

SN54LS352, SN74LS352 DUAL 4-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS

SDLS162

OCTOBER 1976 — REVISED MARCH 1988

- Inverting Versions of SN54LS153, SN74LS153
- Schottky-Diode-Clamped Transistors
- Permits Multiplexing from N lines to 1 line
- Performs Parallel-to-Serial Conversion
- Typical Average Propagation Delay Times:
Data Input to Output . . . 15 ns
Strobe Input to Output . . . 19 ns
Select Input to Output . . . 22 ns
- Fully Compatible with most TTL Circuits
- Low Power Dissipation . . . 31 mW Typical (Enabled)

description

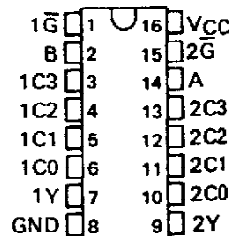
Each of these Schottky-clamped data selectors/-multiplexers contains inverters and drivers to supply fully complementary, on-chip, binary decoding data selection to the AND-OR-invert gates. Separate strobe inputs are provided for each of the two four-line sections.

FUNCTION TABLE

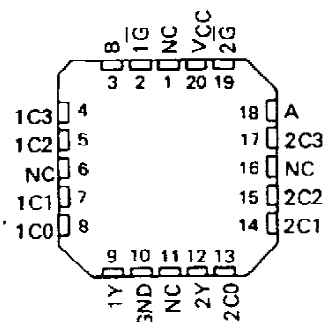
SELECT INPUTS		DATA INPUTS				STROBE	OUTPUT
B	A	C0	C1	C2	C3	\bar{G}	Y
X	X	X	X	X	X	H	H
L	L	L	X	X	X	L	H
L	L	H	X	X	X	L	L
L	H	X	L	X	X	L	H
L	H	X	H	X	X	L	L
H	L	X	X	L	X	L	H
H	L	X	X	H	X	L	L
H	H	X	X	X	L	L	H
H	H	X	X	X	H	L	L

Select inputs A and B are common to both sections.
H = high level, L = low level, X = irrelevant

SN54LS352 . . . J OR W PACKAGE
SN74LS352 . . . D OR N PACKAGE
(TOP VIEW)

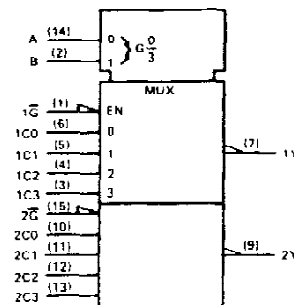


SN54LS352 . . . FK PACKAGE
(TOP VIEW)



NC — No internal connection

logic symbol†



†This symbol is in accordance with ANSI/IEEE Std. 91-1984 and IEC Publication 617-12.

Pin numbers shown are for D, J, N, and W packages.

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, V_{CC} (see Note 1)	7 V
Input voltage	7 V
Operating free-air temperature range: SN54LS352	–55°C to 125°C
SN74LS352	0°C to 70°C
Storage temperature range	–65°C to 150°C

NOTE 1: Voltage values are with respect to network ground terminal.

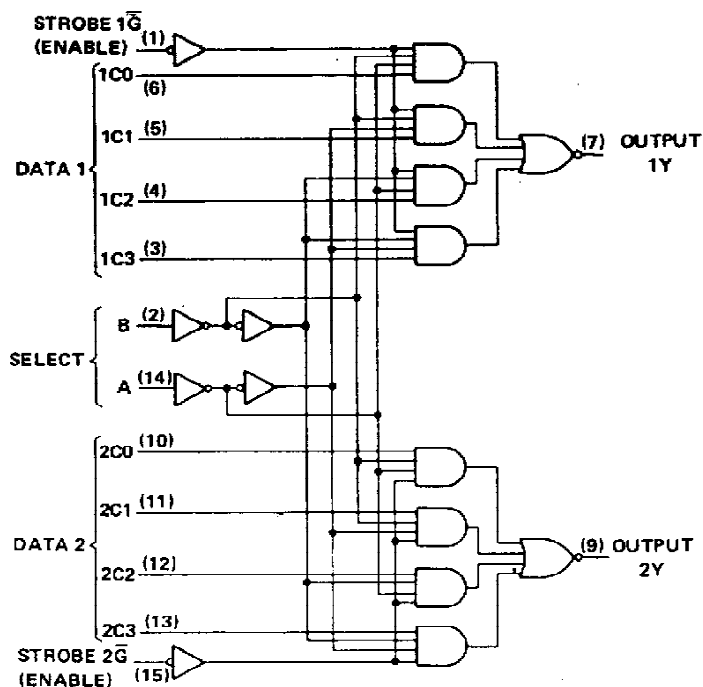
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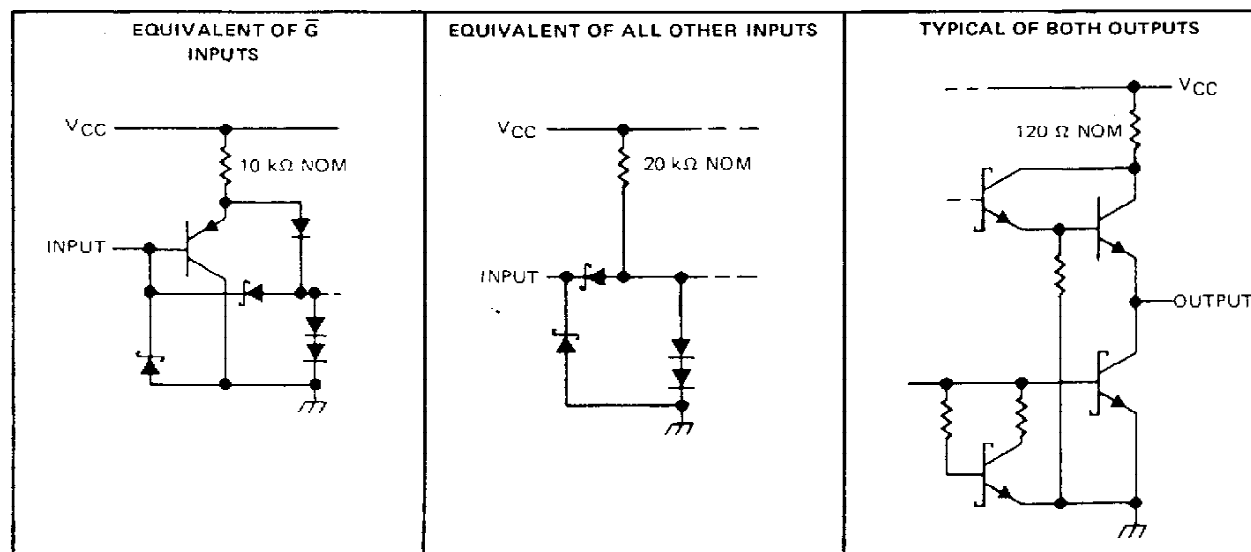
SN54LS352, SN74LS352 **DUAL 4-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS**

logic diagram (positive logic)



Pin numbers shown are for D, J, N, and W packages.

schematics of inputs and outputs



SN54LS352, SN74LS352

DUAL 4-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS

recommended operating conditions

	SN54LS352			SN74LS352			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
V _{CC} Supply voltage	4.5	5	5.5	4.75	5	5.25	V
V _{IH} High-level input voltage	2			2			V
V _{IL} Low-level input voltage			0.7			0.8	V
I _{OH} High-level output current			-0.4			-0.4	mA
I _{OL} Low-level output current			4			8	mA
T _A Operating free-air temperature	-55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS†	SN54LS352			SN74LS352			UNIT
		MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V _{IK}	V _{CC} = MIN, I _I = -18 mA			-1.5			-1.5	V
V _{OH}	V _{CC} = MIN, V _{IH} = 2 V, V _{IL} = MAX, I _{OH} = -0.4 mA	2.5	3.4		2.7	3.4		V
V _{OL}	V _{CC} = MIN, V _{IH} = 2 V, V _{IL} = MAX			0.25			0.35	V
				0.4			0.5	
I _I	V _{CC} = MAX, V _I = 7 V			0.1			0.1	mA
I _{IH}	V _{CC} = MAX, V _I = 2.7 V			20			20	µA
I _{IL}	\bar{G}			-0.2			-0.2	mA
	All other			-0.4			-0.4	mA
I _{OS} §	V _{CC} = MAX	-20		-100	-20		-100	mA
I _{CCL}	V _{CC} = MAX, See Note 2		6.2	10		6.2	10	mA

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

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

§ Not more than one output should be shorted at a time, and duration of the short-circuit should not exceed one second.

NOTE 2: I_{CCL} is measured with the outputs open and all inputs grounded.

switching characteristics, V_{CC} = 5 V, T_A = 25°C

PARAMETER†	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t _{PLH}	Data	Y	R _L = 2 kΩ, See Note 3 C _L = 15 pF,		13	20	ns
t _{PHL}	Data	Y			17	26	ns
t _{PLH}	A or B	Y			19	29	ns
t _{PHL}	A or B	Y			25	38	ns
t _{PLH}	\bar{G}	Y			16	24	ns
t _{PHL}	\bar{G}	Y			21	32	ns

† t_{PLH} = propagation delay time, low-to-high-level output

t_{PHL} = propagation delay time, high-to-low-level output

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

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