16K-bit TTL bipolar PROM (2048 x 8) 82S191/82S191A

DESCRIPTION

The 82S191 and 82S191A are field programmable, which means that custom patterns are immediately available by following the Signetics Generic I fusing procedure. The 82S191 and 82S191A 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.

These devices include on-chip decoding and 3 Chip Enable inputs 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.

The 82S191 and 82S191A 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

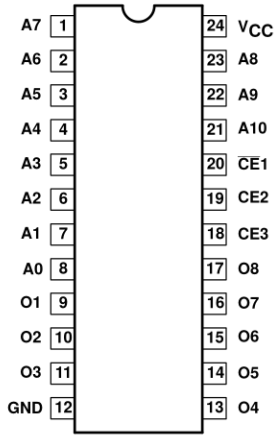
- Address access time:
  - N82S191: 80ns max
  - N82S191A: 55ns max
- Power dissipation: 40µW/bit typ
- Input loading: –100µA max
- Three Chip Enable inputs
- On-chip address decoding
- No separate fusing pins
- Unprogrammed outputs are Low level
- Fully TTL compatible
- Outputs: 3-State

APPLICATIONS

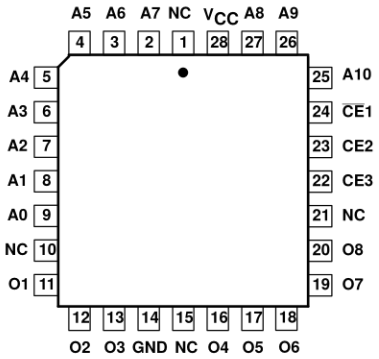
- Sequential controllers
- Microprogramming
- Hardwired algorithms
- Control store
- Random logic
- Code conversion

PIN CONFIGURATIONS

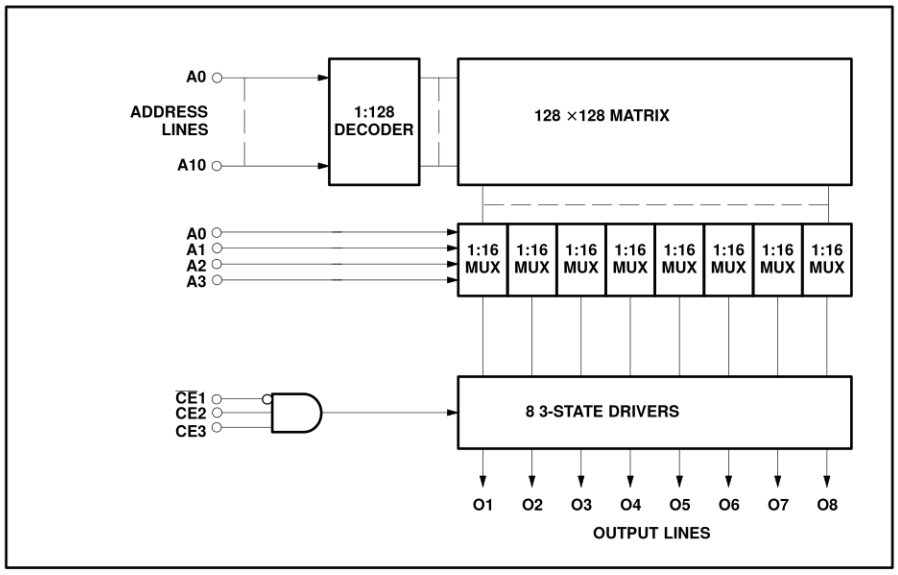
N Package



A Package



BLOCK DIAGRAM



ORDERING INFORMATION

DESCRIPTION	ORDER CODE
24-Pin Plastic Dual-In-Line 600mil-wide	N82S191 N, N82S191A N
28-Pin Plastic Leaded Chip Carrier 450mil-square	N82S191 A, N82S191A 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[1, 2]	LIMITS			UNIT
			MIN	TYP[3]	MAX	
Input voltage						
V_{IL}	Low				0.8	V
V_{IH}	High		2.0			V
V_{IC}	Clamp	I_{IN} = –12mA		–0.8	–1.2	V
Output voltage						
		$\overline{CE}$1 = Low, CE2,3 = High				
V_{OL}	Low	I_{OUT} = 9.6mA			0.45	V
V_{OH}	High	I_{OUT} = –2.0mA	2.4			V
Input current[1]						
I_{IL}	Low	V_{IN} = 0.45V			–100	µA
I_{IH}	High	V_{IN} = 5.5V			40	µA
Output current[1]						
I_{OZ}	Hi-Z state	$\overline{CE}$1 = High, CE2,3 = Low, V_{OUT} = 0.5V			–40	µA
		$\overline{CE}$1 = High, CE2,3 = Low, V_{OUT} = 5.5V			40	µA
I_{OS}	Short circuit (82S123A)[4]	$\overline{CE}$1 = Low, CE2,3 = High, V_{OUT} = 0V	–15		–70	mA
Supply current[5]						
I_{CC}		V_{CC} = 5.25V		130	175	mA
Capacitance						
		$\overline{CE}$1 = High, CE2,3 = Low, 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 with respect to network ground terminal.
3. Typical values are at V_{CC} = 5V, T_{amb} = +25°C.
4. Duration of short circuit should not exceed 1 second.
5. Measured with all inputs grounded and all outputs open.

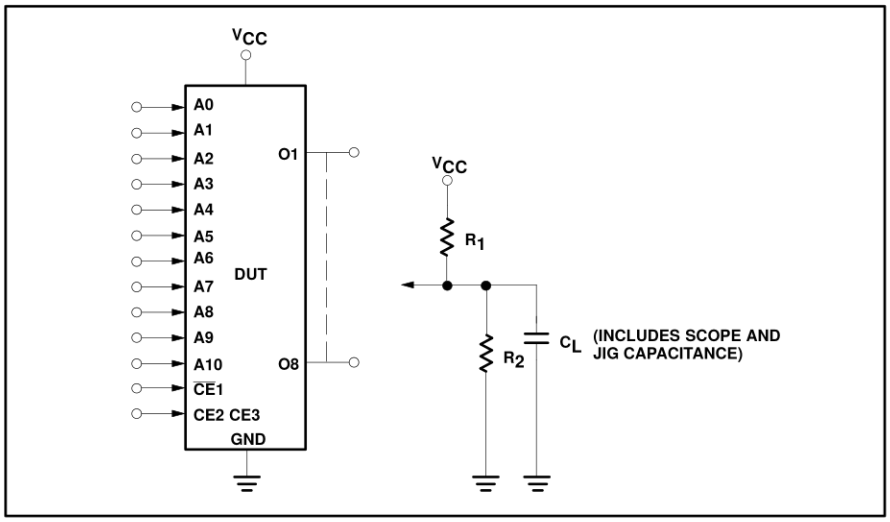
AC ELECTRICAL CHARACTERISTICS

R_1 = 2=470Ω, R_2 = 1kΩ, C_L = 30pF, 0°C ≤T_{amb} ≤+75°C, 4.75V ≤V_{CC} ≤5.25V

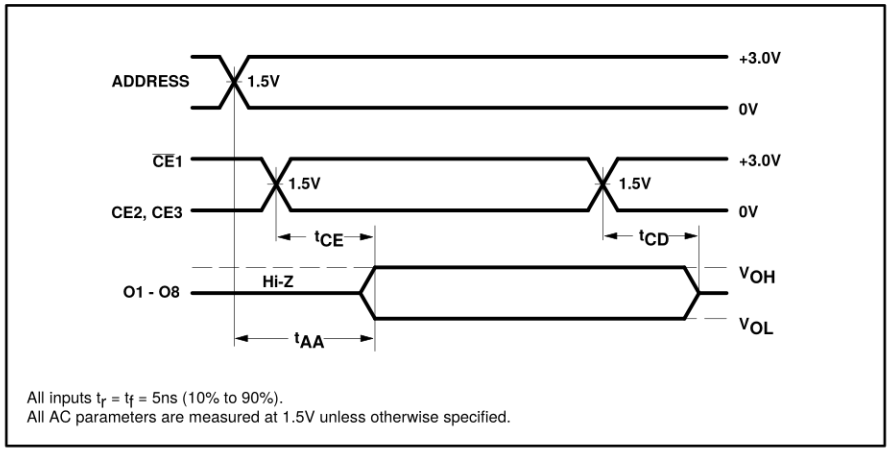
SYMBOL	PARAMETER	TO	FROM	LIMITS			LIMITS			UNIT
				MIN	TYP[1]	MAX	MIN	TYP[1]	MAX	
Access time[2]										
t_{AA}		Output	Address		50	80		50	55	ns
t_{CE}		Output	Chip Enable		30	40		20	30	ns
Disable time[3]										
t_{CD}		Output	Chip Disable		30	40		20	30	ns

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 = 750Ω, R_2 = 750Ω and C_L = 5pF.

TEST LOAD CIRCUIT



VOLTAGE WAVEFORMS



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