



53/63S881/A

High Performance 1024x8 PROM TiW PROM Family

FEATURES/BENEFITS

- 30-ns maximum access time
- Reliable titanium-tungsten fuses (TiW) guarantee greater than 98% programming yields
- Low voltage generic programming
- PNP inputs for low input current
- Three state outputs
- 24-pin SKINNYDIP® or 600-mil DIP package

APPLICATIONS

- Microprogram control store
- Microprocessor program store
- Look-up table
- Character generator
- Code converter
- Programmable Logic Element (PLE™) with 10 Inputs, 8 Outputs and 1024 product terms

GENERAL DESCRIPTION

The 53/63S881 and 53/63S881A are 1024x8 bipolar PROMs featuring low input current PNP inputs, full Schottky clamping, and three state outputs. The titanium-tungsten fuses store a logical low and are programmed to the high state. Special on-chip circuitry and extra fuses provide preprogramming testing which assures high programming yields and high reliability.

The 63 series is specified for operation over the commercial temperature and voltage range. The 53 series is specified for the military ranges.

PROGRAMMING

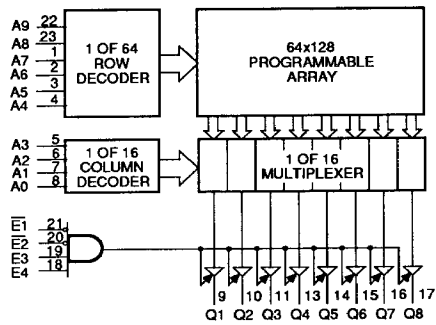
The 53/63S881 and 53/63S881A PROMs are programmed with the same programming algorithm as all

other Advanced Micro Devices generic TiW PROMs. For details contact the factory.

SELECTION GUIDE

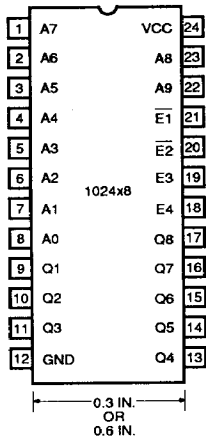
Memory			Package		Performance	Part Number	
Size	Organization	Output	Pins	Type		0°C to +75°C	-55°C to +125°C
8K	1024x8	TS	24 (28)	CD 3024 PD 3024 CD 024 PD 024 CFM 024 CL 028 PL 028	Enhanced	63S881A	53S881A
					Standard	63S881	53S881

BLOCK DIAGRAM DIP Pinout

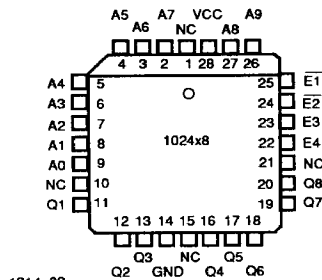


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PIN CONFIGURATIONS

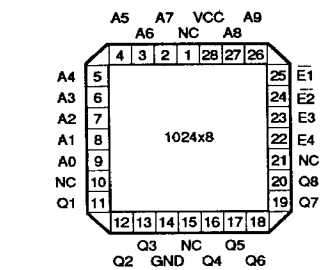


1314 02



1314 03

Plastic Chip Carrier



1314 04

Leadless Chip Carrier

ABSOLUTE MAXIMUM RATINGS

	Operating	Programming
Supply voltage V_{CC}	–0.5 V to 7 V	12 V
Input voltage	–1.5 V to 7 V	7 V
Input current	–30 mA to +5 mA	
Off-state output voltage	–0.5 V to 5.5 V	12 V
Storage temperature	–65°C to +150°C	

Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only, and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to Absolute Maximum Ratings conditions for extended periods of time may affect reliability. Absolute Maximum Ratings are for system design reference; parameters given are not tested.

OPERATING CONDITIONS

Symbol	Parameter	Military†			Commercial			Unit
		Min.	Nom.	Max.	Min.	Nom.	Max.	
V_{CC}	Supply voltage	4.5	5	5.5	4.75	5	5.25	V
T_A	Operating temperature*	–55		125	0		75	°C

* This is defined as the instant-on case temperature.

† Military burn-in is in accordance with the current revision of MIL-STD-883, Test Method 1015, Conditions A through E. Test conditions are selected at AMD's option.

DC Electrical Characteristics Over Operating Conditions. For APL Products, Subgroups 1, 2, 3 are tested unless otherwise noted.

Symbol	Parameter	Test Condition		Min.	Typ.†	Max.	Unit
V_{IL}	Low-level input voltage**					0.8	V
V_{IH}	High-level input voltage**			2			V
V_{IC}	Input clamp voltage	$V_{CC} = \text{MIN}$	$I_I = -18 \text{ mA}$			–1.5	V
I_{IL}	Low-level input current	$V_{CC} = \text{MAX}$	$V_I = 0.4 \text{ V}$			–0.25	mA
I_{IH}	High-level input current	$V_{CC} = \text{MAX}$	$V_I = V_{CC} \text{ MAX}$			40	μA
V_{OL}	Low-level output voltage	$V_{CC} = \text{MIN}$	$I_{OL} = 16 \text{ mA}$	Com		0.45	V
				Mil		0.5	
V_{OH}	High-level output voltage	$V_{CC} = \text{MIN}$	Com	$I_{OH} = -3.2 \text{ mA}$	2.4		V
			Mil	$I_{OH} = -2 \text{ mA}$			
I_{OZL}	Off-state output current	$V_{CC} = \text{MAX}$	$V_O = 0.4 \text{ V}$			–40	μA
I_{OZH}			$V_O = 2.4 \text{ V}$			40	
I_{OS}	Output short-circuit current*	$V_{CC} = 5 \text{ V}$	$V_O = 0 \text{ V}$	–20		–90	mA
I_{CC}	Supply current	$V_{CC} = \text{MAX}$. All inputs grounded. All outputs open.			92	160	mA

* Not more than one output should be shorted at a time and duration of the short-circuit should not exceed one second.

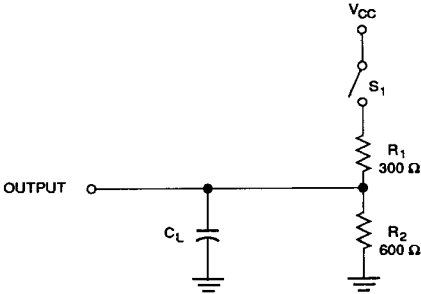
** V_{IL} and V_{IH} are input conditions of output tests and are not themselves directly tested. V_{IL} and V_{IH} are absolute voltages with respect to device ground and include all overshoots due to system and/or tester noise. Do not attempt to test these values without suitable equipment.

Switching Characteristics Over Operating Conditions (See standard test load). For APL Products, Group A, Subgroups 9, 10, 11 are tested unless otherwise noted.^{††}

Operating Conditions	Device Type	t _{AA} (ns) Address Access Time		t _{EA} and t _{ER} (ns) Enable Access Time Recovery Time		Unit
		Typ†	Max	Typ†	Max	
Commercial	63S881A	26	30	18	25	ns
	63S881	26	45	18	30	
Military	53S881A	26	45	18	30	
	53S881	26	55	18	35	

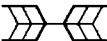
† Typical at 5.0 V V_{CC} and 25°C T_A.

†† Subgroups 7 and 8 apply to functional tests.



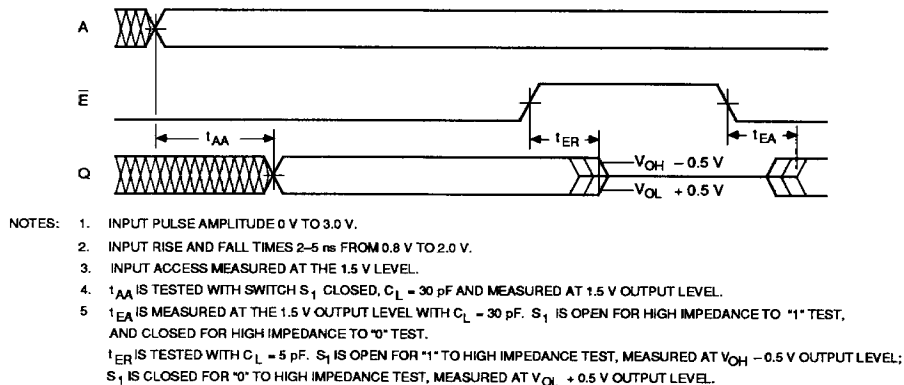
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Figure 1 Switching Test Load

WAVEFORM	INPUTS	OUTPUTS
	DON'T CARE: CHANGE PERMITTED	CHANGING: STATE UNKNOWN
	NOT APPLICABLE	CENTER LINE IS HIGH IMPEDANCE STATE
	MUST BE STEADY	WILL BE STEADY

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Figure 2 Definition of Timing Diagram



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Figure 3 Definition of Waveforms