- **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**
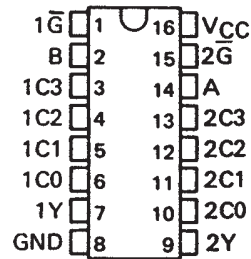- **Low Power Dissipation . . . 31 mW Typical (Enabled)**

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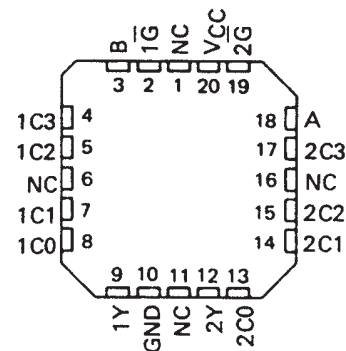
SN54LS352 . . . J OR W PACKAGE
SN74LS352 . . . D OR N PACKAGE
(TOP VIEW)

1G̅	1	16 V_CC
B	2	15 2G̅
1C3	3	14 A
1C2	4	13 2C3
1C1	5	12 2C2
1C0	6	11 2C1
1Y	7	10 2C0
GND	8	9 2Y

SN54LS352 . . . FK PACKAGE
(TOP VIEW)

NC – No internal connection

FUNCTION TABLE

SELECT INPUTS		DATA INPUTS				STROBE	OUTPUT
B	A	C0	C1	C2	C3	G̅	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

logic symbol†
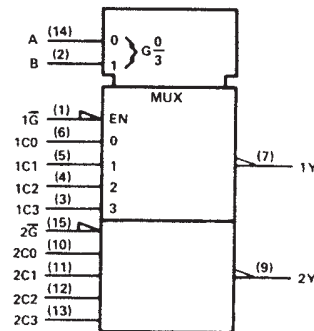
†This symbol is in accordance with ANSI/IEEE Std. 91-1984 and IEC Publication 617-12.
Pin numbers shown are for D, J, N, and W packages.

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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TEXAS INSTRUMENTS

logic diagram (positive logic)
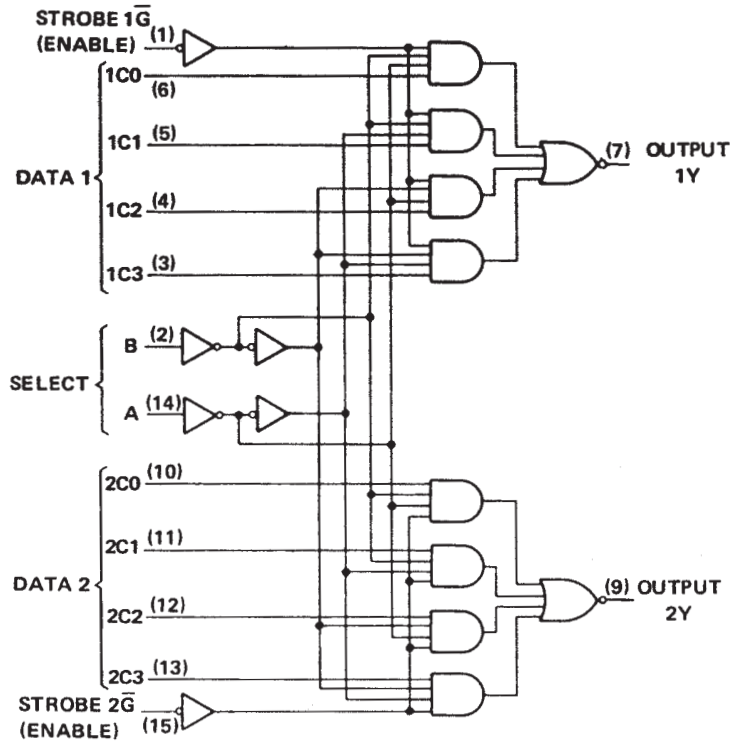
Pin numbers shown are for D, J, N, and W packages.

schematics of inputs and outputs

TEXAS
INSTRUMENTS

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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	I_{OL} = 4 mA		0.25	0.4		0.25	0.4	V
			I_{OL} = 8 mA					0.35	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}	$\overline{G}$	V_{CC} = MAX, V_I = 0.4 V				− 0.2			− 0.2	mA
	All other					− 0.4			− 0.4	
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				13	20	ns
t_{PHL}	Data	Y				17	26	ns
t_{PLH}	A or B	Y	R_L = 2 kΩ,	C_L = 15 pF,		19	29	ns
t_{PHL}	A or B	Y	See Note 3			25	38	ns
t_{PLH}	$\overline{G}$	Y				16	24	ns
t_{PHL}	$\overline{G}$	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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