



TRI-STATE® Data Selectors/Multiplexers

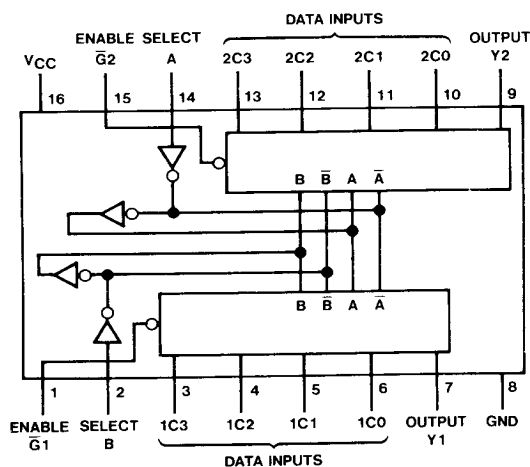
General Description

These devices are the TRI-STATE versions of the very popular DM54153 (DM7214) and DM54150 (DM7219) data selectors/multiplexers. They contain full on-chip decoding to select the desired data input. The DM7214/8214 is a dual, four-line multiplexer, while the DM7219/8219 selects one of sixteen input data lines, depending upon the binary number applied to the select inputs. The DM7214/8214 has common select lines, which therefore select the same input line of both multiplexers. However, the two outputs can be individually controlled by means of the separate enable lines; which, when taken to a high logic level, places the output in the high-impedance TRI-STATE condition. The data at the output of the DM7214/8214 is true, whereas the DM7219/8219 is inverted.

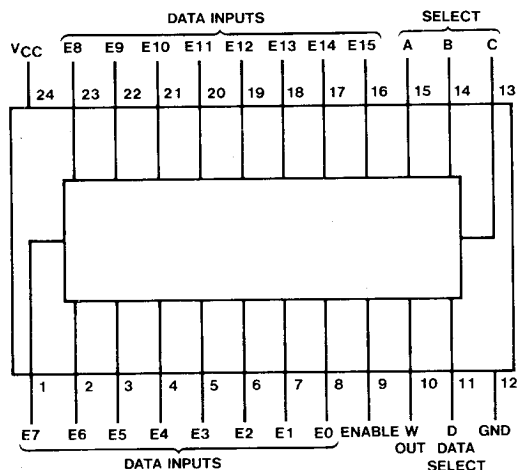
Features

- TRI-STATE pin equivalents to popular 54/74 TTL devices
DM7214/8214 — 54153/74153
DM7219/8219 — 54150/74150
- Typical propagation delay
DM7214/8214 13.5 ns
DM7219/8219 11 ns
- Typical power dissipation
DM7214/8214 170 mW
DM7219/8219 225 mW
- Strobe/enable override

Connection Diagrams



7214 (J,W); 8214 (N)



7219 (J,F); 8219 (N)



Electrical Characteristics

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

Parameter		Conditions		DM72/82						Units	
				14			19				
				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				-1.5				-1.5	V
V _{OH}	High Level Output Current		DM72			-2.0				-2.0	mA
			DM82			-5.2				-5.2	
V _{OH}	High Level Output Voltage	V _{CC} = Min, V _{IH} = 2 V V _{IL} = 0.8 V, I _{OH} = Max		2.4				2.4			V
I _{OL}	Low Level Output Current					16				16	mA
V _{OL}	Low Level Output Voltage	V _{CC} = Min, V _{IH} = 2 V V _{IL} = 0.8 V, I _{OL} = 16 mA				0.4				0.4	V
I _{O(OFF)}	Off-State (High-Impedance State) Output Current	V _{CC} = Max V _{IH} = 2 V V _{IL} = 0.8 V	V _O = 0.4 V			-40				-40	μA
			V _O = 2.4 V			40				40	
I _I	Input Current at Maximum Input Voltage	V _{CC} = Max, V _I = 5.5 V				1				1	mA
I _{IH}	High Level Input Current	V _{CC} = Max, V _I = 2.4 V				40				40	μA
I _{IL}	Low Level Input Current	V _{CC} = Max, V _I = 0.4 V				-1.6				-1.6	mA
I _{OS}	Short Circuit Output Current	V _{CC} = Max (2)		-18		-55	-28			-100	mA
I _{CC}	Supply Current	V _{CC} = Max (3)	DM72		34	56		45	68	mA	
			DM82		34	65		45	68		

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

Note 2: Not more than one output should be shorted at a time, and for the DM7219/DM8219 duration of short circuit should not exceed one second.

Note 3: I_{CC} is measured with all inputs grounded.

Switching Characteristics

V_{CC} = 5 V, T_A = 25°C

Parameter		From (Input)	To (Output)	Conditions	DM72 / 82						Units
					14			19			
					Min	Typ	Max	Min	Typ	Max	
tPLH	Propagation Delay Time, Low-to-High Level Output	Data	Output	C _L = 50 pF R _L = 400 Ω		15	23		13	20	ns
tPHL	Propagation Delay Time, High-to-Low Level Output	Data	Output			12	18		9	14	ns
tPLH	Propagation Delay Time, Low-to-High Level Output	Select	Output			20	34		21	35	ns
tPHL	Propagation Delay Time, High-to-Low Level Output	Select	Output			20	34		22	33	ns
tZH	Output Enable Time to High Level	Enable	Output			12	18		15	23	ns
tZL	Output Enable Time to Low Level	Enable	Output			14	21		17	27	ns
tHZ	Output Disable Time from High Level	Enable	Output	C _L = 5 pF R _L = 400 Ω		5	10		5	10	ns
tLZ	Output Disable Time from Low Level	Enable	Output			15	23		21	30	ns



Truth Tables

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Select Inputs		Data Inputs				Enable	Output
B	A	C0	C1	C2	C3	$\bar{G}$	Y
X	X	X	X	X	X	H	Hi-Z
L	L	L	X	X	X	L	L
L	L	H	X	X	X	L	H
L	H	X	L	X	X	L	L
L	H	X	H	X	X	L	H
H	L	X	X	L	X	L	L
H	L	X	X	H	X	L	H
H	H	X	X	X	L	L	L
H	H	X	X	X	H	L	H

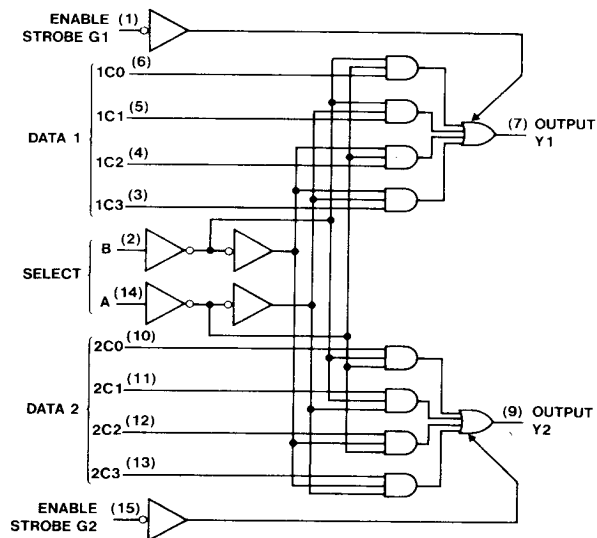
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Select				Enable	Data Inputs																Output
D	C	B	A	$\bar{G}$	E0	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	Y
X	X	X	X	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Hi-Z
L	L	L	L	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	H
L	L	L	L	L	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	L	L	H	L	X	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	H
L	L	L	H	L	X	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	L	H	L	L	X	X	L	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	L	H	L	L	X	X	H	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	L	H	H	L	X	X	X	L	X	X	X	X	X	X	X	X	X	X	X	X	L
L	L	H	H	L	X	X	X	X	H	X	X	X	X	X	X	X	X	X	X	X	L
L	H	L	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	H	L	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	H	L	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	H	L	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	H	H	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	H	H	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	H	H	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
L	H	H	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	L	L	L	L	X	X	X	X	X	X	X	X	L	X	X	X	X	X	X	X	L
H	L	L	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	L	L	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	L	L	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	L	H	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	L	H	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	L	H	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	L	H	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	H	L	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	H	L	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	H	L	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	H	L	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	H	H	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	H	H	L	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	H	H	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	H	H	H	L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
H	H	H	H	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L



Logic Diagrams

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