

HD74HC86

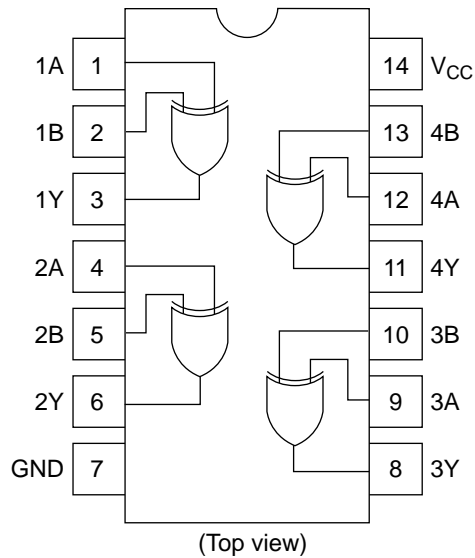
Quad. 2-input Exclusive-OR Gates

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Features

- High Speed Operation: $t_{pd} = 12 \text{ ns typ (} C_L = 50 \text{ pF)}$
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 2 \text{ to } 6 \text{ V}$
- Low Input Current: $1 \mu\text{A max}$
- Low Quiescent Supply Current: $I_{CC} \text{ (static)} = 1 \mu\text{A max (} T_a = 25^\circ\text{C)}$

Pin Arrangement



HD74HC86

DC Characteristics

| Item | Symbol | V _{CC} (V) | Ta = 25°C | | | Ta = -40 to +85°C | | Unit | Test Conditions | |
|--------------------------|-----------------|---------------------|-----------|-----|------|-------------------|------|------|---|---------------------------|
| | | | Min | Typ | Max | Min | Max | | | |
| Input voltage | V _{IH} | 2.0 | 1.5 | — | — | 1.5 | — | V | | |
| | | 4.5 | 3.15 | — | — | 3.15 | — | | | |
| | | 6.0 | 4.2 | — | — | 4.2 | — | | | |
| | V _{IL} | 2.0 | — | — | 0.5 | — | 0.5 | | | V |
| | | 4.5 | — | — | 1.35 | — | 1.35 | | | |
| | | 6.0 | — | — | 1.8 | — | 1.8 | | | |
| Output voltage | V _{OH} | 2.0 | 1.9 | 2.0 | — | 1.9 | — | V | Vin = V _{IH} or V _{IL} I _{OH} = -20 μA | |
| | | 4.5 | 4.4 | 4.5 | — | 4.4 | — | | | |
| | | 6.0 | 5.9 | 6.0 | — | 5.9 | — | | | |
| | | 4.5 | 4.18 | — | — | 4.13 | — | | | I _{OH} = -4 mA |
| | | 6.0 | 5.68 | — | — | 5.63 | — | | | I _{OH} = -5.2 mA |
| | V _{OL} | 2.0 | — | 0.0 | 0.1 | — | 0.1 | V | Vin = V _{IH} or V _{IL} I _{OL} = 20 μA | |
| | | 4.5 | — | 0.0 | 0.1 | — | 0.1 | | | |
| | | 6.0 | — | 0.0 | 0.1 | — | 0.1 | | | |
| | | 4.5 | — | — | 0.26 | — | 0.33 | | | I _{OL} = 4 mA |
| | | 6.0 | — | — | 0.26 | — | 0.33 | | | I _{OL} = 5.2 mA |
| Input current | I _{in} | 6.0 | — | — | ±0.1 | — | ±1.0 | μA | Vin = V _{CC} or GND | |
| Quiescent supply current | I _{CC} | 6.0 | — | — | 1.0 | — | 10 | μA | Vin = V _{CC} or GND, I _{out} = 0 μA | |

AC Characteristics ($C_L = 50 \text{ pF}$, Input $t_r = t_f = 6 \text{ ns}$)

| Item | Symbol | V_{CC} (V) | Ta = 25°C | | Ta = -40 to +85°C | | Unit | Test Conditions |
|------------------------|-----------|--------------|-----------|-----|-------------------|-----|------|-----------------|
| | | | Min | Typ | Max | Min | | |
| Propagation delay time | t_{PLH} | 2.0 | — | — | 120 | — | 150 | ns |
| | | 4.5 | — | 12 | 24 | — | 30 | |
| | | 6.0 | — | — | 20 | — | 26 | |
| | t_{PHL} | 2.0 | — | — | 120 | — | 150 | |
| | | 4.5 | — | 12 | 24 | — | 30 | |
| | | 6.0 | — | — | 20 | — | 26 | |
| Output rise time | t_{TLH} | 2.0 | — | — | 75 | — | 95 | |
| | | 4.5 | — | 7 | 15 | — | 19 | |
| | | 6.0 | — | — | 13 | — | 16 | |
| Output fall time | t_{THL} | 2.0 | — | — | 75 | — | 95 | |
| | | 4.5 | — | 7 | 15 | — | 19 | |
| | | 6.0 | — | — | 13 | — | 16 | |
| Input capacitance | C_{in} | — | — | 5 | 10 | — | 10 | pF |



| | |
|--------------------------|----------|
| Hitachi Code | DP-14 |
| JEDEC | Conforms |
| EIAJ | Conforms |
| Weight (reference value) | 0.97 g |

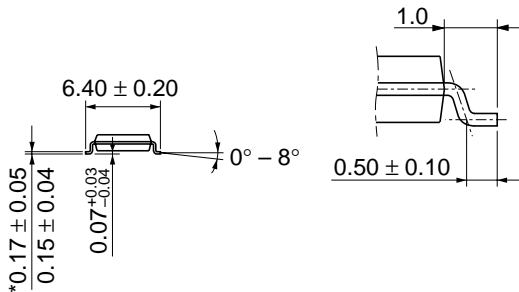
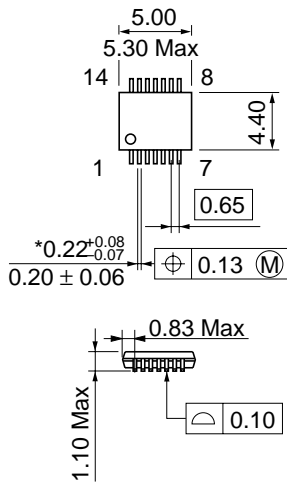


| | |
|--------------------------|----------|
| Hitachi Code | FP-14DA |
| JEDEC | — |
| EIAJ | Conforms |
| Weight (reference value) | 0.23 g |

*Dimension including the plating thickness
Base material dimension



| | |
|--------------------------|----------|
| Hitachi Code | FP-14DN |
| JEDEC | Conforms |
| EIAJ | Conforms |
| Weight (reference value) | 0.13 g |



*Dimension including the plating thickness
 Base material dimension

| | |
|--------------------------|---------|
| Hitachi Code | TTP-14D |
| JEDEC | — |
| EIAJ | — |
| Weight (reference value) | 0.05 g |

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