

High Performance 2048x8 PROM TiW PROM Family

53/63S1681 53/63S1681A

3

Features/Benefits

- 35-ns maximum access time
- 16384-bit memory
- Reliable titanium-tungsten fuses (TiW)
- Available in space saving SKINNYDIP® package

Applications

- Microprogram control stores
- Microprocessor program store
- Look-up table
- Character generator
- Code converter
- Programmable Logic Element (PLE™) 11 inputs, 8 outputs, 2048 product terms

Description

The 53/63S1681 is a high-speed 2Kx8 PROM which uses industry standard package and pin out. In addition, the device is available in the 24-pin (0.3 in.) SKINNYDIP®.

The family features low 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 tests which assure 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.

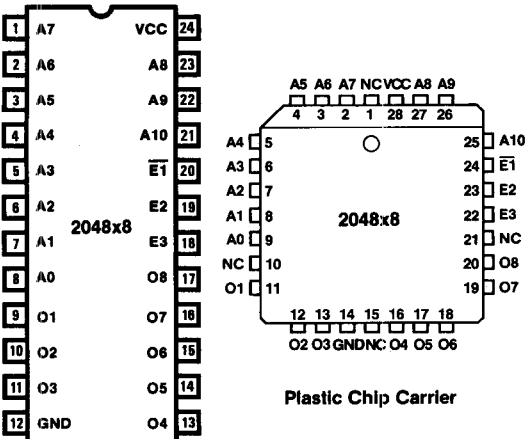
Programming

The 53/63S1681 PROM is programmed with the same programming algorithm as all other Monolithic Memories' generic TiW PROMs. For details contact the factory.

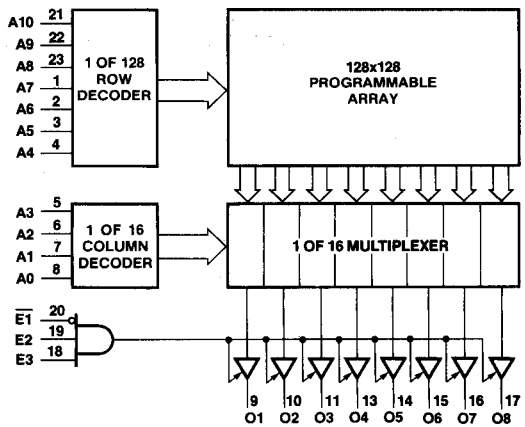
Selection Guide

MEMORY		OUTPUT	PACKAGE		PERFORMANCE	PART NUMBER	
SIZE	ORGANIZATION		PINS	TYPE		0°C to +75°C	-55°C to +125°C
16K	2048x8	TS	24 (28)	N,NS,J,JS,W, (NL),(L)	Enhanced	63S1681A	53S1681A
					Standard	63S1681	53S1681

Pin Configurations



Block Diagram



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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_{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.			135	185	mA

Switching Characteristics Over Operating Conditions (See standard test load)

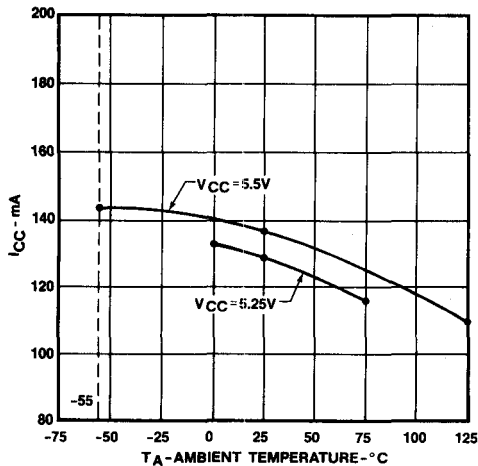
OPERATING CONDITIONS	DEVICE TYPE	t_{AA} (ns)		t_{EA} AND t_{ER} (ns)		UNIT
		ADDRESS ACCESS TIME		ENABLE ACCESS TIME RECOVERY TIME		
		TYP†	MAX	TYP†	MAX	
COMMERCIAL	63S1681A	27	35	18	25	ns
	63S1681	27	50	18	30	
MILITARY	53S1681A	27	50	18	30	
	53S1681	27	60	18	35	

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

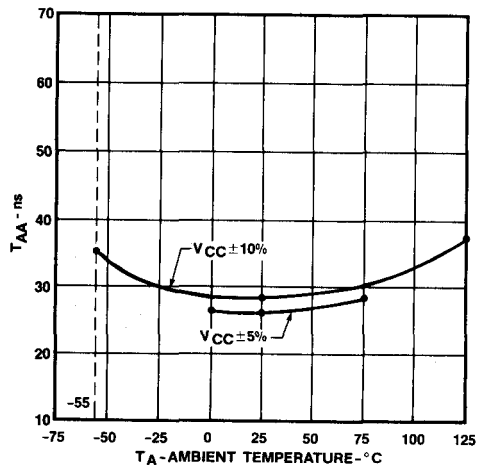
† Typical at 5.0 V V_{CC} and 25°C T_A .

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Typical I_{CC} vs Temperature

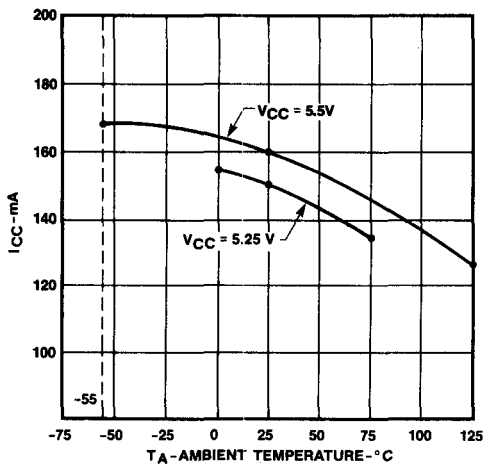


Typical T_{AA} vs Temperature



53/63S3281 53/63S3281A

Typical I_{CC} vs Temperature



Typical T_{AA} vs Temperature

