To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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# HD74HC366

Hex Bus Drivers (with 3-state outputs)

ADE-205-495 (Z)
1st. Edition
Sep. 2000

## Features

- High Speed Operation: $t_{pd}$ (A to Y) = 9 ns typ ($C_L$ = 50 pF)
- High Output Current: Fanout of 15 LSTTL Loads
- Wide Operating Voltage: $V_{CC}$ = 2 to 6 V
- Low Input Current: 1 µA max
- Low Quiescent Supply Current: $I_{CC}$ (static) = 4 µA max (Ta = 25°C)

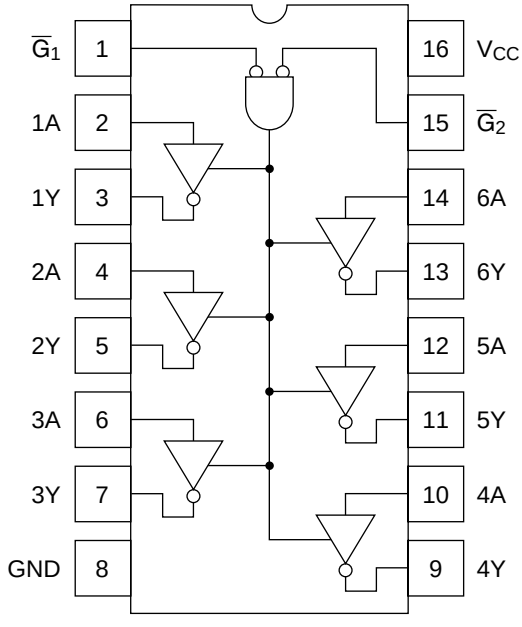
## Function Table

| Inputs | | | Output |
|---|---|---|---|
| $\overline{G_1}$ | $\overline{G_2}$ | A | Y |
| H | X | X | Z |
| X | H | X | Z |
| L | L | H | L |
| L | L | L | H |

X : irrelevant

Z : Off (high-impedance) state of a 3-state output.

## Pin Arrangement




(Top view)

## Absolute Maximum Ratings

| Item | Symbol | Rating | Unit |
|---|---|---|---|
| Supply voltage range | $V_{CC}$ | –0.5 to +7.0 | V |
| Input voltage | $V_{IN}$ | –0.5 to $V_{CC}$ + 0.5 | V |
| Output voltage | $V_{OUT}$ | –0.5 to $V_{CC}$ + 0.5 | V |
| DC current drain per pin | $I_{OUT}$ | ±35 | mA |
| DC current drain per $V_{CC}$, GND | $I_{CC}$, $I_{GND}$ | ±75 | mA |
| DC input diode current | $I_{IK}$ | ±20 | mA |
| DC output diode current | $I_{OK}$ | ±20 | mA |
| Power dissipation per package | $P_T$ | 500 | mW |
| Storage temperature | Tstg | –65 to +150 | °C |

## DC Characteristics

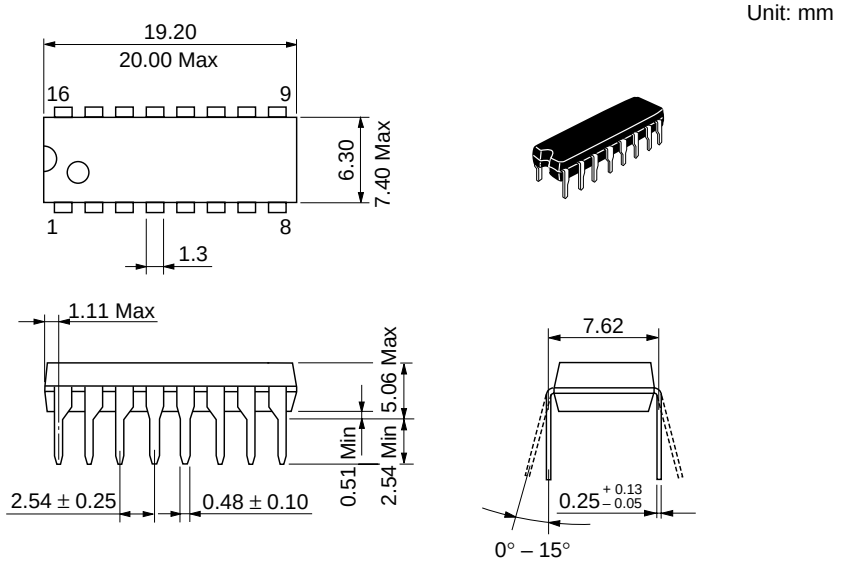
| Item | Symbol | $V_{CC}$ (V) | Ta = 25°C Min | Typ | Max | Ta = –40 to +85°C Min | Max | Unit | Test Conditions |
|---|---|---|---|---|---|---|---|---|---|
| Input voltage | $V_{IH}$ | 2.0 | 1.5 | — | — | 1.5 | — | V | |
| | | 4.5 | 3.15 | — | — | 3.15 | — | | |
| | | 6.0 | 4.2 | — | — | 4.2 | — | | |
| | $V_{IL}$ | 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 | — | | $I_{OH}$ = –6 mA |
| | | 6.0 | 5.68 | — | — | 5.63 | — | | $I_{OH}$ = –7.8 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 | | $I_{OL}$ = 6 mA |
| | | 6.0 | — | — | 0.26 | — | 0.33 | | $I_{OL}$ = 7.8 mA |
| Off-state output current | $I_{OZ}$ | 6.0 | — | — | ±0.5 | — | ±5.0 | µA | Vin = $V_{IH}$ or $V_{IL}$, Vout = $V_{CC}$ or GND |
| Input current | Iin | 6.0 | — | — | ±0.1 | — | ±1.0 | µA | Vin = $V_{CC}$ or GND |
| Quiescent supply current | $I_{CC}$ | 6.0 | — | — | 4.0 | — | 40 | µA | Vin = $V_{CC}$ or GND, Iout = 0 µA |

## AC Characteristics ($C_L$ = 50 pF, Input $t_r = t_f$ = 6 ns)

| | | | Ta = 25°C | | | Ta = –40 to +85°C | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Symbol** | **$V_{cc}$ (V)** | **Min** | **Typ** | **Max** | **Min** | **Max** | **Unit** | **Test Conditions** |
| Propagation delay time | $t_{PLH}$ | 2.0 | — | — | 95 | — | 120 | ns | |
| | $t_{PHL}$ | 4.5 | — | 9 | 19 | — | 24 | | |
| | | 6.0 | — | — | 16 | — | 20 | | |
| Output enable time | $t_{ZH}$ | 2.0 | — | — | 220 | — | 275 | ns | |
| | $t_{ZL}$ | 4.5 | — | 13 | 44 | — | 55 | | |
| | | 6.0 | — | — | 37 | — | 47 | | |
| Output disable time | $t_{HZ}$ | 2.0 | — | — | 220 | — | 275 | ns | |
| | $t_{LZ}$ | 4.5 | — | 15 | 44 | — | 55 | | |
| | | 6.0 | — | — | 37 | — | 47 | | |
| Output rise/fall time | $t_{TLH}$ | 2.0 | — | — | 60 | — | 75 | ns | |
| | $t_{THL}$ | 4.5 | — | 4 | 12 | — | 15 | | |
| | | 6.0 | — | — | 10 | — | 13 | | |
| Input capacitance | Cin | — | — | 5 | 10 | — | 10 | pF | |

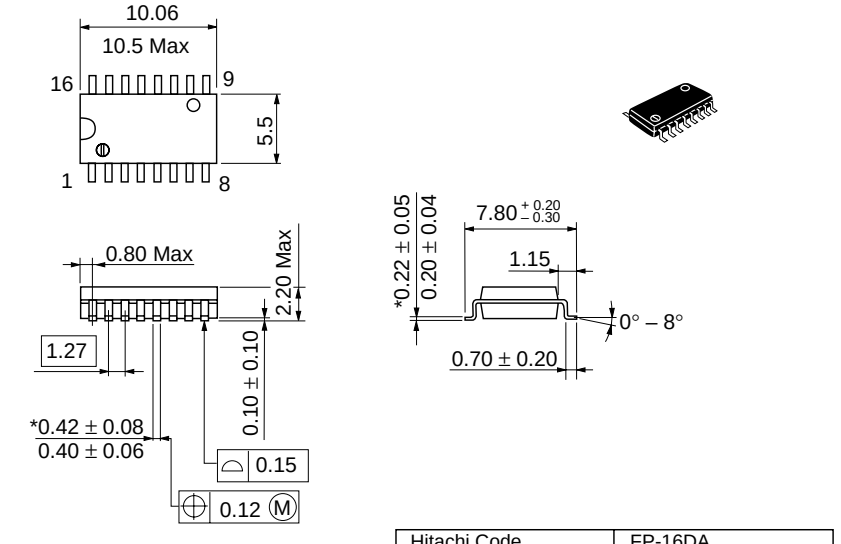
## Package Dimensions

Unit: mm




| | |
|---|---|
| Hitachi Code | DP-16 |
| JEDEC | Conforms |
| EIAJ | Conforms |
| Mass (reference value) | 1.07 g |

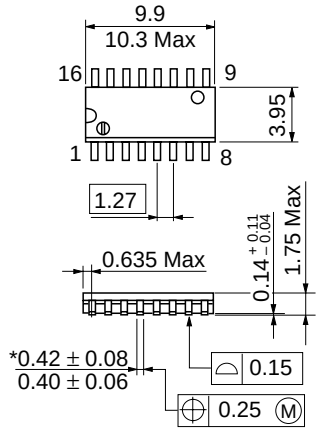
Unit: mm

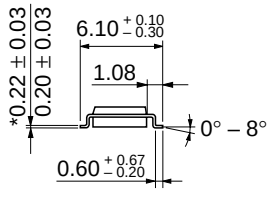


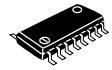

*Dimension including the plating thickness
Base material dimension

| | |
|---|---|
| Hitachi Code | FP-16DA |
| JEDEC | — |
| EIAJ | Conforms |
| Mass (reference value) | 0.24 g |

Unit: mm



*Dimension including the plating thickness
Base material dimension

| | |
|---|---|
| Hitachi Code | FP-16DN |
| JEDEC | Conforms |
| EIAJ | Conforms |
| Mass (reference value) | 0.15 g |

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