER	TEST CONDITIONS	S82S226/229			N82S226/229			UNIT
		MIN	TYP ²	MAX	MIN	TYP ²	MAX	
Propagation Delay								
T _{AA} Address to Output	C _L = 30pF		35	70		35	50	ns
T _{CD} Chip Disable to Output	R ₁ = 270Ω		15	35		15	20	ns
T _{CE} Chip Enable to Output	R ₂ = 600Ω		15	35		15	20	ns

NOTES:

1. Positive current is defined as into the terminal referenced.

2. Typical values are at $V_{CC} = 5.0\text{V}$, $T_A = +25^\circ\text{C}$.

AC TEST FIGURE AND WAVEFORM

