SDLS058

SN54157, SN54LS157, SN54LS158, SN54S157, SN54S158, SN74157, SN74LS157, SN74LS158, SN74S157, SN74S158
QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS

MARCH 1974 — REVISED MARCH 1988

- Buffered Inputs and Outputs
- Three Speed/Power Ranges Available

TYPES	TYPICAL AVERAGE PROPAGATION TIME	TYPICAL POWER DISSIPATION
'157	9 ns	150 mW
'LS157	9 ns	49 mW
'S157	5 ns	250 mW
'LS158	7 ns	24 mW
'S158	4 ns	195 mW

applications

- Expand Any Data Input Point
- Multiplex Dual Data Buses
- Generate Four Functions of Two Variables (One Variable Is Common)
- Source Programmable Counters

description

These monolithic data selectors/multiplexers contain inverters and drivers to supply full on-chip data selection to the four output gates. A separate strobe input is provided. A 4-bit word is selected from one of two sources and is routed to the four outputs. The '157, 'LS157, and 'S157 present true data whereas the 'LS158 and 'S158 present inverted data to minimize propagation delay time.

SN54157, SN54LS157, SN54S157,
SN54LS158, SN54S158 . . . J OR W PACKAGE
SN74157 . . . N PACKAGE
SN74LS157, SN74S157,
SN74LS158, SN74S158 . . . D OR N PACKAGE
(TOP VIEW)

$\overline{A/B}$	1	16	VCC
1A	2	15	$\overline{G}$
1B	3	14	4A
1Y	4	13	4B
2A	5	12	4Y
2B	6	11	3A
2Y	7	10	3B
GND	8	9	3Y

SN54LS157, SN54S157, SN54LS158,
SN54S158 . . . FK PACKAGE
(TOP VIEW)

Top pins: 1A (3), $\overline{A/B}$ (2), NC (1), VCC (20), $\overline{G}$ (19)

1B	4	18	4A
1Y	5	17	4B
NC	6	16	NC
2A	7	15	4Y
2B	8	14	3A

Bottom pins: 2Y (9), GND (10), NC (11), 3Y (12), 3B (13)

NC - No internal connection

FUNCTION TABLE

INPUTS				OUTPUT Y	
STROBE $\overline{G}$	SELECT $\overline{A/B}$	A	B	'157, 'LS157, 'S157	'LS158 'S158
H	X	X	X	L	H
L	L	L	X	L	H
L	L	H	X	H	L
L	H	X	L	L	H
L	H	X	H	H	L

H = high level, L = low level, X = irrelevant

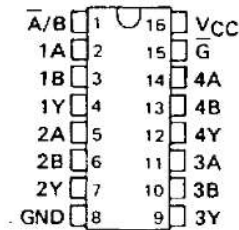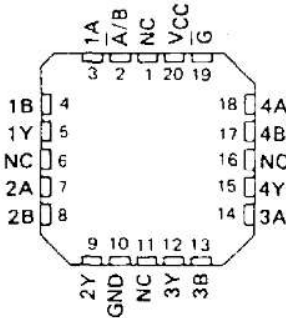**absolute maximum ratings over operating free-air temperature range (unless otherwise noted)**

Supply voltage, VCC (See Note 1) . . . . 7 V
Input voltage: '157, 'S158 . . . . 5.5 V
              'LS157, 'LS158 . . . . 7 V
Operating free-air temperature range: SN54' . . . . −55°C to 125°C
                        SN74' . . . . 0°C to 70°C
Storage temperature range . . . . −65°C to 150°C

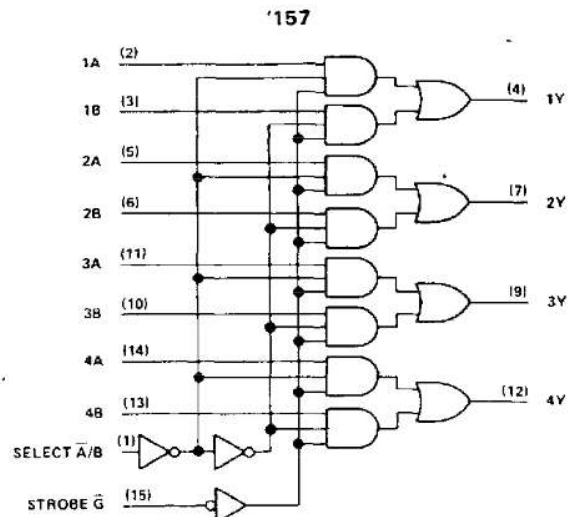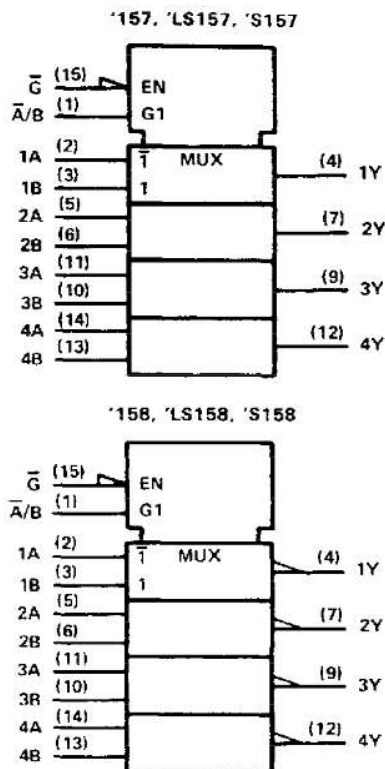NOTE 1: Voltage values are with respect to network ground terminal.

TEXAS INSTRUMENTS

POST OFFICE BOX 655012 • DALLAS, TEXAS 75265

SN54157, SN54LS157, SN54LS158, SN54S157, SN54S158, SN74157, SN74LS157, SN74LS158, SN74S157, SN74S158
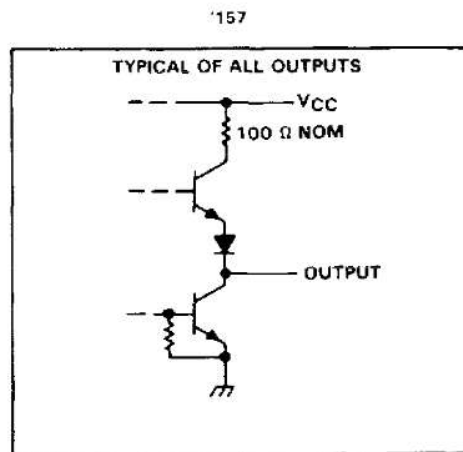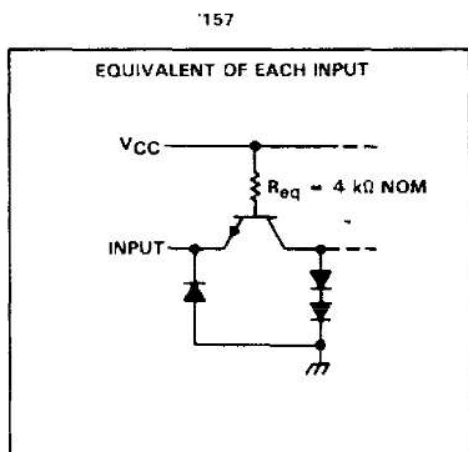## QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS

logic symbols†

logic diagram (positive logic)

† These symbols are in accordance with ANSI/IEEE Std. 91-1984 and
IEC Publication 617-12.
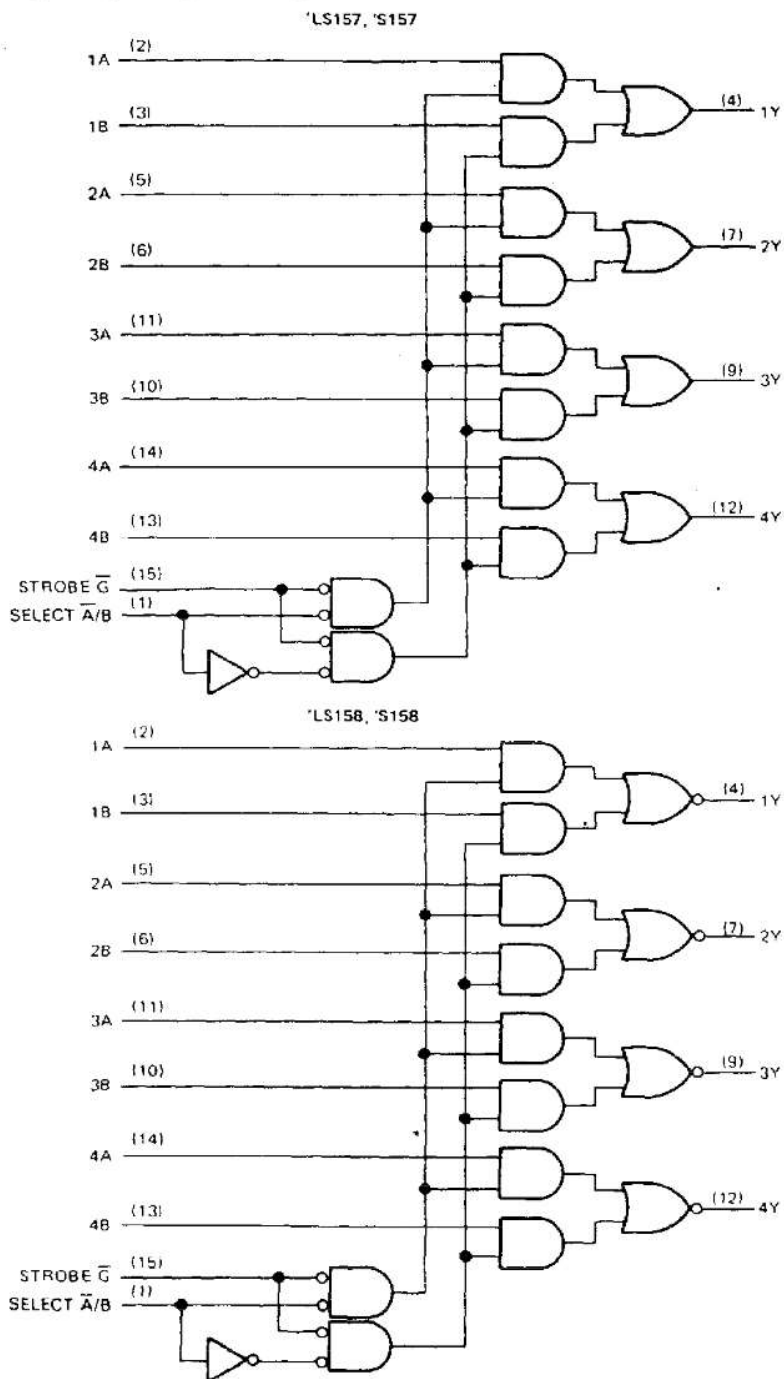Pin numbers shown are for D, J, N, and W packages.
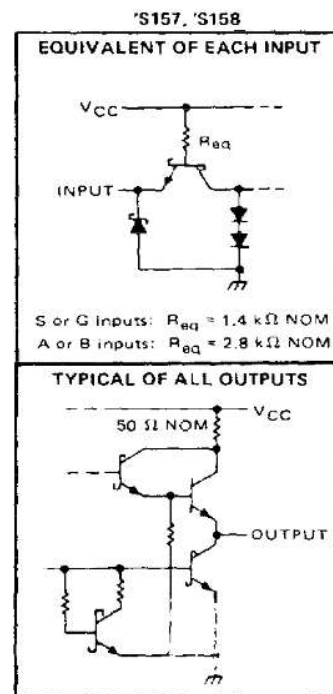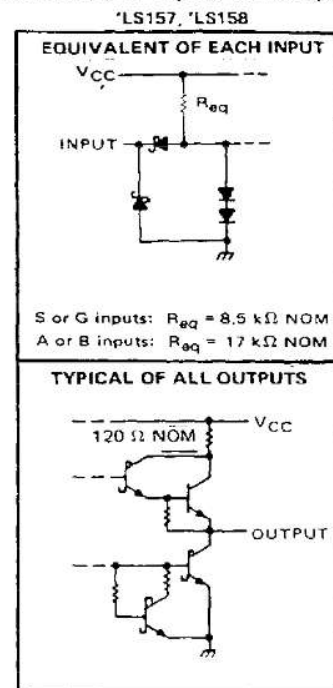
schematics of inputs and outputs

SN54LS157, SN54LS158, SN54S157, SN54S158, SN74LS157, SN74LS158, SN74S157, SN74S158
QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS

logic diagrams (positive logic)

schematics of inputs and outputs

'LS157, 'S157

'LS158, 'S158

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

'LS157, 'LS158

EQUIVALENT OF EACH INPUT

S or G inputs: R_{eq} = 8.5 kΩ NOM
A or B inputs: R_{eq} = 17 kΩ NOM

TYPICAL OF ALL OUTPUTS

120 Ω NOM

'S157, 'S158

EQUIVALENT OF EACH INPUT

S or G inputs: R_{eq} = 1.4 kΩ NOM
A or B inputs: R_{eq} = 2.8 kΩ NOM

TYPICAL OF ALL OUTPUTS

50 Ω NOM

TEXAS INSTRUMENTS

POST OFFICE BOX 655012 · DALLAS, TEXAS 75265