



## DM54/74S472 (512 x 8) 4096-Bit TTL PROM

### General Description

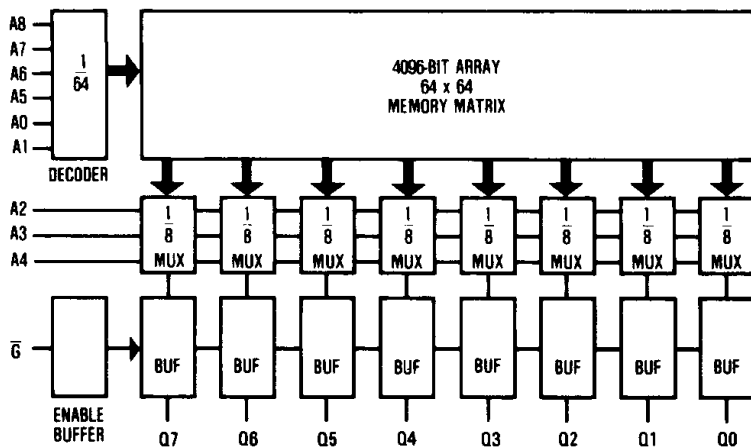
This Schottky memory is organized in the popular 512 words by 8 bits configuration. A memory enable input is provided to control the output states. When the device is enabled, the outputs represent the contents of the selected word. When disabled, the 8 outputs go to the "OFF" or high impedance state.

PROMs are shipped from the factory with lows in all locations. A high may be programmed into any selected location by following the programming instructions.

### Features

- Advanced titanium-tungsten (Ti-W) fuses
- Schottky-clamped for high speed
  - Address access down to—35 ns max
  - Enable access—25 ns max
  - Enable recovery—25 ns max
- PNP inputs for reduced input loading
- All DC and AC parameters guaranteed over temperature
- Low voltage TRI-SAFE™ programming
- TRI-STATE® outputs

### Block Diagram



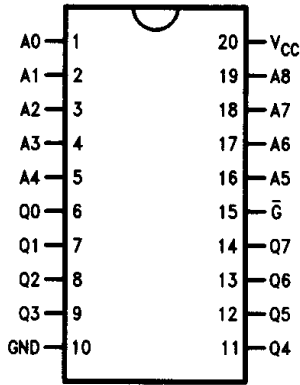
TL/D/9191-1

### Pin Names

A0-A8	Addresses
$\bar{G}$	Output Enable
GND	Ground
Q0-Q7	Outputs
V <sub>CC</sub>	Power Supply

## Connection Diagrams

Dual-In-Line Package

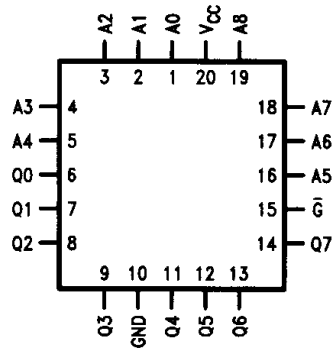


Top View

Order Number DM54/74S472J, 472AJ, 472BJ  
DM74S472N, 472AN, 472BN  
See NS Package Number J20A or N20A

TL/D/9191-2

Plastic Leaded Chip Carrier (PLCC)



Top View

Order Number DM74S472V, 472AV, 472BV  
See NS Package Number V20A

TL/D/9191-3

## Ordering Information

Commercial Temp Range (0°C to +70°C)

Parameter/Order Number	Max Access Time (ns)
DM74S472AN	45
DM74S472BN	35
DM74S472N	60
DM74S472AJ	45
DM74S472BJ	35
DM74S472J	60
DM74S472AV	45
DM74S472BV	35
DM74S472V	60

Military Temp Range (-55°C to +125°C)

Parameter/Order Number	Max Access Time (ns)
DM54S472AJ	60
DM54S472BJ	50
DM54S472J	75

**Absolute Maximum Ratings** (Note 1)

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Supply Voltage (Note 2)	-0.5V to +7.0V
Input Voltage (Note 2)	-1.2V to +5.5V
Output Voltage (Note 2)	-0.5V to +5.5V
Storage Temperature	-65°C to +150°C
Lead Temp. (Soldering, 10 seconds)	300°C
ESD to be determined	

**Note 1:** Absolute maximum ratings are those values beyond which the device may be permanently damaged. They do not mean that the device may be operated at these values.

**Note 2:** These limits do not apply during programming. For the programming ratings, refer to the programming instructions.

**Operating Conditions**

	Min	Max	Units
Supply Voltage ( $V_{CC}$ )			
Military	4.50	5.50	V
Commercial	4.75	5.25	V
Ambient Temperature ( $T_A$ )			
Military	-55	+125	°C
Commercial	0	+70	°C
Logical "0" Input Voltage	0	0.8	V
Logical "1" Input Voltage	2.0	5.5	V

**DC Electrical Characteristics** (Note 1)

Symbol	Parameter	Conditions	DM54S472			DM74S472			Units
			Min	Typ	Max	Min	Typ	Max	
$I_{IL}$	Input Load Current	$V_{CC} = \text{Max}, V_{IN} = 0.45V$		-80	-250		-80	-250	$\mu A$
$I_{IH}$	Input Leakage Current	$V_{CC} = \text{Max}, V_{IN} = 2.7V$			25			25	$\mu A$
		$V_{CC} = \text{Max}, V_{IN} = 5.5V$			1.0			1.0	mA
$V_{OL}$	Low Level Output Voltage	$V_{CC} = \text{Min}, I_{OL} = 16 \text{ mA}$		0.35	0.50		0.35	0.45	V
$V_{IL}$	Low Level Input Voltage				0.80			0.80	V
$V_{IH}$	High Level Input Voltage		2.0			2.0			V
$V_C$	Input Clamp Voltage	$V_{CC} = \text{Min}, I_{IN} = -18 \text{ mA}$		-0.8	-1.2		-0.8	-1.2	V
$C_I$	Input Capacitance	$V_{CC} = 5.0V, V_{IN} = 2.0V$ $T_A = 25^\circ C, 1 \text{ MHz}$		4.0			4.0		pF
$C_O$	Output Capacitance	$V_{CC} = 5.0V, V_O = 2.0V$ $T_A = 25^\circ C, 1 \text{ MHz}, \text{Outputs Off}$		6.0			6.0		pF
$I_{CC}$	Power Supply Current	$V_{CC} = \text{Max}, \text{Input Grounded}$ All Outputs Open		110	155		110	155	mA
$I_{OS}$	Short Circuit Output Current	$V_O = 0V, V_{CC} = \text{Max}$ (Note 2)	-20		-70	-20		-70	mA
$I_{OZ}$	Output Leakage (TRI-STATE)	$V_{CC} = \text{Max}, V_O = 0.45V \text{ to } 2.4V$ Chip Disabled			+50			+50	$\mu A$
					-50			-50	$\mu A$
$V_{OH}$	Output Voltage High	$I_{OH} = -2.0 \text{ mA}$	2.4	3.2					V
		$I_{OH} = -6.5 \text{ mA}$				2.4	3.2		V

**Note 1:** These limits apply over the entire operating range unless stated otherwise. All typical values are for  $V_{CC} = 5.0V$  and  $T_A = 25^\circ C$ .

**Note 2:** During  $I_{OS}$  measurement, only one output at a time should be grounded. Permanent damage may otherwise result.

