

54/7401  
54H/74H01  
54LS/74LS01

ORDERING CODE (See Section 9 for further Package and Ordering Information.)

| PACKAGES    | PIN CONF.        | COMMERCIAL RANGES<br>$V_{CC} = 5V \pm 5\%$ ; $T_A = 0^\circ C$ to $-70^\circ C$ | MILITARY RANGES<br>$V_{CC} = 5V \pm 10\%$ ; $T_A = -55^\circ C$ to $+125^\circ C$ |
|-------------|------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Plastic DIP | Fig. A<br>Fig. C | N7401N • N74LS01N<br>N74H01N                                                    |                                                                                   |
| Ceramic DIP | Fig. A<br>Fig. C | N7401F • N74LS01F<br>N74H01F                                                    | S5401F • S54LS01F<br>S54H01F                                                      |
| Flatpak     | Fig. B<br>Fig. A |                                                                                 | S5401W • S54H01W<br>S54LS01W                                                      |

PIN CONFIGURATIONS

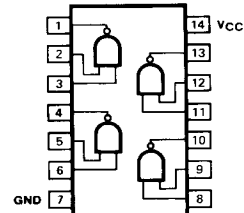


Figure A

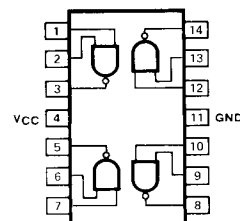


Figure B

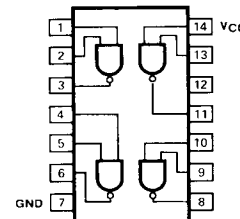


Figure C

INPUT AND OUTPUT LOADING AND FAN-OUT TABLE (a)

| PINS    |                                       | 54/74      | 54H/74H    | 54S/74S | 54LS/74LS       |
|---------|---------------------------------------|------------|------------|---------|-----------------|
| Inputs  | $I_{IH}$ ( $\mu A$ )<br>$I_{IL}$ (mA) | 40<br>-1.6 | 50<br>-2.0 |         | 20<br>-0.36     |
| Outputs | $I_{OH}$ ( $\mu A$ )<br>$I_{OL}$ (mA) | +250<br>16 | +250<br>20 |         | +100<br>4/8 (a) |

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (b)

| PARAMETER | TEST CONDITIONS | 54/74                                   |     | 54H/74H |     | 54S/74S |     | 54LS/74LS |     | UNIT   |
|-----------|-----------------|-----------------------------------------|-----|---------|-----|---------|-----|-----------|-----|--------|
|           |                 | Min                                     | Max | Min     | Max | Min     | Max | Min       | Max |        |
| $I_{CCH}$ | Supply current  | $V_{CC} = \text{Max}, V_{IN} = 0V$      |     |         | 8.0 |         | 10  |           |     | 1.6 mA |
| $I_{CCL}$ | Supply current  | $V_{CC} = \text{Max}, V_{IN} \geq 4.5V$ |     |         | 22  |         | 40  |           |     | 4.4 mA |

AC CHARACTERISTICS  $T_A = 25^\circ C$  (See Section 4 for Waveforms and Conditions.)

| PARAMETER | TEST CONDITIONS   | 54/74                                       |     | 54H/74H                                     |        | 54S/74S |     | 54LS/74LS                                          |     | UNIT |    |
|-----------|-------------------|---------------------------------------------|-----|---------------------------------------------|--------|---------|-----|----------------------------------------------------|-----|------|----|
|           |                   | $C_L = 15\text{ pF}$<br>$R_L = 400\,\Omega$ |     | $C_L = 25\text{ pF}$<br>$R_L = 280\,\Omega$ |        |         |     | $C_L = 15\text{ pF}$<br>$R_L = 2\text{ k}\,\Omega$ |     |      |    |
|           |                   | Min                                         | Max | Min                                         | Max    | Min     | Max | Min                                                | Max |      |    |
| $t_{PLH}$ | Propagation delay | Waveform 1                                  |     |                                             | 45 (c) |         | 15  |                                                    |     | 32   | ns |
| $t_{PHL}$ | Propagation delay | Waveform 1                                  |     |                                             | 15     |         | 12  |                                                    |     | 28   | ns |

NOTES

- a. The slashed numbers indicate different parametric values for Military/Commercial temperature ranges respectively.  
b. For family dc characteristics see inside front cover for 54/74 and 54H/74H, and see inside back cover for 54S/74S and 54LS/74LS specification.  
c.  $R_L = 4k \Omega$  for  $t_{PLH}$ .