DM7090/8090 Quad Inverter plus Dual 2-Input NAND Gates
DM7091/8091 Quad 2-Input NAND Buffers
DM7092/8092 Dual 5-Input NAND Gates

General Description

DM7090/DM8090

These devices optimize the flexible utilization of the popular 16-pin package by providing two, 2-input NAND gates plus four inverters in the same package. The electrical specifications are completely compatible with all series 54/74 devices.

DM7091/DM8091

These devices provide four, 2-input NAND buffers in the same package, each with a fan-out of 30 standard TTL loads. These devices are very similar to the popular DM5437/DM7437; however, the DIP pinout is the same as the 5401/7401, whereas the DIP pinout of the 5437/7437 is the same as the 5400/7400.

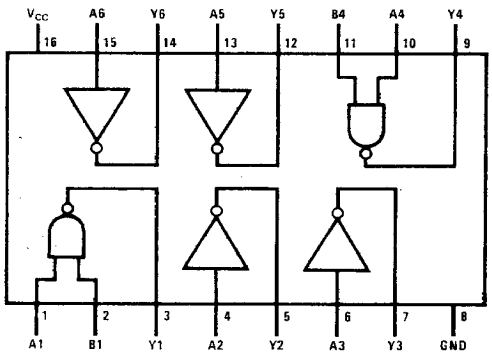
DM7092/DM8092

These devices provide two, 5-input NAND gates in the same package. Their primary advantage is that they fill a product void in the popular DM5400/DM7400 family. The electrical specifications are completely compatible with the series 54/74 devices.

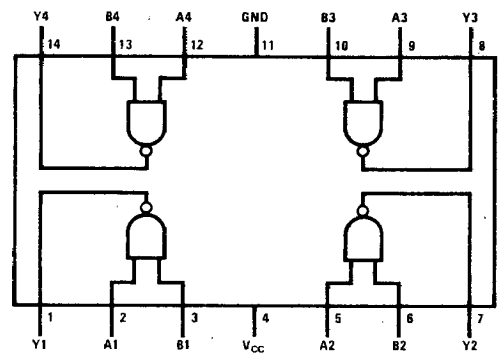
Features

- Typical propagation delay 11 ns
- Typical power dissipation
  - DM7090/DM8090 115 mW
  - DM7091/DM8091 155 mW
  - DM7092/DM8092 35 mW

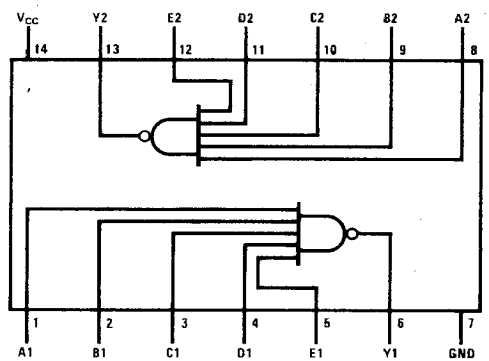
Connection Diagrams



7090/8090(J), (N), (W)



7091/8091(J), (N), (W)



7092/8092(J), (N), (W)

Electrical Characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		CONDITIONS	DM70/80									UNITS
			90			91			92			
			MIN	TYP(1)	MAX	MIN	TYP(1)	MAX	MIN	TYP(1)	MAX	
V_{IH}	High Level Input Voltage		2			2			2			V
V_{IL}	Low Level Input Voltage				0.8			0.8			0.8	V
V_I	Input Clamp Voltage	V_{CC} = Min, I_I = −12 mA, T_A = 25°C			−1.5			−1.5			−1.5	V
I_{OH}	High Level Output Current				−400			−1200			−400	μA
V_{OH}	High Level Output Voltage	V_{CC} = Min, V_{IL} = 0.8V, I_{OH} = Max	2.4			2.4			2.4			V
I_{OL}	Low Level Output Current				16			48			16	mA
V_{OL}	Low Level Output Voltage	V_{CC} = Min, V_{IH} = 2.0V, I_{OL} = Max			0.4			0.4			0.4	V
I_I	Input Current at Maximum Input Voltage	V_{CC} = Max, V_I = 5.5V			1			1			1	mA
I_{IH}	High Level Input Current	V_{CC} = Max, V_I = 2.4V			40			40			40	μA
I_{IL}	Low Level Input Current	V_{CC} = Max, V_I = 0.4V			−1.6			−1.6			−1.6	mA
I_{OS}	Short Circuit Output Current	V_{CC} = Max(2)	−18		−55	−18		−70	−18		−55	mA
I_{CCH}	Supply Current (Total with Outputs High)	V_{CC} = Max, V_I = 0			11			15			3.6	mA
I_{CCL}	Supply Current (Total with Outputs Low)	V_{CC} = Max, V_I = 5.0V			31			46			10.2	mA

Notes

(1) All typical values are at V_{CC} = 5V, T_A = 25°C.

(2) Not more than one output should be shorted at a time.

Switching Characteristics V_{CC} = 5V, T_A = 25°C

PARAMETER		FROM	TO	CONDITIONS	DM70/80									UNITS
					90			91			92			
					MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	
t_{PLH}	Propagation Delay Time, Low-to-High Level Output	Input	Output	C_L = 15 pF, R_L = 400Ω		13	25		13	22		13	25	ns
t_{PHL}	Propagation Delay Time, High-to-Low Level Output	Input	Output			9	15		8	15		8	15	ns