



Series 54/74

DM7573/DM8573

DM7573/DM8573 1024-bit field-programmable read only memory general description

The DM7573/DM8573 is a field-programmable read-only memory organized as 256 four-bit words. Selection of the proper word is accomplished through the eight select inputs. Two overriding memory enable inputs are provided; when either or both of the enable inputs are taken to a high state, all the outputs will be turned off. A logical "1" has been built into each bit location. A logical "0" can be programmed into any bit by selecting the proper word, disabling the chip, and applying a programming pulse to the proper output.

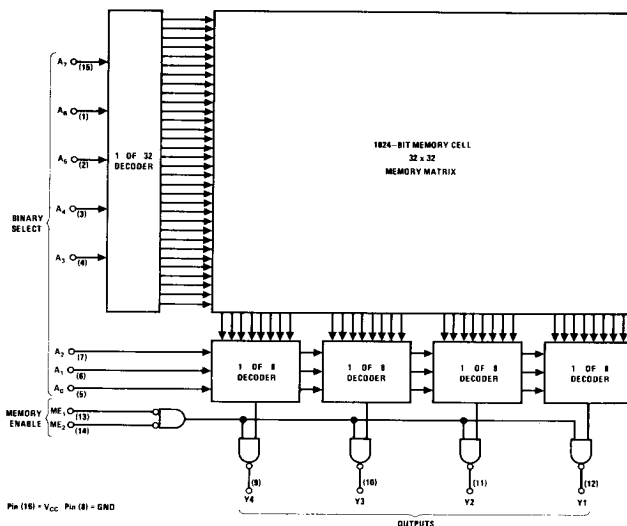
An additional feature of the DM7573/DM8573 is that its outputs can be tested in the logical "0" state without permanently programming the memory. In order to place all outputs in the logical "0" state, a 9V level is applied to the most significant address input, Pin 15. This feature will allow a much more complete test to be made before a part is shipped, thus minimizing customer returns.

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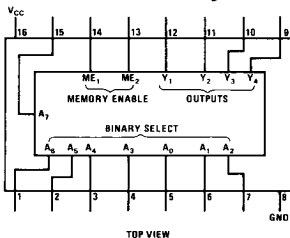
features

- Can be programmed in 1 sec (50% logical 1's; 50% logical 0's)
- Pin compatible with SN54187/SN74187
- Can be programmed after being connected in a system
- Outputs can be fully tested before programming
- Typical power dissipation 400 mW
- Propagation delay 60 ns

logic and connection diagrams



Dual-In-Line Package



TOP VIEW

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absolute maximum ratings(Note 1) **operating conditions**

			MIN	MAX	UNITS
Supply Voltage	7.0V	Supply Voltage (V _{CC})			
Input Voltage	5.5V (12V on Pins 13, 14)	DM7573	4.5	5.5	Volts
Output Voltage	5.5V (25V for programming)	DM8573	4.75	5.25	Volts
Storage Temperature Range	-65°C to +150°C	Temperature (T _A)			
Lead Temperature (Soldering, 10 sec)	300°C	DM7573	-55	+125	°C
		DM8573	0	70	°C

electrical characteristics(Note 2)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Logical "1" Input Voltage	V _{CC} = Min	2.0			V
Logical "0" Input Voltage	V _{CC} = Min			0.8	V
Logical "1" Output Current	V _{CC} = Max, V _O = 4.0V			50	μA
Logical "0" Output Voltage	V _{CC} = Min, I _O = 16 mA			0.4	V
Logical "1" Input Current	V _{CC} = Max, V _{IN} = 2.4V			40	μA
	V _{CC} = Max, V _{IN} = 5.5V			1	mA
Logical "0" Input Current	V _{CC} = Max, V _{IN} = 0.4V			-1	mA
Supply Current	V _{CC} = Max		82	110	mA
Input Clamp Voltage	V _{CC} = Min, I _{IN} = -12 mA			-1.5	V
Propagation Delay to a Logical "0" from Address to Output, t _{pd0}	V _{CC} = 5.0V T _A = 25°C		60		ns
Propagation Delay to a Logical "0" from Enable to Output, t _{pd0}	V _{CC} = 5.0V T _A = 25°C		28		ns
Propagation Delay to a Logical "1" from Address to Output, t _{pd1}	V _{CC} = 5.0V T _A = 2.5°C		60		ns
Propagation Delay to a Logical "1" from Enable to Output, t _{pd1}	V _{CC} = 5.0V T _A = 25°C		28		ns

Note 1: "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. Except for "Operating Temperature Range" they are not meant to imply that the devices should be operated at these limits. The table of "Electrical Characteristics" provides conditions for actual device operation.

Note 2: Unless otherwise specified min/max limits apply across the -55° to +125°C temperature range for the DM7573 and across the 0°C to 70°C range for the DM8573. All typicals are given for V_{CC} = 5.0V and T_A = 25°C.

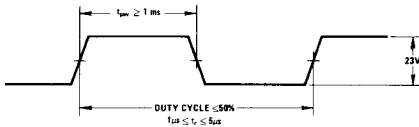
programming procedure

The DM7573/DM8573 is manufactured such that the outputs are high for all addresses. To program a logic zero (low output level), the following procedure should be followed:

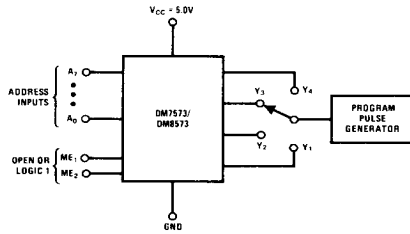
1. Apply a V_{CC} voltage of 5.0V and select the word to be programmed using address inputs $A_7 - A_0$.
2. Apply a high level (logic 1) to either or both of the ENABLE inputs (Pins 13 and 14).
3. Apply a programming pulse to the output where a low level is desired. The voltage

should be limited to 25V; the current should be limited to 70 mA. Apply the pulse as shown in the diagram. A reduction in current of approximately 15 mA indicates the bit is programmed.

4. To verify that the bit has been programmed, apply a logic zero to both of the enable inputs and check for a low level on the programmed output.
5. Advance to the next output and/or word, programming only one bit at a time.



Programming Pulse



Programming Connections

board programming

The DM7573/DM8573 possesses added flexibility in that it can be programmed *after* it has already been connected in a system. Whether soldered to a printed circuit board or socketed, if the procedure described below is followed the units may be programmed even though their outputs are connected.

As shown in the diagram the decoder used to select the appropriate package must be operated at voltage levels which are 6 volts higher than normal. The outputs of the decoder therefore range between about 6V for a logical "0" and 9V for a

logical "1". Because the decoder outputs are active-low, the ENABLE input of the device to be programmed is operated at 6V. The other ENABLE inputs reach 9V, normally a prohibited level, but in this case the circuit was designed to use the 9V to prevent the outputs from being programmed.

Although all common outputs receive the programming pulse, only the memory whose ENABLE input is at the 6V level is programmed.

