

# DM7223/DM8223 1-Line to 8-Line Demultiplexers

## General Description

These circuits demultiplex a data train, and route the data to one of eight outputs. The binary code which is applied to three address lines determines which unique output receives the data. When the data input is at a logical "0," only the addressed output will be a logical "0." When the data input is at a logical "1," all outputs, and therefore the addressed output, will be at a logical "1."

## Features

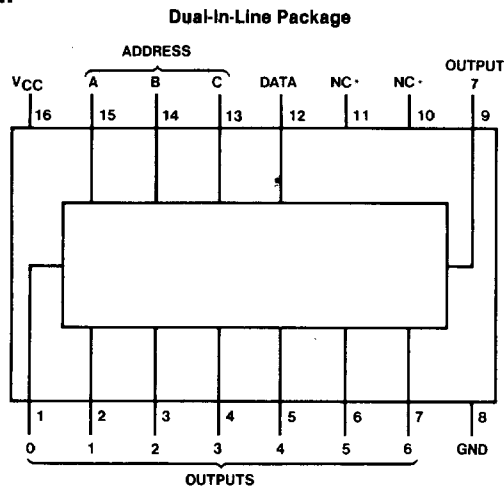
- Typical power dissipation 140 mW
- Typical propagation delay 25 ns

## Absolute Maximum Ratings (Note 1)

Supply Voltage	7V
Input Voltage	5.5V
Storage Temperature Range	-65°C to 150°C

**Note 1:** The "Absolute Maximum Ratings" are those values beyond which the safety of the device can not be guaranteed. The device should not be operated at these limits. The parametric values defined in the "Electrical Characteristics" table are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

## Connection Diagram



TL/F/6582-1

\*Do not make connection to pins 10 or 11.

7223 (J)

8223 (N)

## Function Table

Data Input	Address Inputs			Outputs							
	C	B	A	0	1	2	3	4	5	6	7
L	L	L	L	L	H	H	H	H	H	H	H
L	L	L	H	H	L	H	H	H	H	H	H
L	L	H	L	H	H	L	H	H	H	H	H
L	L	H	H	H	H	H	L	H	H	H	H
L	H	L	L	H	H	H	H	L	H	H	H
L	H	L	H	H	H	H	H	H	L	H	H
L	H	H	L	H	H	H	H	H	H	L	H
L	H	H	H	H	H	H	H	H	H	H	L
H	X	X	X	H	H	H	H	H	H	H	H

X = Don't Care

## Recommended Operating Conditions

Symbol	Parameter	DM7223			DM8223			Units
		Min	Nom	Max	Min	Nom	Max	
V <sub>CC</sub>	Supply Voltage	4.5	5	5.5	4.75	5	5.25	V
V <sub>IH</sub>	High Level Input Voltage	2			2			V
V <sub>IL</sub>	Low Level Input Voltage			0.8			0.8	V
I <sub>OH</sub>	High Level Output Current			-0.4			-0.4	mA
I <sub>OL</sub>	Low Level Output Current			16			16	mA
T <sub>A</sub>	Free Air Operating Temperature	-55		125	0		70	°C

## Electrical Characteristics

over recommended operating free air temperature (unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ (Note 1)	Max	Units
V <sub>I</sub>	Input Clamp Voltage	V <sub>CC</sub> = Min, I <sub>I</sub> = -12 mA			-1.5	V
V <sub>OH</sub>	High Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OH</sub> = Max V <sub>IL</sub> = Max, V <sub>IH</sub> = Min	2.4			V
V <sub>OL</sub>	Low Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OL</sub> = Max V <sub>IH</sub> = Min, V <sub>IL</sub> = Max			0.4	V
I <sub>I</sub>	Input Current @ Max Input Voltage	V <sub>CC</sub> = Max, V <sub>I</sub> = 5.5V			1	mA
I <sub>IH</sub>	High Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 2.4V			40	μA
I <sub>IL</sub>	Low Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 0.4V			-1.6	mA
I <sub>OS</sub>	Short Circuit Output Current	V <sub>CC</sub> = Max (Note 2)	DM72	-20	-55	mA
			DM82	-18	-57	
I <sub>CC</sub>	Supply Current	V <sub>CC</sub> = Max		28	41	mA

## Switching Characteristics

at V<sub>CC</sub> = 5V and T<sub>A</sub> = 25°C (See Section 1 for Test Waveforms and Output Load)

Parameter	Conditions	C <sub>L</sub> = 15 pF R <sub>L</sub> = 400Ω			Units
		Min	Typ	Max	
t <sub>PLH</sub> Propagation Delay Time Low to High Level Output			26	35	ns
t <sub>PHL</sub> Propagation Delay Time High to Low Level Output			24	35	ns

**Note 1:** All typicals are at V<sub>CC</sub> = 5V, T<sub>A</sub> = 25°C.

**Note 2:** Not more than one output should be shorted at a time.