

# 74HC132; 74HCT132

## Quad 2-input NAND Schmitt trigger

Rev. 8 — 11 March 2024

Product data sheet

### 1. General description

The 74HC132; 74HCT132 is a quad 2-input NAND gate with Schmitt-trigger inputs. Inputs include clamp diodes. This enables the use of current limiting resistors to interface inputs to voltages in excess of  $V_{CC}$ . Schmitt trigger inputs transform slowly changing input signals into sharply defined jitter-free output signals.

### 2. Features and benefits

- Wide supply voltage range from 2.0 to 6.0 V
- CMOS low power dissipation
- High noise immunity
- Unlimited input rise and fall times
- Latch-up performance exceeds 100 mA per JESD 78 Class II Level B
- Complies with JEDEC standards:
  - JESD8C (2.7 V to 3.6 V)
  - JESD7A (2.0 V to 6.0 V)
- ESD protection:
  - HBM: ANSI/ESDA/JEDEC JS-001 class 2 exceeds 2000 V
  - CDM: ANSI/ESDA/JEDEC JS-002 class C3 exceeds 1000 V
- Multiple package options
- Specified from  $-40\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$  and from  $-40\text{ }^{\circ}\text{C}$  to  $+125\text{ }^{\circ}\text{C}$

### 3. Applications

- Wave and pulse shapers
- Astable multivibrators
- Monostable multivibrators

### 4. Ordering information

Table 1. Ordering information

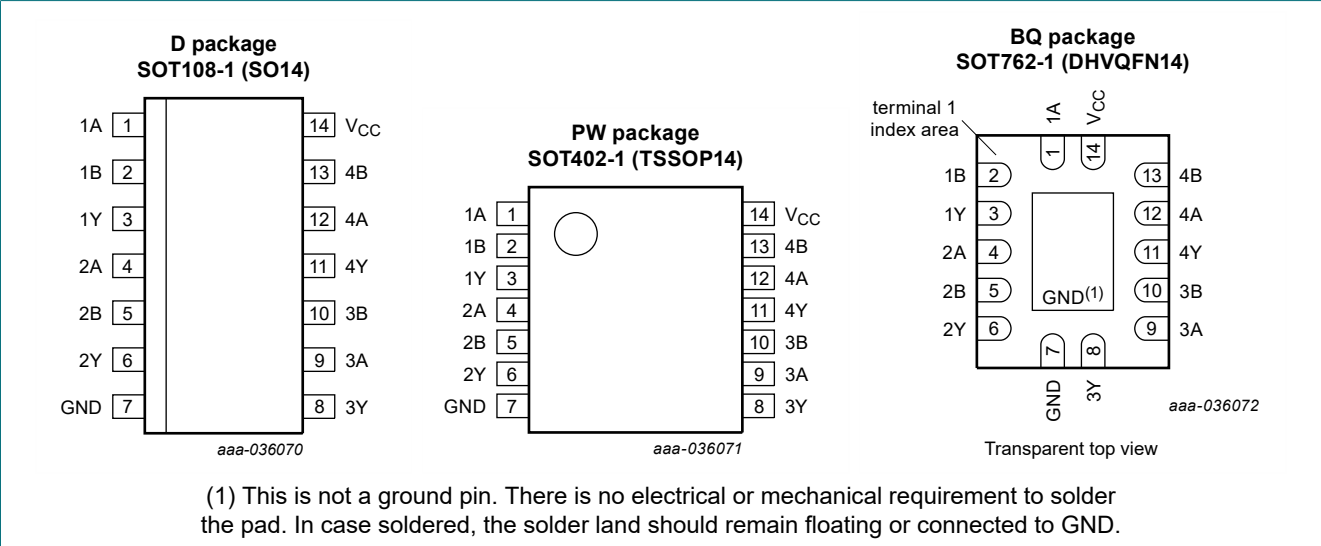
| Type number                                             | Package                                                         |          |                                                                                                                                                       |                          |
|---------------------------------------------------------|-----------------------------------------------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
|                                                         | Temperature range                                               | Name     | Description                                                                                                                                           | Version                  |
| <a href="#">74HC132D</a><br><a href="#">74HCT132D</a>   | $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$ | SO14     | plastic small outline package; 14 leads;<br>body width 3.9 mm                                                                                         | <a href="#">SOT108-1</a> |
| <a href="#">74HC132PW</a><br><a href="#">74HCT132PW</a> | $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$ | TSSOP14  | plastic thin shrink small outline package; 14 leads;<br>body width 4.4 mm                                                                             | <a href="#">SOT402-1</a> |
| <a href="#">74HC132BQ</a>                               | $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$ | DHVQFN14 | plastic dual in-line compatible thermal enhanced<br>very thin quad flat package; no leads; 14 terminals;<br>body $2.5 \times 3 \times 0.85\text{ mm}$ | <a href="#">SOT762-1</a> |

5. Functional diagram



6. Pinning information

6.1. Pinning



6.2. Pin description

Table 2. Pin description

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

7. Functional description

Table 3. Function table

H = HIGH voltage level; L = LOW voltage level

| Input |    | Output |
|-------|----|--------|
| nA    | nB | nY     |
| L     | L  | H      |
| L     | H  | H      |
| H     | L  | H      |
| H     | H  | L      |

8. Limiting values

Table 4. Limiting values

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

| Symbol           | Parameter               | Conditions                                                              | Min  | Max  | Unit |
|------------------|-------------------------|-------------------------------------------------------------------------|------|------|------|
| V <sub>CC</sub>  | supply voltage          |                                                                         | -0.5 | +7   | V    |
| I <sub>IK</sub>  | input clamping current  | V <sub>I</sub> < -0.5 V or V <sub>I</sub> > V <sub>CC</sub> + 0.5 V [1] | -    | ±20  | mA   |
| I <sub>OK</sub>  | output clamping current | V <sub>O</sub> < -0.5 V or V <sub>O</sub> > V <sub>CC</sub> + 0.5 V [1] | -    | ±20  | mA   |
| I <sub>O</sub>   | output current          | -0.5 V < V <sub>O</sub> < V <sub>CC</sub> + 0.5 V                       | -    | ±25  | mA   |
| I <sub>CC</sub>  | supply current          |                                                                         | -    | 50   | mA   |
| I <sub>GND</sub> | ground current          |                                                                         | -50  | -    | mA   |
| T <sub>stg</sub> | storage temperature     |                                                                         | -65  | +150 | °C   |
| P <sub>tot</sub> | total power dissipation | [2]                                                                     | -    | 500  | mW   |

[1] The input and output voltage ratings may be exceeded if the input and output current ratings are observed.  
[2] For SOT108-1 (SO14) package: P<sub>tot</sub> derates linearly with 10.1 mW/K above 100 °C.  
For SOT402-1 (TSSOP14) package: P<sub>tot</sub> derates linearly with 7.3 mW/K above 81 °C.  
For SOT762-1 (DHVQFN14) package: P<sub>tot</sub> derates linearly with 9.6 mW/K above 98 °C.

9. Recommended operating conditions

Table 5. Recommended operating conditions

Voltages are referenced to GND (ground = 0 V)

| Symbol           | Parameter           | Conditions | 74HC132 |     |                 | 74HCT132 |     |                 | Unit |
|------------------|---------------------|------------|---------|-----|-----------------|----------|-----|-----------------|------|
|                  |                     |            | Min     | Typ | Max             | Min      | Typ | Max             |      |
| V <sub>CC</sub>  | supply voltage      |            | 2.0     | 5.0 | 6.0             | 4.5      | 5.0 | 5.5             | V    |
| V <sub>I</sub>   | input voltage       |            | 0       | -   | V <sub>CC</sub> | 0        | -   | V <sub>CC</sub> | V    |
| V <sub>O</sub>   | output voltage      |            | 0       | -   | V <sub>CC</sub> | 0        | -   | V <sub>CC</sub> | V    |
| T <sub>amb</sub> | ambient temperature |            | -40     | +25 | +125            | -40      | +25 | +125            | °C   |

10. Static characteristics

Table 6. Static characteristics

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

| Symbol          | Parameter                 | Conditions                                                                             | 25 °C |      |      | -40 °C to +85 °C |      | -40 °C to +125 °C |      | Unit |
|-----------------|---------------------------|----------------------------------------------------------------------------------------|-------|------|------|------------------|------|-------------------|------|------|
|                 |                           |                                                                                        | Min   | Typ  | Max  | Min              | Max  | Min               | Max  |      |
| 74HC132         |                           |                                                                                        |       |      |      |                  |      |                   |      |      |
| V <sub>OH</sub> | HIGH-level output voltage | V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub>                                    |       |      |      |                  |      |                   |      |      |
|                 |                           | I <sub>O</sub> = -20 µA; V <sub>CC</sub> = 2.0 V                                       | 1.9   | 2.0  | -    | 1.9              | -    | 1.9               | -    | V    |
|                 |                           | I <sub>O</sub> = -20 µA; V <sub>CC</sub> = 4.5 V                                       | 4.4   | 4.5  | -    | 4.4              | -    | 4.4               | -    | V    |
|                 |                           | I <sub>O</sub> = -20 µA; V <sub>CC</sub> = 6.0 V                                       | 5.9   | 6.0  | -    | 5.9              | -    | 5.9               | -    | V    |
|                 |                           | I <sub>O</sub> = -4.0 mA; V <sub>CC</sub> = 4.5 V                                      | 3.98  | 4.32 | -    | 3.84             | -    | 3.7               | -    | V    |
|                 |                           | I <sub>O</sub> = -5.2 mA; V <sub>CC</sub> = 6.0 V                                      | 5.48  | 5.81 | -    | 5.34             | -    | 5.2               | -    | V    |
| V <sub>OL</sub> | LOW-level output voltage  | V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub>                                    |       |      |      |                  |      |                   |      |      |
|                 |                           | I <sub>O</sub> = 20 µA; V <sub>CC</sub> = 2.0 V                                        | -     | 0    | 0.1  | -                | 0.1  | -                 | 0.1  | V    |
|                 |                           | I <sub>O</sub> = 20 µA; V <sub>CC</sub> = 4.5 V                                        | -     | 0    | 0.1  | -                | 0.1  | -                 | 0.1  | V    |
|                 |                           | I <sub>O</sub> = 20 µA; V <sub>CC</sub> = 6.0 V                                        | -     | 0    | 0.1  | -                | 0.1  | -                 | 0.1  | V    |
|                 |                           | I <sub>O</sub> = 4.0 mA; V <sub>CC</sub> = 4.5 V                                       | -     | 0.15 | 0.26 | -                | 0.33 | -                 | 0.4  | V    |
|                 |                           | I <sub>O</sub> = 5.2 mA; V <sub>CC</sub> = 6.0 V                                       | -     | 0.16 | 0.26 | -                | 0.33 | -                 | 0.4  | V    |
| I <sub>I</sub>  | input leakage current     | V <sub>I</sub> = V <sub>CC</sub> or GND; V <sub>CC</sub> = 6.0 V                       | -     | -    | ±0.1 | -                | ±1.0 | -                 | ±1.0 | µA   |
| I <sub>CC</sub> | supply current            | V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 6.0 V | -     | -    | 2.0  | -                | 20   | -                 | 40   | µA   |
| C <sub>I</sub>  | input capacitance         |                                                                                        | -     | 3.5  | -    | -                | -    | -                 | -    | pF   |
| 74HCT132        |                           |                                                                                        |       |      |      |                  |      |                   |      |      |
| V <sub>OH</sub> | HIGH-level output voltage | V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub> ; V <sub>CC</sub> = 4.5 V          |       |      |      |                  |      |                   |      |      |
|                 |                           | I <sub>O</sub> = -20 µA                                                                | 4.4   | 4.5  | -    | 4.4              | -    | 4.4               | -    | V    |
|                 |                           | I <sub>O</sub> = -4.0 mA                                                               | 3.98  | 4.32 | -    | 3.84             | -    | 3.7               | -    | V    |
| V <sub>OL</sub> | LOW-level output voltage  | V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub> ; V <sub>CC</sub> = 4.5 V          |       |      |      |                  |      |                   |      |      |
|                 |                           | I <sub>O</sub> = 20 µA;                                                                | -     | 0    | 0.1  | -                | 0.1  | -                 | 0.1  | V    |
|                 |                           | I <sub>O</sub> = 4.0 mA;                                                               | -     | 0.15 | 0.26 | -                | 0.33 | -                 | 0.4  | V    |

| Symbol           | Parameter                 | Conditions                                                                                                                                              | 25 °C |     |      | -40 °C to +85 °C |      | -40 °C to +125 °C |      | Unit |
|------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|------|------------------|------|-------------------|------|------|
|                  |                           |                                                                                                                                                         | Min   | Typ | Max  | Min              | Max  | Min               | Max  |      |
| I <sub>I</sub>   | input leakage current     | V <sub>I</sub> = V <sub>CC</sub> or GND; V <sub>CC</sub> = 5.5 V                                                                                        | -     | -   | ±0.1 | -                | ±1.0 | -                 | ±1.0 | µA   |
| I <sub>CC</sub>  | supply current            | V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 5.5 V                                                                  | -     | -   | 2.0  | -                | 20   | -                 | 40   | µA   |
| ΔI <sub>CC</sub> | additional supply current | per input pin; V <sub>I</sub> = V <sub>CC</sub> - 2.1 V; other inputs at V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 4.5 V to 5.5 V | -     | 30  | 108  | -                | 135  | -                 | 147  | µA   |
| C <sub>I</sub>   | input capacitance         |                                                                                                                                                         | -     | 3.5 | -    | -                | -    | -                 | -    | pF   |

11. Dynamic characteristics

Table 7. Dynamic characteristics

GND = 0 V; C<sub>L</sub> = 50 pF; for test circuit see Fig. 5.

| Symbol          | Parameter                     | Conditions                                                       | 25 °C |     |     | -40 °C to +85 °C |     | -40 °C to +125 °C |     | Unit |
|-----------------|-------------------------------|------------------------------------------------------------------|-------|-----|-----|------------------|-----|-------------------|-----|------|
|                 |                               |                                                                  | Min   | Typ | Max | Min              | Max | Min               | Max |      |
| 74HC132         |                               |                                                                  |       |     |     |                  |     |                   |     |      |
| t <sub>pd</sub> | propagation delay             | nA, nB to nY; see <a href="#">Fig. 4</a> [1]                     |       |     |     |                  |     |                   |     |      |
|                 |                               | V <sub>CC</sub> = 2.0 V                                          | -     | 36  | 125 | -                | 155 | -                 | 190 | ns   |
|                 |                               | V <sub>CC</sub> = 4.5 V                                          | -     | 13  | 25  | -                | 31  | -                 | 38  | ns   |
|                 |                               | V <sub>CC</sub> = 5.0 V; C <sub>L</sub> = 15 pF                  | -     | 11  | -   | -                | -   | -                 | -   | ns   |
|                 |                               | V <sub>CC</sub> = 6.0 V                                          | -     | 10  | 21  | -                | 26  | -                 | 32  | ns   |
| t <sub>t</sub>  | transition time               | see <a href="#">Fig. 4</a> [2]                                   |       |     |     |                  |     |                   |     |      |
|                 |                               | V <sub>CC</sub> = 2.0 V                                          | -     | 19  | 75  | -                | 95  | -                 | 110 | ns   |
|                 |                               | V <sub>CC</sub> = 4.5 V                                          | -     | 7   | 15  | -                | 19  | -                 | 22  | ns   |
|                 |                               | V <sub>CC</sub> = 6.0 V                                          | -     | 6   | 13  | -                | 16  | -                 | 19  | ns   |
| C <sub>PD</sub> | power dissipation capacitance | per package; V <sub>I</sub> = GND to V <sub>CC</sub> [3]         | -     | 24  | -   | -                | -   | -                 | -   | pF   |
| 74HCT132        |                               |                                                                  |       |     |     |                  |     |                   |     |      |
| t <sub>pd</sub> | propagation delay             | nA, nB to nY; see <a href="#">Fig. 4</a> [1]                     |       |     |     |                  |     |                   |     |      |
|                 |                               | V <sub>CC</sub> = 4.5 V                                          | -     | 20  | 33  | -                | 41  | -                 | 50  | ns   |
|                 |                               | V <sub>CC</sub> = 5.0 V; C <sub>L</sub> = 15 pF                  | -     | 17  | -   | -                | -   | -                 | -   | ns   |
| t <sub>t</sub>  | transition time               | V <sub>CC</sub> = 4.5 V; see <a href="#">Fig. 4</a> [2]          | -     | 7   | 15  | -                | 19  | -                 | 22  | ns   |
| C <sub>PD</sub> | power dissipation capacitance | per package; V <sub>I</sub> = GND to V <sub>CC</sub> - 1.5 V [3] | -     | 20  | -   | -                | -   | -                 | -   | pF   |

[1] t<sub>pd</sub> is the same as t<sub>PHL</sub> and t<sub>PLH</sub>.  
[2] t<sub>t</sub> is the same as t<sub>THL</sub> and t<sub>TLH</sub>.  
[3] C<sub>PD</sub> is used to determine the dynamic power dissipation (P<sub>D</sub> in µW):  
P<sub>D</sub> = C<sub>PD</sub> × V<sub>CC</sub><sup>2</sup> × f<sub>i</sub> × N + Σ (C<sub>L</sub> × V<sub>CC</sub><sup>2</sup> × f<sub>o</sub>) 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 V;  
N = number of inputs switching;  
Σ (C<sub>L</sub> × V<sub>CC</sub><sup>2</sup> × f<sub>o</sub>) = sum of outputs.

11.1. Waveforms and test circuit

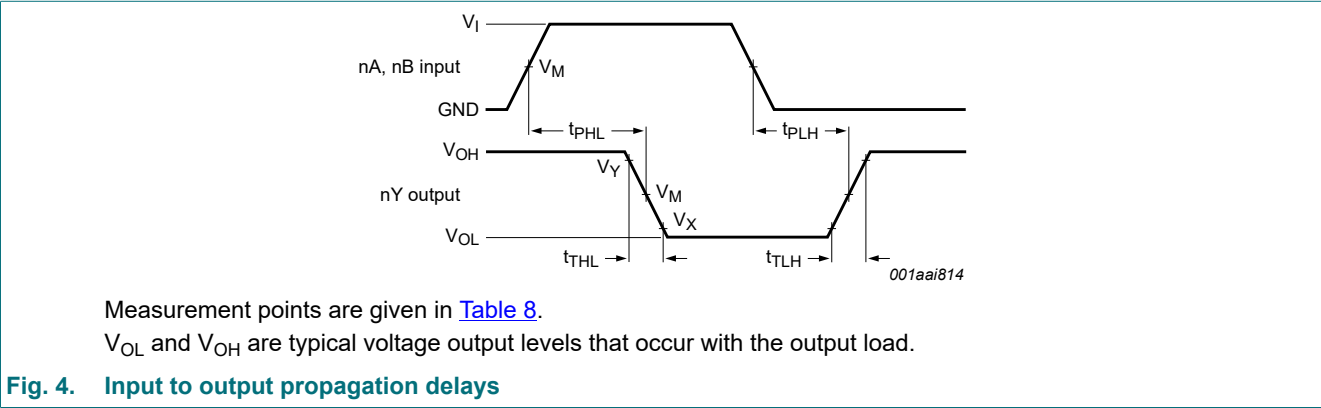


Table 8. Measurement points

| Type     | Input       | Output      |             |             |
|----------|-------------|-------------|-------------|-------------|
|          | $V_M$       | $V_M$       | $V_X$       | $V_Y$       |
| 74HC132  | $0.5V_{CC}$ | $0.5V_{CC}$ | $0.1V_{CC}$ | $0.9V_{CC}$ |
| 74HCT132 | 1.3 V       | 1.3 V       | $0.1V_{CC}$ | $0.9V_{CC}$ |

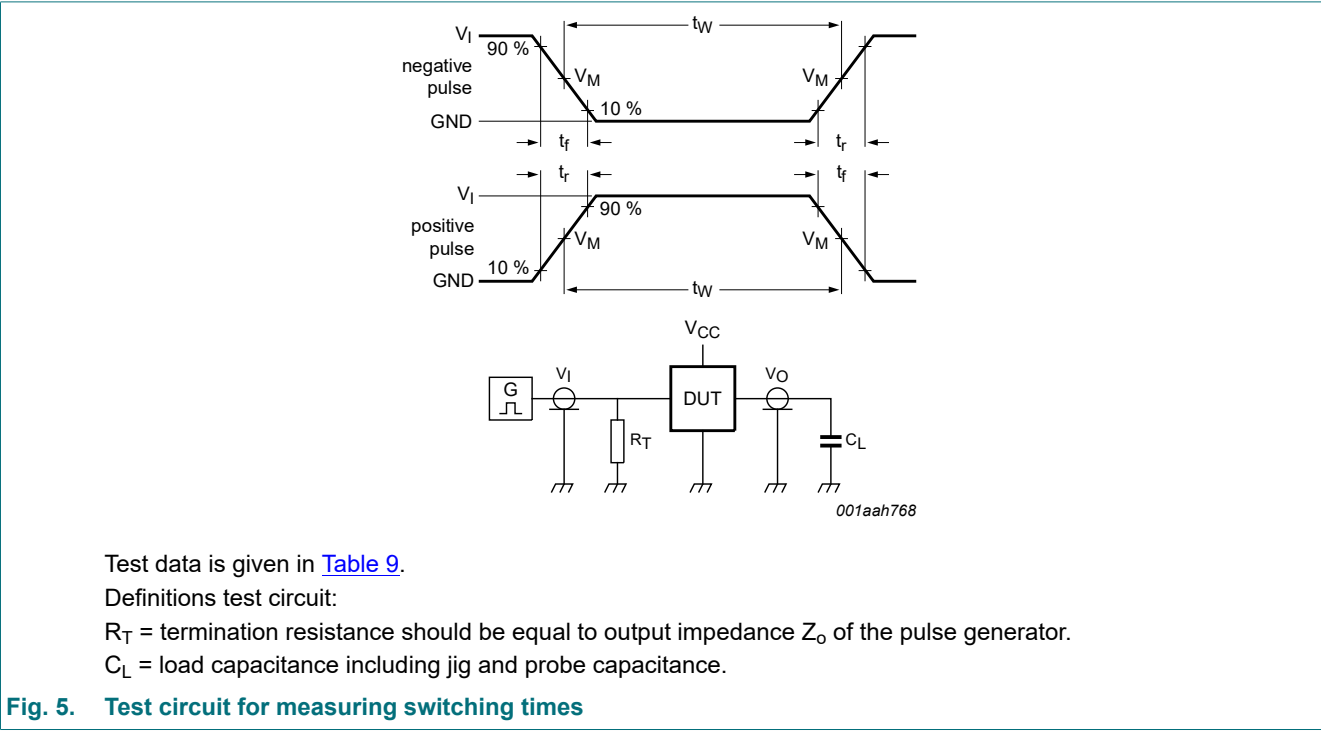


Table 9. Test data

| Type     | Input    |            | Load         | Test               |
|----------|----------|------------|--------------|--------------------|
|          | $V_I$    | $t_r, t_f$ | $C_L$        |                    |
| 74HC132  | $V_{CC}$ | 6.0 ns     | 15 pF, 50 pF | $t_{PLH}, t_{PHL}$ |
| 74HCT132 | 3.0 V    | 6.0 ns     | 15 pF, 50 pF | $t_{PLH}, t_{PHL}$ |

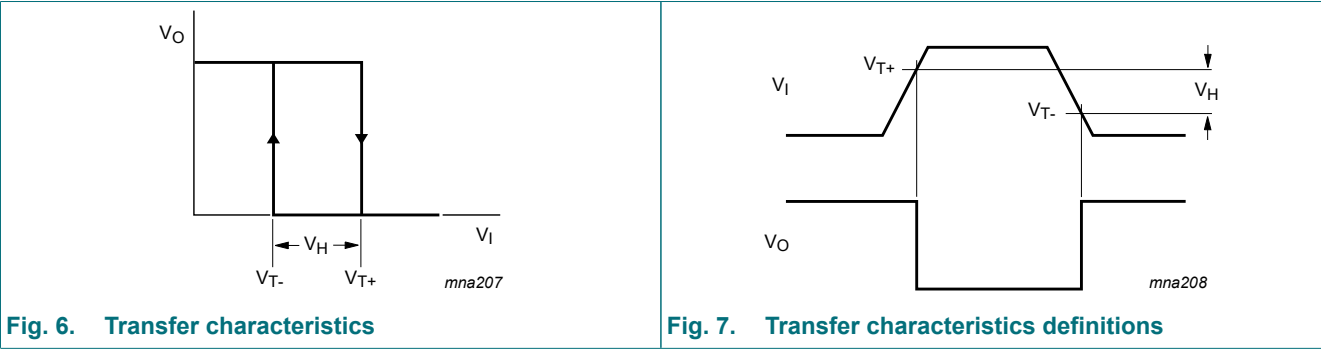
12. Transfer characteristics

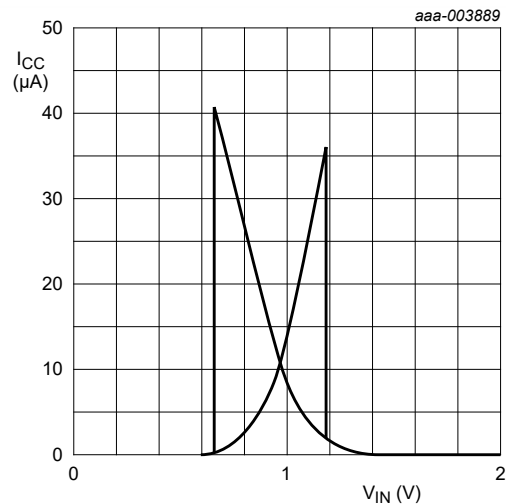
Table 10. Transfer characteristics

At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for waveforms see Fig. 6 to Fig. 9.

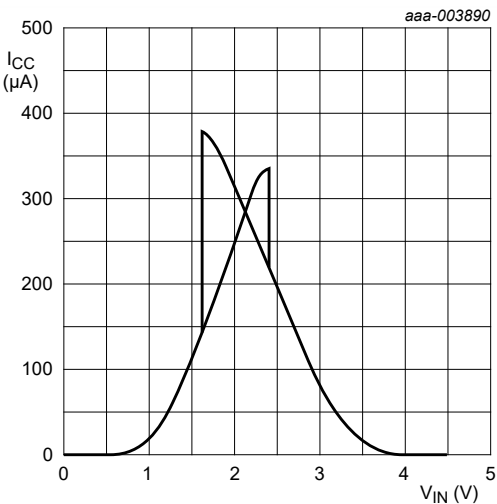
| Symbol          | Parameter                           | Conditions              | T <sub>amb</sub> = 25 °C |      |      | T <sub>amb</sub> = -40 °C<br>to +85 °C |      | T <sub>amb</sub> = -40 °C<br>to +125 °C |      | Unit |
|-----------------|-------------------------------------|-------------------------|--------------------------|------|------|----------------------------------------|------|-----------------------------------------|------|------|
|                 |                                     |                         | Min                      | Typ  | Max  | Min                                    | Max  | Min                                     | Max  |      |
| 74HC132         |                                     |                         |                          |      |      |                                        |      |                                         |      |      |
| V <sub>T+</sub> | positive-going threshold<br>voltage | V <sub>CC</sub> = 2.0 V | 0.7                      | 1.18 | 1.5  | 0.7                                    | 1.5  | 0.7                                     | 1.5  | V    |
|                 |                                     | V <sub>CC</sub> = 4.5 V | 1.7                      | 2.38 | 3.15 | 1.7                                    | 3.15 | 1.7                                     | 3.15 | V    |
|                 |                                     | V <sub>CC</sub> = 6.0 V | 2.1                      | 3.14 | 4.2  | 2.1                                    | 4.2  | 2.1                                     | 4.2  | V    |
| V <sub>T-</sub> | negative-going threshold<br>voltage | V <sub>CC</sub> = 2.0 V | 0.3                      | 0.63 | 1.0  | 0.3                                    | 1.0  | 0.3                                     | 1.0  | V    |
|                 |                                     | V <sub>CC</sub> = 4.5 V | 0.9                      | 1.67 | 2.2  | 0.9                                    | 2.2  | 0.9                                     | 2.2  | V    |
|                 |                                     | V <sub>CC</sub> = 6.0 V | 1.2                      | 2.26 | 3.0  | 1.2                                    | 3.0  | 1.2                                     | 3.0  | V    |
| V <sub>H</sub>  | hysteresis voltage                  | V <sub>CC</sub> = 2.0 V | 0.2                      | 0.55 | 1.0  | 0.2                                    | 1.0  | 0.2                                     | 1.0  | V    |
|                 |                                     | V <sub>CC</sub> = 4.5 V | 0.4                      | 0.71 | 1.4  | 0.4                                    | 1.4  | 0.4                                     | 1.4  | V    |
|                 |                                     | V <sub>CC</sub> = 6.0 V | 0.6                      | 0.88 | 1.6  | 0.6                                    | 1.6  | 0.6                                     | 1.6  | V    |
| 74HCT132        |                                     |                         |                          |      |      |                                        |      |                                         |      |      |
| V <sub>T+</sub> | positive-going threshold<br>voltage | V <sub>CC</sub> = 4.5 V | 1.2                      | 1.41 | 1.9  | 1.2                                    | 1.9  | 1.2                                     | 1.9  | V    |
|                 |                                     | V <sub>CC</sub> = 5.5 V | 1.4                      | 1.59 | 2.1  | 1.4                                    | 2.1  | 1.4                                     | 2.1  | V    |
| V <sub>T-</sub> | negative-going threshold<br>voltage | V <sub>CC</sub> = 4.5 V | 0.5                      | 0.85 | 1.2  | 0.5                                    | 1.2  | 0.5                                     | 1.2  | V    |
|                 |                                     | V <sub>CC</sub> = 5.5 V | 0.6                      | 0.99 | 1.4  | 0.6                                    | 1.4  | 0.6                                     | 1.4  | V    |
| V <sub>H</sub>  | hysteresis voltage                  | V <sub>CC</sub> = 4.5 V | 0.4                      | 0.56 | -    | 0.4                                    | -    | 0.4                                     | -    | V    |
|                 |                                     | V <sub>CC</sub> = 5.5 V | 0.4                      | 0.60 | -    | 0.4                                    | -    | 0.4                                     | -    | V    |

12.1. Transfer characteristics waveforms

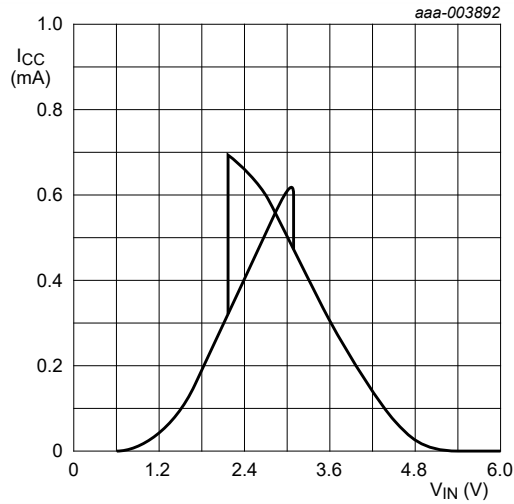




a.  $V_{CC} = 2.0 V$

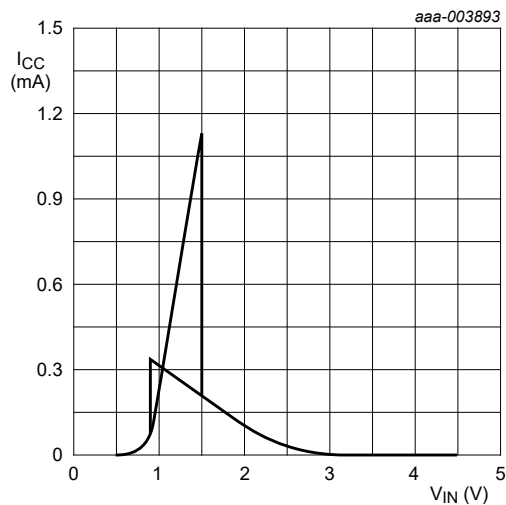


b.  $V_{CC} = 4.5 V$

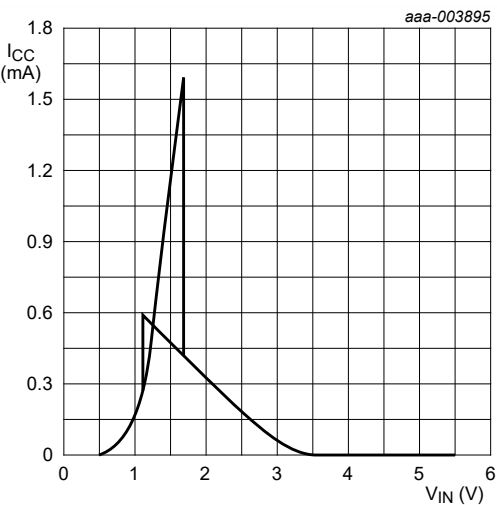


c.  $V_{CC} = 6.0 V$

Fig. 8. Typical 74HC132 transfer characteristics



a.  $V_{CC} = 4.5 V$



b.  $V_{CC} = 5.5 V$

Fig. 9. Typical 74HCT132 transfer characteristics

### 13. Application information

The slow input rise and fall times cause additional power dissipation, this can be calculated using the following formula:

$$P_{\text{add}} = f_i \times (t_r \times \Delta I_{\text{CC(AV)}} + t_f \times \Delta I_{\text{CC(AV)}}) \times V_{\text{CC}} \text{ where:}$$

$P_{\text{add}}$  = additional power dissipation ( $\mu\text{W}$ );

$f_i$  = input frequency (MHz);

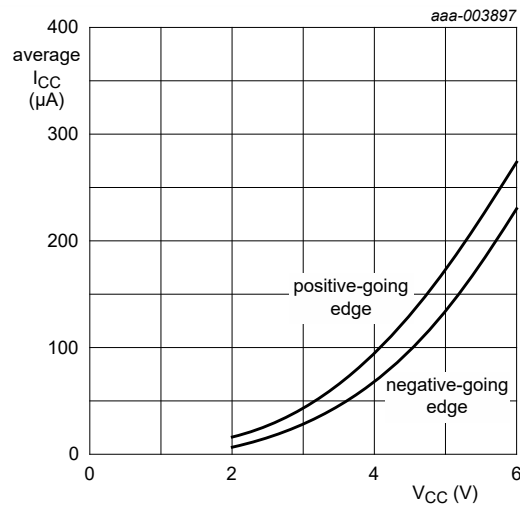
$t_r$  = rise time (ns); 10 % to 90 %;

$\Delta I_{\text{CC(AV)}}$  = average additional supply current ( $\mu\text{A}$ ).

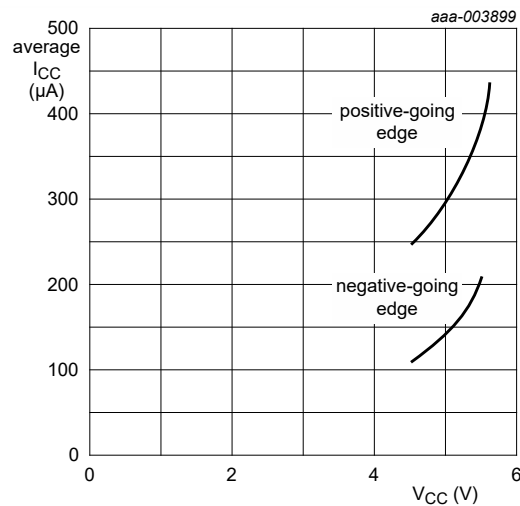
$t_f$  = fall time (ns); 90 % to 10 %;

Average  $\Delta I_{\text{CC(AV)}}$  differs with positive or negative input transitions, as shown in [Fig. 10](#) and [Fig. 11](#).

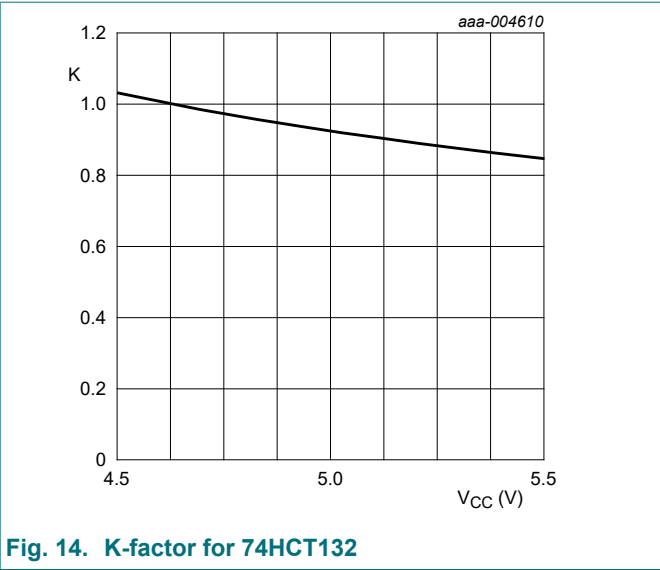
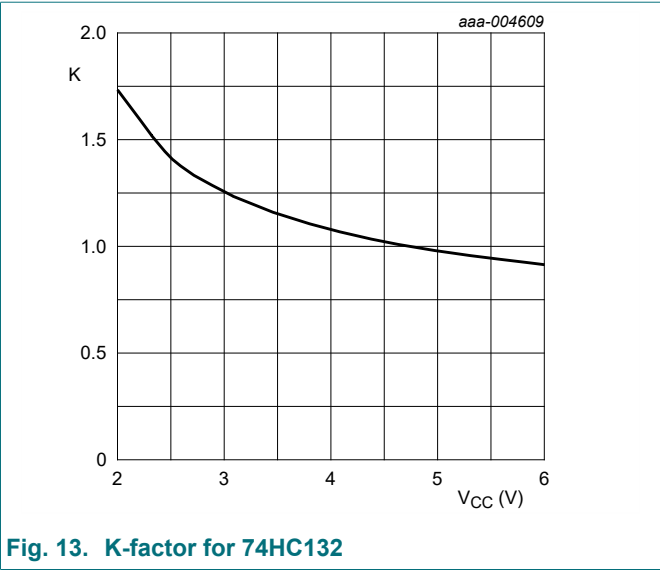
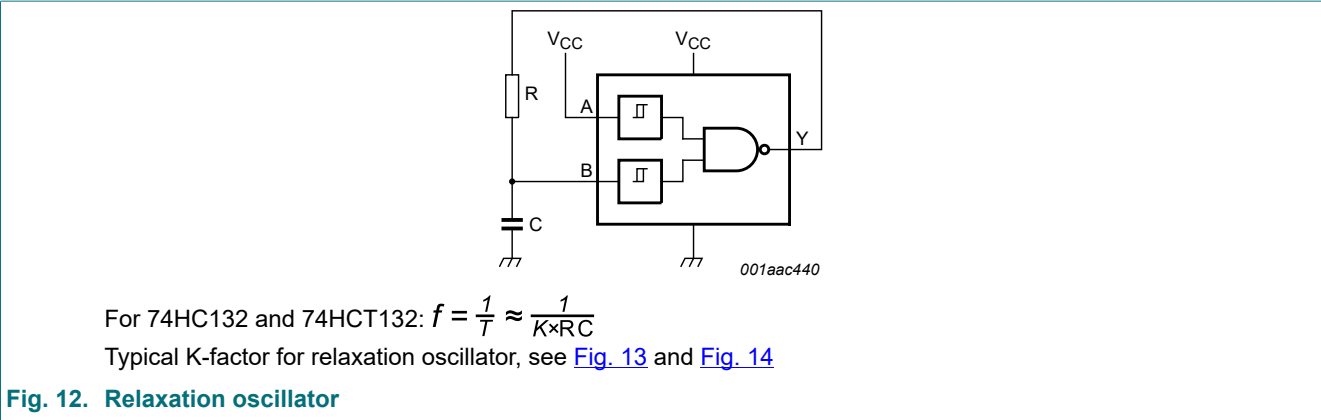
An example of a relaxation circuit using the 74HC132; 74HCT132 is shown in [Fig. 12](#).



**Fig. 10.** Average additional supply current as a function of  $V_{\text{CC}}$  for 74HC132; linear change of  $V_i$  between  $0.1V_{\text{CC}}$  to  $0.9V_{\text{CC}}$ .



**Fig. 11.** Average additional supply current as a function of  $V_{\text{CC}}$  for 74HCT132; linear change of  $V_i$  between  $0.1V_{\text{CC}}$  to  $0.9V_{\text{CC}}$ .



14. Package outline

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

SOT108-1

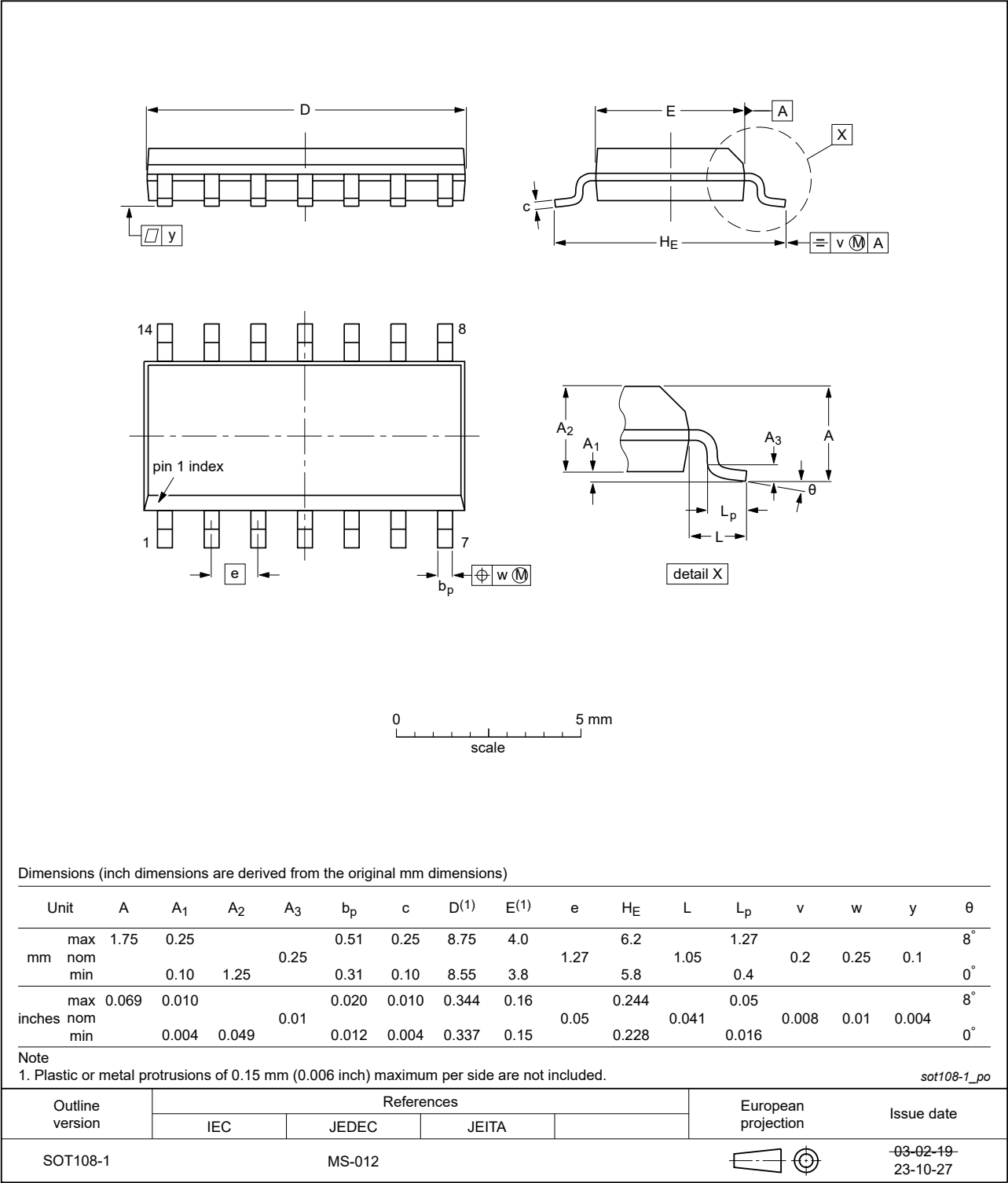


Fig. 15. Package outline SOT108-1 (SO14)

TSSOP14: plastic thin shrink small outline package; 14 leads; body width 4.4 mm

SOT402-1

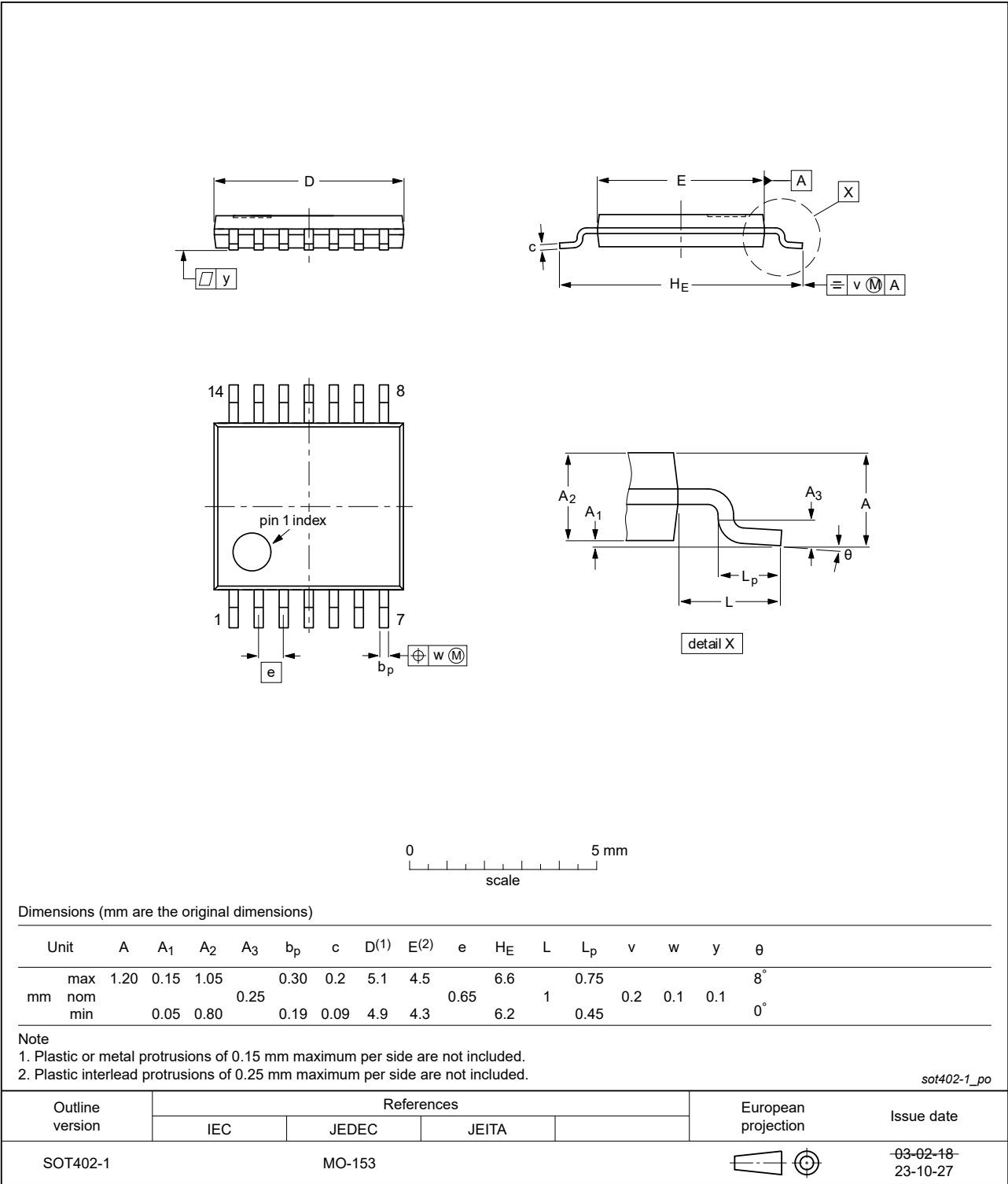
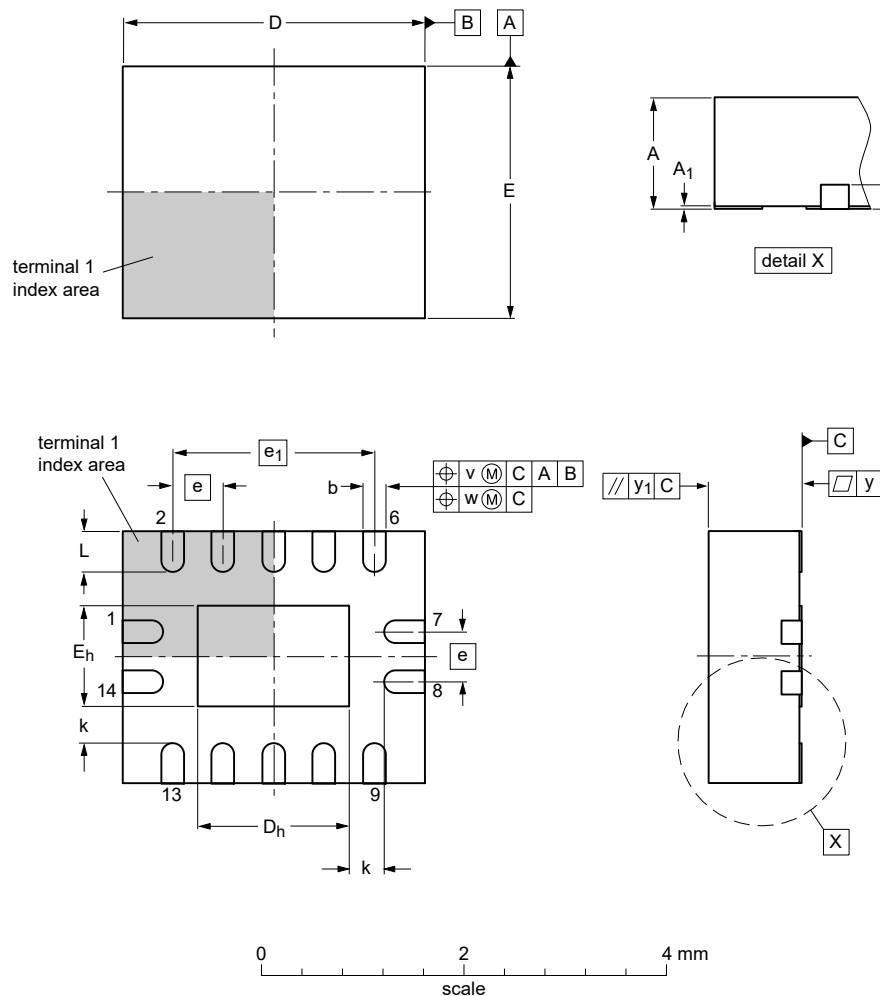


Fig. 16. Package outline SOT402-1 (TSSOP14)

**DHVQFN14: plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 14 terminals; body 2.5 x 3 x 0.85 mm**

**SOT762-1**



Dimensions (mm are the original dimensions)

| Unit |     | A <sup>(1)</sup> | A <sub>1</sub> | b    | c   | D <sup>(1)</sup> | D <sub>h</sub> | E <sup>(1)</sup> | E <sub>h</sub> | e   | e <sub>1</sub> | k   | L   | v   | w    | y    | y <sub>1</sub> |
|------|-----|------------------|----------------|------|-----|------------------|----------------|------------------|----------------|-----|----------------|-----|-----|-----|------|------|----------------|
| mm   | max | 1                | 0.05           | 0.30 |     | 3.1              | 1.65           | 2.6              | 1.15           |     |                |     | 0.5 |     |      |      |                |
|      | nom |                  | 0.02           | 0.25 | 0.2 | 3.0              | 1.50           | 2.5              | 1.00           | 0.5 | 2              |     | 0.4 | 0.1 | 0.05 | 0.05 | 0.1            |
|      | min |                  | 0.00           | 0.18 |     | 2.9              | 1.35           | 2.4              | 0.85           |     |                | 0.2 | 0.3 |     |      |      |                |

### Note

1. Plastic or metal protrusions of 0.075 mm maximum per side are not included.

sot762-1\_po

| Outline version | References |        |       |  | European projection                                                                   | Issue date                      |
|-----------------|------------|--------|-------|--|---------------------------------------------------------------------------------------|---------------------------------|
|                 | IEC        | JEDEC  | JEITA |  |                                                                                       |                                 |
| SOT762-1        |            | MO-241 |       |  |  | <del>15-04-10</del><br>15-05-05 |

**Fig. 17. Package outline SOT762-1 (DHVQFN14)**

15. Abbreviations

Table 11. Abbreviations

| Acronym | Description             |
|---------|-------------------------|
| CDM     | Charged Device Model    |
| DUT     | Device Under Test       |
| ESD     | ElectroStatic Discharge |
| HBM     | Human Body Model        |

16. Revision history

Table 12. Revision history

| Document ID         | Release date                                                                                                                                                                                                                                                                                                                                                         | Data sheet status     | Change notice | Supersedes          |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|---------------------|
| 74HC_HCT132 v.8     | 20240311                                                                                                                                                                                                                                                                                                                                                             | Product data sheet    | -             | 74HC_HCT132 v.7     |
| Modifications:      | <ul style="list-style-type: none"><li><a href="#">Fig. 15</a>, <a href="#">Fig. 16</a>: Aligned SO and TSSOP package outline drawings to JEDEC MS-012 and MO-153.</li><li><a href="#">Section 2</a>: ESD specification updated according to the latest JEDEC standard.</li></ul>                                                                                     |                       |               |                     |
| 74HC_HCT132 v.7     | 20210813                                                                                                                                                                                                                                                                                                                                                             | Product data sheet    | -             | 74HC_HCT132 v.6     |
| Modifications:      | <ul style="list-style-type: none"><li><a href="#">Section 2</a> updated.</li><li>Type numbers 74HC132DB and 74HCT132DB (SOT337-1/SSOP16) removed.</li></ul>                                                                                                                                                                                                          |                       |               |                     |
| 74HC_HCT132 v.6     | 20190716                                                                                                                                                                                                                                                                                                                                                             | Product data sheet    | -             | 74HC_HCT132 v.5     |
| Modifications:      | <ul style="list-style-type: none"><li>Type number 74HC132BQ (SOT762-1) added.</li><li><a href="#">Table 4</a>: Derating values for P<sub>tot</sub> total power dissipation have changed.</li></ul>                                                                                                                                                                   |                       |               |                     |
| 74HC_HCT132 v.5     | 20180612                                                                                                                                                                                                                                                                                                                                                             | Product data sheet    | -             | 74HC_HCT132 v.4     |
| Modifications:      | <ul style="list-style-type: none"><li>The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.</li><li>Legal texts have been adapted to the new company name where appropriate.</li></ul>                                                                                                                               |                       |               |                     |
| 74HC_HCT132 v.4     | 20151201                                                                                                                                                                                                                                                                                                                                                             | Product data sheet    | -             | 74HC_HCT132 v.3     |
| Modifications:      | <ul style="list-style-type: none"><li>Type numbers 74HC132N and 74HCT132N (SOT27-1) removed.</li></ul>                                                                                                                                                                                                                                                               |                       |               |                     |
| 74HC_HCT132 v.3     | 20120830                                                                                                                                                                                                                                                                                                                                                             | Product data sheet    | -             | 74HC_HCT132_CNV v.2 |
| Modifications:      | <ul style="list-style-type: none"><li>The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors.</li><li>Legal texts have been adapted to the new company name where appropriate.</li><li><a href="#">Fig. 13</a> and <a href="#">Fig. 14</a> added (typical K-factor for relaxation oscillator).</li></ul> |                       |               |                     |
| 74HC_HCT132_CNV v.2 | 19970826                                                                                                                                                                                                                                                                                                                                                             | Product specification | -             | -                   |

## 17. Legal information

### Data sheet status

| Document status [1][2]         | Product status [3] | Definition                                                                            |
|--------------------------------|--------------------|---------------------------------------------------------------------------------------|
| Objective [short] data sheet   | Development        | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification      | This document contains data from the preliminary specification.                       |
| Product [short] data sheet     | Production         | This document contains the product specification.                                     |

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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Date of release: 11 March 2024