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.

- **Package Options Include "Small Outline" Packages, Ceramic Chip Carriers and Flat Packages, and Plastic and Ceramic DIPs**

- **Dependable Texas Instruments Quality and Reliability**

description

These devices contain 2-wide 4-input AND-OR-INVERT gates. They perform the Boolean function $Y = \overline{ABCD + EFGH}$.

The SN54LS55 is characterized for operation over the full military temperature range of −55°C to 125°C. The SN74LS55 is characterized for operation from 0°C to 70°C.
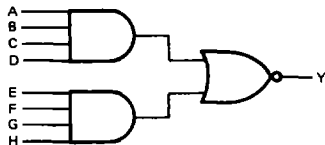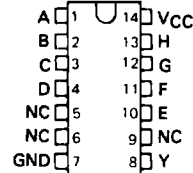
logic symbol†
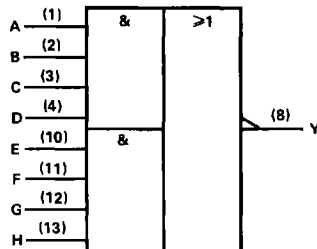
positive logic: $Y = \overline{ABCD + EFGH}$

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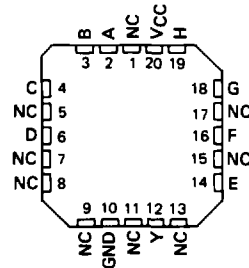Pin numbers shown are for D, J, N, and W packages.

logic diagram

SN54LS55 ... J OR W PACKAGE
SN74LS55 ... D OR N PACKAGE
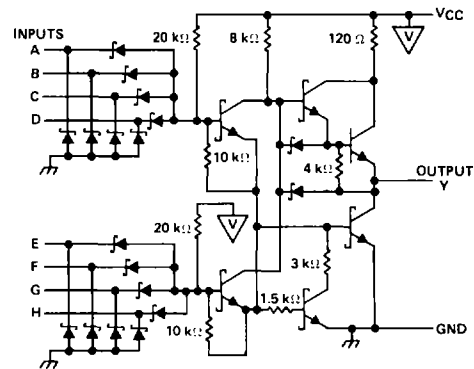**(TOP VIEW)**

SN54LS55 ... FK PACKAGE
(TOP VIEW)

NC - No internal connection

schematic

Resistor values shown are nominal.

TTL Devices

2

TEXAS INSTRUMENTS
POST OFFICE BOX 655012 • DALLAS, TEXAS 75265

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: SN54LS55	−55°C to 125°C
SN74LS55	0°C to 70°C
Storage temperature range	−65°C to 150°C

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

recommended operating conditions

		SN54LS55			SN74LS55			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[†]			SN54LS55			SN74LS55			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_{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,	I_{OL} = 4 mA		0 25	0.4		0.25	0 4	V
	V_{CC} = MIN,	V_{IH} = 2 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}	V_{CC} = MAX,	V_I = 0 4 V				−0 4			−0 4	mA
I_{OS}[§]	V_{CC} = MAX			−20		−100	−20		−100	mA
I_{CCH}	V_{CC} = MAX,	V_I = 0 V			0 4	0.8		0.4	0 8	mA
I_{CCL}	V_{CC} = MAX,	See Note 2			0 7	1 3		0 7	1.3	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 the duration of the short circuit should not exceed one second.
NOTE 2 All outputs of one AND gate at 4 5 V, all others at GND.

switching characteristics, V_{CC} = 5 V, T_A = 25°C (see note 3)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS		MIN	TYP	MAX	UNIT
t_{PLH}	Any	Y	R_L = 2 kΩ,	C_L = 15 pF		12	20	ns
t_{PHL}						12 5	20	ns

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