

16,384-BIT BIPOLAR PROM (2048 × 8)

82S191 (T.S.)

DESCRIPTION

The 82S191 is field programmable, which means that custom patterns are immediately available by following the fusing procedure given in this data manual. The 82S191 is supplied with all outputs at a logical low. Outputs are programmed to a logic high level at any specified address by fusing a Ni-Cr link matrix.

This device includes on-chip decoding and 3 chip enable inputs for ease of memory expansion. It features tri-state outputs for optimization of word expansion in bused organizations.

The 82S191 device is available in the commercial and military ranges. For the commercial temperature range (0°C to +75°C) specify N82S191, I or N and for the military temperature range (-55°C to +125°C) specify S82S191, R or G.

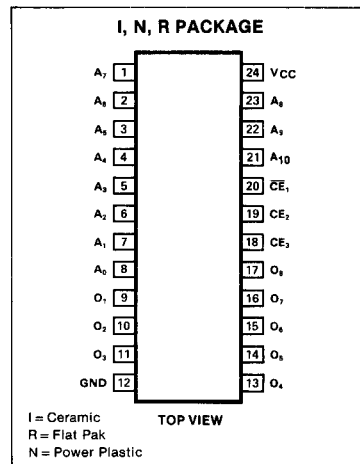
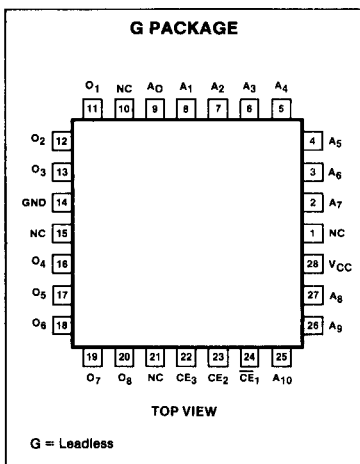
FEATURES

- **Address access time:**
N82S191: 80ns max
S82S191: 100ns max
- **Power dissipation :** 40µW/bit typ
- **Input loading:**
N82S191: -100µA max
S82S191: -150µA max
- **3 chip enable inputs**
- **On-chip address decoding**
- **No separate fusing pins**
- **Unprogrammed outputs are low level**
- **Fully TTL compatible**

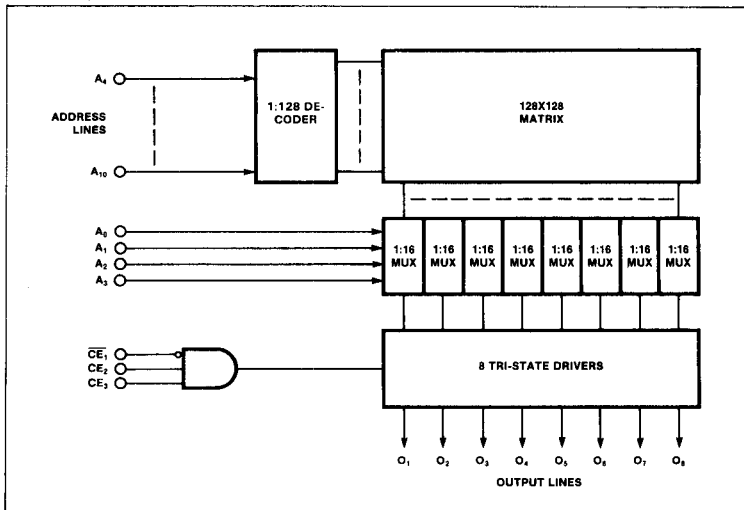
APPLICATIONS

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

PIN CONFIGURATIONS



BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
V _{CC} Supply voltage	+7	Vdc
V _{IN} Input voltage	+5.5	Vdc
V _O Output voltage	+5.5	Vdc
V _O Off-state	+5.5	Vdc
T _A Temperature range		°C
Operating	0 to +75	
N82S191	-55 to +125	
S82S191		
T _{STG} Storage	-65 to +150	

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DC ELECTRICAL CHARACTERISTICS N82S191: 0°C ≤ T_A ≤ +75°C, 4.75V ≤ V_{CC} ≤ 5.25V
 S82S191: -55°C ≤ T_A ≤ +125°C, 4.5V ≤ V_{CC} ≤ 5.5V

PARAMETER	TEST CONDITIONS ^{1,2}	N82S191			S82S191			UNIT
		Min	Typ ⁵	Max	Min	Typ	Max	
V _{IL} V _{IH} V _{IC}	Input voltage Low High Clamp			.85			.80	V
	I _{IN} = -18mA	2.0	-0.8	-1.2	2.0		-1.2	
V _{OL} V _{OH}	Output voltage Low High			0.45			0.5	V
	\overline{CE}_1 = Low, CE _{2,3} = High I _{OUT} = 9.6mA I _{OUT} = -2mA	2.4			2.4			
I _{IL} I _{IH}	Input current Low High			-100 40			-150 50	μA
	V _{IN} = 0.45V V _{IN} = 5.5V							
I _{O(OFF)}	Output current Hi-Z state			-40 40			-60 60	μA
	\overline{CE}_1 = High, CE _{2,3} = Low, V _{OUT} = 0.5 \overline{CE}_1 = High, CE _{2,3} = Low, V _{OUT} = 5.5							
I _{OS}	Short circuit ³	-20		-70	-15		-85	mA
	\overline{CE}_1 = Low, CE _{2,3} = High, V _{OUT} = 0V							
I _{CC}	V _{CC} supply current		130	175			185	mA
C _{IN} C _{OUT}	Capacitance Input Output			5 8			5 8	pF
	\overline{CE}_1 = High, CE _{2,3} = Low, V _{CC} = 5.0V V _{IN} = 2.0V V _{OUT} = 2.0V							

AC ELECTRICAL CHARACTERISTICS R₁ = 470Ω, R₂ = 1kΩ, C_L = 30pF
 N82S191: 0°C ≤ T_A ≤ +75°C, 4.75V ≤ V_{CC} ≤ 5.25V
 S82S191: -55°C ≤ T_A ≤ +125°C, 4.5V ≤ V_{CC} ≤ 5.5V

PARAMETER	TO	FROM	N82S191			S82S191			UNIT
			Min	Typ ⁵	Max	Min	Typ	Max	
T _{AA} ⁴ T _{CE}	Access time Output Output	Address Chip enable		50 20	80 40			100 50	ns
T _{CD}	Disable time Output	Chip disable		20	40			50	ns

NOTES

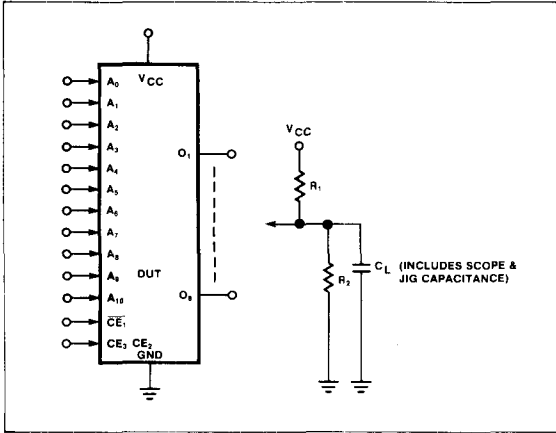
1. Positive current is defined as into the terminal referenced.
2. All voltages with respect to network ground.
3. Duration of short circuit should not exceed 1 second.

4. Tested at an address cycle time of 1μsec.
5. Typical values are at V_{CC} = 5V, T_A = 25°C.

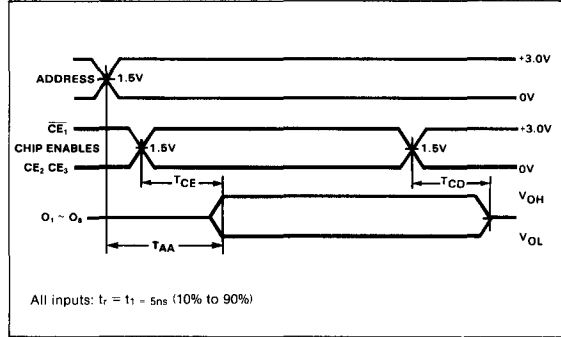
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TEST LOAD CIRCUIT



VOLTAGE WAVEFORM



BIPOLAR MEMORY CROSS REFERENCE

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BIPOLAR MEMORY CROSS REFERENCE

AMD	SIGNETICS	INTEL	SIGNETICS	FAIRCHILD	SIGNETICS
Am27S18C	N82S23	3601	N82S126	9341C	N82S126
AM27S19C	N82S123	3621	N82S129	10416	10149
AM27S20C	N82S126	3602	N82S130	93427C	N82S129
AM27S21C	N82S129	3622	N82S131	100416	100149
AM27S12C	N82S130	3625	N82S137	93436C	N82S130
AM27S13C	N82S131		N82HS137	93446C	N82S131
AM27S33C	N82S137	3624	N82S141	93453C	82S137
	N82HS137	3628	N82S181		N82HS137
AM27S29C	N82S147		N82HS181	9344C	N82S141
	N82HS147	3636	N82S191	93450C	N82S180
AM27S31C	N82S141	3636A	N82HS191	93451C	N82S181
AM27S15C	N82S115	3632	N82S321		N82HS181
AM27S180C	N82S180	3632-1		93L451C	N82LS181
AM27S181C	N82S181	3101A	N3101A	93461C	N82S2708
	N82HS181	3101	N82S25	93515C	N82S185
AM27S185C	N82S185	3106	N82S16		N82HS185
	N82HS185	3107	N82S17	93511C	N82S191
AM27S191C	N82S191				N82HS191
	N82HS191			93513C	N82HS195
AM27S41C	N82HS195				
2702/3101A	N3101A				
54S289	N82S25				
2700	N82S16				
27LS01	N82LS16				
2701	N82S17				

NATIONAL	SIGNETICS	HARRIS	SIGNETICS	MMI	SIGNETICS
DM74S188	N82S23	HM7602-5	N82S23	6330-1	N82S23
DM74S288	N82S123	HM7603-5	N82S123	6331-1	N82S123
DM74S387	N82S126	HM7610-5	N82S126	6000-1	N82S126
DM74S287	N82S129	HM7611-5	N82S129	6301-1	N82S129
DM74S570, A	N82S130	HM7620-5	N82S130	6305-1	N82S130
DM74S571, A	N82S131	HM7621-5	N82S131	6306-1	N82S131
DM74S573, A	N82S137	HM7643-5	N82S137	6353-1	N82S137
	N82HS137		N82HS137		N82HS137
DM74S472	N82S147	HM7649-5	N82S147	6349-1	N82S147
	N82HS147		N82HS147		N82HS147
DM74S574, A	N82S141	HM7641-5	N82S141	6341-1	N82S141
DM87S180	N82S180	HM7647R-5	N82S115	6380-1	N82S180
DM87S181	N82S181	HM7680-5	N82S180	6381-1	N82S181
	N82HS181	HM7681-5	N82S181		N82S181
DM87S185	N82S185		N82HS181		N82HS181
	N82HS185	HM7681P-5	N82PS181	6560	N3101A
DM87S191	N82S191	HM7681R-5	N82S183	6561	74S189
	N82HS191	HM7608-5	N82S2708	5560	N82S25
74S189	74S189	HM7685-5	N82S185	6555	N82S09
74S289	N82S25		N82HS185	6531	N82S16
74S200	N82S16	HM76161-5	N82S191	6530	N82S17
74S206	N82LS16		N82HS191		
DM10422	10422	HM76165-2/8	N82HS195		
DM100422	100422				
DM10415	10415				
DM10470	10470				
DM100470	100470				

INTERFIL	SIGNETICS
IM5600C	N82S23
IM5610C	N82S123
IM5603C	N82S126
IM5623C	N82S129
IM5604C	N82S130
IM5624C	N82S131
5501	N82S25
5523A	N82S16
5533A	N82S17

BIPOLAR MEMORY CROSS REFERENCE

BIPOLAR MEMORY CROSS REFERENCE (Continued)

MOTOROLA	SIGNETICS	T.I.	SIGNETICS	RAYTHEON	SIGNETICS
MCM10149	*10149	TBP18SA030J, N	N82S23	29661C	N82S129
MCM7620	N82S130	TBP24SA10J, N	N82S123	29610C	N82S130
MCM7621	N82S131	TBP24SA10J, N	N82S126	29611C	N82S131
MCM7643C	N82S137	TBP14S10J, N	N82S129	29641C	N82S137
	N82HS137	TBP24S41J, N	N82S137		N82HS137
MCM7641C	N82S141		N82HS137	29625C	N82S141
MCM7681C	N82S181	TBP28S42	N82S147	29631AC	N82S181
	N82HS181		N82HS147		N82HS181
MCM82708C	N82S2708	TBP28S46J, N	N82S141	29633AC	N82PS181
MCM7685C	N82S185	TBP28SA86J, N	N82S180	29635C	N82S2708
	N82HS185	TBP28S86J, N	N82S181	29651AC	N82S185
4064	N82S25		N82HS181		N82HS185
4256	N82S16	TBP28P85	N82PS181	29681AC	N82S191
10422	10422	TBP28P86	N82LS181		N82HS191
10470	10470	TBP28S2708J, N	N82S2708		
		TBP24S81J, N	N82S185		
			N82HS185		
		TBP28S166J, N	N82S191		
			N82HS191		
		74S289	N3101A		
		74S289	N82S25*		
		74S301	N74S301		
		74S200	N82S16		