# 74HC132; 74HCT132

## Quad 2-input NAND Schmitt trigger

Rev. 7 — 13 August 2021 | 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 JESD22-A114F exceeds 2000 V
  - MM JESD22-A115-A exceeds 200 V
- Multiple package options
- Specified from −40 °C to +85 °C and from −40 °C to +125 °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 |
| 74HC132D | -40 °C to +125 °C | SO14 | plastic small outline package; 14 leads; body width 3.9 mm | SOT108-1 |
| 74HCT132D | | | | |
| 74HC132PW | -40 °C to +125 °C | TSSOP14 | plastic thin shrink small outline package; 14 leads; body width 4.4 mm | SOT402-1 |
| 74HCT132PW | | | | |
| 74HC132BQ | -40 °C to +125 °C | DHVQFN14 | plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 14 terminals; body 2.5 × 3 × 0.85 mm | SOT762-1 |

## 5. Functional diagram

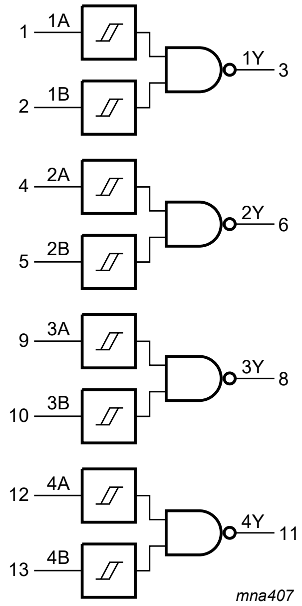



**Fig. 1. Logic symbol**

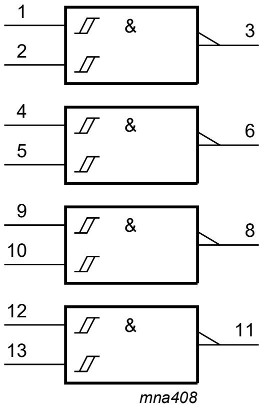



**Fig. 2. IEC logic symbol**

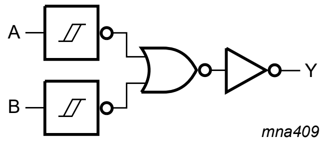



**Fig. 3. Logic diagram (one Schmitt trigger)**

## 6. Pinning information

### 6.1. Pinning

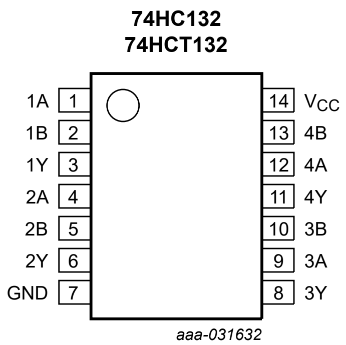
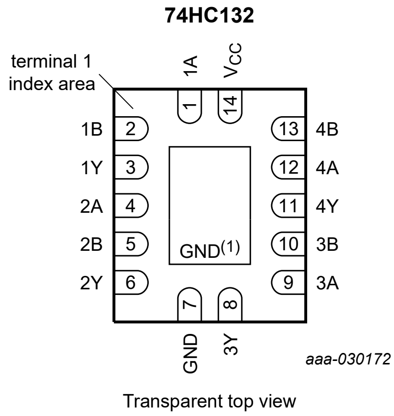



**Fig. 4. Pin configuration SOT108-1 (SO14) and SOT402-1 (TSSOP14)**




(1) This is not a ground pin. There is no electrical or mechanical requirement to solder the pad. In case soldered, the solder land should remain floating or connected to GND.

**Fig. 5. Pin configuration SOT762-1 (DHVQFN14)**

### 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) |
| $V_{CC}$ | 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 |
|---|---|---|---|---|---|
| $V_{CC}$ | supply voltage | | -0.5 | +7 | V |
| $I_{IK}$ | input clamping current | $V_I < -0.5$ V or $V_I > V_{CC} + 0.5$ V [1] | - | ±20 | mA |
| $I_{OK}$ | output clamping current | $V_O < -0.5$ V or $V_O > V_{CC} + 0.5$ V [1] | - | ±20 | mA |
| $I_O$ | output current | $-0.5$ V $< V_O < V_{CC} + 0.5$ V | - | ±25 | mA |
| $I_{CC}$ | supply current | | - | 50 | mA |
| $I_{GND}$ | ground current | | -50 | - | mA |
| $T_{stg}$ | storage temperature | | -65 | +150 | °C |
| $P_{tot}$ | 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: $P_{tot}$ derates linearly with 10.1 mW/K above 100 °C.
For SOT402-1 (TSSOP14) package: $P_{tot}$ derates linearly with 7.3 mW/K above 81 °C.
For SOT762-1 (DHVQFN14) package: $P_{tot}$ 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 | |
| $V_{CC}$ | 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 |
| $T_{amb}$ | 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** | | | | | | | | | | |
| $V_{OH}$ | HIGH-level output voltage | $V_I = V_{T+}$ or $V_{T-}$ | | | | | | | | |
| | | $I_O = -20$ µA; $V_{CC} = 2.0$ V | 1.9 | 2.0 | - | 1.9 | - | 1.9 | - | V |
| | | $I_O = -20$ µA; $V_{CC} = 4.5$ V | 4.4 | 4.5 | - | 4.4 | - | 4.4 | - | V |
| | | $I_O = -20$ µA; $V_{CC} = 6.0$ V | 5.9 | 6.0 | - | 5.9 | - | 5.9 | - | V |
| | | $I_O = -4.0$ mA; $V_{CC} = 4.5$ V | 3.98 | 4.32 | - | 3.84 | - | 3.7 | - | V |
| | | $I_O = -5.2$ mA; $V_{CC} = 6.0$ V | 5.48 | 5.81 | - | 5.34 | - | 5.2 | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I = V_{T+}$ or $V_{T-}$ | | | | | | | | |
| | | $I_O = 20$ µA; $V_{CC} = 2.0$ V | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O = 20$ µA; $V_{CC} = 4.5$ V | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O = 20$ µA; $V_{CC} = 6.0$ V | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O = 4.0$ mA; $V_{CC} = 4.5$ V | - | 0.15 | 0.26 | - | 0.33 | - | 0.4 | V |
| | | $I_O = 5.2$ mA; $V_{CC} = 6.0$ V | - | 0.16 | 0.26 | - | 0.33 | - | 0.4 | V |
| $I_I$ | input leakage current | $V_I = V_{CC}$ or GND; $V_{CC} = 6.0$ V | - | - | ±0.1 | - | ±1.0 | - | ±1.0 | µA |
| $I_{CC}$ | supply current | $V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 6.0$ V | - | - | 2.0 | - | 20 | - | 40 | µA |
| $C_I$ | input capacitance | | - | 3.5 | - | - | - | - | - | pF |
| **74HCT132** | | | | | | | | | | |
| $V_{OH}$ | HIGH-level output voltage | $V_I = V_{T+}$ or $V_{T-}$; $V_{CC} = 4.5$ V | | | | | | | | |
| | | $I_O = -20$ µA | 4.4 | 4.5 | - | 4.4 | - | 4.4 | - | V |
| | | $I_O = -4.0$ mA | 3.98 | 4.32 | - | 3.84 | - | 3.7 | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I = V_{T+}$ or $V_{T-}$; $V_{CC} = 4.5$ V | | | | | | | | |
| | | $I_O = 20$ µA; | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O = 4.0$ 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 | |
| $I_I$ | input leakage current | $V_I = V_{CC}$ or GND; $V_{CC} = 5.5$ V | - | - | ±0.1 | - | ±1.0 | - | ±1.0 | µA |
| $I_{CC}$ | supply current | $V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 5.5$ V | - | - | 2.0 | - | 20 | - | 40 | µA |
| $\Delta I_{CC}$ | additional supply current | per input pin; $V_I = V_{CC} - 2.1$ V; other inputs at $V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 4.5$ V to 5.5 V | - | 30 | 108 | - | 135 | - | 147 | µA |
| $C_I$ | input capacitance | | - | 3.5 | - | - | - | - | - | pF |

## 11. Dynamic characteristics

**Table 7. Dynamic characteristics**

*GND = 0 V; $C_L$ = 50 pF; for test circuit see Fig. 7.*

| Symbol | Parameter | Conditions | 25 °C | | | −40 °C to +85 °C | | −40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| **74HC132** | | | | | | | | | | |
| $t_{pd}$ | propagation delay | nA, nB to nY; see Fig. 6 [1] | | | | | | | | |
| | | $V_{CC} = 2.0$ V | - | 36 | 125 | - | 155 | - | 190 | ns |
| | | $V_{CC} = 4.5$ V | - | 13 | 25 | - | 31 | - | 38 | ns |
| | | $V_{CC} = 5.0$ V; $C_L = 15$ pF | - | 11 | - | - | - | - | - | ns |
| | | $V_{CC} = 6.0$ V | - | 10 | 21 | - | 26 | - | 32 | ns |
| $t_t$ | transition time | see Fig. 6 [2] | | | | | | | | |
| | | $V_{CC} = 2.0$ V | - | 19 | 75 | - | 95 | - | 110 | ns |
| | | $V_{CC} = 4.5$ V | - | 7 | 15 | - | 19 | - | 22 | ns |
| | | $V_{CC} = 6.0$ V | - | 6 | 13 | - | 16 | - | 19 | ns |
| $C_{PD}$ | power dissipation capacitance | per package; $V_I$ = GND to $V_{CC}$ [3] | - | 24 | - | - | - | - | - | pF |
| **74HCT132** | | | | | | | | | | |
| $t_{pd}$ | propagation delay | nA, nB to nY; see Fig. 6 [1] | | | | | | | | |
| | | $V_{CC} = 4.5$ V | - | 20 | 33 | - | 41 | - | 50 | ns |
| | | $V_{CC} = 5.0$ V; $C_L = 15$ pF | - | 17 | - | - | - | - | - | ns |
| $t_t$ | transition time | $V_{CC} = 4.5$ V; see Fig. 6 [2] | - | 7 | 15 | - | 19 | - | 22 | ns |
| $C_{PD}$ | power dissipation capacitance | per package; $V_I$ = GND to $V_{CC} - 1.5$ V [3] | - | 20 | - | - | - | - | - | pF |

[1] $t_{pd}$ is the same as $t_{PHL}$ and $t_{PLH}$.

[2] $t_t$ is the same as $t_{THL}$ and $t_{TLH}$.

[3] $C_{PD}$ is used to determine the dynamic power dissipation ($P_D$ in µW):

$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \sum (C_L \times V_{CC}^2 \times f_o)$ where:

$f_i$ = input frequency in MHz;

$f_o$ = output frequency in MHz;

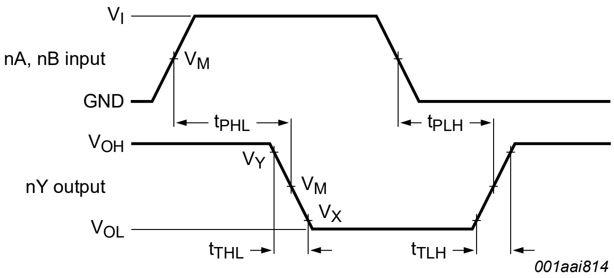
$C_L$ = output load capacitance in pF;

$V_{CC}$ = supply voltage in V;

N = number of inputs switching;

$\sum (C_L \times V_{CC}^2 \times f_o)$ = sum of outputs.

## 11.1. Waveforms and test circuit



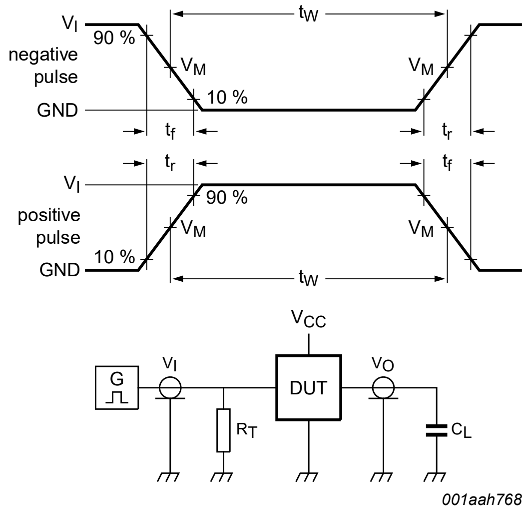

Measurement points are given in Table 8.

$V_{OL}$ and $V_{OH}$ are typical voltage output levels that occur with the output load.

**Fig. 6. Input to output propagation delays**

**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 | $0.1V_{CC}$ | $0.9V_{CC}$ |




Test data is given in Table 9.

Definitions test circuit:

$R_T$ = termination resistance should be equal to output impedance $Z_o$ of the pulse generator.

$C_L$ = load capacitance including jig and probe capacitance.

**Fig. 7. Test circuit for measuring switching times**

**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. 8 to Fig. 11.*

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

## 12.1. Transfer characteristics waveforms

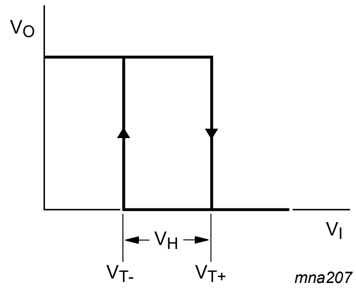



**Fig. 8. Transfer characteristics**

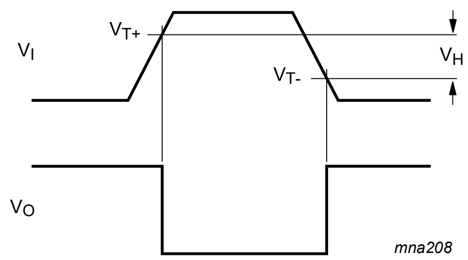



**Fig. 9. Transfer characteristics definitions**

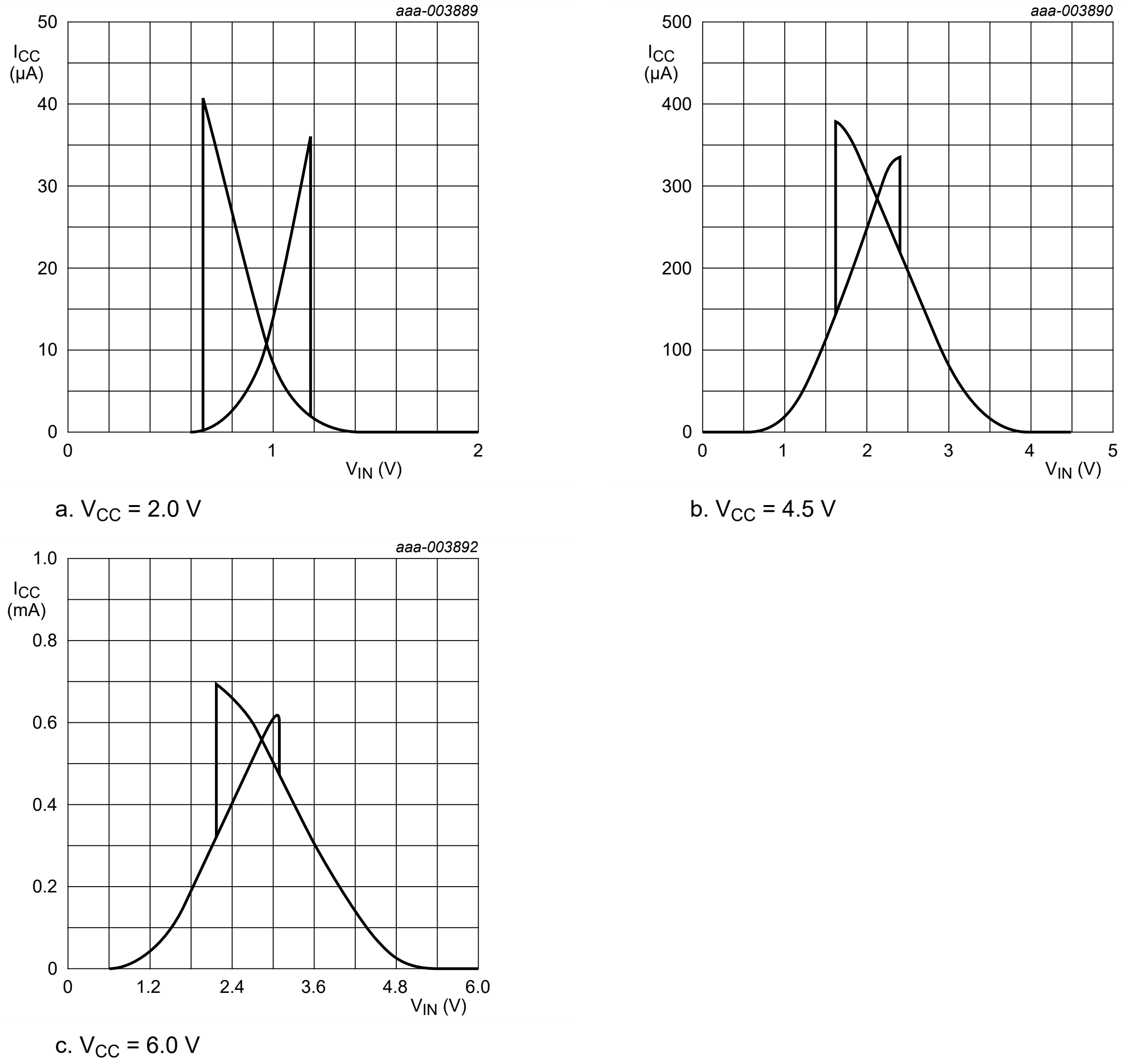



**Fig. 10. Typical 74HC132 transfer characteristics**

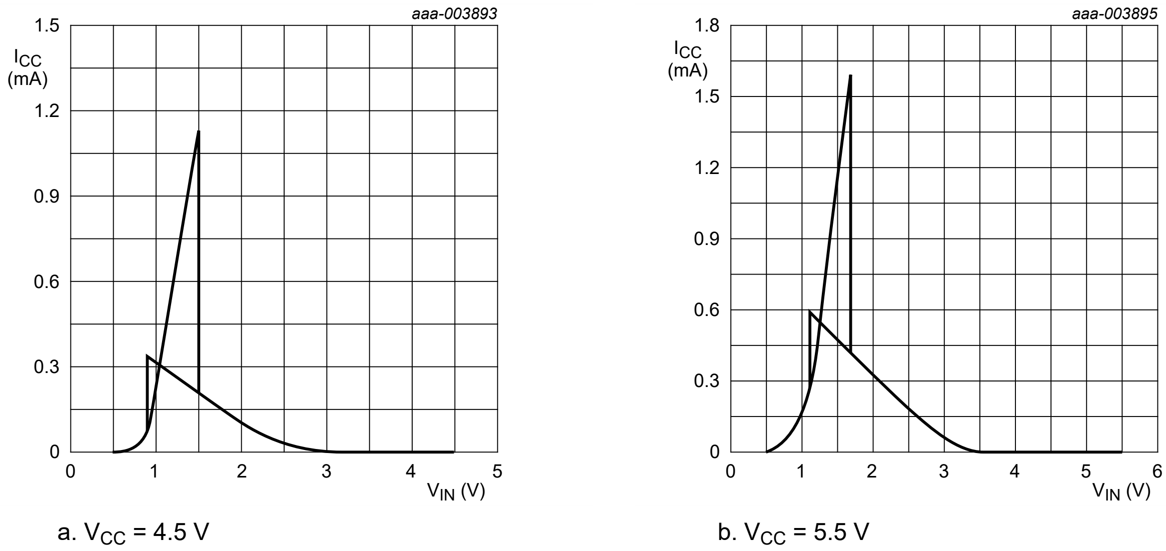



**Fig. 11. Typical 74HCT132 transfer characteristics**

# 13. Application information

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

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

$P_{add}$ = additional power dissipation (μW);
$f_i$ = input frequency (MHz);
$t_r$ = rise time (ns); 10 % to 90 %;
$\Delta I_{CC(AV)}$ = average additional supply current (μA).
$t_f$ = fall time (ns); 90 % to 10 %;

Average $\Delta I_{CC(AV)}$ differs with positive or negative input transitions, as shown in Fig. 12 and Fig. 13.

An example of a relaxation circuit using the 74HC132; 74HCT132 is shown in Fig. 14.

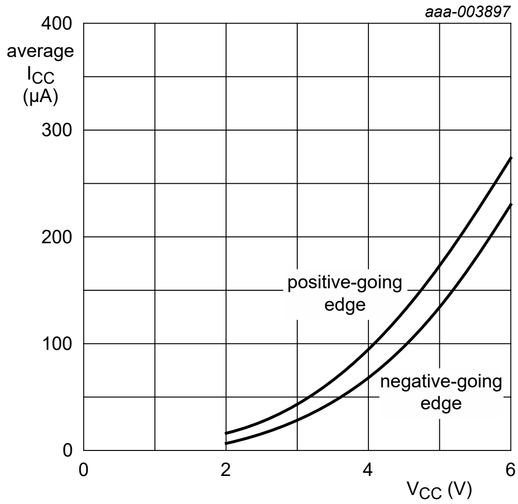



**Fig. 12. Average additional supply current as a function of $V_{CC}$ for 74HC132; linear change of $V_I$ between $0.1V_{CC}$ to $0.9V_{CC}$.**

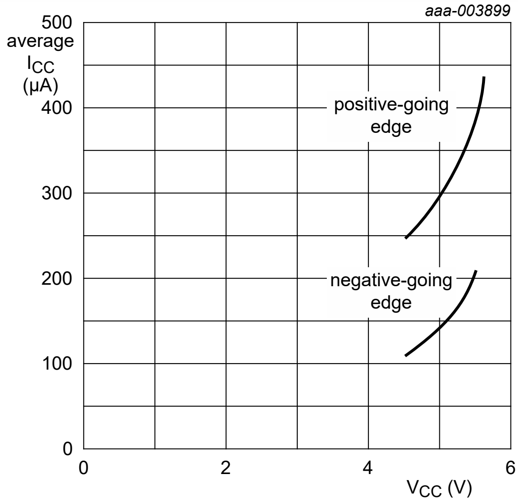
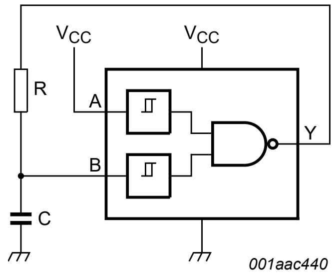



**Fig. 13. Average additional supply current as a function of $V_{CC}$ for 74HCT132; linear change of $V_I$ between $0.1V_{CC}$ to $0.9V_{CC}$.**




For 74HC132 and 74HCT132: $f = \frac{1}{T} \approx \frac{1}{K \times RC}$

Typical K-factor for relaxation oscillator, see Fig. 15 and Fig. 16

**Fig. 14. Relaxation oscillator**

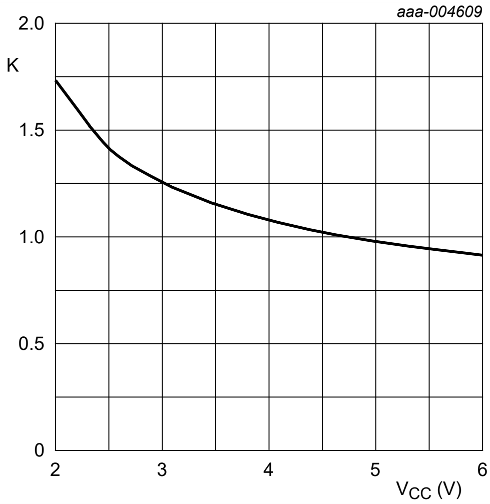



**Fig. 15. K-factor for 74HC132**

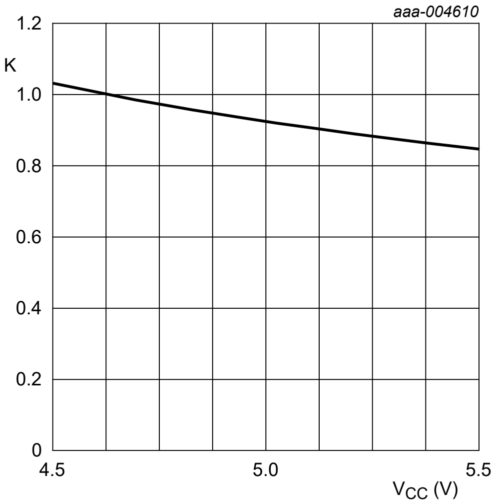
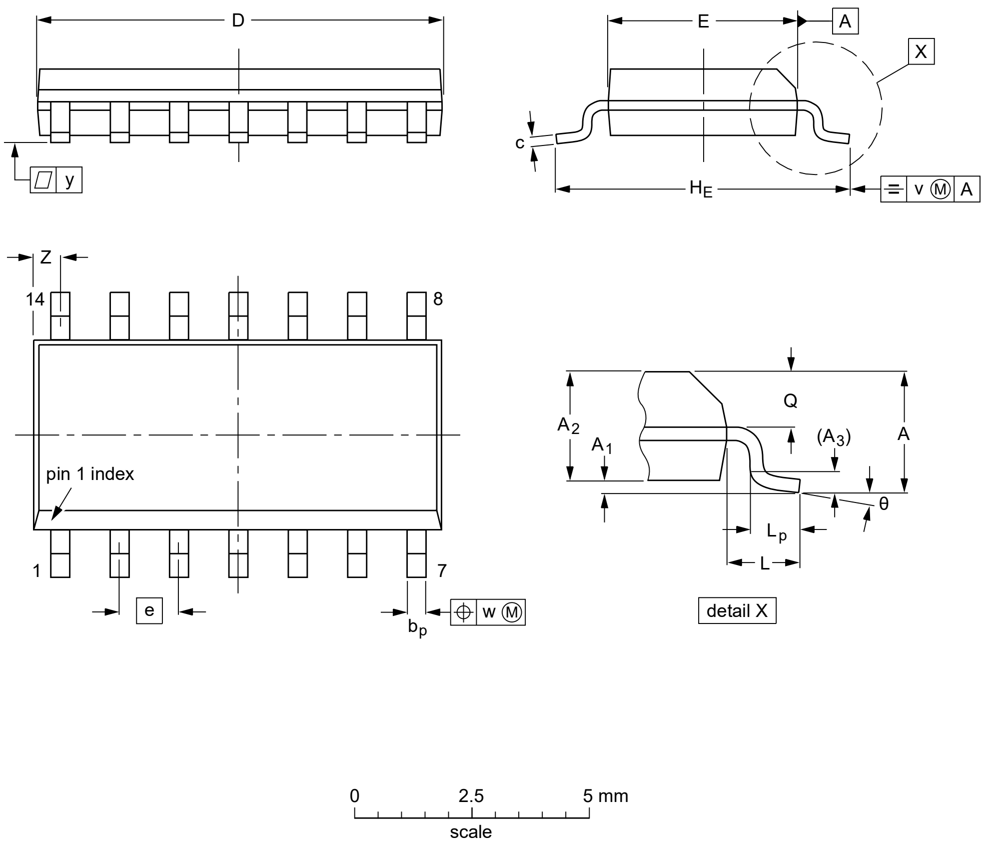



**Fig. 16. K-factor for 74HCT132**

# 14. Package outline

**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. | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | D(1) | E(1) | e | $H_E$ | L | $L_p$ | Q | v | w | y | Z(1) | 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 | |

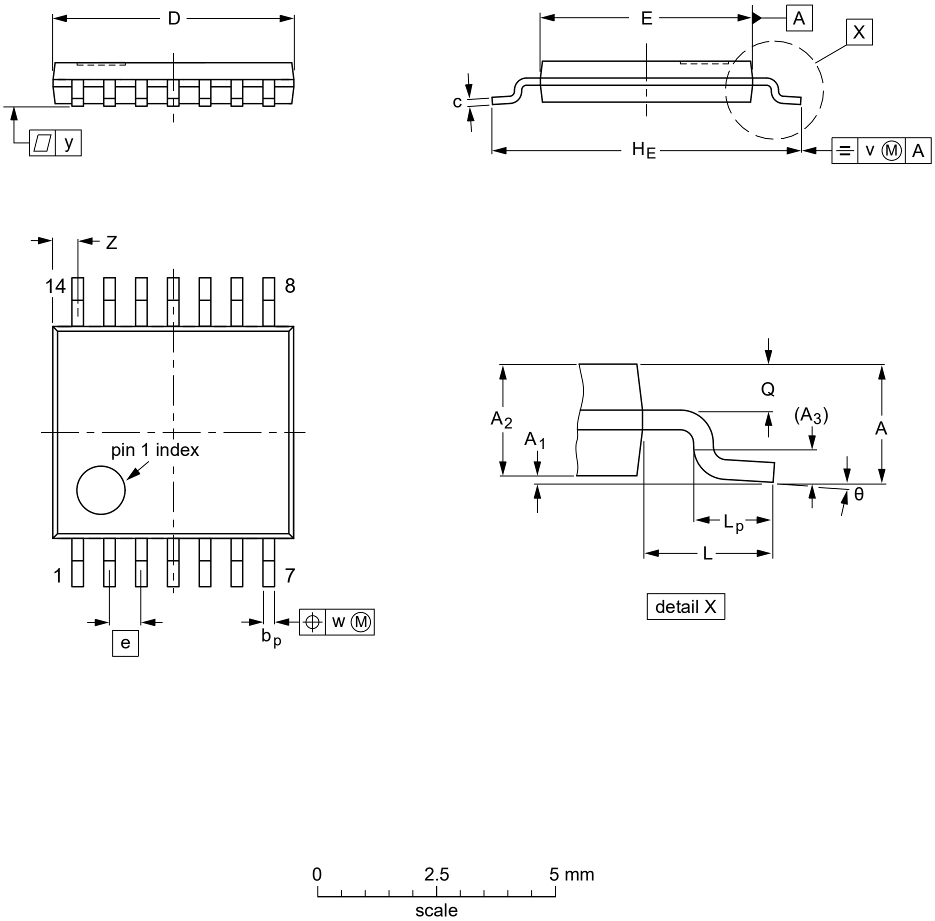
**Note**

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

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT108-1 | 076E06 | MS-012 | | | | ~~99-12-27~~<br>03-02-19 |

**Fig. 17. Package outline SOT108-1 (SO14)**

**TSSOP14: plastic thin shrink small outline package; 14 leads; body width 4.4 mm** **SOT402-1**




**DIMENSIONS (mm are the original dimensions)**

| UNIT | A max. | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | D (1) | E (2) | e | $H_E$ | L | $L_p$ | Q | v | w | y | Z (1) | θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1 | 0.15<br>0.05 | 0.95<br>0.80 | 0.25 | 0.30<br>0.19 | 0.2<br>0.1 | 5.1<br>4.9 | 4.5<br>4.3 | 0.65 | 6.6<br>6.2 | 1 | 0.75<br>0.50 | 0.4<br>0.3 | 0.2 | 0.13 | 0.1 | 0.72<br>0.38 | 8°<br>0° |

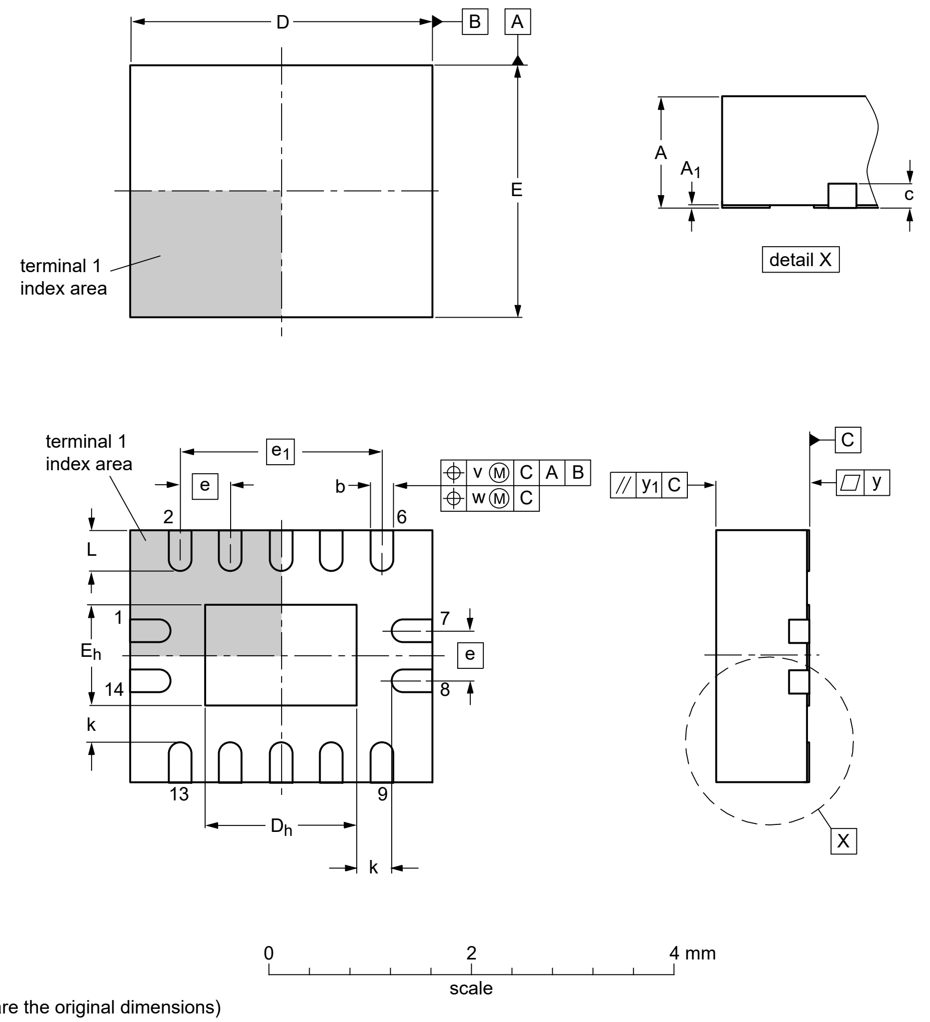
**Notes**

1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.
2. Plastic interlead protrusions of 0.25 mm maximum per side are not included.

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT402-1 | | MO-153 | | | | ~~99-12-27~~<br>03-02-18 |

**Fig. 18. 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 | | $A^{(1)}$ | $A_1$ | b | c | $D^{(1)}$ | $D_h$ | $E^{(1)}$ | $E_h$ | e | $e_1$ | k | L | v | w | y | $y_1$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | max | 1 | 0.05 | 0.30 | | 3.1 | 1.65 | 2.6 | 1.15 | | | | 0.5 | | | | |
| mm | 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 | | | | ~~15-04-10~~<br>15-05-05 |

**Fig. 19. Package outline SOT762-1 (DHVQFN14)**

## 15. Abbreviations

**Table 11. Abbreviations**

| Acronym | Description |
|---|---|
| DUT | Device Under Test |
| ESD | ElectroStatic Discharge |
| HBM | Human Body Model |
| MM | Machine Model |

## 16. Revision history

**Table 12. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| 74HC_HCT132 v.7 | 20210813 | Product data sheet | - | 74HC_HCT132 v.6 |
| Modifications: | • Section 2 updated.<br>• Type numbers 74HC132DB and 74HCT132DB (SOT337-1/SSOP16) removed. | | | |
| 74HC_HCT132 v.6 | 20190716 | Product data sheet | - | 74HC_HCT132 v.5 |
| Modifications: | • Type number 74HC132BQ (SOT762-1) added.<br>• Table 4: Derating values for $P_{tot}$ total power dissipation have changed. | | | |
| 74HC_HCT132 v.5 | 20180612 | Product data sheet | - | 74HC_HCT132 v.4 |
| Modifications: | • The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.<br>• Legal texts have been adapted to the new company name where appropriate. | | | |
| 74HC_HCT132 v.4 | 20151201 | Product data sheet | - | 74HC_HCT132 v.3 |
| Modifications: | • Type numbers 74HC132N and 74HCT132N (SOT27-1) removed. | | | |
| 74HC_HCT132 v.3 | 20120830 | Product data sheet | - | 74HC_HCT132_CNV v.2 |
| Modifications: | • The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors.<br>• Legal texts have been adapted to the new company name where appropriate.<br>• Fig. 15 and Fig. 16 added (typical K-factor for relaxation oscillator). | | | |
| 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".
[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the internet at https://www.nexperia.com.

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