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April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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HD74LS07

Hex Buffers / Drivers
(With Open Collector High-Voltage Outputs)

REJ03D0393-0200

Rev.2.00

Feb.18.2005

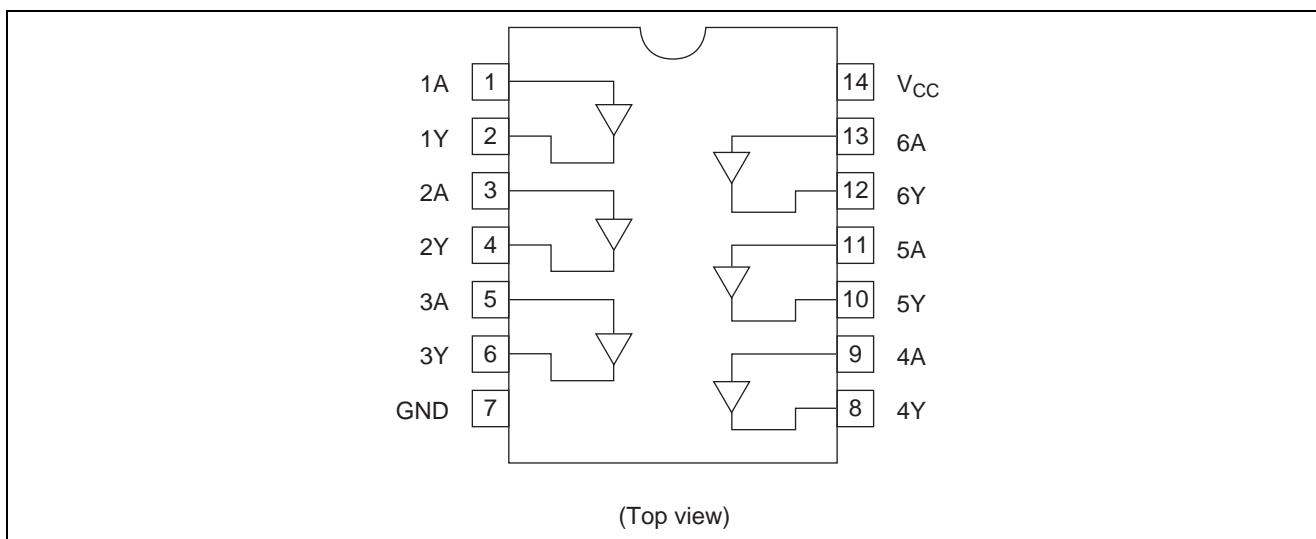
Features

- Ordering Information

| Part Name | Package Type | Package Code (Previous Code) | Package Abbreviation | Taping Abbreviation (Quantity) |
|--------------|--------------------|------------------------------|----------------------|--------------------------------|
| HD74LS07P | DILP-14 pin | PRDP0014AB-B (DP-14AV) | P | — |
| HD74LS07FPEL | SOP-14 pin (JEITA) | PRSP0014DF-B (FP-14DAV) | FP | EL (2,000 pcs/reel) |

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

Pin Arrangement



Absolute Maximum Ratings

| Item | Symbol | Ratings | Unit |
|---------------------|--------------------------|-------------|------|
| Supply voltage | V_{CC} ^{Note} | 7 | V |
| Input voltage | V_{IN} | 7 | V |
| Output voltage | V_{OUT} | 30 | 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 voltage | V_{OH} | — | — | 30 | V |
| Output current | I_{OL} | — | — | 48 | 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_{OL} | — | — | 0.4 | V | $I_{OL} = 24 \text{ mA}$ $V_{CC} = 4.75 \text{ V}, V_{IL} = 0.8 \text{ V}$ |
| | | — | — | 0.5 | | |
| Input current | I_{IH} | — | — | 20 | μA | $V_{CC} = 5.25 \text{ V}, V_I = 2.7 \text{ V}$ |
| | I_{IL} | — | — | -0.4 | mA | $V_{CC} = 5.25 \text{ V}, V_I = 0.4 \text{ V}$ |
| | I_I | — | — | 0.1 | mA | $V_{CC} = 5.25 \text{ V}, V_I = 7 \text{ V}$ |
| Output current | I_{OH} | — | — | 250 | μA | $V_{CC} = 4.75 \text{ V}, V_{IH} = 2 \text{ V}, V_{OH} = 30 \text{ V}$ |
| Supply current | I_{CCH} | — | 22 | 41 | mA | $V_{CC} = 5.25 \text{ V}$ |
| | I_{CCL} | — | 17 | 30 | mA | $V_{CC} = 5.25 \text{ V}$ |
| Input clamp voltage | V_{IK} | — | — | -1.5 | V | $V_{CC} = 4.75 \text{ V}, I_{IN} = -18 \text{ mA}$ |

Note: * $V_{CC} = 5 \text{ V}, T_a = 25^\circ\text{C}$

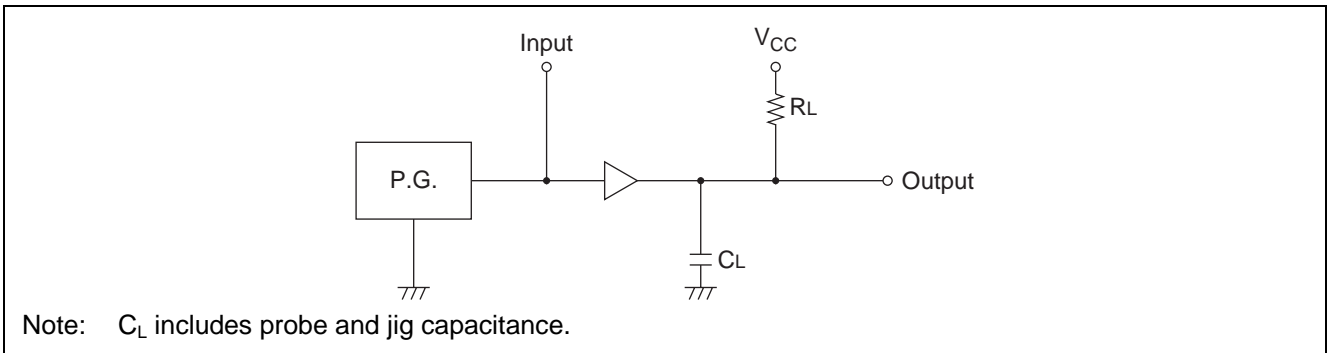
Switching Characteristics

(V_{CC} = 5 V, Ta = 25°C)

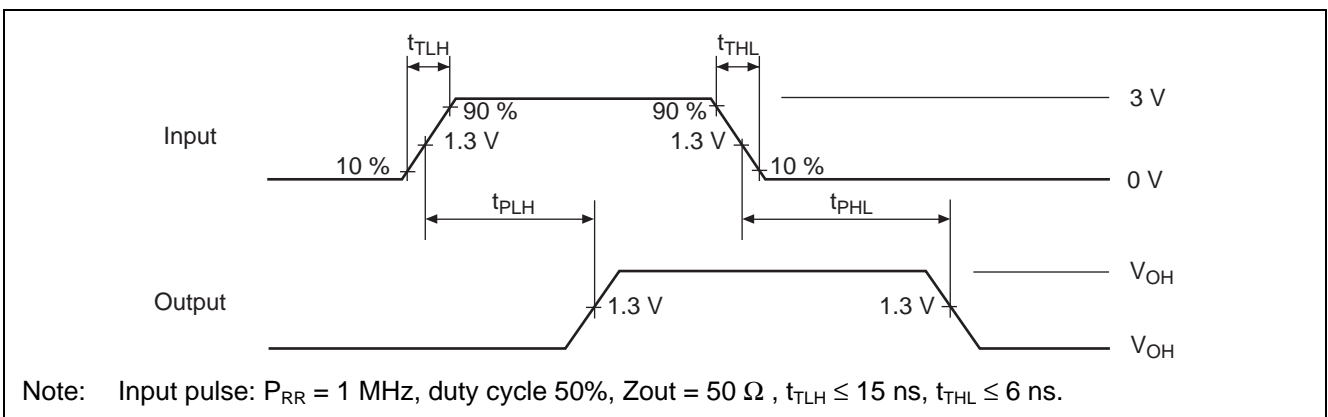
| Item | Symbol | min. | typ. | max. | Unit | Condition |
|------------------------|-----------|------|------|------|------|---|
| Propagation delay time | t_{PLH} | — | 10 | 15 | ns | $C_L = 15 \text{ pF}, R_L = 100 \Omega$ |
| | t_{PHL} | — | 20 | 30 | ns | |

Testing Method

Test Circuit

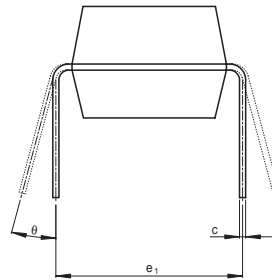
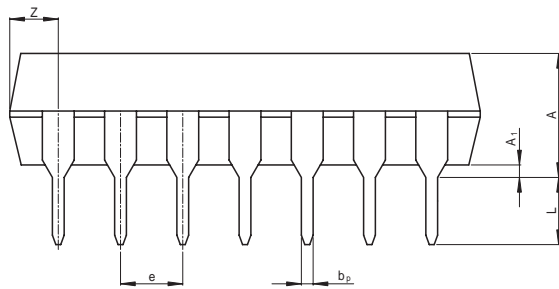
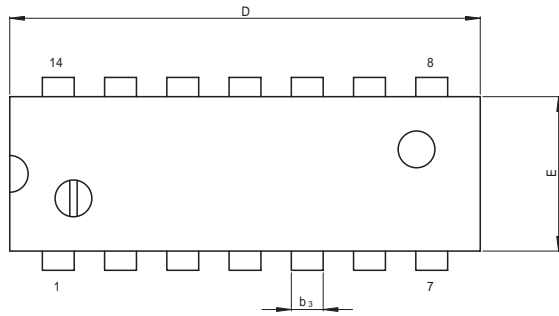


Waveform



Package Dimensions

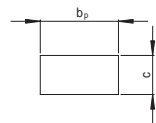
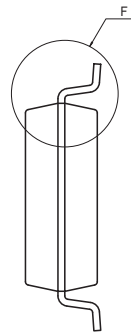
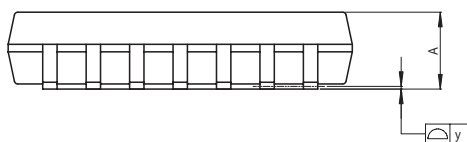
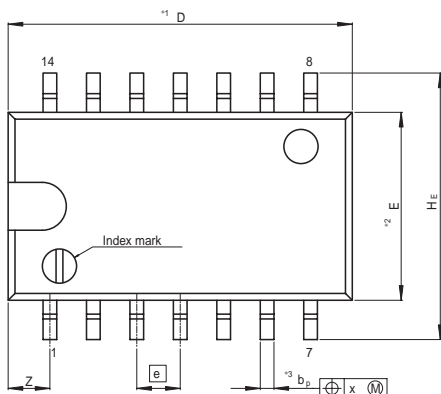
| | | | |
|-----------------------|--------------|---------------|------------|
| JEITA Package Code | RENESAS Code | Previous Code | MASS[Typ.] |
| P-DIP14-6.3x19.2-2.54 | PRDP0014AB-B | DP-14AV | 0.97g |



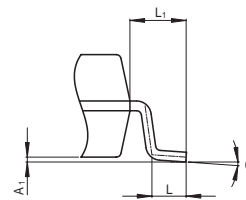
(Ni/Pd/Au plating)

| Reference Symbol | Dimension in Millimeters | | |
|------------------|--------------------------|------|-------|
| | Min | Nom | Max |
| e ₁ | — | 7.62 | — |
| D | — | 19.2 | 20.32 |
| E | — | 6.3 | 7.4 |
| A | — | — | 5.06 |
| A ₁ | 0.51 | — | — |
| b _p | 0.40 | 0.48 | 0.56 |
| b ₃ | — | 1.30 | — |
| c | 0.19 | 0.25 | 0.31 |
| θ | 0° | — | 15° |
| e | 2.29 | 2.54 | 2.79 |
| Z | — | — | 2.39 |
| L | 2.54 | — | — |

| | | | |
|------------------------|--------------|---------------|------------|
| JEITA Package Code | RENESAS Code | Previous Code | MASS[Typ.] |
| P-SOP14-5.5x10.06-1.27 | PRSP0014DF-B | FP-14DAV | 0.23g |



Terminal cross section
(Ni/Pd/Au plating)



Detail F

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

| Reference Symbol | Dimension in Millimeters | | |
|------------------|--------------------------|-------|------|
| | Min | Nom | Max |
| D | — | 10.06 | 10.5 |
| E | — | 5.50 | — |
| A ₂ | — | — | — |
| A ₁ | 0.00 | 0.10 | 0.20 |
| A | — | — | 2.20 |
| b _p | 0.34 | 0.40 | 0.46 |
| b ₁ | — | — | — |
| c | 0.15 | 0.20 | 0.25 |
| c ₁ | — | — | — |
| θ | 0° | — | 8° |
| H _E | 7.50 | 7.80 | 8.00 |
| e | — | 1.27 | — |
| x | — | — | 0.12 |
| y | — | — | 0.15 |
| Z | — | — | 1.42 |
| L | 0.50 | 0.70 | 0.90 |
| L ₁ | — | 1.15 | — |

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