

OBJECTIVE SPECIFICATION

82S290-F,N • 82S291-F,N

DESCRIPTION

The 82S290 and 82S291 include on-chip decoding and 3 programmable chip enable inputs for ease of memory expansion. They feature either open collector or tri-state outputs for optimization of word expansion in bused organizations.

Both 82S290 and 82S291 devices are available in the commercial and military temperature ranges. For the commercial temperature range (0°C to +75°C) specify N82S290/291, F or N, and for the military temperature range (-55°C to +125°C) specify S82S290/291, F.

FEATURES

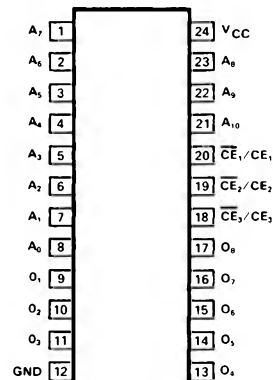
- Address access time:
N82S290/291: 80ns max
S82S290/291: 100ns max
- Power dissipation: 40μW/bit typ
- Input loading:
N82S290/291: -100μA max
S82S290/291: -150μA max
- On-chip address decoding
- Output options:
82S290: Open collector
82S291: Tri-state
- Fully compatible with Signetics 82S190/191 PROMs
- Fully TTL compatible

APPLICATIONS

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

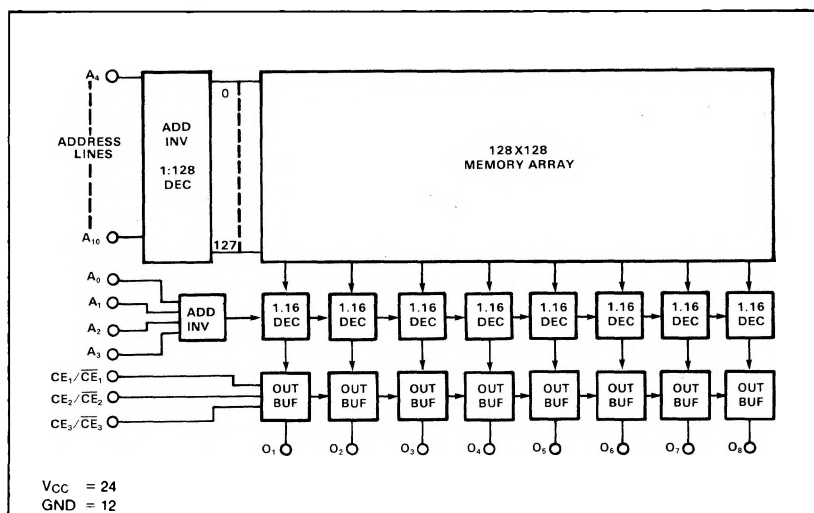
PIN CONFIGURATION

F,N PACKAGE*



*F = Cerdip
N = Plastic

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER		RATING	UNIT
V _{CC}	Supply voltage	+7	Vdc
V _{IN}	Input voltage	+5.5	Vdc
	Output voltage		Vdc
V _{OH}	High (82S290)	+5.5	
V _O	Off-state (82S291)	+5.5	
	Temperature range		°C
T _A	Operating		
	N82S290/291	0 to +75	
	S82S290/291	-55 to +125	
T _{STG}	Storage	-65 to +150	

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DC ELECTRICAL CHARACTERISTICS

N82S290/291: $0^{\circ}\text{C} \leq T_A \leq +75^{\circ}\text{C}$, $4.75\text{V} \leq V_{CC} \leq 5.25\text{V}$ S82S290/291: $-55^{\circ}\text{C} \leq T_A \leq +125^{\circ}\text{C}$, $4.5\text{V} \leq V_{CC} \leq 5.5\text{V}$

PARAMETER	TEST CONDITIONS ¹	N82S290/291			S82S290/291			UNIT
		Min	Typ ²	Max	Min	Typ ²	Max	
V_{IL} V_{IH} V_{IC}	Input voltage Low High Clamp							V
		2.0	-0.8	-1.2	2.0	-0.8	-1.2	
V_{OL} V_{OH}	Output voltage Low High (82S291)							V
	$I_{OUT} = 9.6\text{mA}$ $\overline{CE} = \text{Low}$, $I_{OUT} = -2.4\text{mA}$, High stored	2.4		0.45	2.4		0.5	
I_{IL} I_{IH}	Input current Low High							μA
	$V_{IN} = 0.45\text{V}$ $V_{IN} = 5.5\text{V}$			-100 40			-150 50	
I_{OLK} $I_{O(OFF)}$	Output current Leakage (82S290) Hi-Z state (82S291)							μA
	$\overline{CE} = \text{High}$, $V_{OUT} = 5.5\text{V}$ $\overline{CE} = \text{High}$, $V_{OUT} = 0.5\text{V}$ $\overline{CE} = \text{High}$, $V_{OUT} = 5.5\text{V}$			40 -40 40			60 -60 60	μA
I_{OS}	Short circuit (82S291)	-20		-70	-15		-85	mA
I_{CC}	V_{CC} supply current		130	170		130	180	mA
C_{IN} C_{OUT}	Capacitance Input Output		5 8			5 8		pF

AC ELECTRICAL CHARACTERISTICS

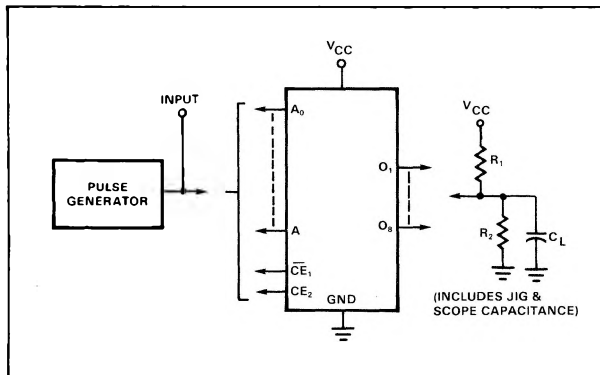
 $R_1 = 270\Omega$, $R_2 = 600\Omega$, $C_L = 30\text{pF}$ ¹N82S290/291: $0^{\circ}\text{C} \leq T_A \leq +75^{\circ}\text{C}$, $4.75\text{V} \leq V_{CC} \leq 5.25\text{V}$ S82S290/291: $-55^{\circ}\text{C} \leq T_A \leq +125^{\circ}\text{C}$, $4.5\text{V} \leq V_{CC} \leq 5.5\text{V}$

PARAMETER	TO	FROM	N82S290/291			S82S290/291			UNIT
			Min	Typ ²	Max	Min	Typ ²	Max	
T_{AA} T_{CE}	Access time Output Output	Address Chip enable		50 20	80 40		50 20	100 50	ns
T_{CD}	Disable time Output	Chip disable		20	40		20	50	ns

NOTES

1. Positive current is defined as into the terminal referenced.
2. Typical values are at $V_{CC} = 5.0\text{V}$, $T_A = +25^{\circ}\text{C}$.

TEST LOAD CIRCUIT



VOLTAGE WAVEFORM

