8-Line Data Selectors/Multiplexers

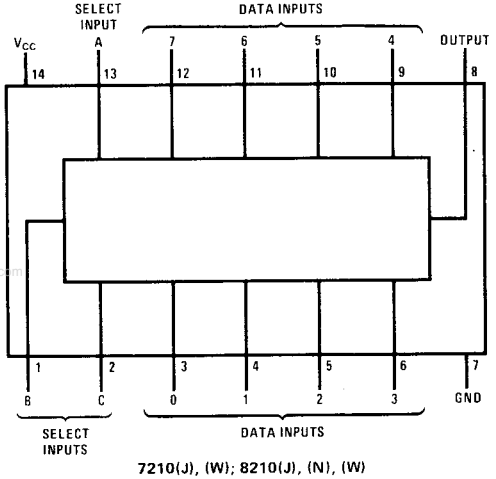
General Description

These monolithic data selectors/multiplexers contain full on-chip binary decoding to select the desired one of eight data sources. The DM7211/8211 have a strobe input, which must be at a low logic level to enable these devices. A high logic level on the strobe latches the output in a high logic state, regardless of the conditions on the other inputs. Depending upon the 3-bit binary number applied to the select lines, the non-inverted data present on the selected input is passed to the output. The circuit can also be used to convert parallel input data to serial output data. If 8 bits of parallel information are applied to the inputs, and if the binary numbers 000 through 111 are sequenced on the select lines, the output will provide a serial presentation of the input bits.

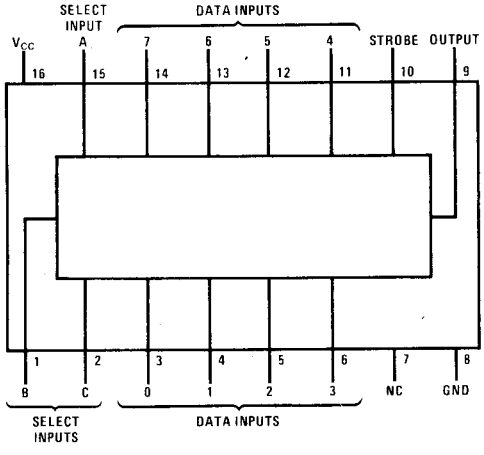
Features

- Full on-chip decoding
- Series 54/74 compatible
- Converts parallel data to serial data
- One volt typical noise immunity
- Typical propagation delay 22 ns
- Typical power dissipation 100 mW

Connection Diagrams



7210(J), (W); 8210(J), (N), (W)



7211(J), (W); 8211(J), (N), (W)

Truth Table

SELECT INPUTS C	B	A	STROBE (DM7211/DM8211 ONLY)	DATA INPUTS 0	1	2	3	4	5	6	7	OUTPUT
L	L	L	L	L	X	X	X	X	X	X	X	L
L	L	L	L	H	X	X	X	X	X	X	X	H
L	L	H	L	X	L	X	X	X	X	X	X	L
L	L	H	L	X	H	X	X	X	X	X	X	H
L	H	L	L	X	X	L	X	X	X	X	X	L
L	H	L	L	X	X	H	X	X	X	X	X	H
L	H	H	L	X	X	X	L	X	X	X	X	L
L	H	H	L	X	X	X	H	X	X	X	X	H
H	L	L	L	X	X	X	X	L	X	X	X	L
H	L	L	L	X	X	X	X	H	X	X	X	H
H	L	H	L	X	X	X	X	X	L	X	X	L
H	L	H	L	X	X	X	X	X	H	X	X	H
H	H	L	L	X	X	X	X	X	X	L	X	L
H	H	L	L	X	X	X	X	X	X	H	X	H
H	H	H	L	X	X	X	X	X	X	X	L	L
H	H	H	L	X	X	X	X	X	X	X	H	H
X	X	X	H	X	X	X	X	X	X	X	X	H

H = High Level
L = Low Level
X = Don't Care

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

PARAMETER		CONDITIONS	DM72/82						UNITS
			10			11			
			MIN	TYP(1)	MAX	MIN	TYP(1)	MAX	
V_{IH}	High Level Input Voltage		2			2			V
V_{IL}	Low Level Input Voltage				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	V
I_{OH}	High Level Output Current				−400			−400	μA
V_{OH}	High Level Output Voltage	V_{CC} = Min, V_{IH} = 2V, I_{OH} = −400μA	2.4			2.4			V
I_{OL}	Low Level Output Current				16			16	mA
V_{OL}	Low Level Output Voltage	V_{CC} = Min, V_{IL} = 0.8V, I_{OL} = 16 mA			0.4			0.4	V
I_I	Input Current at Maximum Input Voltage	V_{CC} = Max, V_I = 5.5V			1			1	mA
I_{IH}	High Level Input Current	V_{CC} = Max, V_I = 2.4V			40			40	μA
I_{IL}	Low Level Input Current	V_{CC} = Max, V_I = 0.4V			−1.6			−1.6	mA
I_{OS}	Short Circuit Output Current	V_{CC} = Max(2)	−18		−55	−18		−55	mA
I_{CC}	Supply Current	V_{CC} = Max(3)		20	33		20	33	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.

(3) I_{CC} is measured with all inputs grounded.

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

PARAMETER		FROM	TO	CONDITIONS	DM72/82						UNITS
					10			11			
					MIN	TYP	MAX	MIN	TYP	MAX	
t_{PLH}	Propagation Delay Time, Low-to-High Level Output	Data	Output	C_L = 15 pF, R_L = 400Ω		23	32		23	32	ns
t_{PHL}	Propagation Delay Time, High-to-Low Level Output	Data	Output			21	30		21	30	ns
t_{PLH}	Propagation Delay Time, Low-to-High Level Output	Strobe	Output			N/A			21	30	ns
t_{PHL}	Propagation Delay Time, High-to-Low Level Output	Strobe	Output			N/A			19	27	ns
t_{PLH}	Propagation Delay Time, Low-to-High Level Output	Select	Output			31	43		31	43	ns
t_{PHL}	Propagation Delay Time, High-to-Low Level Output	Select	Output			31	42		31	42	ns

Logic Diagrams

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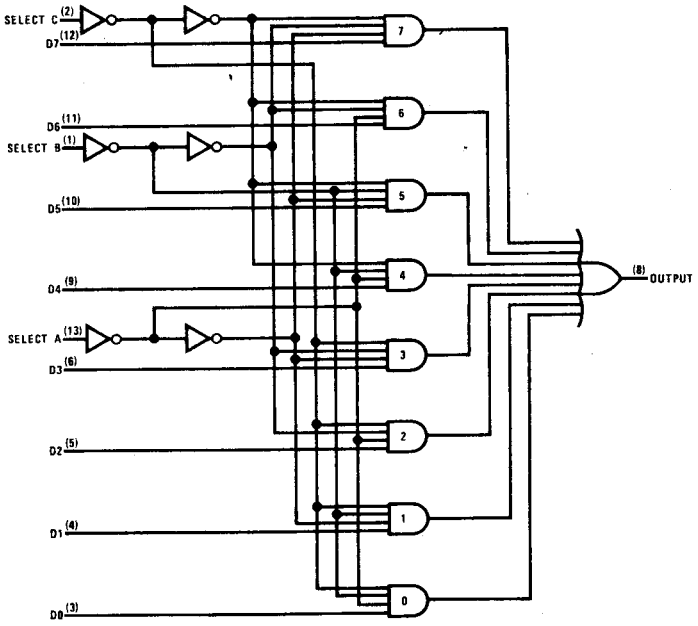

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