

HD74HCT240

Octal Buffers/Line Drivers/Line Receivers
(with inverted 3-state outputs)

HITACHI

Description

The HD74HCT240 is an inverting buffer and has two active low enables ($\overline{1G}$ and $\overline{2G}$). Each enable independently controls 4 buffers. This device does not have schmitt trigger inputs.

Features

- LSTTL Output Logic Level Compatibility as well as CMOS Output Compatibility
- High Speed Operation: t_{pd} (A to Y) = 11 ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 15 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 4.5$ to 5.5 V
- Low Input Current: $1 \mu\text{A}$ max
- Low Quiescent Supply Current: I_{CC} (static) = $4 \mu\text{A}$ max ($T_a = 25^\circ\text{C}$)

Function Table

| Inputs | | Output |
|----------------|---|--------|
| \overline{G} | A | Y |
| H | X | Z |
| L | H | L |
| L | L | H |

H : High level

L : Low level

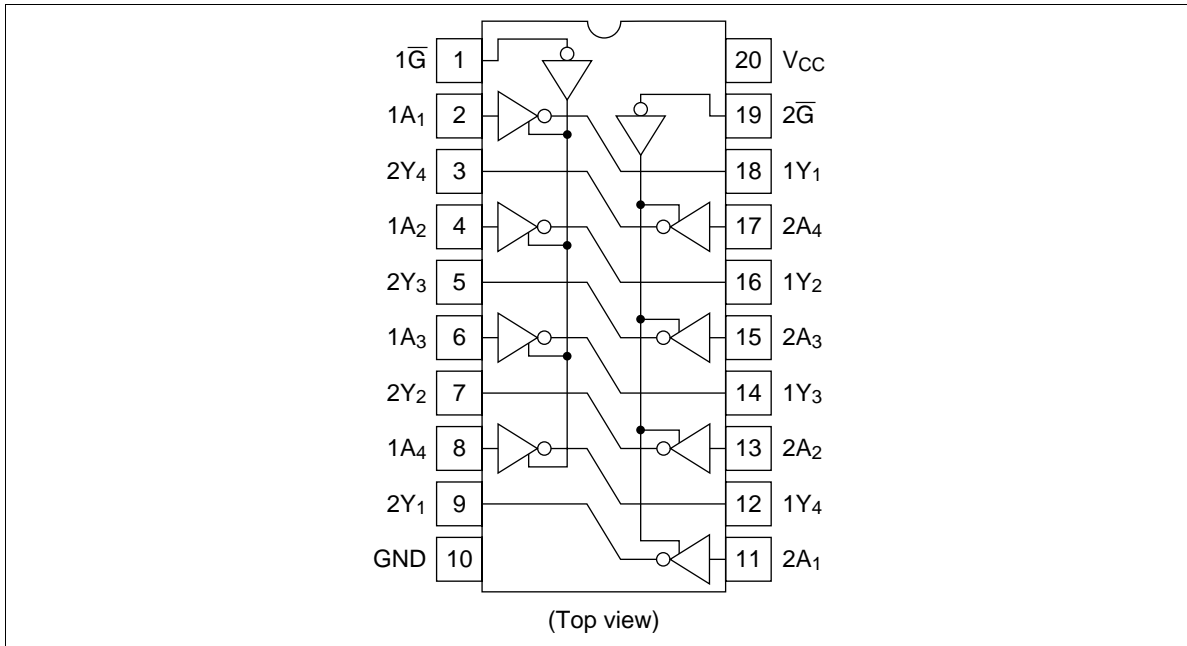
X : Irrelevant

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

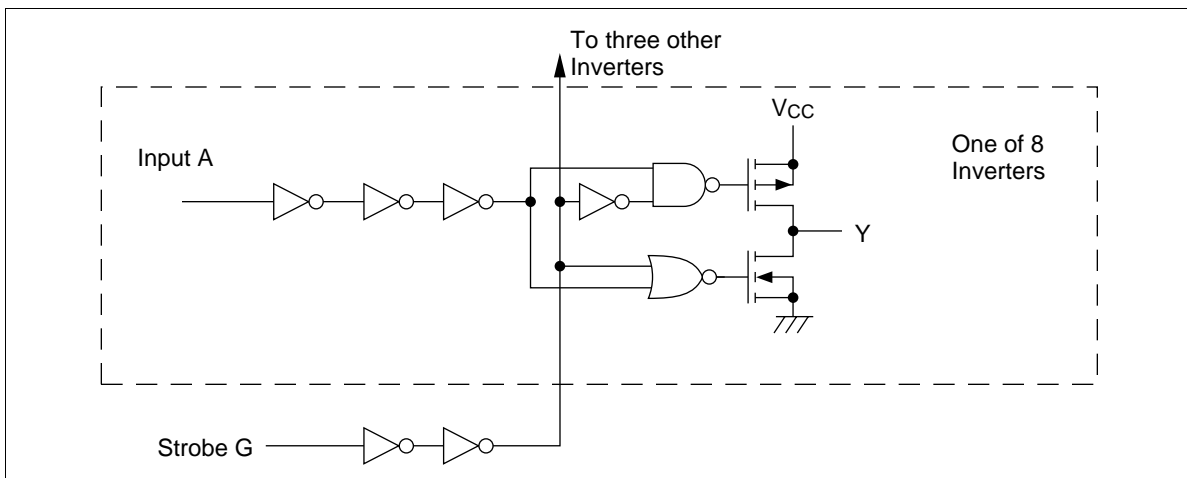


HD74HCT240

Pin Arrangement



Block Diagram



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 | Ta = 25°C | | Ta = -40 to +85°C | | Unit | Test Conditions | | |
|--------------------------|----------|-----------|-----|-------------------|------|-----------|-----------------|---------------------|--|
| | | Min | Typ | Max | Min | | Max | V _{CC} (V) | |
| Input voltage | V_{IH} | 2.0 | — | — | 2.0 | — | V | 4.5 to 5.5 | |
| | V_{IL} | — | — | 0.8 | — | 0.8 | V | 4.5 to 5.5 | |
| Output voltage | V_{OH} | 4.4 | — | — | 4.4 | — | V | 4.5 | Vin = V_{IH} or V_{IL} , $I_{OH} = -20 \mu A$ |
| | | 4.18 | — | — | 4.13 | — | | 4.5 | $I_{OH} = -6 mA$ |
| | V_{OL} | — | — | 0.1 | — | 0.1 | V | 4.5 | Vin = V_{IH} or V_{IL} , $I_{OL} = 20 \mu A$ |
| | | — | — | 0.26 | — | 0.33 | | 4.5 | $I_{OL} = 6 mA$ |
| Off-state output current | I_{OZ} | — | — | ± 0.5 | — | ± 5.0 | μA | 5.5 | Vin = V_{IH} or V_{IL} , Vout = V_{CC} or GND |
| Input current | I_{in} | — | — | ± 0.1 | — | ± 1.0 | μA | 5.5 | Vin = V_{CC} or GND |
| Quiescent current | I_{CC} | — | — | 4.0 | — | 40 | μA | 5.5 | Vin = V_{CC} or GND, Iout = 0 μA |



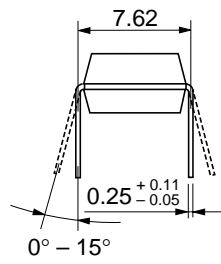
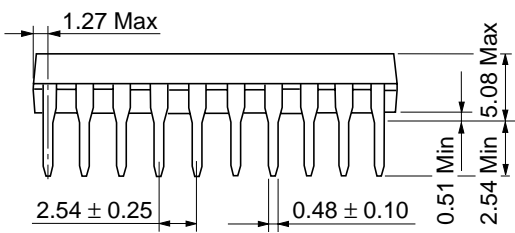
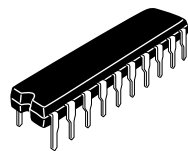
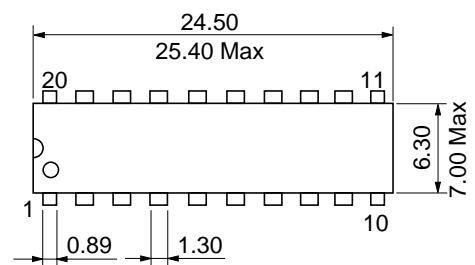
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AC Characteristics ($C_L = 50$ pF, Input $t_r = t_f = 6$ ns)

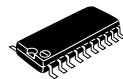
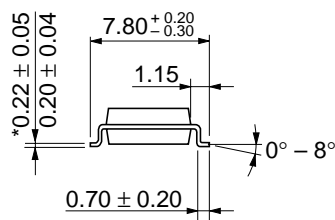
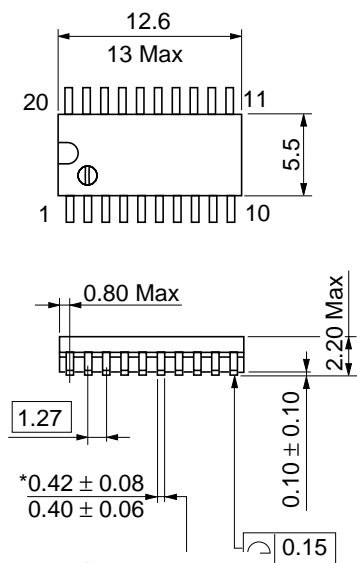
| Item | Symbol | Ta = 25°C | | | Ta = -40 to +85°C | | Unit | Test Conditions |
|-------------------|------------------|-----------|-----|-----|-------------------|-----|------|---------------------|
| | | Min | Typ | Max | Min | Max | | V _{CC} (V) |
| Propagation delay | t _{PHL} | — | 13 | 20 | — | 25 | ns | 4.5 |
| time | t _{PLH} | — | 9 | 20 | — | 25 | | 4.5 |
| Output enable | t _{ZL} | — | 14 | 30 | — | 38 | ns | 4.5 |
| time | t _{ZH} | — | 12 | 30 | — | 38 | | 4.5 |
| Output disable | t _{LZ} | — | 14 | 30 | — | 38 | ns | 4.5 |
| time | t _{HZ} | — | 18 | 30 | — | 38 | | 4.5 |
| Output rise/fall | t _{TLH} | — | 4 | 12 | — | 15 | ns | 4.5 |
| time | t _{THL} | | | | | | | |
| Input capacitance | C _{in} | — | 5 | 10 | — | 10 | pF | — |



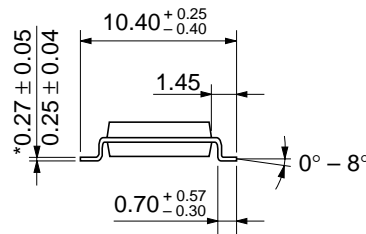
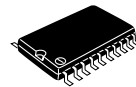
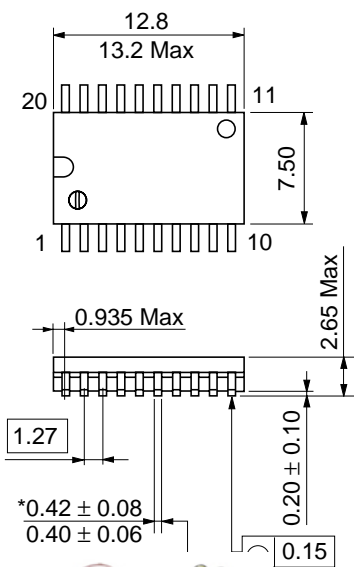
Unit: mm



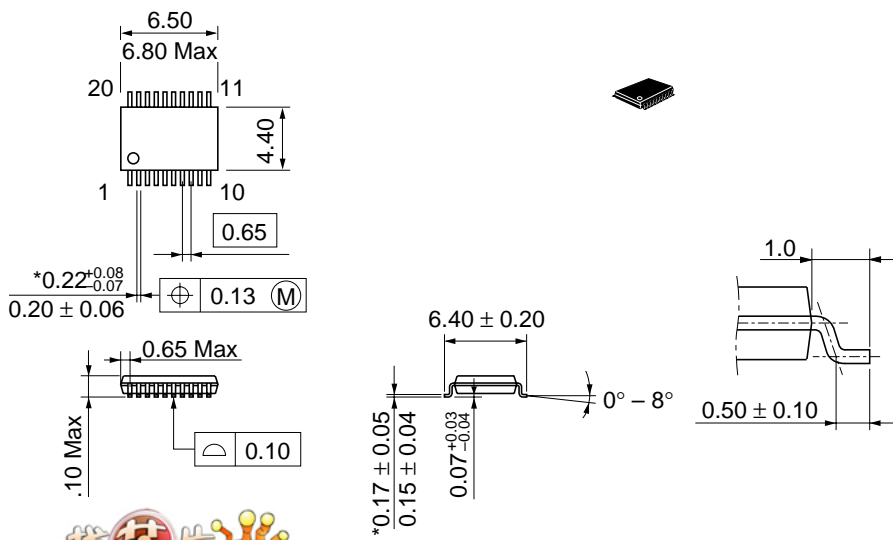
Unit: mm



Unit: mm



Unit: mm



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