High Performance 32x8 Ti-W PROM
53/63S080 53/63S081

Features/Benefits

- 9ns typical access time
- Reliable Titanium-Tungsten fuses (Ti-W)
- Low voltage generic programming
- Pin compatible with standard Schottky PROMs
- PNP inputs for low input current

Applications

- Programmable logic element
- Address decoder
- Priority encoder
- Random logic replacement

Description

The 53/63S080 and 53/63S081 features low input current PNP inputs, full Schottky clamping and three-state and open collector 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 assure high programming yields and high reliablity.

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

Programming

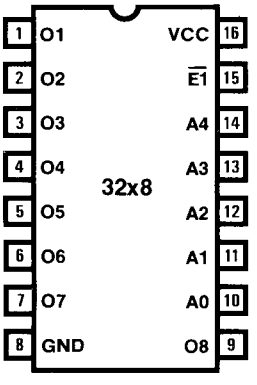
The 53/63S080 and 53/63S081 are programmed with the same programming algorithm as all other Monolithic Memories' generic Ti-W PROMs. For details refer to Monolithic Memories' LSI Data Book.

Selection Guide

MEMORY			PACKAGE		DEVICE TYPE	
SIZE	ORGANIZATION		PINS	TYPE	0°C to +75°C	-55°C to +125°C
1/4 K	32x8	O.C.	16	N, J	63S080	53S080
		T.S.			63S081	53S081

Pin Configuration

53/63S080
53/63S081



Part Numbering System

63S081

TEMPERATURE
6 = COMMERCIAL
5 = MILITARY

PRODUCT
3 = PROGRAMMABLE READ ONLY MEMORY (PROM)

FAMILY
S = SCHOTTKY
LS = LOW POWER SCHOTTKY
RX = REGISTERED

OUTPUT DESIGNATOR
0 = OPEN COLLECTOR
1 = THREE STATE

NUMBER OF OUTPUTS
4 = 4 BIT
8 = 8 BIT

MEMORY SIZE
0 = 256 BIT
1 = 1024 BIT
2 = 2048 BIT
4 = 4096 BIT
8 = 8192 BIT
16 = 16384 BIT

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Monolithic Memories

Absolute Maximum Ratings

Supply Voltage, V_{CC} 7V
Input Voltage 7V
Off-state output voltage 5.5V
Storage temperature ..... –65° to +150°C

Operating Conditions

SYMBOL	PARAMETER	MILITARY MIN	MILITARY TYP	MILITARY MAX	COMMERCIAL MIN	COMMERCIAL TYP	COMMERCIAL MAX	UNIT
V_{CC}	Supply voltage	4.5	5	5.5	4.75	5	5.25	V
T_A	Operating free-air temperature	55		125	0		75	°C

Electrical Characteristics Over Operating Conditions

SYMBOL	PARAMETER	TEST CONDITIONS			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} = MIN	I_I = –18mA				–1.5	V
I_{IL}	Low-level input current	V_{CC} = MAX	V_I = 0.4V				–0.25	mA
I_{IH}	High-level input current	V_{CC} = MAX	V_I = V_{CC} MAX				40	mA
V_{OL}	Low-level output voltage	V_{CC} = MIN V_{IL} = 0.8V V_{IH} = 2V	I_{OL} = 16mA	MIL			0.5	V
				COM			0.45	
V_{OH}	High-level output voltage*	V_{CC} = MIN V_{IL} = 0.8V V_{IH} = 2V	MIL I_{OH} = –2mA		2.4			V
			COM I_{OH} = –3.2mA					
I_{OZL}	Off-state output current*	V_{CC} = MAX	V_O = 0.4V				–40	μA
I_{OZH}			V_O = 2.4V				40	μA
I_{CEX}	Open collector output current	V_{CC} = MAX	V_O = 2.4V				40	μA
			V_O = 5.5V				100	
I_{OS}	Output short-circuit current*,**	V_{CC} = 5V	V_O = 0V		–20		–90	mA
I_{CC}	Supply current	V_{CC} = MAX	All inputs grounded. All outputs open.			90	125	mA

* Three-state only

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

†Typicals at 5.0V V_{CC} and 25°C TAA

Switching Characteristics

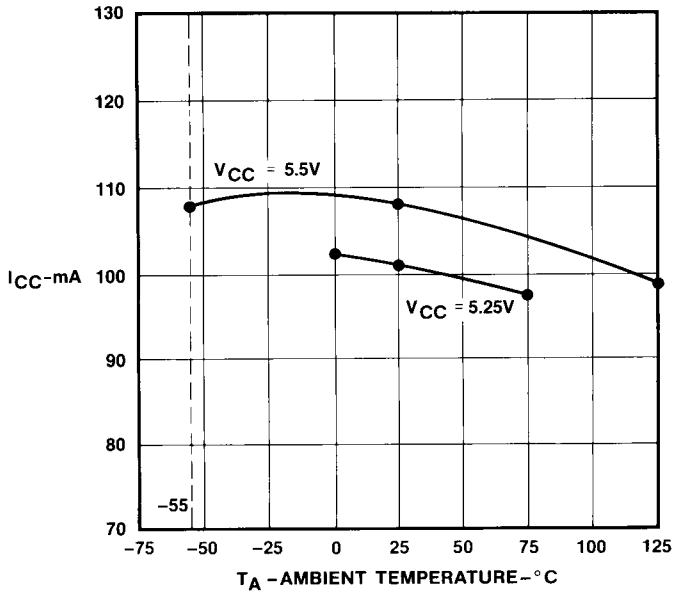
Over Commercial Operating Conditions

DEVICE TYPE	t_{AA} (ns) ADDRESS ACCESS TIME		t_{EA} AND t_{ER} (ns) ENABLE ACCESS AND RECOVERY TIME		CONDITIONS (See standard test load)	
	TYP†	MAX	TYP†	MAX	R1(Ω)	R2(Ω)
63S080/1	9	25	9	20	300	600
53S080/1	9	35	9	30		

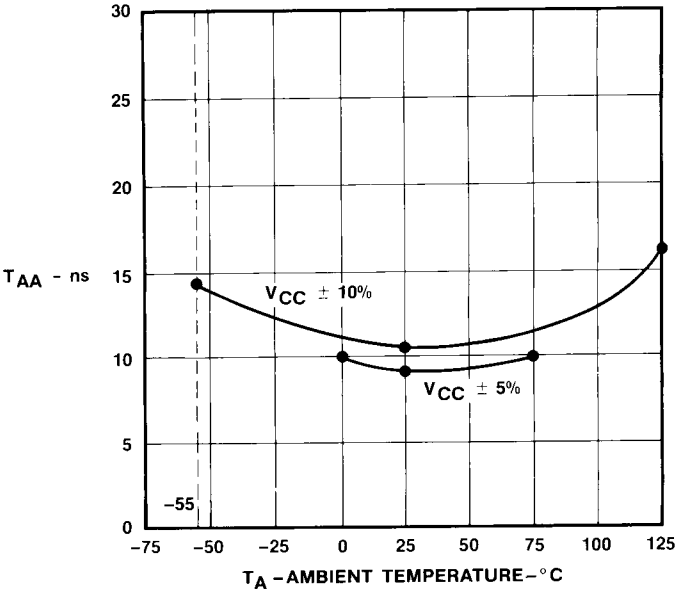
†Typicals at 5.0 V_{CC} and 25°C TA.

53/63S081

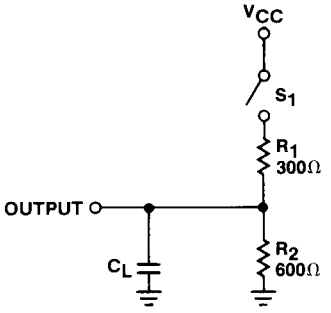
Typical I_{CC} vs Temperature



Typical T_{AA} vs Temperature



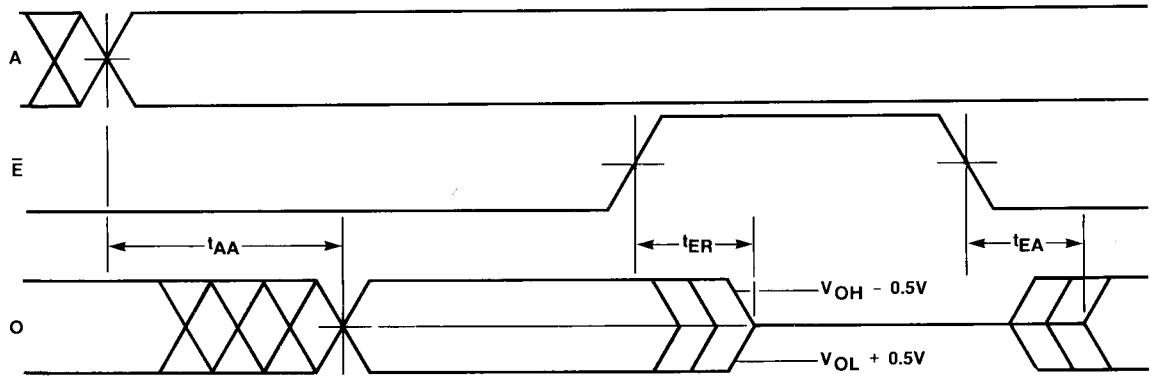
Switching Test Load



Definition of Timing Diagram

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

Definition of Waveforms



NOTES: 1. Input pulse amplitude 0V to 3.0V.

2. Input rise and fall times 5ns from 1.0V to 2.0V.
3. Input access measured at the 1.5V level.
4. t_{AA} is tested with switch S_1 closed, C_L = 30pF and measured at 1.5V output level.
5. For open collector devices. TEA and TER are measured at the 1.5V output level with S_1 closed and C_L = 30pF.
6. For three-state devices, TEA is measured at the 1.5V output level with C_L = 30pF. S_1 is open for high impedance to "1" test and closed for high impedance to "0" test.

   TER is tested with C_L = 5 pF. S_1 is open for "1" to high impedance test, measured at V_{OH} - 0.5 output level; S_1 is closed for "0" to high impedance test measured at V_{OL} + 0.5V output level.

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