# Standard Performance Schottky Generic PROM Family 53/63XX-1

## Features/Benefits

- Standard Schottky processing
- Reliability proven nichrome fusible links (qualified for MIL-M-38510)
- Drop in compatible ROMs
- PNP inputs for low input current
- Compatible pin configurations for upward expansion
- 4-bit-wide and 8-bit-wide for byte oriented applications

## Application

- Microprogram instruction
- Microprocessor program store
- Look up table
- Character generator
- Random logic
- Code converter

## Description

The 53/63XX-1-series generic PROM family offers the widest selection of sizes and organizations available in the industry. The 4-bit-wide PROMs range from 256x4 to 1024x4 and feature upward/downward pin out compatibility in the space saving 16 and 18 pin packages. The 8-bit-wide PROMs range from 32x8 to 1024x8 in a wide selection of package sizes. All PROMs have the same programming specifications allowing a single generic programmer.

The family features low input current PNP inputs, full Schottky clamping and Three-state and open collector outputs. The nichrome fuses store a logical high and are programmed to the low 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.

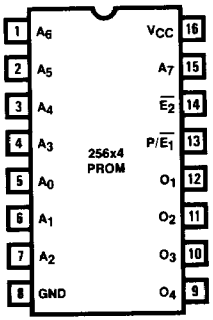
## Generic PROM Selection Guide

| MEMORY | | | PACKAGE | | DEVICE TYPE | | INTERCHANGEABLE ROM | |
|---|---|---|---|---|---|---|---|---|
| Size | Organization | | Pins | Type* | 0°C to +75°C | −55°C to +125°C | 0°C to +75°C | −55°C to +125°C |
| 1K | 256x4 | OC | 16 | J, N, F | 6300-1 | 5300-1 | 6200-1 | 5200-1 |
| | | TS | | | 6301-1 | 5301-1 | 6201-1 | 5201-1 |
| 2K | 512x4 | OC | 16 | J, N, F | 6305-1 | 5305-1 | 6205-1 | 5205-1 |
| | | TS | | | ~~6306-1~~ | ~~5306-1~~ | 6206-1 | 5206-1 |
| 4K | 1024x4 | OC | 18 | J, N, F | ~~6350-1~~ | ~~5350-1~~ | 6250-1 | 5250-1 |
| | | TS | | | ~~6351-1~~ | ~~5351-1~~ | 6251-1 | 5251-1 |
| | | OC | | | 6352-1 | 5352-1 | 6252-1 | 5252-1 |
| | | TS | | | 6353-1 | 5353-1 | 6253-1 | 5253-1 |
| ¼K | 32x8 | OC | 16 | J, N, F | 6330-1 | 5330-1 | 6230-1 | 5230-1 |
| | | TS | | | 6331-1 | 5331-1 | 6231-1 | 5231-1 |
| 2K | 256x8 | OC | 20 | J, N | ~~6308-1~~ | ~~5308-1~~ | — | — |
| | | TS | | | ~~6309-1~~ | ~~5309-1~~ | — | — |
| | | OC | 24 | J, N, F | 6335-1 | 5335-1 | 6235-1 | 5235-1 |
| | | TS | | | 6336-1 | 5336-1 | 6236-1 | 5236-1 |
| 4K | 512x8 | OC | 24 | J, N, F | ~~6340-1~~ | ~~5340-1~~ | 6240-1 | 5240-1 |
| | | TS | | | ~~6341-1~~ | ~~5341-1~~ | 6241-1 | 5241-1 |
| | | OC | 20 | J, N | 6348-1 | 5348-1 | — | — |
| | | TS | | | 6349-1 | 5349-1 | — | — |
| 8K | 1024x8 | OC | 24 | J, N, F | 6380-1 | 5380-1 | 6280-1 | 5280-1 |
| | | TS | | | 6381-1 | 5381-1 | 6281-1 | 5281-1 |
| | | OC | | | 6384-1 | 5384-1 | 6284-1 | 5284-1 |
| | | TS | | | 6385-1 | 5385-1 | 6285-1 | 5285-1 |
| | | OC | 22 | J | 6386-1 | 5386-1 | 6286-1 | 5286-1 |
| | | TS | | | 6387-1 | 5387-1 | 6287-1 | 5287-1 |

*Package Types: N is Plastic DIP, J is Ceramic DIP and F is Flat Pak

## Pin Configurations

53/6300-1
53/6301-1

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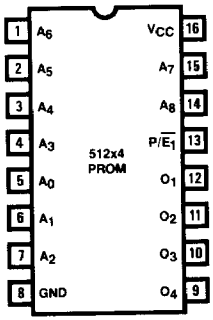


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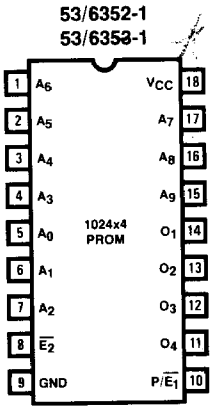


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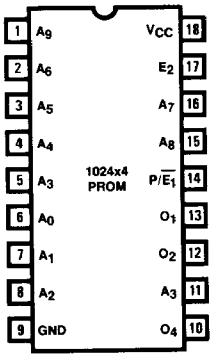


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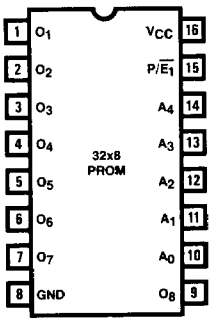


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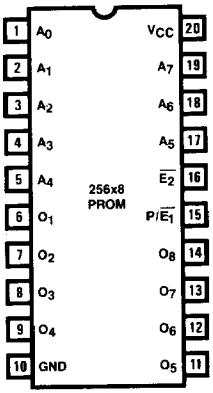


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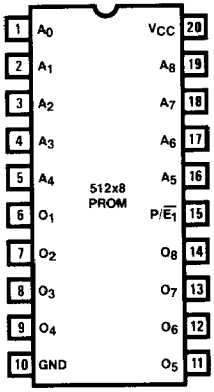
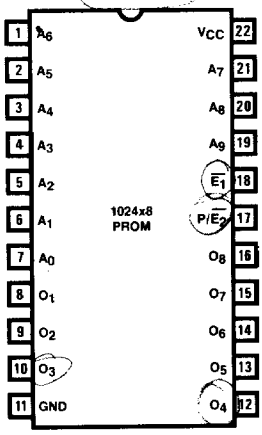
53/6349-1




53/6386-1
53/6387-1

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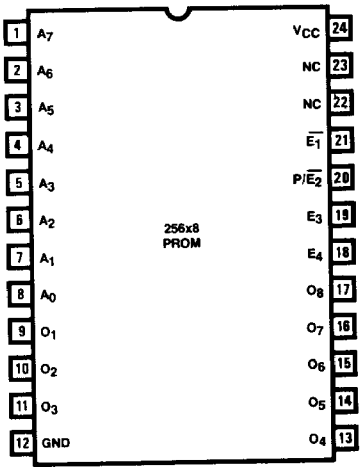


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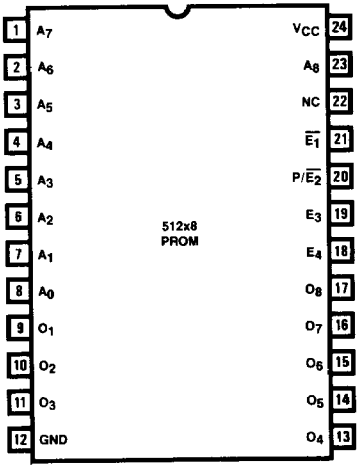
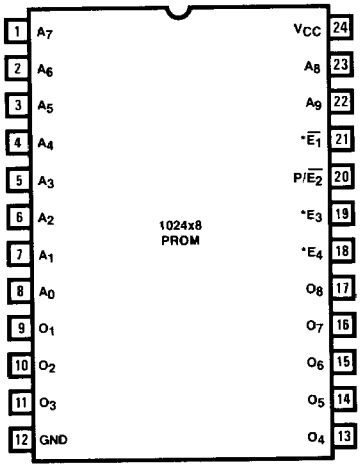



53/6380-1, *53/6384-1
53/6381-1, *53/6385-1




*NO CONNECTION Replacement for 2708 EPROM.

NOTE: Pin assignments for ceramic (J package), plastic (N package) and flat pack (F package) are the same.

## Absolute Maximum Ratings

| | |
|---|---|
| Supply Voltage, $V_{CC}$ | −0.5V to +7.0V |
| Input Voltage | −1.5V to +5.5V |
| Input Current | −20 mA to +5 mA |
| Output Current | −100 mA to +100 mA |
| Storage Temperature Range | −65°C to +150°C |

## Recommended Operating Conditions

| SYMBOL | PARAMETER | | 53′ (Military) MIN | NOM | MAX | 63′ (Commercial) MIN | NOM | MAX | UNIT |
|---|---|---|---|---|---|---|---|---|---|
| $V_{CC}$ | Supply Voltage | | 4.5 | 5.0 | 5.5 | 4.75 | 5.00 | 5.25 | V |
| $I_{OH}$ | High Level Output Current | | | | −2.0 | | | −3.2 | mA |
| $I_{OL}$ | Low Level Output Current | '00, '01, '05, '06, '08, '09, '40, '41, '48, '49, '50, '51, '52, '53 | | | 12 | | | 16 | mA |
| | | '30, '31, '35, '36, '80, '81 '84, '85, '86, '87 | | | 8 | | | 12 | mA |
| $T_A$ | Operating Free Air Temperature | | −55 | | 125 | 0 | | 75 | °C |

## Electrical Characteristics

**Over Recommended Operating Free Air Temperature Range (Unless Otherwise Noted)**

| SYMBOL | PARAMETER | | CONDITIONS | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|---|
| $V_{IH}$ | High Level Input Voltage | | | | 2.0 | | | V |
| $V_{IL}$ | Low Level Input Voltage | | | | | | 0.8 | V |
| $V_{IC}$ | Input Clamp Voltage | | $V_{CC}$ = Min, $I_I$ = −18mA | | | | −1.5 | V |
| $V_{OL}$ | Low Level Output Voltage | | $V_{CC}$ = Min, $I_{OL}$ = Max | | | | 0.50 | V |
| $I_I$ | Maximum Input Current | | $V_{CC}$ = Max, $V_I$ = 4.5V (Program Pin) $V_I$ = 5.5V (Other Inputs) | | | | 1.0 | mA |
| $I_{IH}$ | High Level Input Current | | $V_{CC}$ = Max, $V_I$ = 2.4V | | | | 40 | μA |
| $I_{IL}$ | Low Level Input Current | | $V_{CC}$ = Max, $V_I$ = 0.45V | | | | −250 | μA |
| $C_I$ | Input Capacitance | | $V_{CC}$ = 5.0V, $T_A$ = 25°C, f = 1 MHz | $V_I$ = 2.0V | | 7 | | pF |
| $C_O$ | Output Capacitance | | | $V_O$ = 2.0V | | 8 | | pF |
| $I_{CC}$ | Supply Current | '30, '31 | $V_{CC}$ = Max, All inputs grounded, All outputs open | | | 90 | 125 | mA |
| | | '00, '01, '05, '06 | | | | 95 | 130 | |
| | | '08, '09, '48, '49 | | | | 115 | 155 | |
| | | '35, '36, '40, '41 | | | | 125 | 170 | |
| | | '50, '51, '52, '53 | | | | 130 | 175 | |
| | | '80, '81, '84, '85, '86, '87 | | | | 135 | 180 | |

**OPEN COLLECTOR OUTPUT CURRENT**

| | | | | | |
|---|---|---|---|---|---|
| $I_{CEX}$ | Output Leakage Current | $V_{CC}$ = Max, $V_O$ = 2.4V | | 100 | μA |

**THREE STATE OUTPUT ONLY**

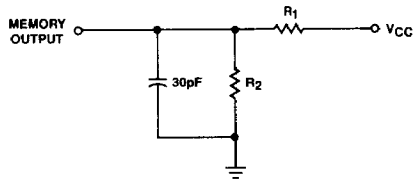
| | | | | | |
|---|---|---|---|---|---|
| $V_{OH}$ | High Level Output Voltage | $V_{CC}$ = Min, $I_{OH}$ = Max | 2.4 | | V |
| $I_{HZ}$ | High Level OFF State Output Current | $V_{CC}$ = Max, $V_O$ = 2.4V | | 100 | μA |
| $I_{LZ}$ | Low Level OFF State Output Current | $V_{CC}$ = Max, $V_O$ = 0.5V | | −100 | μA |
| $I_{OS}$ | Output Short Circuit Current | $V_{CC}$ = 5.0V, $V_O$ = 0V | −20 | −90 | mA |

## Switching Characteristics

**Over Recommended Ranges of $T_A$ and $V_{CC}$ (Unless Otherwise Noted)**

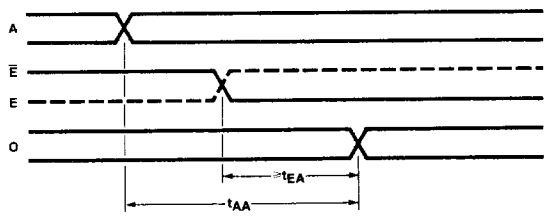
| DEVICE TYPE | CONDITIONS (See standard test load) | | $t_{AA}$ (ns) ADDRESS ACCESS TIME | $t_{EA}$ & $t_{ER}$ (ns) ENABLE ACCESS & RECOVERY TIME |
|---|---|---|---|---|
| | $R_1$ (Ω) | $R_2$ (Ω) | MAX | MAX |
| 6300-1, 6301-1 | 300 | 600 | 55 | 30 |
| 5300-1, 5301-1 | 375 | 750 | 75 | 30 |
| 6305-1, 6306-1 | 300 | 600 | 60 | 30 |
| 5305-1, 5306-1 | 375 | 750 | 75 | 40 |
| 6308-1, 6309-1 | 300 | 600 | 70 | 30 |
| 5308-1, 5309-1 | 375 | 750 | 80 | 40 |
| 6330-1, 6331-1 | 375 | 750 | 50 | 30 |
| 5330-1, 5331-1 | 560 | 1120 | 60 | 30 |
| 6335-1, 6336-1 | 375 | 750 | 70 | 30 |
| 5335-1, 5336-1 | 560 | 1120 | 80 | 40 |
| 6340-1, 6341-1 | 300 | 600 | 70 | 30 |
| 5340-1, 5341-1 | 375 | 750 | 80 | 40 |
| 6348-1, 6349-1 | 300 | 600 | 70 | 30 |
| 5348-1, 5349-1 | 375 | 750 | 80 | 40 |
| 6350-1, 6351-1 | 300 | 600 | 60 | 30 |
| 5350-1, 5351-1 | 375 | 750 | 75 | 40 |
| 6352-1, 6353-1 | 300 | 600 | 60 | 30 |
| 5352-1, 5353-1 | 375 | 750 | 75 | 40 |
| 6380-1, 6381-1 | 375 | 750 | 90 | 40 |
| 5380-1, 5381-1 | 560 | 1120 | 125 | 40 |
| 6384-1, 6385-1 | 375 | 750 | 90 | 40 |
| 5384-1, 5385-1 | 560 | 1120 | 125 | 40 |
| 6386-1, 6387-1 | 375 | 750 | 90 | 40 |
| 5386-1, 5387-1 | 560 | 1120 | 125 | 40 |

## Standard Test Load

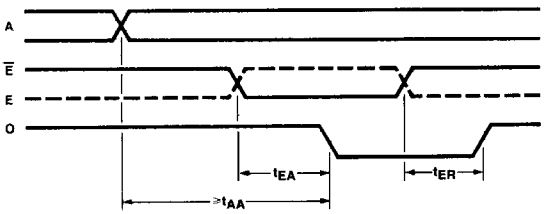



Input Pulse Amplitude 3.0V
Input Rise and Fall Times 5ns from 1.0V to 2.0V
Measurements Made at 1.5V

## Definition of Waveforms




ADDRESS ACCESS TIME




ENABLE ACCESS TIME AND RECOVERY TIME