

DM54AS352/DM74AS352 Dual 4-Line to 1-Line Data Selector/Multiplexer

General Description

This Data Selector/Multiplexer contains full on-chip decoding to select one-of-four data sources as a result of a unique two-bit binary code at the Select inputs. Each of the two Data Selector/Multiplexer circuits have their own separate Select, Data, and Strobe inputs and an inverting output buffer. The Strobe inputs, when at the high level, disable their associated data inputs and force the corresponding output to the high state. The Select input buffers incorporate internal overlap features to ensure that select input changes do not cause invalid output transients.

- Pin and functional compatible with the LS and Schottky Family counterpart.
- Improved output transient handling capability.

Absolute Maximum Ratings (Note 1)

Supply Voltage	7V
Input Voltage	7V
Operating Free Air Temperature Range	
DM54AS352	-55°C to 125°C
DM74AS352	0°C to 70°C
Storage Temperature Range	-65°C to 150°C
Lead Temperature	
(Soldering, 10 seconds)	+300°C

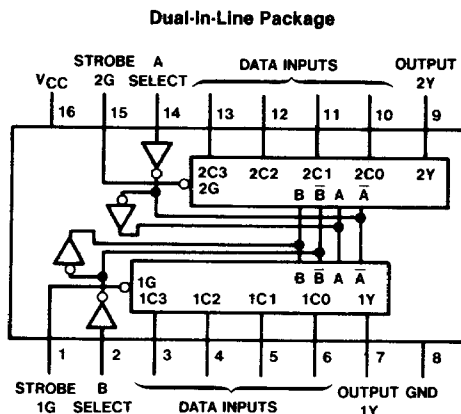
Features

- Advanced Oxide-isolated Ion-implanted Schottky TTL process.
- Switching performance is guaranteed over full temperature and V_{CC} supply range.

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.

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Connection Diagram



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54AS352 (J) 74AS352 (J,N)

Function Table

Select Inputs		Data Inputs				Strobe	Output
B	A	C0	C1	C2	C3	G	Y
X	X	X	X	X	X	H	H
L	L	L	X	X	X	L	H
L	L	H	X	X	X	L	L
L	H	X	L	X	X	L	H
L	H	X	H	X	X	L	L
H	L	X	X	L	X	L	H
H	L	X	X	H	X	L	L
H	H	X	X	X	L	L	H
H	H	X	X	X	H	L	L

Select inputs A and B are common to both sections.
 H = High Level, L = Low Level, X = Don't Care

Recommended Operating Conditions

Parameter	DM54AS352			DM74AS352			Unit
	Min	Nom	Max	Min	Nom	Max	
Supply Voltage, V_{CC}	4.5		5.5	4.5		5.5	V
High Level Input Voltage, V_{IH}	2			2			V
*Low Level Input Voltage, V_{IL}			0.8			0.8	V
High Level Output Current, I_{OH}			-12			-15	mA
Low Level Output Current, I_{OL}			32			48	mA

Electrical Characteristics

over recommended operating free air temperature range.

All typical values are measured at $V_{CC} = 5V$, $T_A = 25^\circ C$.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{IK}	Input Clamp Voltage	$V_{CC} = 4.5V$, $I_{IN} = -18mA$			-1.2	V
V_{OH}	High Level Output Voltage	$V_{CC} = 4.5V$, $I_{OH} = \text{Max}$	2.4	3.2		V
		$I_{OH} = -2mA$, $V_{CC} = 4.5V$ to $5.5V$	$V_{CC} - 2$			V
V_{OL}	Low Level Output Voltage	$V_{CC} = 4.5V$, $I_{OL} = \text{Max}$		0.35	0.5	V
I_{I}	Input Current at Max Input Voltage	$V_{CC} = 5.5V$, $V_{IN} = 7V$	A, B		0.2	mA
			Others		0.1	
I_{IH}	High Level Input Current	$V_{CC} = 5.5V$, $V_{IN} = 2.7V$	A, B		40	μA
			Others		20	
I_{IL}	Low Level Input Current	$V_{CC} = 5.5V$, $V_{IN} = 0.4V$	A, B	-0.3	-1	mA
			All others	-0.3	-0.5	
I_O	Output Drive Current	$V_{CC} = 5.5V$, $V_{OUT} = 2.25V$	-30		-112	mA
I_{CC}	Supply Current	$V_{CC} = 5.5V$	Outputs high	15.5	25	mA
			Outputs low	17.5	28	

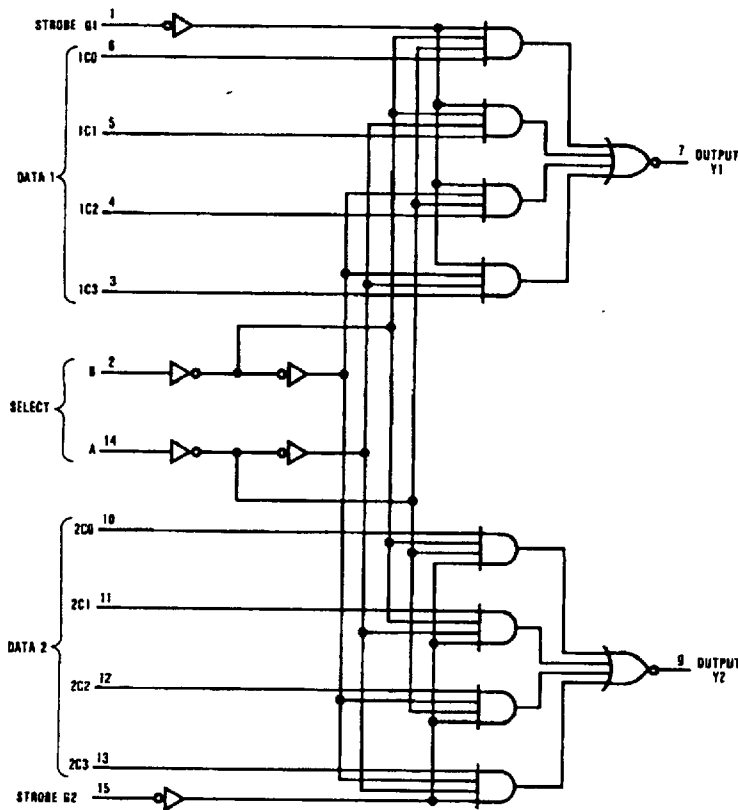
Switching Characteristics over recommended operating free air temperature range (Note 1).

All typical values are measured at $V_{CC} = 5V$, $T_A = 25^\circ C$.

Parameter	From	To	Conditions	DM54AS352			DM74AS352			Unit
				Min	Typ	Max	Min	Typ	Max	
t_{PLH} , Low to high Level Output	Select	Y	$V_{CC} = 4.5 \text{ to } 5.5V$ $C_L = 50 \text{ pF}$ $R_L = 500 \Omega$	4		12.5	4		11	ns
t_{PHL} , High to low Level Output				4		14	4		13	ns
t_{PLH} , Low to high Level Output	Data			2		7.5			6.5	ns
t_{PHL} , High to low Level Output				2		7			6	ns
t_{PLH} , Low to high Level Output	Strobe			3		8			7	ns
t_{PHL} , High to low Level Output				4		13.5			12	ns

Note 1: See Section 1 for test waveforms and output load.

Logic Diagram



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