

DM77/87S321, DM77/87S421 (4096 x 8) 32,768-Bit TTL PROMs

General Description

These Schottky memories are organized in the popular 4096 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 eight 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.

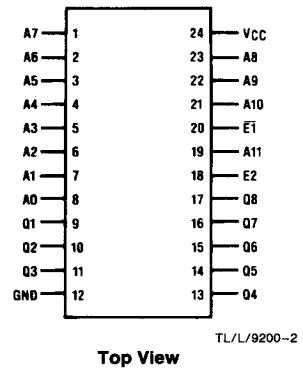
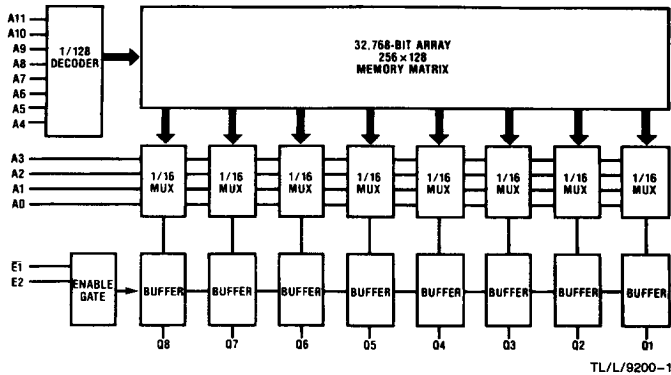
The DM77/87S321 and DM77/87S421 program the same as all other nonregistered PROMs from National.

Features

- Advanced fuse technology
- Schottky-clamped for high speed
 - Address access—55 ns max
 - Enable access—20 ns typ
 - Enable recovery—20 ns typ
- PNP inputs for reduced input loading
- All DC and AC parameters guaranteed over temperature
- Low voltage TRI-SAFE™ programming
- Generic programming

	Military	Commercial	TRI-STATE	Package
DM87S321		X	X	N, J, V
DM77S421	X		X	J
DM87S421		X	X	N, J*, V
DM77S421	X		X	J*

Block and Connection Diagrams



Top View

Order Number DM77/87S321J,
421J, DM87S321N, 421N,
DM87S321V or DM87S421V
See NS Package Number
J24A, N24A or V28A

DC Electrical Characteristics (Note 1)

Symbol	Parameter	Conditions	DM77S321/421			DM87S321/421			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	$V_{CC} = \text{Min}, I_{OL} = 12 \text{ mA}$		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	$V_{CC} = 5.0, V_{IN} = 2.0V$ $T_A = 25^\circ C, 1 \text{ MHz}$		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	$V_{CC} = \text{Max}$, All Outputs Open		135	185		135	185	mA

TRI-STATE® Parameters

I_{OS}	Short Circuit Output Current	$V_O = 0V, V_{CC} = \text{Max}$ (Note 4)	-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	-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

AC Electrical Characteristics (With Standard Load and Operating Conditions)

Symbol	JEDEC Symbol	Parameters	DM77S321/421			DM87S321/421			Units
			Min	Typ	Max	Min	Typ	Max	
T_{AA}	TAVQV	Address Access Time		40	65		40	55	ns
T_{EA}	TEVQV	Enable Access Time		20	35		20	30	ns
T_{ER}	TEXQX	Enable Recovery Time		20	35		20	30	ns
T_{ZX}	TEVQX	Output Enable Time		20	35		20	30	ns
T_{XZ}	TEXQZ	Output Disable Time		20	35		20	30	ns

Note 1: These limits apply over the entire operating range unless otherwise noted. 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.