Signetics

82S291A
16K-Bit TTL Bipolar PROM

Military Bipolar Memory Products

Product Specification

DESCRIPTION

The 82S291A is field programmable, which means that custom patterns are immediately available by following the Signetics Generic II fusing procedure. The 82S291A is supplied with all outputs at a logical High. Outputs are programmed to a logic Low level at any specified address by fusing the vertical junction matrix.

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

FEATURES

- **Address access time: 35ns max**
- **Input loading: -250μA max**
- **Three chip enable inputs**
- **On-chip address decoding**
- **No separate fusing pins**
- **Unprogrammed outputs are High level**
- **Fully TTL compatible**
- **Outputs: 3-State**

APPLICATIONS

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

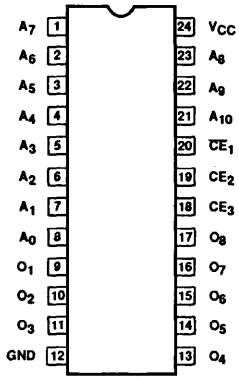
ORDERING INFORMATION

DESCRIPTION	ORDER CODE
24-pin Ceramic Dual-In-Line 300mil-wide	82S291A/BLA

ABSOLUTE MAXIMUM RATINGS

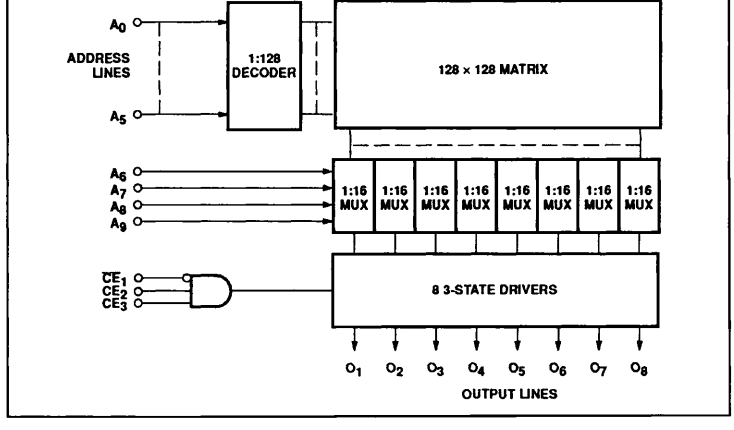
SYMBOL	PARAMETER	RATING	UNIT
V_{CC}	Supply voltage	+7	V_{DC}
V_I	Input voltage	+5.5	V_{DC}
V_O	Output voltage Off-State	+5.5	V_{DC}
T_{STG}	Storage temperature range	-65 to +150	°C

PIN CONFIGURATION



For LLCC Pin Assignemtns, see JEDEC Std. No. 21A

BLOCK DIAGRAM



16K-Bit TTL Bipolar PROM (2048 × 8) — 82S291A

RECOMMENDED OPERATING CONDITIONS

SYMBOL	PARAMETER	LIMITS			UNIT
		Min	Nom	Max	
V_{CC}	Supply voltage	4.5	5.0	5.5	V
V_{IH}[7]	High-level input voltage	2.0			V
V_{IL}[7]	Low-level input voltage			0.8	V
I_{IK}	Input clamp current			-18	mA
I_{OH}	High-level output current			-2	mA
I_{OL}	Low-level output current			16	mA
T_A	Operating free-air temperature range	-55		+125	°C

DC ELECTRICAL CHARACTERISTICS $-55°C \le T_A \le +125°C$, $4.5V \le V_{CC} \le 5.5V$

SYMBOL	PARAMETER	TEST CONDITIONS[1,2]	LIMITS			UNIT
			Min	Typ[5]	Max	
V_{IK}	Input clamp voltage	V_{CC} = Min, I_I = Max		-0.8	-1.2	V
V_{OL}	Output Low-level current	$\overline{CE}_1$ = Low, $CE_{2,3}$ = High, V_{CC} = Min, I_{OL} = Max			0.5	V
V_{OH}	Output High-level current	$\overline{CE}_1$ = Low, $CE_{2,3}$ = High, V_{CC} = Min, I_{OH} = Max	2.4			V
I_{IL}	Input Low-level current	V_{CC} = Max, V_I = 0.45V			-250	µA
I_{IH}	Input High-level current	V_{CC} = Max, V_I = 5.5V			40	µA
I_{OLZ}	Off-State output current Low-State	V_{CC} = Max, $\overline{CE}_1$ = High, $CE_{2,3}$ = Low, V_O = 0.4			-40	µA
I_{OHZ}	Off-State output current High-State	$\overline{CE}_1$ = High, $CE_{2,3}$ = Low, V_O = 5.5, V_{CC} = Max			40	µA
I_{OS}	Output short circuit current[3]	$\overline{CE}_1$ = Low, $CE_{2,3}$ = High, V_{CC} = Max, V_O = 0V	-15		-85	mA
I_{CC}	Supply current[8]	$\overline{CE}_1$ = High, $CE_{2,3}$ = Low, V_{CC} = 5.5V		130	185	mA
C_{IN} C_{OUT}	Input capacitance[6] Output capacitance[6]	$\overline{CE}_1$ = High, $CE_{2,3}$ = Low, V_{CC} = 5.0V V_I = 2.0V V_O = 2.0V		5 8	10 13	pF pF

AC ELECTRICAL CHARACTERISTICS $-55°C \le T_A \le +125°C$, $4.5V \le V_{CC} \le 5.5V$

SYMBOL	PARAMETER	TO	FROM	LIMITS			UNIT
				Min	Typ[5]	Max	
t_{AA}	Access time[4]	Output	Address		15	35	ns
t_{CE}	Access time[4]	Output	Chip Enable		10	20	ns
t_{CD}	Disable time	Output	Chip Disable		10	20	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 1µs.
5. Typical values are at V_{CC} = 5V, T_A = +25°C.
6. Guaranteed, but not tested.
7. Measured with one output switching from a logic "1" to a logic "0". These are absolute voltages with respect to device ground pin and include all overshoots due to system and/or tester noise. Testing of these values requires special equipment.
8. Measured with all inputs grounded and all outputs open.

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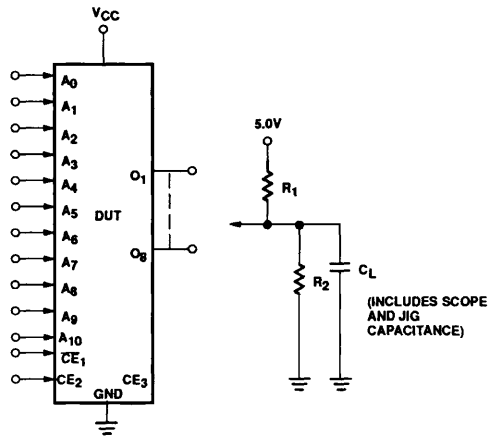
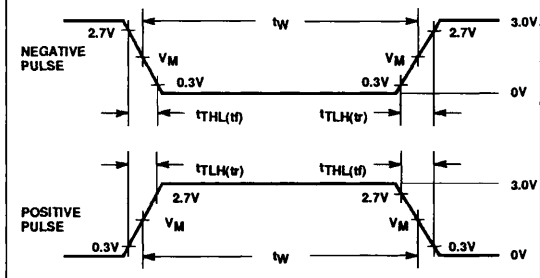
TEST LOAD CIRCUITS



NOTE: $R_1 = 470\Omega$, $R_2 = 1K\Omega$, $C_L = 50pF$.

VOLTAGE WAVEFORMS



Input Pulse Definitions

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

TIMING DIAGRAMS