

High Performance 32x8 PROM TiW PROM Family

53/63S080 53/63S081 63S081A

Features/Benefits

- 15-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
- Open collector or three-state outputs.

Applications

- Programmable logic element (PLE™) 5 inputs, 8 outputs, 32 product terms
- Address decoder
- Priority encoder

Description

The 53/63S080, 53/63S081 and 63S081A feature 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 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.

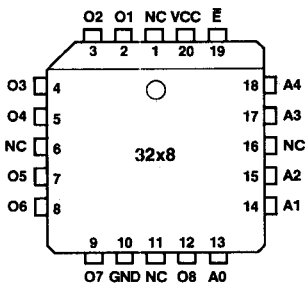
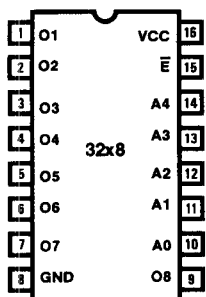
Programming

The 53/63S080, 53/63S081 and 63S081A are programmed with the same programming algorithm as all other Monolithic Memories' generic TiW PROMs. For details contact the factory.

Selection Guide

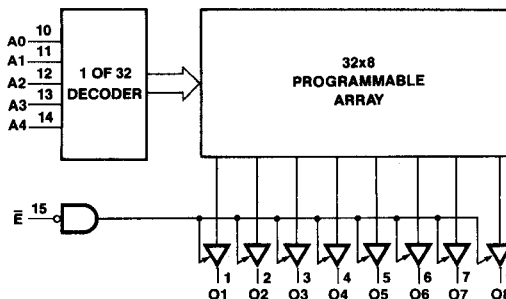
MEMORY			PACKAGE		PERFORMANCE	PART NUMBER	
SIZE	ORGANIZATION	OUTPUT	PINS	TYPE		0°C to +75°C	-55°C to +125°C
1/4 K	32x8	TS	16 (20)	N,J,W (NL),(L)	Enhanced	63S081A	—
		TS				63S081	53S081
		OC			Standard	63S080	53S080

Pin Configurations



Plastic Chip Carrier

Block Diagram



PLE™ is a trademark of Monolithic Memories.

2175 Mission College Blvd. Santa Clara, CA 95054-1592 Tel: (408) 970-9700 TWX: 910-338-2374

**Monolithic
Memories**

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	

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 free-air temperature	-55		125	0		75	°C

Electrical Characteristics Over Operating Conditions

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_{CEX}	Open collector output current	$V_{CC} = \text{MAX}$	$V_O = 2.4 \text{ V}$		40	μA	
			$V_O = 5.5 \text{ V}$		100		
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.			90	125	mA

Switching Characteristics Over Operating Conditions (See standard test load)

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	63S081A	9	15	
	63S080, 63S081	9	25	9	20	
MILITARY	53S080, 53S081	9	35	9	30	

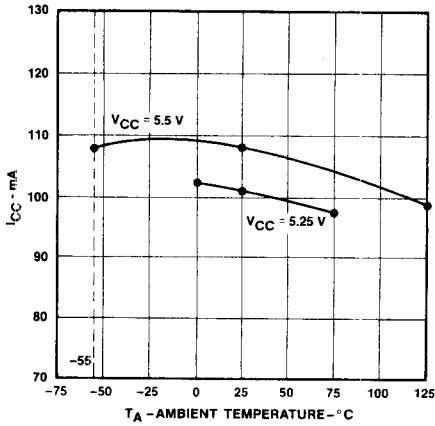
* Three-state only.

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

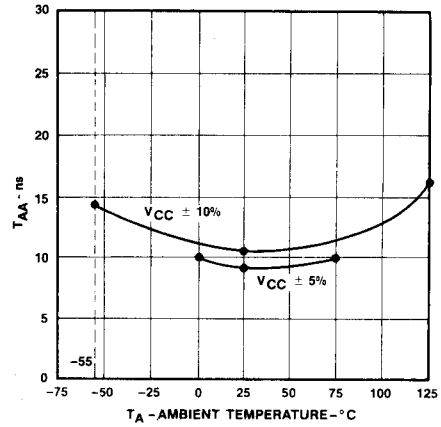
† Typical at 5.0 V V_{CC} and 25 °C T_A .

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Typical I_{CC} vs Temperature



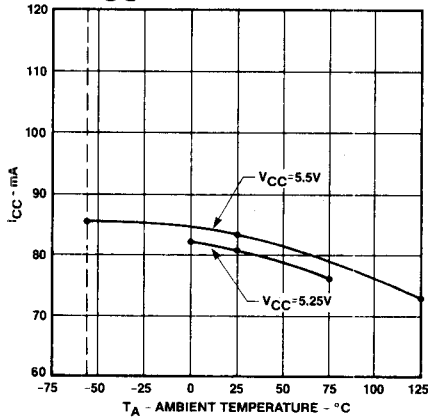
Typical T_{AA} vs Temperature



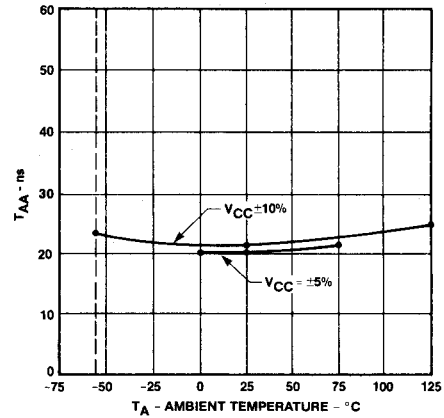
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53/63S140 53/63S141/A

Typical I_{CC} vs Temperature

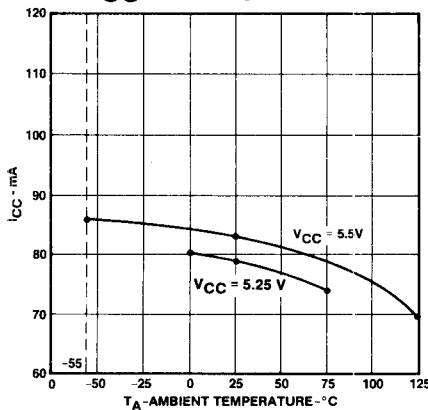


Typical T_{AA} vs Temperature



53/63S240 53/63S241/A

Typical I_{CC} vs Temperature



Typical T_{AA} vs Temperature

