



39/29VX000 Series Field Programmable Read-Only Memories

Features

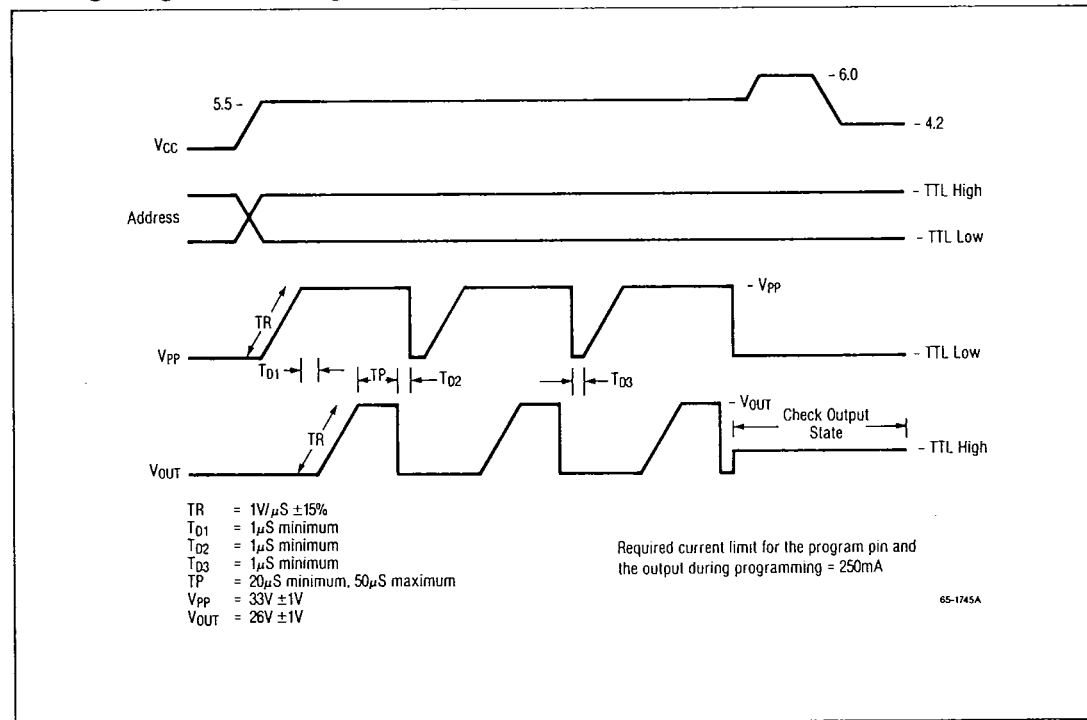
- Low power Schottky design
- Oxide isolation (radiation tolerant)
- Reliable vertical fuse technology
- MIL and Commercial devices available —
-55°C to +125°C and 0°C to +75°C
- Three-state outputs
- Standard industry pinout
- Full package range available — LCC —
Flat — 0.6 DIP — 0.3 DIP
- PROM and SPROM (low power) versions of
each
- Low power required for fusing
- Small die size relative to other technologies

Reliability Information

(Data Developed on 16K PROM)

- Fuse Data
T_A 125°C Method 1015 883C Condition D
2 Billion Bit Hours 0 Failures

Timing Diagram for Programming



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65-1490B 10/85

39/29VX000 Series

Field Programmable Read-Only Memories

Operating Range

(X denotes package type; Y denotes screening level. Refer to the ordering information for complete details.)

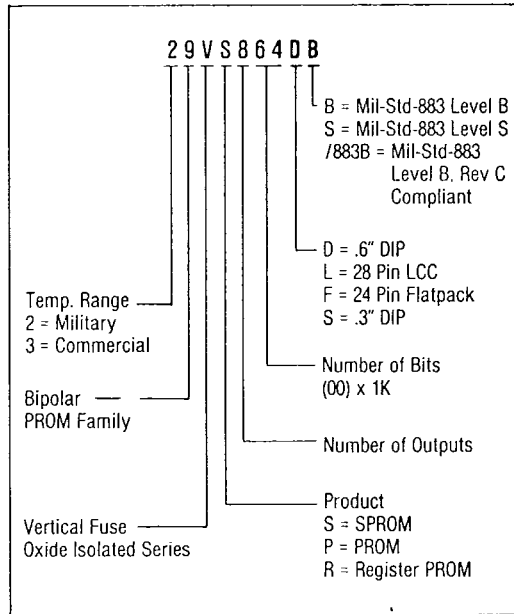
39VP000XY $T_A = 0^\circ\text{C to } +75^\circ\text{C}$
 $V_{CC} = 5.0\text{V } \pm 5\%$, Commercial
 29VP000XY $T_C = -55^\circ\text{C to } +125^\circ\text{C}$
 $V_{CC} = 5.0\text{V } \pm 10\%$, Military

Absolute Maximum Ratings

(Above which the useful life may be impaired)

Junction Temperature $-65^\circ\text{C to } +175^\circ\text{C}$
 Storage Temperature $-65^\circ\text{C to } +150^\circ\text{C}$
 Temperature Under Bias $-55^\circ\text{C to } +125^\circ\text{C}$
 Supply Voltage to Ground
 Potential (Continuous) $-0.5\text{V to } +7.0\text{V}$
 DC Voltage Applied to
 Outputs (Except During
 Programming) $-0.5\text{V to } +V_{CC}$ Max
 DC Input Voltage
 (Address Inputs) $-0.5\text{V to } +5.5\text{V}$
 DC Voltage Applied to Outputs
 During Programming 26V
 Output Current into Outputs
 During Programming 250mA
 DC Input Voltage
 (Chip Select Input-Pin) $-0.5\text{V to } +33\text{V}$
 DC Input Current $-30\text{mA to } +5.0\text{mA}$

Ordering Information



Common Electrical Characteristics Over Operating Range (Unless otherwise noted)

Parameter	Description	Test Conditions	Min	Typ ¹	Max	Units	
V_{OH}^3	Output High Voltage	$V_{CC} = \text{Min}$, $I_{OH} = -2.0\text{mA}$ $V_{IN} = V_{IH}$ or V_{IL}	2.4	3.6		V	
V_{OL}	Output Low Voltage	$V_{CC} = \text{Min}$ $V_{IN} = V_{IH}$ or V_{IL}	$I_{OL} = 8.0\text{mA}$		0.30	0.4	V
			$I_{OL} = 16\text{mA}$		0.35	0.5	
V_{IH}	Input High Level	Guaranteed Input Logical High Voltage For All Inputs	2.0		5.5	V	
V_{IL}	Input Low Level	Guaranteed Input Logical Low Voltage For All Inputs	0.0		0.8	V	
I_{IL}	Input Low Current	$V_{CC} = \text{Max}$, $V_{IN} = 0.4\text{V}$		-10	-250	μA	
I_{IH}	Input High Current	$V_{CC} = \text{Max}$, $V_{IN} = 2.7\text{V}$			10	μA	
		$V_{CC} = \text{Max}$, $V_{IN} = 5.5\text{V}$			0.1	mA	
I_{SC}	Output Short Circuit Current	$V_{CC} = \text{Max}$, $V_{OUT} = 0.2\text{V}^2$	-12	-35	-85	mA	
V_I	Input Clamp Voltage	$V_{CC} = \text{Min}$, $I_{IN} = -18\text{mA}$			1.2	V	
I_{CEX}	Output Leakage Current	$V_{CC} = \text{Max}$ Chip Disabled	$V_O = 4.5\text{V}$			+40	μA
			$V_O = 0.45\text{V}$			-40	

Notes: 1. Typical limits are at $V_{CC} = 5.0\text{V}$ and $T_A = +25^\circ\text{C}$.

2. Not more than one output should be shorted at a time. Duration of the short circuit should not be more than one second.

3. This characteristic cannot be tested prior to programming; it is guaranteed by factory testing.

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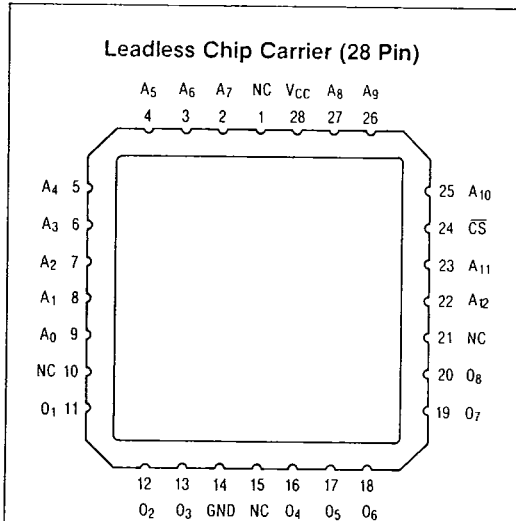
8192 x 8 PROM — 39VP864/29VP864

Power and AC Characteristics Over Operating Range (Unless otherwise noted)

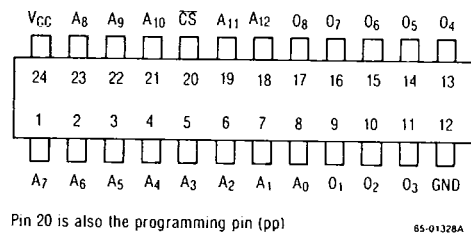
Parameter	Description	Test Conditions	Typical 5V +25°C	Maximum		Units
				Com'l	Mil	
I_{CC}	Power Supply Current	$C_L = 30\text{pF}$ $R_L = 300\Omega$ to V_{CC} and 600Ω to GND (16mA Load) ¹	150	190	190	mA
t_{AA}	Address Access Time		50	55	75	nS
t_{EA}	Enable Access Time		15	20	30	nS
t_{ER}	Enable Recovery Time		15	20	30	nS

Note: 1. 300Ω resistor opened for t_{EA} and t_{ER} measurements between HIGH and OFF states.

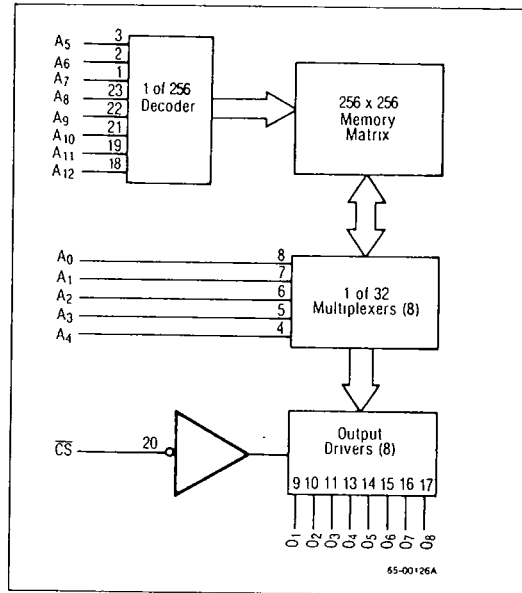
Pin Out Information



0.6, 0.3 Wide, Dual In-Line and Flat Packages



Block Diagram



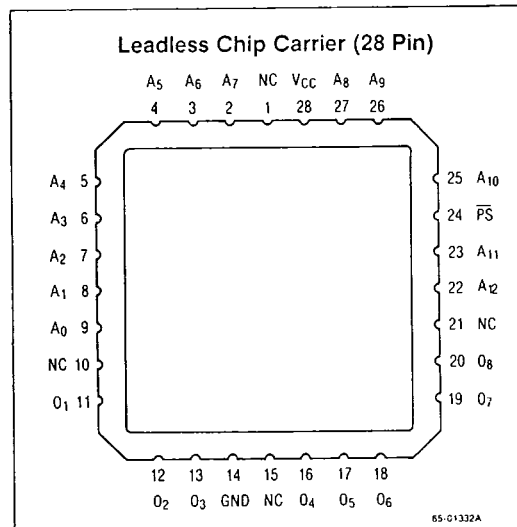
8192 x 8 SPROM — 39VS864/29VS864

Power and AC Characteristics Over Operating Range (Unless otherwise noted)

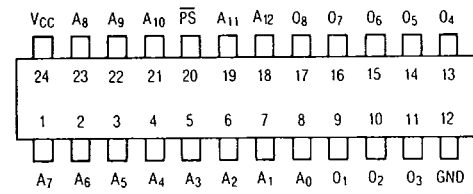
Parameter	Description	Test Conditions	Typical 5V +25°C	Maximum		Units
				Com'l	Mil	
I _{CC}	Power Supply Current	Disabled	45	50	50	mA
		Enabled	150	190	190	
t _{AA}	Address Access Time	C _L = 30pF R _L = 300Ω to V _{CC}	50	55	75	nS
t _{EA}	Enable Access Time	and 600Ω to GND	75	95	125	nS
t _{ER}	Enable Recovery Time	(16mA Load) ¹	15	20	30	nS

Note: 1. 300Ω resistor opened for t_{EA} and t_{ER} measurements between HIGH and OFF states.

Pin Out Information



0.6, 0.3 Wide, Dual In-Line and Flat Packages



Pin 20 is also the programming pin (pp)

Block Diagram

