Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceed the OCM data sheet.

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
  - Class Q Military
  - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)

• Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.
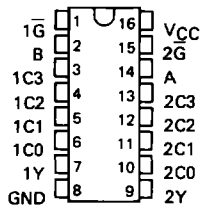
The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

- **Inverting Versions of SN54LS253, SN74LS253**
- **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 . . . 12 ns
  Control Input to Output . . . 16 ns
  Select Input to Output . . . 21 ns
- **Fully Compatible with most TTL Circuits**
- **Low Power Dissipation . . . 35 mW Typical (Enabled)**
- **Inverted Data**

SN54LS353 . . . J OR W PACKAGE
SN74LS353 . . . D OR N PACKAGE
(TOP VIEW)

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

SN54LS353 . . . FK PACKAGE
(TOP VIEW)

Top pins: B, 1G, NC, V_CC, 2G

1C3	4	18	A
1C2	5	17	2C3
NC	6	16	NC
1C1	7	15	2C2
1C0	8	14	2C1

Bottom pins: 1Y, GND, NC, 2Y, 2C0
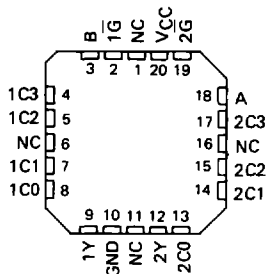
NC – No internal connection

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 output control inputs are provided for each of the two four-line sections.

The three-state outputs can interface with and drive data lines of bus-organized systems. With all but one of the common outputs disabled (at a high-impedance state) the low-impedance of the single enabled output will drive the bus line to a high or low logic level.

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TTL Devices

FUNCTION TABLE

SELECT INPUTS		DATA INPUTS				OUTPUT CONTROL	OUTPUT
B	A	C0	C1	C2	C3	G̅	Y
X	X	X	X	X	X	H	Z
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, Z – high impedance (off)

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
Off-state output voltage	5.5 V
Operating free-air temperature range: SN54LS353	−55°C to 125°C
SN74LS353	0°C to 70°C
Storage temperature range	−65°C to 150°C

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

TEXAS
INSTRUMENTS
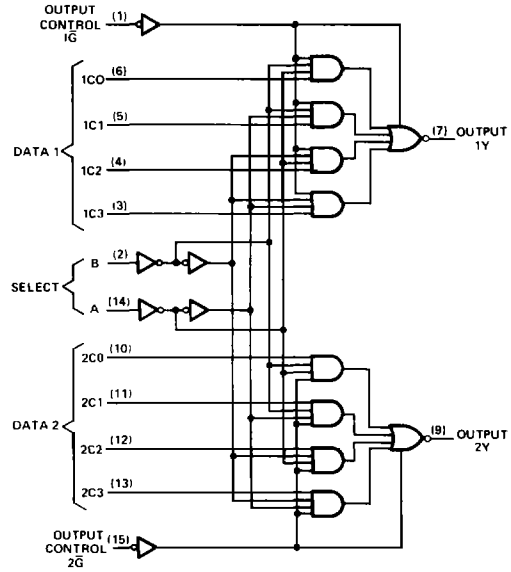POST OFFICE BOX 655012 • DALLAS, TEXAS 75265

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.
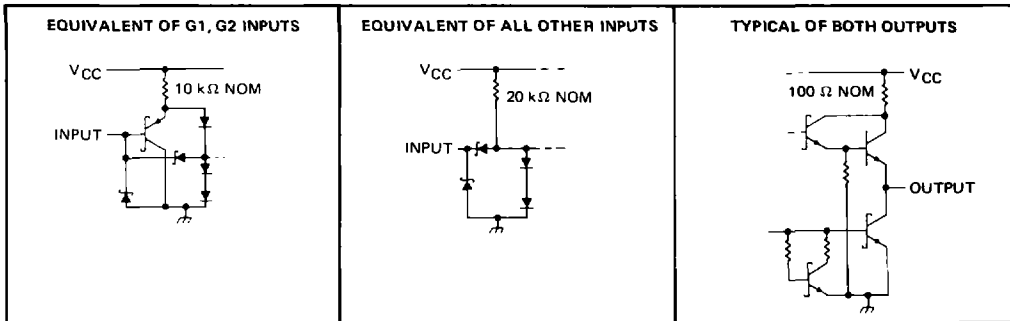
logic diagram (positive logic)

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

schematic of inputs and outputs

EQUIVALENT OF G1, G2 INPUTS	EQUIVALENT OF ALL OTHER INPUTS	TYPICAL OF BOTH OUTPUTS

TTL Devices

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TEXAS
INSTRUMENTS

POST OFFICE BOX 655012 • DALLAS, TEXAS 75265

recommended operating conditions

		SN54LS353			SN74LS353			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			-1			-2.6	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 †		SN54LS353			SN74LS353			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, I_{OH} = MAX	V_{IL} = MAX,	2.4	3.4		2.4	3.1		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_{OZ}		V_{CC} = MAX, V_{IH} = 2 V	V_O = 2.7 V			20			20	µA
			V_O = 0.4 V			-20			-20	
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}	G1, $\overline{G1}$	V_{CC} = MAX, V_I = 0.4 V				-0.2			-0.2	mA
	All other					-0.4			-0.4	
I_{OS}§		V_{CC} = MAX		-30		-130	-30		-130	mA
I_{CC}		V_{CC} = MAX, See Note 2	Condition A		7	12		7	12	mA
			Condition B		8.5	14		8.5	14	

† 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_{CC} is measured with the outputs open under the following conditions:
      A. All inputs grounded.
      B. Output control at 4.5 V, 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			11	25	ns
t_{PHL}					13	20	
t_{PLH}	Select	Y	C_L = 15 pF, R_L = 2 kΩ, See Note 3		20	45	ns
t_{PHL}					21	32	
t_{PZH}	Output Control	Y			11	23	ns
t_{PZL}					15	23	
t_{PHZ}	Output Control	Y	C_L = 5 pF, R_L = 2 kΩ, See Note 3		27	41	ns
t_{PLZ}					12	27	

¶ t_{PLH} = Propagation delay time, low-to-high-level output
  t_{PHL} = Propagation delay time, high-to-low-level output
  t_{PZH} = Output enable time to high level
  t_{PZL} = Output enable time to low level
  t_{PHZ} = Output disable time from high level
  t_{PLZ} = Output disable time from low level
NOTE 3. Load circuits and voltage waveforms are shown in Section 1.

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