



DM77/87S181, DM77/87S281 (1024 x 8) 8192-Bit TTL PROMs

General Description

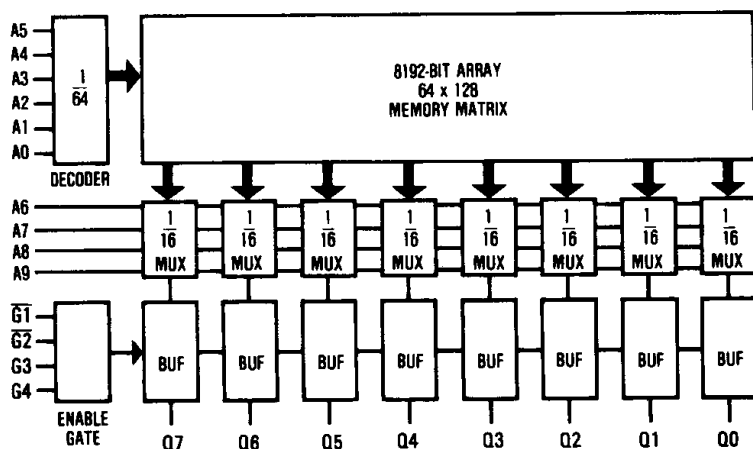
These Schottky memories are organized in the popular 1024 words by 8 bits configuration. Memory enable inputs are provided to control the output states. When the device is enabled, the outputs represent the contents of the selected word. When disabled, the 8 outputs go to the "OFF" or high impedance 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—45 ns max
 - Enable access—30 ns max
 - Enable recovery—30 ns max
- PNP inputs for reduced input loading
- All DC and AC parameters guaranteed over temperature
- Low voltage TRI-SAFETM programming
- TRI-STATE® outputs

Block Diagram



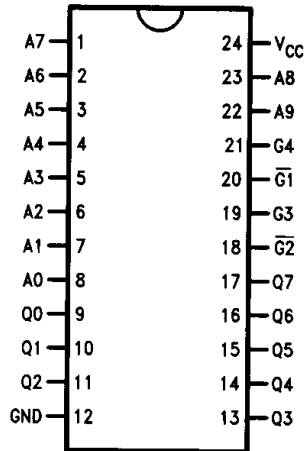
TL/D/9194-1

Pin Names

A0-A9	Addresses
$\overline{G1}$, $\overline{G2}$, G3, G4	Output Enables
GND	Ground
Q0-Q7	Outputs
V _{CC}	Power Supply

Connection Diagrams

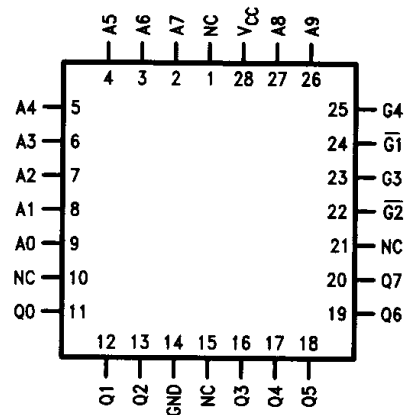
Dual-In-Line Package



Top View

TL/D/9194-2

Plastic Leaded Chip Carrier (PLCC)



Top View

TL/D/9194-3

Order Number DM77/87S181J, 281J, 181AJ, 281AJ,
DM87S181N, 281N, 181AN, 281AN
See NS Package Number J24A, J24F, N24A or N24C

Order Number DM87S181V
See NS Package Number V28A

Ordering Information

Commercial Temp Range (0°C to +70°C)

Parameter/Order Number	24-Pin Standard DIP	24-Pin Narrow DIP	Max Access Time (ns)
DM87S181AJ	X		45
DM87S181J	X		55
DM87S181AN	X		45
DM87S181N	X		55
DM87S181V	X		55
DM87S281AJ		X	45
DM87S281J		X	55
DM87S281AN		X	45
DM87S281N		X	55

Military Temp Range (-55°C to +125°C)

Parameter/Order Number	24-Pin Standard DIP	24-Pin Narrow DIP	Max Access Time (ns)
DM77S181AJ	X		65
DM77S181J	X		75
DM77S281AJ		X	65
DM77S281J		X	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	DM77S181 DM77S281			DM87S181 DM87S281			Units
			Min	Typ	Max	Min	Typ	Max	
I_{IL}	Input Load Current	$V_{CC} = \text{Max}, V_{IN} = 0.45V$		−80	−250		−80	−250	μA
I_{IH}	Input Leakage Current	$V_{CC} = \text{Max}, V_{IN} = 2.7V$			25			25	μA
		$V_{CC} = \text{Max}, V_{IN} = 5.5V$			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		115	170		115	170	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	μA
					−50			−50	μA
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.

