

HD74LS08

Quadruple 2-Input Positive AND Gates

REJ03D0394-0200
 Rev.2.00
 Feb.18.2005

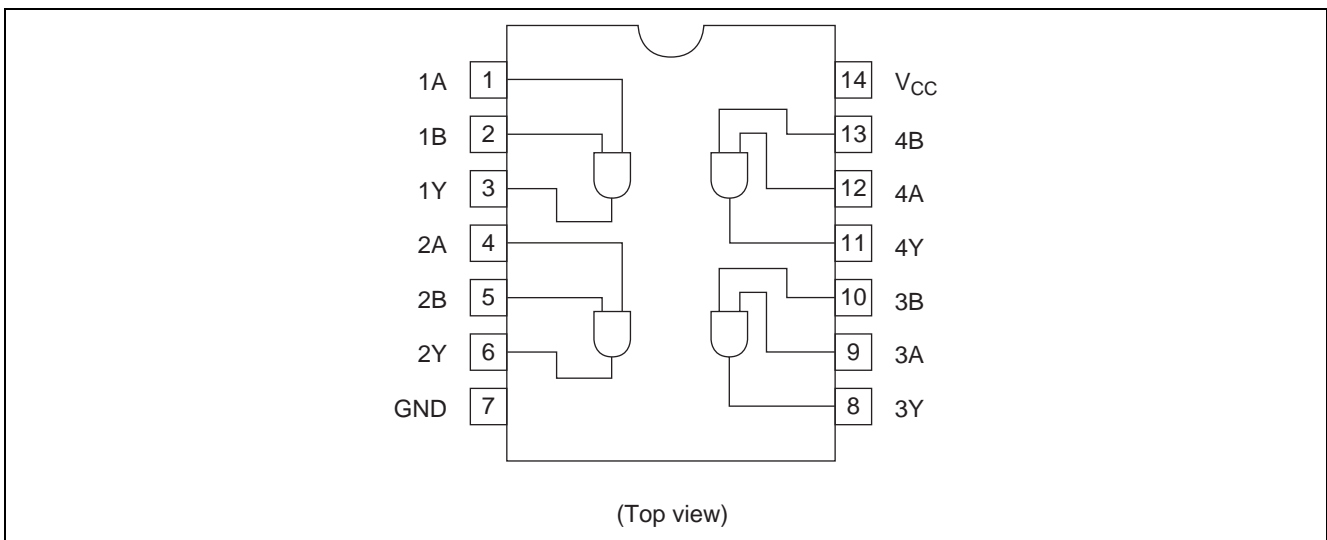
Features

- Ordering Information

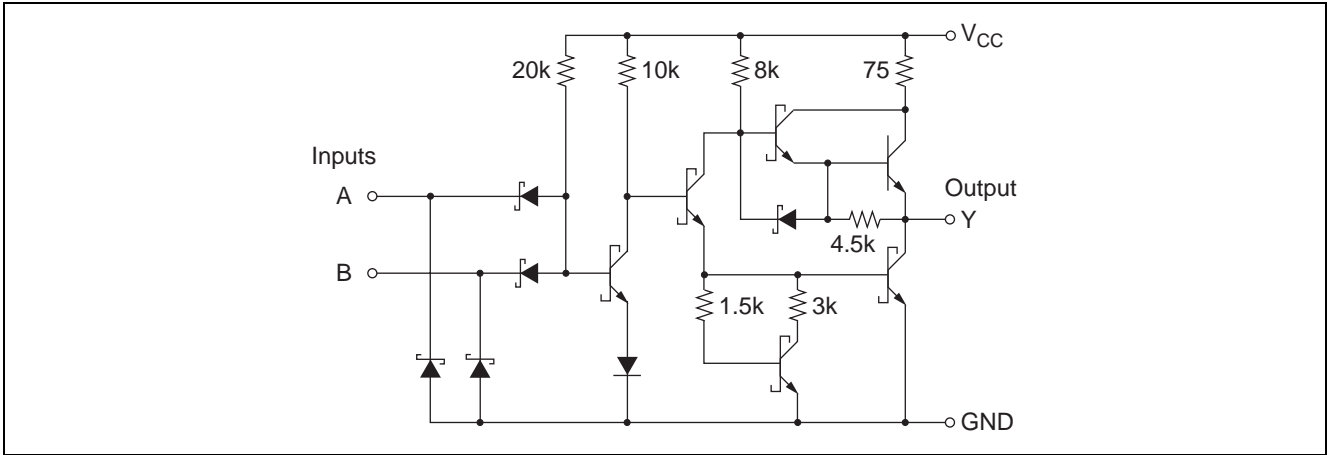
| Part Name | Package Type | Package Code (Previous Code) | Package Abbreviation | Taping Abbreviation (Quantity) |
|--------------|--------------------|------------------------------|----------------------|--------------------------------|
| HD74LS08P | DILP-14 pin | PRDP0014AB-B (DP-14AV) | P | — |
| HD74LS08FPEL | SOP-14 pin (JEITA) | PRSP0014DF-B (FP-14DAV) | FP | EL (2,000 pcs/reel) |
| HD74LS08RPEL | SOP-14 pin (JEDEC) | PRSP0014DE-A (FP-14DNV) | RP | EL (2,500 pcs/reel) |

Note: Please consult the sales office for the above package availability.

Pin Arrangement



Circuit Schematic (1/4)



Absolute Maximum Ratings

| Item | Symbol | Ratings | Unit |
|---------------------|--------------------------|-------------|------|
| Supply voltage | V_{CC} ^{Note} | 7 | V |
| Input voltage | V_{IN} | 7 | V |
| Power dissipation | P_T | 400 | mW |
| Storage temperature | T_{stg} | -65 to +150 | °C |

Note: Voltage value, unless otherwise noted, are with respect to network ground terminal.

Recommended Operating Conditions

| Item | Symbol | Min | Typ | Max | Unit |
|-----------------------|-----------|------|------|------|------|
| Supply voltage | V_{CC} | 4.75 | 5.00 | 5.25 | V |
| Output current | I_{OH} | — | — | -400 | μA |
| | I_{OL} | — | — | 8 | mA |
| Operating temperature | T_{opr} | -20 | 25 | 75 | °C |

Electrical Characteristics

(Ta = -20 to +75 °C)

| Item | Symbol | min. | typ.* | max. | Unit | Condition |
|------------------------------|------------------|------|-------|------|------|--|
| Input voltage | V _{IH} | 2.0 | — | — | V | |
| | V _{IL} | — | — | 0.8 | V | |
| Output voltage | V _{OH} | 2.7 | — | — | V | V _{CC} = 4.75 V, V _{IH} = 2 V, I _{OH} = -400 μA |
| | V _{OL} | — | — | 0.5 | V | V _{CC} = 4.75 V, V _{IL} = 0.8 V |
| — | | — | 0.4 | | | |
| Input current | I _{IH} | — | — | 20 | μA | V _{CC} = 5.25 V, V _I = 2.7 V |
| | I _{IL} | — | — | -0.4 | mA | V _{CC} = 5.25 V, V _I = 0.4 V |
| | I _I | — | — | 0.1 | mA | V _{CC} = 5.25 V, V _I = 7 V |
| Short-circuit output current | I _{OS} | -20 | — | -100 | mA | V _{CC} = 5.25 V |
| Supply current | I _{CCH} | — | 2.4 | 4.8 | mA | V _{CC} = 5.25 V |
| | I _{CCL} | — | 4.4 | 8.8 | mA | V _{CC} = 5.25 V |
| Input clamp voltage | V _{IK} | — | — | -1.5 | V | V _{CC} = 4.75 V, I _{IN} = -18 mA |

Note: * V_{CC} = 5 V, Ta = 25°C

Switching Characteristics

(V_{CC} = 5 V, Ta = 25°C)

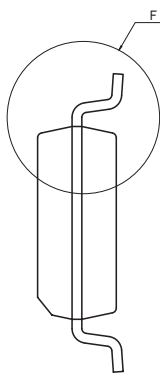
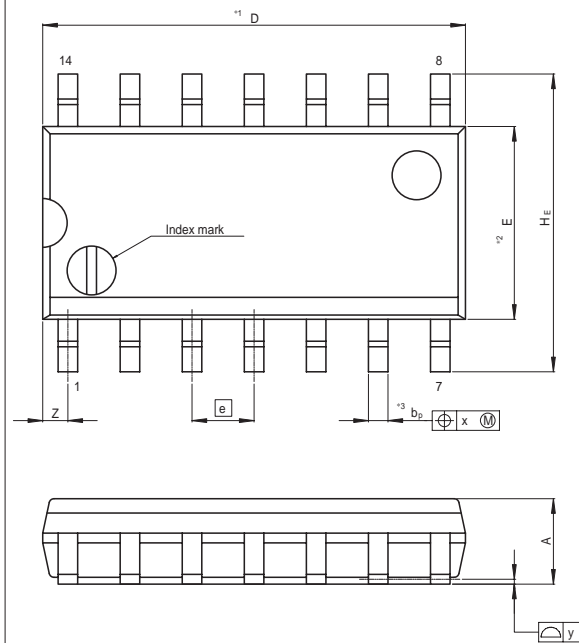
| Item | Symbol | min. | typ. | max. | Unit | Condition |
|------------------------|------------------|------|------|------|------|---|
| Propagation delay time | t _{PLH} | — | 8 | 15 | ns | C _L = 15 pF, R _L = 2 kΩ |
| | t _{PHL} | — | 10 | 20 | ns | |

Note: Refer to Test Circuit and Waveform of the Common Item "TTL Common Matter (Document No.: REJ27D0005-0100)".

Package Dimensions

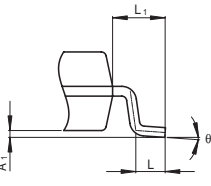


| | | | |
|--|------------------------------|---------------------------|---------------------|
| JEITA Package Code P-SOP14-3.95x8.65-1.27 | RENESAS Code PRSP0014DE-A | Previous Code FP-14DNV | MASS[Typ.] 0.13g |
|--|------------------------------|---------------------------|---------------------|



NOTE)
 1. DIMENSIONS*1 (Nom)*AND*2*
 DO NOT INCLUDE MOLD FLASH.
 2. DIMENSION*3*DOES NOT
 INCLUDE TRIM OFFSET.

Terminal cross section
(Ni/Pd/Au plating)



Detail F

| Reference Symbol | Dimension in Millimeters | | |
|------------------|--------------------------|------|-------|
| | Min | Nom | Max |
| D | — | 8.65 | 9.05 |
| E | — | 3.95 | — |
| A ₂ | — | — | — |
| A ₁ | 0.10 | 0.14 | 0.25 |
| A | — | — | 1.75 |
| b _p | 0.34 | 0.40 | 0.46 |
| b ₁ | — | — | — |
| c | 0.15 | 0.20 | 0.25 |
| c ₁ | — | — | — |
| θ | 0° | — | 8° |
| H _E | 5.80 | 6.10 | 6.20 |
| e | — | 1.27 | — |
| x | — | — | 0.25 |
| y | — | — | 0.15 |
| Z | — | — | 0.635 |
| L | 0.40 | 0.60 | 1.27 |
| L ₁ | — | 1.08 | — |

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