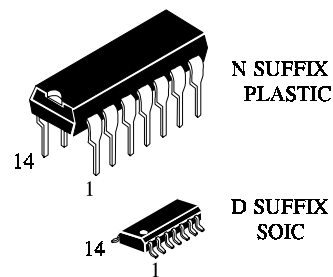


IN74ALS08

**QUADRUPLE 2-INPUT
POSITIVE-AND GATE**

This device contains four independent 2-input positive-AND gates. They perform the Boolean functions $Y = A * B$ or $Y = A + B$ in positive logic.

The IN74ALS08 is characterized for operation from 0°C to 70°C.



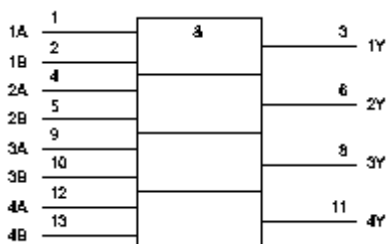
ORDERING INFORMATION

IN74LS08N Plastic

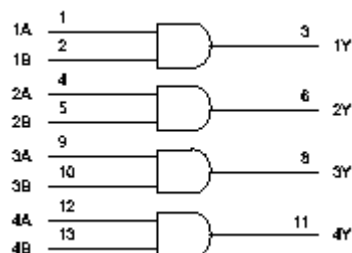
IN74ALS08D SOIC

$T_A = 0^\circ$ to 70° C for all packages

Logic Symbol



Logic Diagram (Positive Logic)



Function Table

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

ABSOLUTE MAXIMUM RATINGS OVER OPERATING FREE-AIR TEMPERATURE RANGE

| | |
|---|----------------|
| Supply voltage, V_{CC} | 7V |
| Input voltage, V_I | 7V |
| Operating free-air temperature range, T_A | 0°C to 70°C |
| Storage temperature range | -65°C to 150°C |

RECOMMENDED OPERATING CONDITIONS

| | | MIN | NOM | MAX | UNIT |
|----------|--------------------------------|-----|-----|------|------|
| V_{CC} | Supply voltage | 4.5 | 5 | 5.5 | V |
| V_{IH} | High-level input voltage | 2 | | | V |
| V_{IL} | Low-level input voltage | | | 0.8 | V |
| I_{OH} | High-level output current | | | -0.4 | mA |
| I_{OL} | Low-level output current | | | 8 | mA |
| T_A | Operating free-air temperature | 0 | | 70 | °C |

ELECTRICAL CHARACTERISTICS OVER RECOMMENDED OPERATING FREE-AIR TEMPERATURE RANGE

| Parameter | Test Conditions | | MIN | TYP** | MAX | UNIT |
|-----------|-------------------------|-----------------|------------|-------|------|---------|
| V_{IK} | $V_{CC}=4.5V$ | $I_I=-18mA$ | | | -1.5 | V |
| V_{OH} | $V_{CC}=4.5V$ to $5.5V$ | $I_{OH}=-0.4mA$ | $V_{CC}-2$ | | | V |
| V_{OL} | $V_{CC}=4.5V$ | $I_{OL}=4mA$ | | 0.25 | 0.4 | V |
| | | $I_{OL}=8mA$ | | 0.35 | 0.5 | V |
| I_I | $V_{CC}=5.5V$ | $V_I=7V$ | | | 0.1 | mA |
| I_{IH} | $V_{CC}=5.5V$ | $V_I=2.7V$ | | | 20 | μA |
| I_{IL} | $V_{CC}=5.5V$ | $V_I=0.4V$ | | | -0.1 | mA |
| I_O^* | $V_{CC}=5.5V$ | $V_O=2.25V$ | -30 | | -112 | mA |
| I_{CCH} | $V_{CC}=5.5V$ | $V_I=4.5V$ | | 1.3 | 2.4 | mA |
| I_{CCL} | $V_{CC}=5.5V$ | $V_I=0$ | | 2.2 | 4 | mA |

*- The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I_{OS}

** - All typical values are at $V_{CC}=5V$, $T_A=25^\circ C$

SWITCHING CHARACTERISTICS

| Parameter | From (input) | To (output) | $V_{CC}=4.5V$ to $5.6V$ $C_L=50pF$ $R_L=500\Omega$ $T_A=MIN$ to MAX^* | | UNIT |
|-----------|--------------|-------------|--|-----|------|
| | | | MIN | MAX | |
| t_{PHL} | A or B | Y | 3 | 10 | ns |
| t_{PLH} | | | 4 | 14 | ns |

*- For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.