# 74HC2G126; 74HCT2G126

## Dual buffer/line driver; 3-state

Rev. 04 — 24 September 2009 **Product data sheet**

## 1. General description

The 74HC2G126; 74HCT2G126 is a high-speed Si-gate CMOS device.

The 74HC2G126; 74HCT2G126 provides two non-inverting buffer/line drivers with 3-state output. The 3-state output is controlled by the output enable input pin nOE. A LOW at pin nOE causes the output to assume a high-impedance OFF-state.

The bus driver output currents are equal compared to the 74HC126 and 74HCT126.

## 2. Features

- Wide operating voltage from 2.0 V to 6.0 V
- Symmetrical output impedance
- High noise immunity
- Low power dissipation
- Balanced propagation delays
- 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 –40 °C to +125 °C

## 3. Ordering information

**Table 1. Ordering information**

| Type number | Package | | | |
|---|---|---|---|---|
| | Temperature range | Name | Description | Version |
| 74HC2G126DP | –40 °C to +125 °C | TSSOP8 | plastic thin shrink small outline package; 8 leads; body width 3 mm; lead length 0.5 mm | SOT505-2 |
| 74HCT2G126DP | | | | |
| 74HC2G126DC | –40 °C to +125 °C | VSSOP8 | plastic very thin shrink small outline package; 8 leads; body width 2.3 mm | SOT765-1 |
| 74HCT2G126DC | | | | |
| 74HC2G126GD | –40 °C to +125 °C | XSON8U | plastic extremely thin small outline package; no leads; 8 terminals; UTLP based; body 3 × 2 × 0.5 mm | SOT996-2 |
| 74HCT2G126GD | | | | |

founded by Philips

# 4. Marking

Table 2. Marking codes[1]

| Type number | Marking code |
|---|---|
| 74HC2G126DP | H26 |
| 74HCT2G126DP | T26 |
| 74HC2G126DC | H26 |
| 74HCT2G126DC | T26 |
| 74HC2G126GD | H26 |
| 74HCT2G126GD | T26 |

[1] The pin 1 indicator is located on the lower left corner of the device, below the marking code.

# 5. Functional diagram

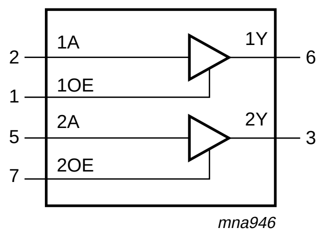



Fig 1. Logic symbol

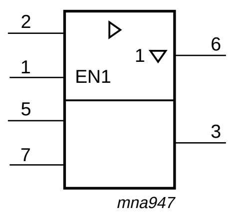



Fig 2. IEC logic symbol

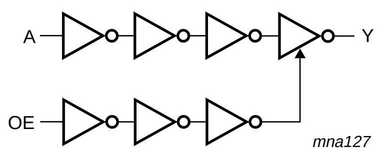



Fig 3. Logic diagram (one driver)

# 6. Pinning information

## 6.1 Pinning

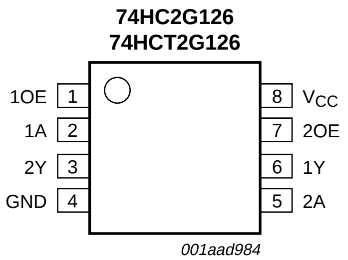



Fig 4. Pin configuration SOT505-2 (TSSOP8) and SOT765-1 (VSSOP8)

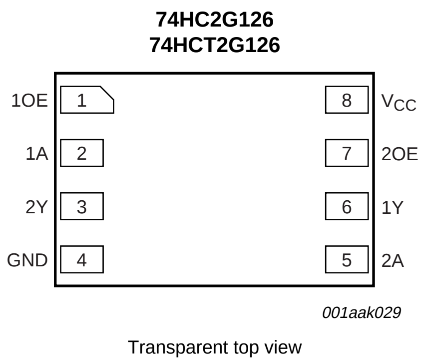



Fig 5. Pin configuration SOT996-2 (XSON8U)

### 6.2 Pin description

**Table 3. Pin description**

| Symbol | Pin | Description |
|---|---|---|
| 1OE, 2OE | 1, 7 | output enable input |
| 1A, 2A | 2, 5 | data input |
| 1Y, 2Y | 6, 3 | data output |
| GND | 4 | ground (0 V) |
| $V_{CC}$ | 8 | supply voltage |

## 7. Functional description

**Table 4. Function table[1]**

| Input | | Output |
|---|---|---|
| nOE | nA | nY |
| H | L | L |
| H | H | H |
| L | X | Z |

[1] H = HIGH voltage level; L = LOW voltage level; X = don't care; Z = high-impedance OFF-state.

## 8. Limiting values

**Table 5. 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 | +7.0 | 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 | $V_O = –0.5$ V to ($V_{CC}$ + 0.5 V) | [1] | - | ±35 | mA |
| $I_{CC}$ | supply current | | | - | 70 | mA |
| $I_{GND}$ | ground current | | | –70 | - | mA |
| $T_{stg}$ | storage temperature | | | –65 | +150 | °C |
| $P_{tot}$ | total power dissipation | | [2] | - | 300 | mW |

[1] The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

[2] For TSSOP8 package: above 55 °C the value of $P_{tot}$ derates linearly with 2.5 mW/K.
For VSSOP8 package: above 110 °C the value of $P_{tot}$ derates linearly with 8 mW/K.
For XSON8U package: above 118 °C the value of $P_{tot}$ derates linearly with 7.8 mW/K.

## 9. Recommended operating conditions

**Table 6. Recommended operating conditions**

*Voltages are referenced to GND (ground = 0 V).*

| Symbol | Parameter | Conditions | 74HC2G126 | | | 74HCT2G126 | | | 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 |
| $\Delta t/\Delta V$ | input transition rise and fall rate | $V_{CC}$ = 2.0 V | - | - | 625 | - | - | - | ns/V |
| | | $V_{CC}$ = 4.5 V | - | 1.67 | 139 | - | 1.67 | 139 | ns/V |
| | | $V_{CC}$ = 6.0 V | - | - | 83 | - | - | - | ns/V |

## 10. Static characteristics

**Table 7. Static characteristics**

*Voltages are referenced to GND (ground = 0 V). All typical values are measured at $T_{amb}$ = 25 °C.*

| Symbol | Parameter | Conditions | $T_{amb}$ = –40 °C to +85 °C | | | $T_{amb}$ = –40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | |
| **74HC2G126** | | | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 2.0 V | 1.5 | 1.2 | - | 1.5 | - | V |
| | | $V_{CC}$ = 4.5 V | 3.15 | 2.4 | - | 3.15 | - | V |
| | | $V_{CC}$ = 6.0 V | 4.2 | 3.2 | - | 4.2 | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 2.0 V | - | 0.8 | 0.5 | - | 0.5 | V |
| | | $V_{CC}$ = 4.5 V | - | 2.1 | 1.35 | - | 1.35 | V |
| | | $V_{CC}$ = 6.0 V | - | 2.8 | 1.8 | - | 1.8 | V |
| $V_{OH}$ | HIGH-level output voltage | $V_I = V_{IH}$ or $V_{IL}$ | | | | | | |
| | | $I_O$ = –20 μA; $V_{CC}$ = 2.0 V | 1.9 | 2.0 | - | 1.9 | - | V |
| | | $I_O$ = –20 μA; $V_{CC}$ = 4.5 V | 4.4 | 4.5 | - | 4.4 | - | V |
| | | $I_O$ = –20 μA; $V_{CC}$ = 6.0 V | 5.9 | 6.0 | - | 5.9 | - | V |
| | | $I_O$ = –6.0 mA; $V_{CC}$ = 4.5 V | 3.84 | 4.32 | - | 3.7 | - | V |
| | | $I_O$ = –7.8 mA; $V_{CC}$ = 6.0 V | 5.34 | 5.81 | - | 5.2 | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I = V_{IH}$ or $V_{IL}$ | | | | | | |
| | | $I_O$ = 20 μA; $V_{CC}$ = 2.0 V | - | 0 | 0.1 | - | 0.1 | V |
| | | $I_O$ = 20 μA; $V_{CC}$ = 4.5 V | - | 0 | 0.1 | - | 0.1 | V |
| | | $I_O$ = 20 μA; $V_{CC}$ = 6.0 V | - | 0 | 0.1 | - | 0.1 | V |
| | | $I_O$ = 6.0 mA; $V_{CC}$ = 4.5 V | - | 0.15 | 0.33 | - | 0.4 | V |
| | | $I_O$ = 7.8 mA; $V_{CC}$ = 6.0 V | - | 0.16 | 0.33 | - | 0.4 | V |
| $I_I$ | input leakage current | $V_I = V_{CC}$ or GND; $V_{CC}$ = 6.0 V | - | - | ±1.0 | - | ±1.0 | μA |
| $I_{OZ}$ | OFF-state output current | $V_I = V_{IH}$ or $V_{IL}$; $V_O = V_{CC}$ or GND; $V_{CC}$ = 6.0 V | - | - | ±5.0 | - | ±10 | μA |

**Table 7. Static characteristics** *...continued*

*Voltages are referenced to GND (ground = 0 V). All typical values are measured at $T_{amb}$ = 25 °C.*

| Symbol | Parameter | Conditions | $T_{amb}$ = –40 °C to +85 °C | | | $T_{amb}$ = –40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | |
| $I_{CC}$ | supply current | $V_I = V_{CC}$ or GND; $I_O$ = 0 A; $V_{CC}$ = 6.0 V | - | - | 10 | - | 20 | µA |
| $C_I$ | input capacitance | | - | 1.0 | - | - | - | pF |
| $C_O$ | output capacitance | | - | 1.5 | - | - | - | pF |
| **74HCT2G126** | | | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 4.5 V to 5.5 V | 2.0 | 1.6 | - | 2.0 | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 4.5 V to 5.5 V | - | 1.2 | 0.8 | - | 0.8 | V |
| $V_{OH}$ | HIGH-level output voltage | $V_I = V_{IH}$ or $V_{IL}$; $V_{CC}$ = 4.5 V | | | | | | |
| | | $I_O$ = –20 µA | 4.4 | 4.5 | - | 4.4 | - | V |
| | | $I_O$ = –6.0 mA | 3.84 | 4.32 | - | 3.7 | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I = V_{IH}$ or $V_{IL}$; $V_{CC}$ = 4.5 V | | | | | | |
| | | $I_O$ = 20 µA | - | 0 | 0.1 | - | 0.1 | V |
| | | $I_O$ = 6.0 mA | - | 0.16 | 0.33 | - | 0.4 | V |
| $I_I$ | input leakage current | $V_I = V_{CC}$ or GND; $V_{CC}$ = 5.5 V | - | - | ±1.0 | - | ±1.0 | µA |
| $I_{OZ}$ | OFF-state output current | $V_I = V_{IH}$ or $V_{IL}$; $V_O$ = $V_{CC}$ or GND; $V_{CC}$ = 5.5 V | - | - | ±5.0 | - | ±10 | |
| $I_{CC}$ | supply current | $V_I = V_{CC}$ or GND; $I_O$ = 0 A; $V_{CC}$ = 5.5 V | - | - | 10 | - | 20 | µA |
| $\Delta I_{CC}$ | additional supply current | per input; $V_{CC}$ = 4.5 V to 5.5 V; $V_I = V_{CC}$ – 2.1 V; $I_O$ = 0 A | - | - | 375 | - | 410 | µA |
| $C_I$ | input capacitance | | - | 1.0 | - | - | - | pF |
| $C_O$ | output capacitance | | - | 1.5 | - | - | - | pF |

## 11. Dynamic characteristics

**Table 8. Dynamic characteristics**

*Voltages are referenced to GND (ground = 0 V); $C_L$ = 50 pF unless otherwise specified; for test circuit see Figure 8.*

| Symbol | Parameter | Conditions | | $T_{amb}$ = –40 °C to +85 °C | | | $T_{amb}$ = –40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Min | Typ[1] | Max | Min | Max | |
| **74HC2G126** | | | | | | | | | |
| $t_{pd}$ | propagation delay | nA to nY; see Figure 6 | [2] | | | | | | |
| | | $V_{CC}$ = 2.0 V | | - | 35 | 115 | - | 135 | ns |
| | | $V_{CC}$ = 4.5 V | | - | 11 | 23 | - | 27 | ns |
| | | $V_{CC}$ = 5.0 V; $C_L$ = 15 pF | | - | 10 | - | - | - | ns |
| | | $V_{CC}$ = 6.0 V | | - | 8 | 20 | - | 23 | ns |

**Table 8. Dynamic characteristics** *...continued*

*Voltages are referenced to GND (ground = 0 V); $C_L$ = 50 pF unless otherwise specified; for test circuit see Figure 8.*

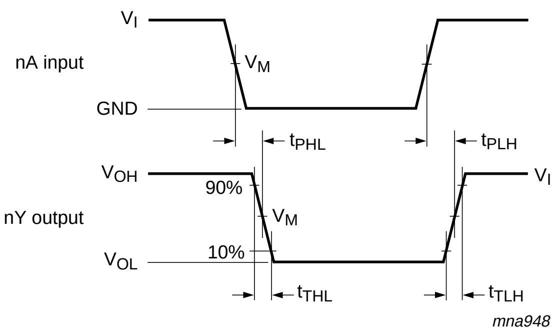
| Symbol | Parameter | Conditions | | $T_{amb}$ = –40 °C to +85 °C | | | $T_{amb}$ = –40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Min | Typ[1] | Max | Min | Max | |
| $t_{en}$ | enable time | nOE to nY; see Figure 7 | [2] | | | | | | |
| | | $V_{CC}$ = 2.0 V | | - | 40 | 115 | - | 135 | ns |
| | | $V_{CC}$ = 4.5 V | | - | 11 | 23 | - | 27 | ns |
| | | $V_{CC}$ = 6.0 V | | - | 8 | 20 | - | 23 | ns |
| $t_{dis}$ | disable time | nOE to nY; see Figure 7 | [2] | | | | | | |
| | | $V_{CC}$ = 2.0 V | | - | 25 | 125 | - | 150 | ns |
| | | $V_{CC}$ = 4.5 V | | - | 12 | 25 | - | 30 | ns |
| | | $V_{CC}$ = 6.0 V | | - | 10 | 21 | - | 26 | ns |
| $t_t$ | transition time | nY; see Figure 6 | [2] | | | | | | |
| | | $V_{CC}$ = 2.0 V | | - | 18 | 75 | - | 90 | ns |
| | | $V_{CC}$ = 4.5 V | | - | 6 | 15 | - | 18 | ns |
| | | $V_{CC}$ = 6.0 V | | - | 5 | 13 | - | 15 | ns |
| $C_{PD}$ | power dissipation capacitance | per buffer; $V_I$ = GND to $V_{CC}$ | [3] | | | | | | |
| | | output enabled | | - | 11 | - | - | - | pF |
| | | output disabled | | - | 1 | - | - | - | pF |
| **74HCT2G126** | | | | | | | | | |
| $t_{pd}$ | propagation delay | nA to nY; see Figure 6 | [2] | | | | | | |
| | | $V_{CC}$ = 4.5 V | | - | 15 | 30 | - | 36 | ns |
| | | $V_{CC}$ = 5.0 V; $C_L$ = 15 pF | | - | 12 | - | - | - | ns |
| $t_{en}$ | enable time | nOE to nY; see Figure 7; $V_{CC}$ = 4.5 V | [2] | - | 11 | 31 | - | 38 | ns |
| $t_{dis}$ | disable time | nOE to nY; see Figure 7; $V_{CC}$ = 4.5 V | [2] | - | 11 | 35 | - | 42 | ns |
| $t_t$ | transition time | nY; see Figure 6; $V_{CC}$ = 4.5 V | [2] | - | 6 | 15 | - | 18 | ns |
| $C_{PD}$ | power dissipation capacitance | per buffer; $V_I$ = GND to $V_{CC}$ – 1.5 V | [3] | | | | | | |
| | | output enabled | | - | 11 | - | - | - | pF |
| | | output disabled | | - | 1 | - | - | - | pF |

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

[2] $t_{pd}$ is the same as $t_{PLH}$ and $t_{PHL}$.
$t_{en}$ is the same as $t_{PZL}$ and $t_{PZH}$.
$t_{dis}$ is the same as $t_{PLZ}$ and $t_{PHZ}$.
$t_t$ is the same as $t_{THL}$ and $t_{TLH}$.

[3] $C_{PD}$ is used to determine the dynamic power dissipation ($P_D$ in μW).
$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$ 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;
$\Sigma(C_L \times V_{CC}^2 \times f_o)$ = sum of outputs.

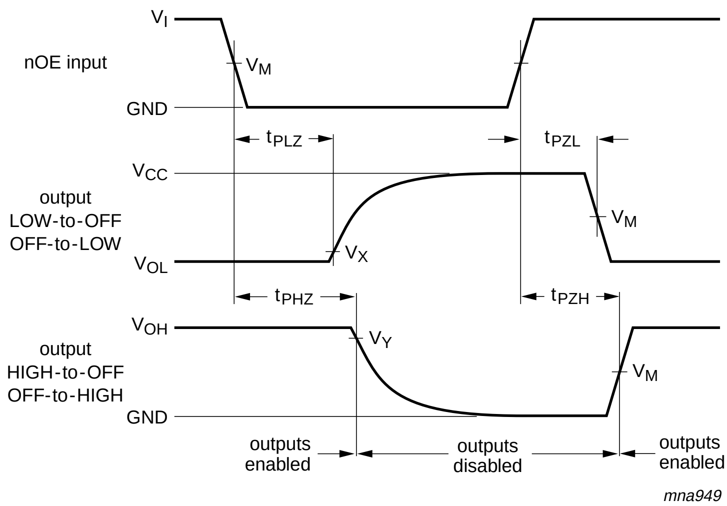
## 12. Waveforms




Measurement points are given in Table 9.

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

**Fig 6. Propagation delay input (nA) to output (nY) and transition time output (nY)**



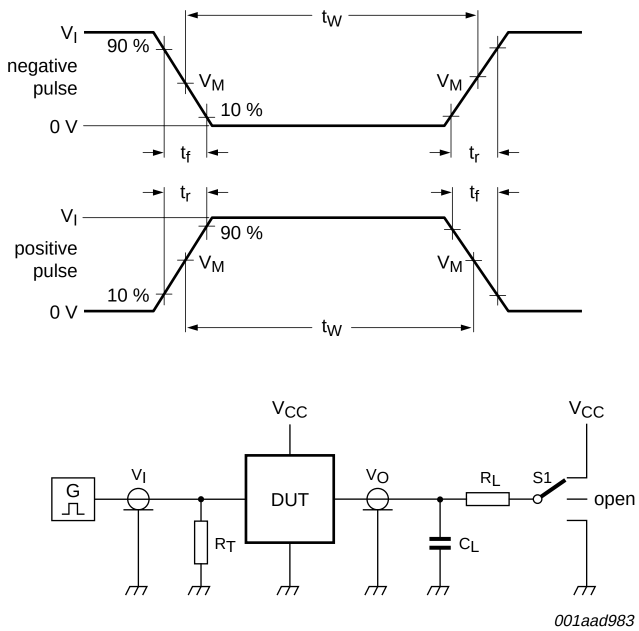

Measurement points are given in Table 9.

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

**Fig 7. Enable and disable times**

**Table 9. Measurement points**

| Type | Input | Output | | |
|---|---|---|---|---|
| | $V_M$ | $V_M$ | $V_X$ | $V_Y$ |
| 74HC2G126 | $0.5V_{CC}$ | $0.5V_{CC}$ | $V_{OL}$ + 0.3 V | $V_{OH}$ − 0.3 V |
| 74HCT2G126 | 1.3 V | 1.3 V | $V_{OL}$ + 0.3 V | $V_{OH}$ − 0.3 V |




Test data is given in Table 10.

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.

$R_L$ = Load resistance.

S1 = Test selection switch.

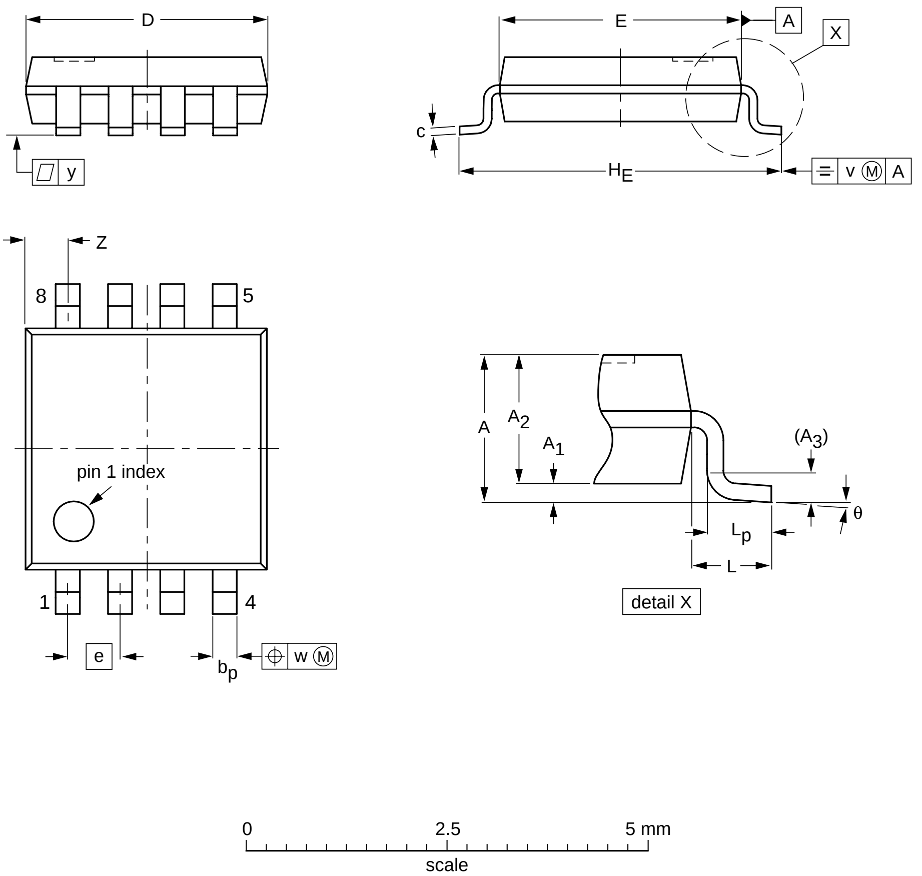
**Fig 8. Test circuit for measuring switching times**

**Table 10. Test data**

| Type | Input | | Load | | S1 position | | |
|---|---|---|---|---|---|---|---|
| | $V_I$ | $t_r$, $t_f$ | $C_L$ | $R_L$ | $t_{PHL}$, $t_{PLH}$ | $t_{PZH}$, $t_{PHZ}$ | $t_{PZL}$, $t_{PLZ}$ |
| 74HC2G126 | GND to $V_{CC}$ | ≤ 6 ns | 15 pF, 50 pF | 1 kΩ | open | GND | $V_{CC}$ |
| 74HCT2G126 | GND to 3 V | ≤ 6 ns | 15 pF, 50 pF | 1 kΩ | open | GND | $V_{CC}$ |

## 13. Package outline

**TSSOP8: plastic thin shrink small outline package; 8 leads; body width 3 mm; lead length 0.5 mm SOT505-2**




DIMENSIONS (mm are the original dimensions)

| UNIT | A max. | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | D(1) | E(1) | e | $H_E$ | L | $L_p$ | v | w | y | Z(1) | θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1 | 0.15<br>0.00 | 0.95<br>0.75 | 0.25 | 0.38<br>0.22 | 0.18<br>0.08 | 3.1<br>2.9 | 3.1<br>2.9 | 0.65 | 4.1<br>3.9 | 0.5 | 0.47<br>0.33 | 0.2 | 0.13 | 0.1 | 0.70<br>0.35 | 8°<br>0° |

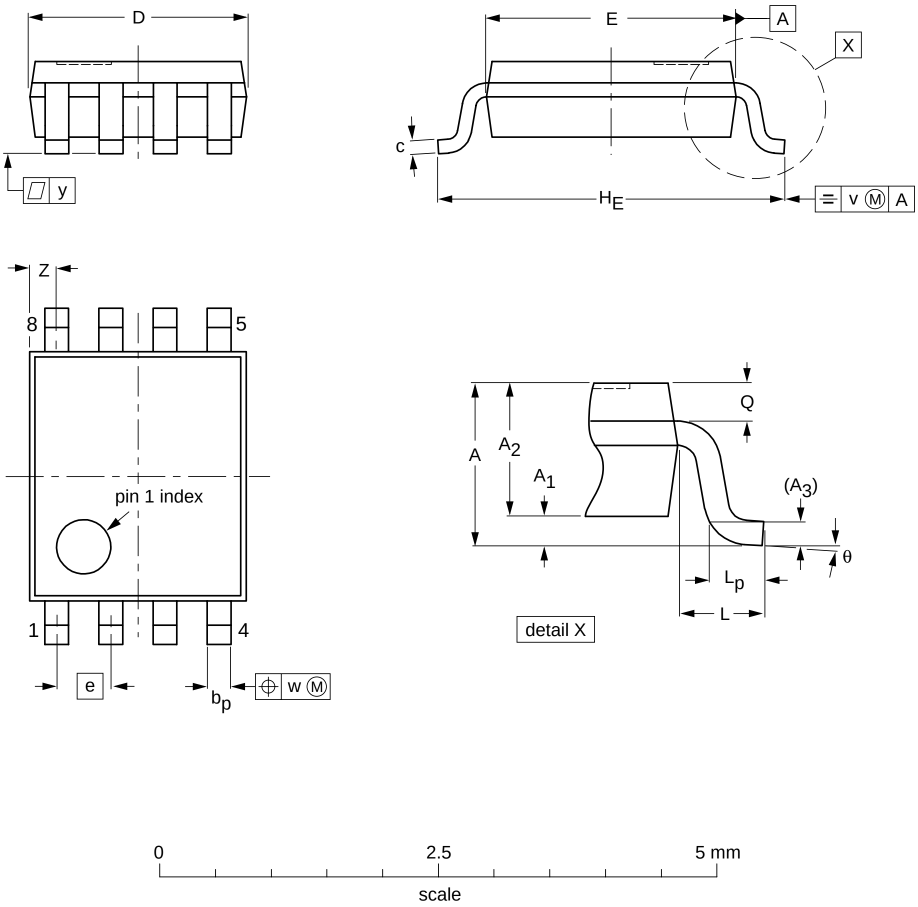
**Note**

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

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT505-2 | | - - - | | | | 02-01-16 |

**Fig 9. Package outline SOT505-2 (TSSOP8)**

**VSSOP8: plastic very thin shrink small outline package; 8 leads; body width 2.3 mm** **SOT765-1**




**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 | 0.15<br>0.00 | 0.85<br>0.60 | 0.12 | 0.27<br>0.17 | 0.23<br>0.08 | 2.1<br>1.9 | 2.4<br>2.2 | 0.5 | 3.2<br>3.0 | 0.4 | 0.40<br>0.15 | 0.21<br>0.19 | 0.2 | 0.13 | 0.1 | 0.4<br>0.1 | 8°<br>0° |

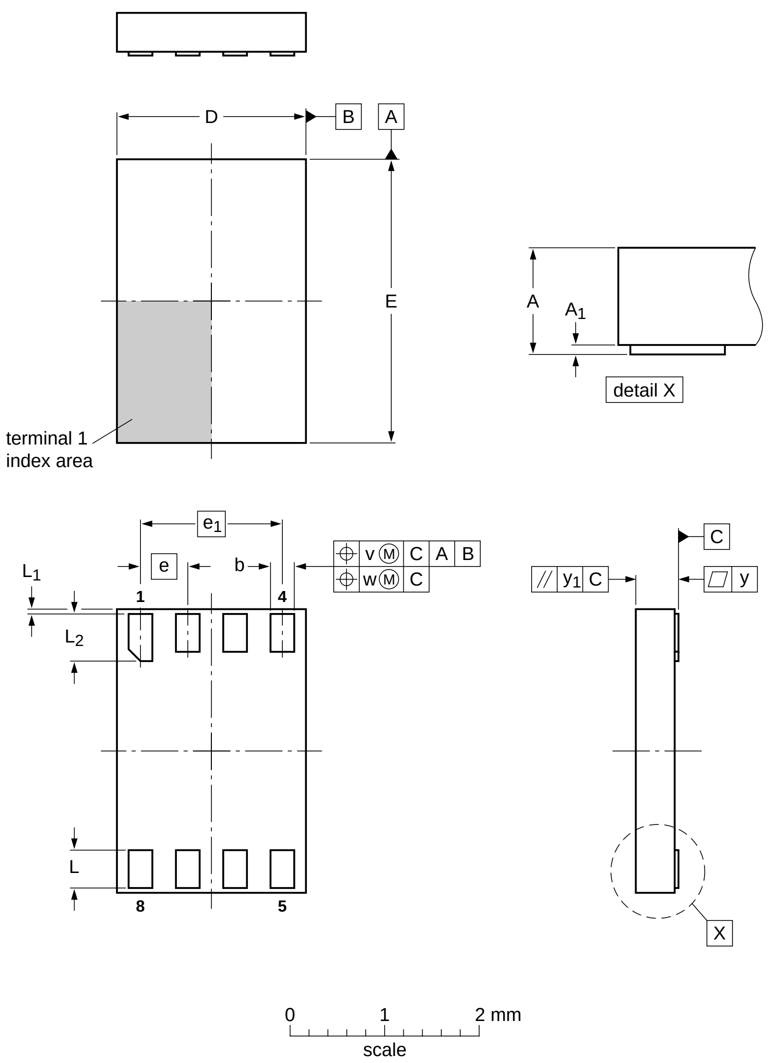
**Notes**

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

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT765-1 | | MO-187 | | | | 02-06-07 |

**Fig 10. Package outline SOT765-1 (VSSOP8)**

**XSON8U: plastic extremely thin small outline package; no leads; 8 terminals; UTLP based; body 3 x 2 x 0.5 mm** **SOT996-2**




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

| UNIT | A max | $A_1$ | b | D | E | e | $e_1$ | L | $L_1$ | $L_2$ | v | w | y | $y_1$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.5 | 0.05<br>0.00 | 0.35<br>0.15 | 2.1<br>1.9 | 3.1<br>2.9 | 0.5 | 1.5 | 0.5<br>0.3 | 0.15<br>0.05 | 0.6<br>0.4 | 0.1 | 0.05 | 0.05 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT996-2 | - - - | | - - - | | | ~~07-12-18~~<br>07-12-21 |

**Fig 11. Package outline SOT996-2 (XSON8U)**

## 14. Abbreviations

Table 11. Abbreviations

| Acronym | Description |
|---|---|
| CMOS | Complementary Metal Oxide Semiconductor |
| DUT | Device Under Test |
| ESD | ElectroStatic Discharge |
| HBM | Human Body Model |
| MM | Machine Model |

## 15. Revision history

Table 12. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| 74HC_HCT2G126_4 | 20090924 | Product data sheet | - | 74HC_HCT2G126_3 |
| Modifications: | • Table 2: Marking codes table added. | | | |
| 74HC_HCT2G126_3 | 20090507 | Product data sheet | - | 74HC_HCT2G126_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>• Quick reference data removed<br>• Added type numbers 74HC2G126GD and 74HCT2G126GD (XSON8U package)<br>• Section 8: derating factor for TSSOP8, VSSOP8 and XSON8U package added | | | |
| 74HC_HCT2G126_2 | 20051215 | Product data sheet | - | 74HC_HCT2G126_1 |
| 74HC_HCT2G126_1 | 20030303 | Product data sheet | - | - |

# 16. Legal information

## 16.1 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 URL http://www.nxp.com.

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## 18. Contents





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