

## Hex inverting Schmitt trigger

## 74HC14; 74HCT14

## FEATURES

- Applications:
  - Wave and pulse shapers
  - Astable multivibrators
  - Monostable multivibrators.
- Complies with JEDEC standard no. 7A
- ESD protection:  
HBM EIA/JESD22-A114-A exceeds 2000 V  
MM EIA/JESD22-A115-A exceeds 200 V.
- Specified from –40 to +85 °C and –40 to +125 °C.

## DESCRIPTION

The 74HC14 and 74HCT14 are high-speed Si-gate CMOS devices and are pin compatible with low power Schottky TTL (LSTTL). They are specified in compliance with JEDEC standard no. 7A.

The 74HC14 and 74HCT14 provide six inverting buffers with Schmitt-trigger action. They are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals.

## QUICK REFERENCE DATA

GND = 0 V; T<sub>amb</sub> = 25 °C; t<sub>r</sub> = t<sub>f</sub> = 6 ns

| SYMBOL                             | PARAMETER                              | CONDITIONS                                    | TYPICAL |     | UNIT |
|------------------------------------|--|---|---------|-----|------|
|                                    |  |   | HC      | HCT |      |
| t <sub>PHL</sub> /t <sub>PLH</sub> | propagation delay nA to nY             | C <sub>L</sub> = 15 pF; V <sub>CC</sub> = 5 V | 12      | 17  | ns   |
| C <sub>I</sub>                     | input capacitance                      |   | 3.5     | 3.5 | pF   |
| C <sub>PD</sub>                    | power dissipation capacitance per gate | notes 1 and 2                                 | 7       | 8   | pF   |

## Notes

1. C<sub>PD</sub> is used to determine the dynamic power dissipation (P<sub>D</sub> in μW):  

$$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$$
 where:  
 f<sub>i</sub> = input frequency in MHz;  
 f<sub>o</sub> = output frequency in MHz;  
 C<sub>L</sub> = output load capacitance in pF;  
 V<sub>CC</sub> = supply voltage in Volts;  
 N = total load switching outputs;  
 $\Sigma(C_L \times V_{CC}^2 \times f_o)$  = sum of the outputs.
2. For type 74HC14 the condition is V<sub>I</sub> = GND to V<sub>CC</sub>.  
 For type 74HCT14 the condition is V<sub>I</sub> = GND to V<sub>CC</sub> – 1.5 V.

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## FUNCTION TABLE

| INPUT | OUTPUT |
|-------|--------|
| nA    | nY     |
| L     | H      |
| H     | L      |

## Note

1. H = HIGH voltage level;  
L = LOW voltage level.

## ORDERING INFORMATION

| TYPE NUMBER | PACKAGE           |      |          |          |          |
|-------------|-------------------|------|----------|----------|----------|
|             | TEMPERATURE RANGE | PINS | PACKAGE  | MATERIAL | CODE     |
| 74HC14D     | -40 to +125 °C    | 14   | SO14     | plastic  | SOT108-1 |
| 74HCT14D    | -40 to +125 °C    | 14   | SO14     | plastic  | SOT108-1 |
| 74HC14DB    | -40 to +125 °C    | 14   | SSOP14   | plastic  | SOT337-1 |
| 74HCT14DB   | -40 to +125 °C    | 14   | SSOP14   | plastic  | SOT337-1 |
| 74HC14N     | -40 to +125 °C    | 14   | DIP14    | plastic  | SOT27-1  |
| 74HCT14N    | -40 to +125 °C    | 14   | DIP14    | plastic  | SOT27-1  |
| 74HC14PW    | -40 to +125 °C    | 14   | TSSOP14  | plastic  | SOT402-1 |
| 74HCT14PW   | -40 to +125 °C    | 14   | TSSOP14  | plastic  | SOT402-1 |
| 74HC14BQ    | -40 to +125 °C    | 14   | DHVQFN14 | plastic  | SOT762-1 |
| 74HCT14BQ   | -40 to +125 °C    | 14   | DHVQFN14 | plastic  | SOT762-1 |

## PINNING

| PIN | SYMBOL          | DESCRIPTION    |
|-----|-----------------|----------------|
| 1   | 1A              | data input     |
| 2   | 1Y              | data output    |
| 3   | 2A              | data input     |
| 4   | 2Y              | data output    |
| 5   | 3A              | data input     |
| 6   | 3Y              | data output    |
| 7   | GND             | ground (0 V)   |
| 8   | 4Y              | data output    |
| 9   | 4A              | data input     |
| 10  | 5Y              | data output    |
| 11  | 5A              | data input     |
| 12  | 6Y              | data output    |
| 13  | 6A              | data input     |
| 14  | V <sub>CC</sub> | supply voltage |

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## RECOMMENDED OPERATING CONDITIONS

| SYMBOL    | PARAMETER                     | CONDITIONS                               | 74HC14 |      |          | 74HCT14 |      |          | UNIT |
|-----------|-------------------------------|--|--------|------|----------|---------|------|----------|------|
|           |                               |  | MIN.   | TYP. | MAX.     | MIN.    | TYP. | MAX.     |      |
| $V_{CC}$  | supply voltage                |  | 2.0    | 5.0  | 6.0      | 4.5     | 5.0  | 5.5      | V    |
| $V_I$     | input voltage                 |  | 0      | –    | $V_{CC}$ | 0       | –    | $V_{CC}$ | V    |
| $V_O$     | output voltage                |  | 0      | –    | $V_{CC}$ | 0       | –    | $V_{CC}$ | V    |
| $T_{amb}$ | operating ambient temperature | see DC and AC characteristics per device | –40    | +25  | +85      | –40     | +25  | +85      | °C   |
|           |                               |  | –40    | –    | +125     | –40     | –    | +125     | °C   |

## LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 60134); voltages are referenced to GND (ground = 0 V).

| SYMBOL            | PARAMETER                     | CONDITIONS   | MIN. | MAX.     | UNIT |
|-------------------|-------------------------------|--|------|----------|------|
| $V_{CC}$          | supply voltage                |  | –0.5 | +7       | V    |
| $I_{IK}$          | input diode current           | $V_I < -0.5 \text{ V}$ or $V_I > V_{CC} + 0.5 \text{ V}$ | –    | $\pm 20$ | mA   |
| $I_{OK}$          | output diode current          | $V_O < -0.5 \text{ V}$ or $V_O > V_{CC} + 0.5 \text{ V}$ | –    | $\pm 20$ | mA   |
| $I_O$             | output source or sink current | $-0.5 \text{ V} < V_O < V_{CC} + 0.5 \text{ V}$          | –    | $\pm 25$ | mA   |
| $I_{CC}; I_{GND}$ | $V_{CC}$ or GND current       |  | –    | 50       | mA   |
| $T_{stg}$         | storage temperature           |  | –65  | +150     | °C   |
| $P_{tot}$         | power dissipation             | $T_{amb} = -40 \text{ to } +125 \text{ °C}$              |      |          |      |
|                   |                               | DIP14 packages; note 1                                   | –    | 750      | mW   |
|                   |                               | Other packages; note 2                                   | –    | 500      | mW   |

## Notes

- For DIP14 packages: above 70 °C the value of  $P_D$  derates linearly with 12 mW/K.
- For SO14 packages: above 70 °C the value of  $P_D$  derates linearly with 8 mW/K.  
For (T)SSOP14 packages: above 60 °C the value of  $P_D$  derates linearly with 5.5 mW/K.  
For DHVQFN14 packages: above 60 °C the value of  $P_D$  derates linearly with 4.5 mW/K.

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## DC CHARACTERISTICS

## Type 74HC14

At recommended operating conditions; voltages are referenced to GND (ground = 0 V).

| SYMBOL                                 | PARAMETER                 | TEST CONDITIONS   |                     | MIN. | TYP. <sup>(1)</sup> | MAX. | UNIT |
|--|---------------------------|---|---------------------|------|---------------------|------|------|
|  |                           | OTHER   | V <sub>CC</sub> (V) |      |                     |      |      |
| <b>T<sub>amb</sub> = 25 °C</b>         |                           |   |                     |      |                     |      |      |
| V <sub>OH</sub>                        | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>         |                     |      |                     |      |      |
|  |                           | I <sub>O</sub> = -20 μA                                     | 2.0                 | 1.9  | 2.0                 | –    | V    |
|  |                           | I <sub>O</sub> = -20 μA                                     | 4.5                 | 4.4  | 4.5                 | –    | V    |
|  |                           | I <sub>O</sub> = -20 μA                                     | 6.0                 | 5.9  | 6.0                 | –    | V    |
|  |                           | I <sub>O</sub> = -4.0 mA                                    | 4.5                 | 3.98 | 4.32                | –    | V    |
|  |                           | I <sub>O</sub> = -5.2 mA                                    | 6.0                 | 5.48 | 5.81                | –    | V    |
| V <sub>OL</sub>                        | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>         |                     |      |                     |      |      |
|  |                           | I <sub>O</sub> = 20 μA                                      | 2.0                 | –    | 0                   | 0.1  | V    |
|  |                           | I <sub>O</sub> = 20 μA                                      | 4.5                 | –    | 0                   | 0.1  | V    |
|  |                           | I <sub>O</sub> = 20 μA                                      | 6.0                 | –    | 0                   | 0.1  | V    |
|  |                           | I <sub>O</sub> = 4.0 mA                                     | 4.5                 | –    | 0.15                | 0.26 | V    |
|  |                           | I <sub>O</sub> = 5.2 mA                                     | 6.0                 | –    | 0.16                | 0.26 | V    |
| I <sub>LI</sub>                        | input leakage current     | V <sub>I</sub> = V <sub>CC</sub> or GND                     | 6.0                 | –    | –                   | 0.1  | μA   |
| I <sub>CC</sub>                        | quiescent supply current  | V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 | 6.0                 | –    | –                   | 2.0  | μA   |
| <b>T<sub>amb</sub> = -40 to +85 °C</b> |                           |   |                     |      |                     |      |      |
| V <sub>OH</sub>                        | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>         |                     |      |                     |      |      |
|  |                           | I <sub>O</sub> = -20 μA                                     | 2.0                 | 1.9  | –                   | –    | V    |
|  |                           | I <sub>O</sub> = -20 μA                                     | 4.5                 | 4.4  | –                   | –    | V    |
|  |                           | I <sub>O</sub> = -20 μA                                     | 6.0                 | 5.9  | –                   | –    | V    |
|  |                           | I <sub>O</sub> = -4.0 mA                                    | 4.5                 | 3.84 | –                   | –    | V    |
|  |                           | I <sub>O</sub> = -5.2 mA                                    | 6.0                 | 5.34 | –                   | –    | V    |
| V <sub>OL</sub>                        | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>         |                     |      |                     |      |      |
|  |                           | I <sub>O</sub> = 20 μA                                      | 2.0                 | –    | –                   | 0.1  | V    |
|  |                           | I <sub>O</sub> = 20 μA                                      | 4.5                 | –    | –                   | 0.1  | V    |
|  |                           | I <sub>O</sub> = 20 μA                                      | 6.0                 | –    | –                   | 0.1  | V    |
|  |                           | I <sub>O</sub> = 4.0 mA                                     | 4.5                 | –    | –                   | 0.33 | V    |
|  |                           | I <sub>O</sub> = 5.2 mA                                     | 6.0                 | –    | –                   | 0.33 | V    |
| I <sub>LI</sub>                        | input leakage current     | V <sub>I</sub> = V <sub>CC</sub> or GND                     | 6.0                 | –    | –                   | 1.0  | μA   |
| I <sub>CC</sub>                        | quiescent supply current  | V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 | 6.0                 | –    | –                   | 20   | μA   |

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| SYMBOL                                  | PARAMETER                 | TEST CONDITIONS   |                     | MIN. | TYP. <sup>(1)</sup> | MAX. | UNIT |
|---|---------------------------|---|---------------------|------|---------------------|------|------|
|   |                           | OTHER   | V <sub>CC</sub> (V) |      |                     |      |      |
| <b>T<sub>amb</sub> = -40 to +125 °C</b> |                           |   |                     |      |                     |      |      |
| V <sub>OH</sub>                         | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>         |                     |      |                     |      |      |
|   |                           | I <sub>O</sub> = -20 μA                                     | 2.0                 | 1.9  | -                   | -    | V    |
|   |                           | I <sub>O</sub> = -20 μA                                     | 4.5                 | 4.4  | -                   | -    | V    |
|   |                           | I <sub>O</sub> = -20 μA                                     | 6.0                 | 5.9  | -                   | -    | V    |
|   |                           | I <sub>O</sub> = -4.0 mA                                    | 4.5                 | 3.7  | -                   | -    | V    |
|   |                           | I <sub>O</sub> = -5.2 mA                                    | 6.0                 | 5.2  | -                   | -    | V    |
| V <sub>OL</sub>                         | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>         |                     |      |                     |      |      |
|   |                           | I <sub>O</sub> = 20 μA                                      | 2.0                 | -    | -                   | 0.1  | V    |
|   |                           | I <sub>O</sub> = 20 μA                                      | 4.5                 | -    | -                   | 0.1  | V    |
|   |                           | I <sub>O</sub> = 20 μA                                      | 6.0                 | -    | -                   | 0.1  | V    |
|   |                           | I <sub>O</sub> = 4.0 mA                                     | 4.5                 | -    | -                   | 0.4  | V    |
|   |                           | I <sub>O</sub> = 5.2 mA                                     | 6.0                 | -    | -                   | 0.4  | V    |
| I <sub>LI</sub>                         | input leakage current     | V <sub>I</sub> = V <sub>CC</sub> or GND                     | 6.0                 | -    | -                   | 1.0  | μA   |
| I <sub>CC</sub>                         | quiescent supply current  | V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 | 6.0                 | -    | -                   | 40   | μA   |

**Note**

1. All typical values are measured at T<sub>amb</sub> = 25 °C.

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## TRANSFER CHARACTERISTICS

## Type 74HC

At recommended operating conditions; voltages are referenced to GND (ground = 0 V).

| SYMBOL                                  | PARAMETER                                       | TEST CONDITIONS |                     | MIN. | TYP. | MAX. | UNIT |
|---|---|-----------------|---------------------|------|------|------|------|
|   |   | WAVEFORMS       | V <sub>CC</sub> (V) |      |      |      |      |
| <b>T<sub>amb</sub> = 25 °C; note 1</b>  |   |                 |                     |      |      |      |      |
| V <sub>T+</sub>                         | positive-going threshold                        | Figs 7 and 8    | 2.0                 | 0.7  | 1.18 | 1.5  | V    |
|   |   |                 | 4.5                 | 1.7  | 2.38 | 3.15 | V    |
|   |   |                 | 6.0                 | 2.1  | 3.14 | 4.2  | V    |
| V <sub>T-</sub>                         | negative-going threshold                        | Figs 7 and 8    | 2.0                 | 0.3  | 0.52 | 0.90 | V    |
|   |   |                 | 4.5                 | 0.9  | 1.40 | 2.00 | V    |
|   |   |                 | 6.0                 | 1.2  | 1.89 | 2.60 | V    |
| V <sub>H</sub>                          | hysteresis (V <sub>T+</sub> – V <sub>T-</sub> ) | Figs 7 and 8    | 2.0                 | 0.2  | 0.66 | 1.0  | V    |
|   |   |                 | 4.5                 | 0.4  | 0.98 | 1.4  | V    |
|   |   |                 | 6.0                 | 0.6  | 1.25 | 1.6  | V    |
| <b>T<sub>amb</sub> = –40 to +85 °C</b>  |   |                 |                     |      |      |      |      |
| V <sub>T+</sub>                         | positive-going threshold                        | Figs 7 and 8    | 2.0                 | 0.7  | –    | 1.5  | V    |
|   |   |                 | 4.5                 | 1.7  | –    | 3.15 | V    |
|   |   |                 | 6.0                 | 2.1  | –    | 4.2  | V    |
| V <sub>T-</sub>                         | negative-going threshold                        | Figs 7 and 8    | 2.0                 | 0.3  | –    | 0.90 | V    |
|   |   |                 | 4.5                 | 0.90 | –    | 2.00 | V    |
|   |   |                 | 6.0                 | 1.20 | –    | 2.60 | V    |
| V <sub>H</sub>                          | hysteresis (V <sub>T+</sub> – V <sub>T-</sub> ) | Figs 7 and 8    | 2.0                 | 0.2  | –    | 1.0  | V    |
|   |   |                 | 4.5                 | 0.4  | –    | 1.4  | V    |
|   |   |                 | 6.0                 | 0.6  | –    | 1.6  | V    |
| <b>T<sub>amb</sub> = –40 to +125 °C</b> |   |                 |                     |      |      |      |      |
| V <sub>T+</sub>                         | positive-going threshold                        | Figs 7 and 8    | 2.0                 | 0.7  | –    | 1.5  | V    |
|   |   |                 | 4.5                 | 1.7  | –    | 3.15 | V    |
|   |   |                 | 6.0                 | 2.1  | –    | 4.2  | V    |
| V <sub>T-</sub>                         | negative-going threshold                        | Figs 7 and 8    | 2.0                 | 0.30 | –    | 0.90 | V    |
|   |   |                 | 4.5                 | 0.90 | –    | 2.00 | V    |
|   |   |                 | 6.0                 | 1.2  | –    | 2.60 | V    |
| V <sub>H</sub>                          | hysteresis (V <sub>T+</sub> – V <sub>T-</sub> ) | Figs 7 and 8    | 2.0                 | 0.2  | –    | 1.0  | V    |
|   |   |                 | 4.5                 | 0.4  | –    | 1.4  | V    |
|   |   |                 | 6.0                 | 0.6  | –    | 1.6  | V    |

## Note

1. All typical values are measured at T<sub>amb</sub> = 25 °C.

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## AC CHARACTERISTICS

## Type 74HC

GND = 0 V;  $t_f = t_r = 6$  ns;  $C_L = 50$  pF

| SYMBOL  | PARAMETER                  | TEST CONDITIONS |              | MIN. | TYP. | MAX. | UNIT |
|---|----------------------------|-----------------|--------------|------|------|------|------|
|   |                            | WAVEFORMS       | $V_{CC}$ (V) |      |      |      |      |
| <b><math>T_{amb} = 25</math> °C; note 1</b>               |                            |                 |              |      |      |      |      |
| $t_{PHL}/t_{PLH}$   | propagation delay nA to nY | see Fig.9       | 2.0          | –    | 41   | 125  | ns   |
|   |                            |                 | 4.5          | –    | 15   | 25   | ns   |
|   |                            |                 | 6.0          | –    | 12   | 21   | ns   |
| $t_{THL}/t_{TLH}$   | output transition time     | see Fig.9       | 2.0          | –    | 19   | 75   | ns   |
|   |                            |                 | 4.5          | –    | 7    | 15   | ns   |
|   |                            |                 | 6.0          | –    | 6    | 13   | ns   |
| <b><math>T_{amb} = -40</math> to <math>+85</math> °C</b>  |                            |                 |              |      |      |      |      |
| $t_{PHL}/t_{PLH}$   | propagation delay nA to nY | see Fig.9       | 2.0          | –    | –    | 155  | ns   |
|   |                            |                 | 4.5          | –    | –    | 31   | ns   |
|   |                            |                 | 6.0          | –    | –    | 26   | ns   |
| $t_{THL}/t_{TLH}$   | output transition time     | see Fig.9       | 2.0          | –    | –    | 95   | ns   |
|   |                            |                 | 4.5          | –    | –    | 19   | ns   |
|   |                            |                 | 6.0          | –    | –    | 15   | ns   |
| <b><math>T_{amb} = -40</math> to <math>+125</math> °C</b> |                            |                 |              |      |      |      |      |
| $t_{PHL}/t_{PLH}$   | propagation delay nA to nY | see Fig.9       | 2.0          | –    | –    | 190  | ns   |
|   |                            |                 | 4.5          | –    | –    | 38   | ns   |
|   |                            |                 | 6.0          | –    | –    | 32   | ns   |
| $t_{THL}/t_{TLH}$   | output transition time     | see Fig.9       | 2.0          | –    | –    | 110  | ns   |
|   |                            |                 | 4.5          | –    | –    | 22   | ns   |
|   |                            |                 | 6.0          | –    | –    | 19   | ns   |

## Note

1. All typical values are measured at  $T_{amb} = 25$  °C.

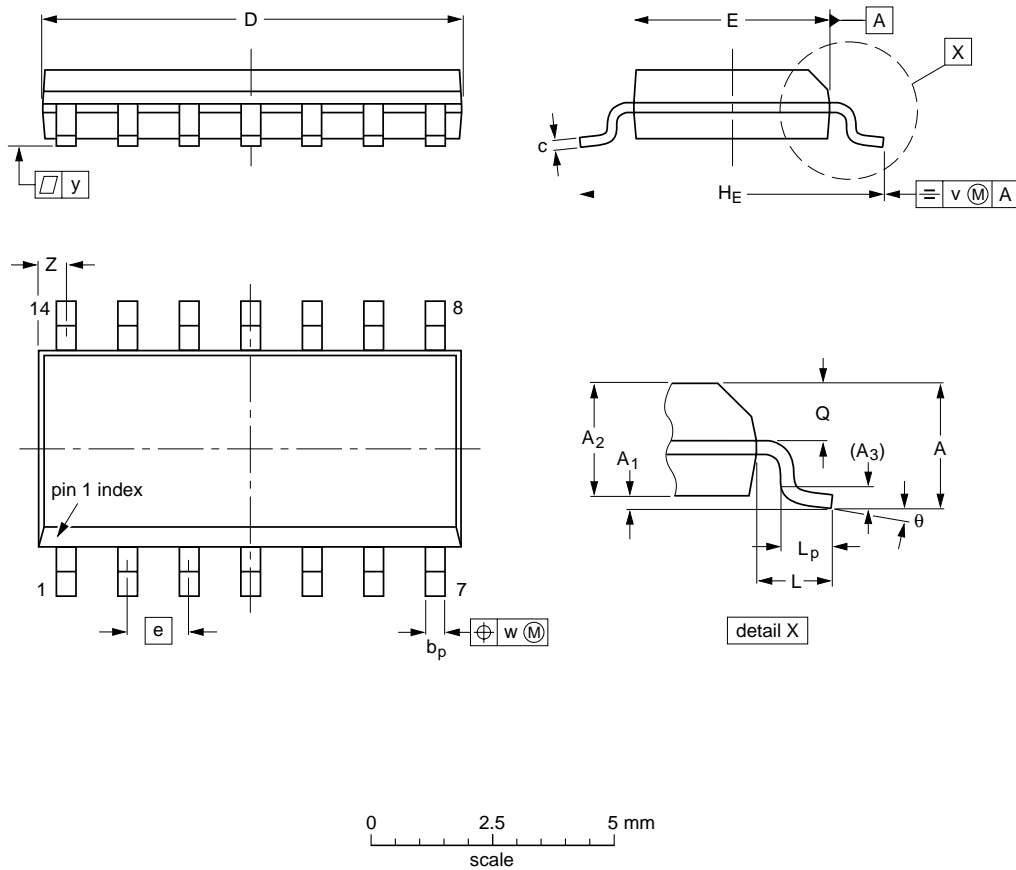
# Hex inverting Schmitt trigger

# 74HC14; 74HCT14

## PACKAGE OUTLINES

SO14: plastic small outline package; 14 leads; body width 3.9 mm

SOT108-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

| UNIT   | A max. | A <sub>1</sub> | A <sub>2</sub> | A <sub>3</sub> | b <sub>p</sub> | c                | D <sup>(1)</sup> | E <sup>(1)</sup> | e    | H <sub>E</sub> | L     | L <sub>p</sub> | Q              | v    | w    | y     | z <sup>(1)</sup> | θ        |
|--------|--------|----------------|----------------|----------------|----------------|------------------|------------------|------------------|------|----------------|-------|----------------|----------------|------|------|-------|------------------|----------|
| mm     | 1.75   | 0.25<br>0.10   | 1.45<br>1.25   | 0.25           | 0.49<br>0.36   | 0.25<br>0.19     | 8.75<br>8.55     | 4.0<br>3.8       | 1.27 | 6.2<br>5.8     | 1.05  | 1.0<br>0.4     | 0.7<br>0.6     | 0.25 | 0.25 | 0.1   | 0.7<br>0.3       | 8°<br>0° |
| inches | 0.069  | 0.010<br>0.004 | 0.057<br>0.049 | 0.01           | 0.019<br>0.014 | 0.0100<br>0.0075 | 0.35<br>0.34     | 0.16<br>0.15     | 0.05 | 0.244<br>0.228 | 0.041 | 0.039<br>0.016 | 0.028<br>0.024 | 0.01 | 0.01 | 0.004 | 0.028<br>0.012   |          |

**Note**

1. Plastic or metal protrusions of 0.15 mm (0.006 inch) maximum per side are not included.

| OUTLINE VERSION | REFERENCES |        |       | EUROPEAN PROJECTION |
|-----------------|------------|--------|-------|---------------------|
|                 | IEC        | JEDEC  | JEITA |                     |
| SOT108-1        | 076E06     | MS-012 |       |                     |

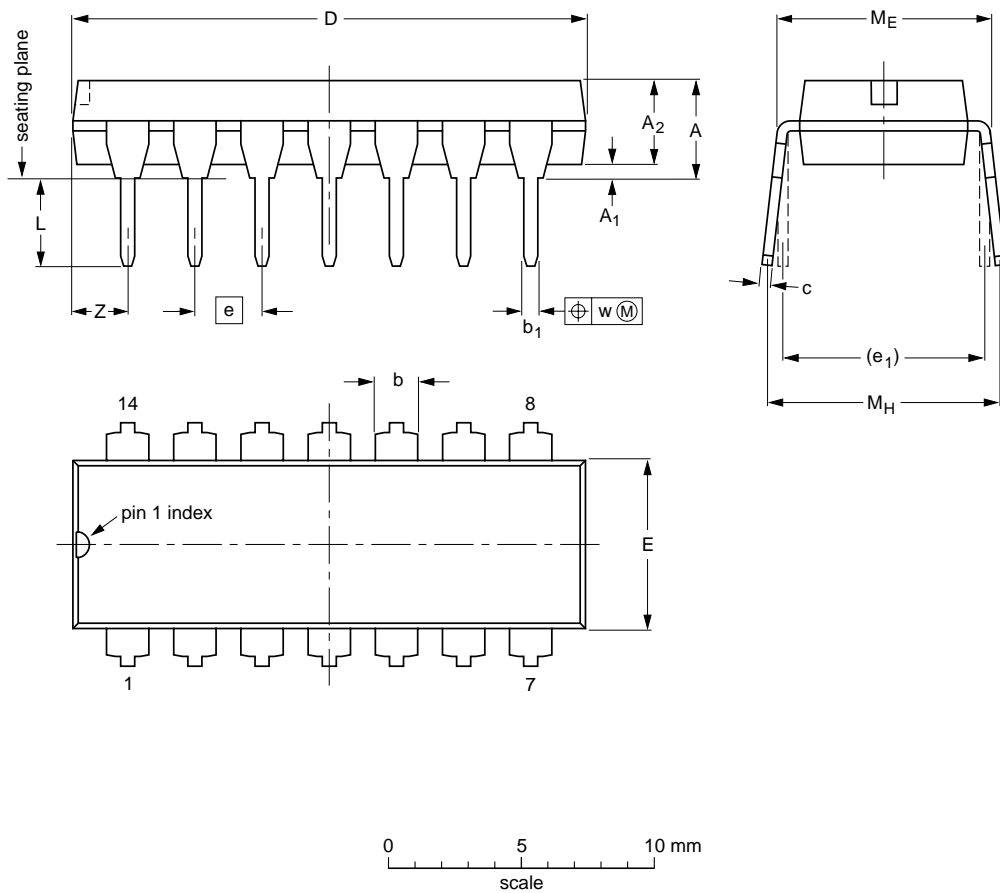


Hex inverting Schmitt trigger

74HC14; 74HCT14

DIP14: plastic dual in-line package; 14 leads (300 mil)

SOT27-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

| UNIT   | A max. | A <sub>1</sub> min. | A <sub>2</sub> max. | b              | b <sub>1</sub> | c              | D <sup>(1)</sup> | E <sup>(1)</sup> | e    | e <sub>1</sub> | L            | M <sub>E</sub> | M <sub>H</sub> | w     | Z <sup>(1)</sup> max. |
|--------|--------|---------------------|---------------------|----------------|----------------|----------------|------------------|------------------|------|----------------|--------------|----------------|----------------|-------|-----------------------|
| mm     | 4.2    | 0.51                | 3.2                 | 1.73<br>1.13   | 0.53<br>0.38   | 0.36<br>0.23   | 19.50<br>18.55   | 6.48<br>6.20     | 2.54 | 7.62           | 3.60<br>3.05 | 8.25<br>7.80   | 10.0<br>8.3    | 0.254 | 2.2                   |
| inches | 0.17   | 0.02                | 0.13                | 0.068<br>0.044 | 0.021<br>0.015 | 0.014<br>0.009 | 0.77<br>0.73     | 0.26<br>0.24     | 0.1  | 0.3            | 0.14<br>0.12 | 0.32<br>0.31   | 0.39<br>0.33   | 0.01  | 0.087                 |

Note

1. Plastic or metal protrusions of 0.25 mm (0.01 inch) maximum per side are not included.

| OUTLINE VERSION | REFERENCES |        |           | EUROPEAN PROJECTION |
|-----------------|------------|--------|-----------|---------------------|
|                 | IEC        | JEDEC  | JEITA     |                     |
| SOT27-1         | 050G04     | MO-001 | SC-501-14 |                     |