



QUAD 2-INPUT NAND BUFFER

DESCRIPTION

The T54LS37/T74LS37 is a high speed QUAD 2-INPUT NAND BUFFER fabricated in LOW POWER SCHOTTKY technology.

B1
Plastic Package

D1/D2
Ceramic Package

M1
Micro Package

C1
Plastic Chip Carrier

ORDERING NUMBERS:
 T54LS37 D2 T74LS37 C1
 T74LS37 D1 T74LS37 M1

DataSheet

PIN CONNECTION (top view)

DUAL IN LINE

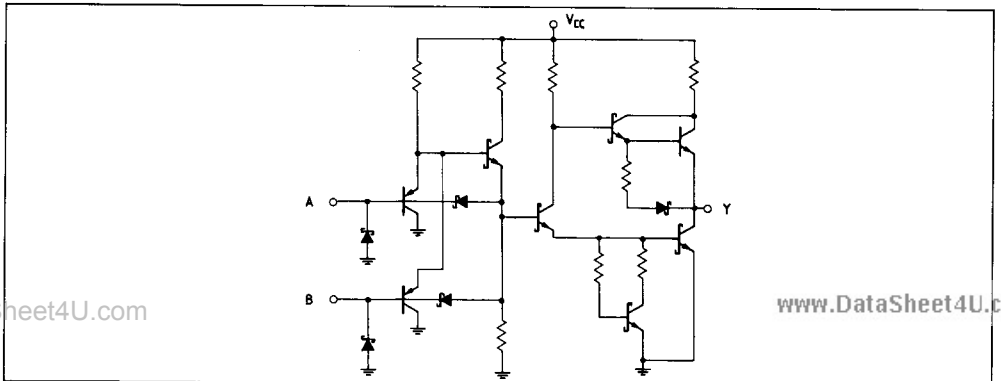
PC-0016

CHIP CARRIER

PL 0001

NC = No Internal Connection

SCHEMATIC





LOGIC DIAGRAM AND TRUTH TABLE



| A | B | Y |
|---|---|---|
| L | X | H |
| X | L | H |
| H | H | L |

L = LOW Voltage Level
H = HIGH Voltage Level
X = Don't Care

ABSOLUTE MAXIMUM RATINGS DataSheet4U.com

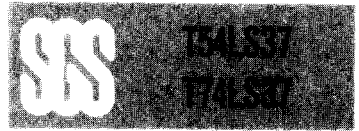
| Symbol | Parameter | Value | Unit |
|----------|-----------------------------------|------------|------|
| V_{CC} | Supply Voltage | -0.5 to 7 | V |
| V_I | Input Voltage, Applied to Input | -0.5 to 15 | V |
| V_O | Output Voltage, Applied to Output | -0.5 to 10 | V |
| I_I | Input Current, Into Inputs | -30 to 5 | mA |
| I_O | Output Current, Into Outputs | 60 | mA |

Stresses in excess of those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions in excess of those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

GUARANTEED OPERATING RANGES

| Part Numbers | Supply Voltage | | | Temperature |
|--------------|----------------|-------|--------|-----------------|
| | Min | Typ | Max | |
| T54LS37D2 | 4.5 V | 5.0 V | 5.5 V | -55°C to +125°C |
| T74LS37XX | 4.75 V | 5.0 V | 5.25 V | 0°C to +70°C |

XX = package type.



DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE

| Symbol | Parameter | | Limits | | | Test Conditions (Note 1) | Units |
|-----------|--|-------|--------|-------|------|--|---------------------|
| | | | Min. | Typ. | Max. | | |
| V_{IH} | Input HIGH Voltage | | 2.0 | | | Guaranteed input HIGH Voltage | V |
| V_{IL} | Input LOW Voltage | 54 | | | 0.7 | Guaranteed input LOW Voltage | V |
| | | 74 | | | 0.8 | | |
| V_{CD1} | Input Clamp Diode Voltage | | | -0.65 | -1.5 | $V_{CC} = \text{MIN}, I_{IN} = -18\text{mA}$ | V |
| V_{OH} | Output HIGH Voltage | 54 | 2.5 | 3.4 | | $V_{CC} = \text{MIN}, I_{OH} = -1.2\text{mA}, V_{IN} = V_{IL}$ | V |
| | | 74 | 2.7 | 3.4 | | | |
| V_{OL} | Output LOW Voltage | 54,74 | | 0.25 | 0.4 | $I_{OL} = 12\text{mA}$ | V |
| | | 74 | | 0.35 | 0.5 | $I_{OL} = 24\text{mA}$ | |
| I_{IH} | Input HIGH Current | | | 1.0 | 20 | $V_{CC} = \text{MAX}, V_{IN} = 2.7\text{V}$ $V_{CC} = \text{MAX}, V_{IN} = 7.0\text{V}$ | μA mA |
| | | | | | 0.1 | | |
| I_{IL} | Input LOW Current | | | | -0.4 | $V_{CC} = \text{MAX}, V_{IN} = 0.4\text{V}$ | mA |
| I_{OS} | Output Short Circuit Current (Note 2) | | -30 | | -130 | $V_{CC} = \text{MAX}, V_{OUT} = 0\text{V}$ | mA |
| I_{CCH} | Supply Current HIGH | | | 0.9 | 2.0 | $V_{CC} = \text{MAX}, V_{IN} = 0\text{V}$ | mA |
| I_{CCL} | Supply Current LOW | | | 6.0 | 12 | $V_{CC} = \text{MAX}, \text{Inputs Open}$ | mA |

AC CHARACTERISTICS: $T_A = 25^\circ\text{C}$ (See page 576 for AC test circuit and waveforms)

| Symbol | Parameter | | Limits | | | Test Conditions | Units |
|-----------|---------------------------------|--|--------|------|------|--|-------|
| | | | Min. | Typ. | Max. | | |
| t_{PLH} | Turn Off Delay, Input to Output | | | 12 | 24 | $V_{CC} = 5.0\text{V}$ $C_L = 45\text{pF}, R_L = 667\Omega$ | ns |
| t_{PHL} | Turn On Delay, Input to Output | | | 12 | 24 | | ns |

Notes:

- 1) For conditions shown as MIN or MAX, use the appropriate value specified under guaranteed operating ranges.
- 2) Not more than one output should be shorted at a time.
- 3) Typical values are at $V_{CC} = 5.0\text{V}$, $T_A = 25^\circ\text{C}$.