

74HC1G125; 74HCT1G125

Bus buffer/line driver; 3-state

Rev. 05 — 23 December 2005

Product data sheet

1. General description

The 74HC1G125; 74HCT1G125 is a high-speed, Si-gate CMOS device.

The 74HC1G125; 74HCT1G125 provides one non-inverting buffer/line driver with 3-state output. The 3-state output is controlled by the output enable input (pin \overline{OE}). A HIGH level at pin \overline{OE} causes the output to assume a high-impedance OFF-state.

The bus driver output currents are equal compared to the 74HC125 and 74HCT125.

2. Features

- Wide supply voltage range from 2.0 V to 6.0 V
- Symmetrical output impedance
- High noise immunity
- Low power consumption
- Balanced propagation delays
- ESD protection:
 - ◆ HBM EIA/JESD22-A114-C exceeds 2000 V
 - ◆ MM EIA/JESD22-A115-A exceeds 200 V
- Very small 5 pins packages
- Specified from -40°C to $+85^{\circ}\text{C}$ and -40°C to $+125^{\circ}\text{C}$

3. Quick reference data

Table 1: Quick reference data

$GND = 0 \text{ V}$; $T_{amb} = 25^{\circ}\text{C}$; $t_r = t_f \leq 6.0 \text{ ns}$.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|--------------------------|----------------------------------|--|-----|-----|-----|------|----|
| 74HC1G125 | | | | | | | |
| t_{PHL} , t_{PLH} | propagation delay A to Y | $V_{CC} = 5 \text{ V}$; $C_L = 15 \text{ pF}$ | - | 9 | - | ns | |
| C_i | input capacitance | | - | 1.5 | - | pF | |
| C_{PD} | power dissipation capacitance | $V_I = \text{GND to } V_{CC}$ | [1] | - | 30 | - | pF |

PHILIPS

Table 1: Quick reference data ...continued
 $GND = 0 \text{ V}$; $T_{amb} = 25^\circ\text{C}$; $t_r = t_f \leq 6.0 \text{ ns}$.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|--------------------------|----------------------------------|--|-----|-----|-----|------|----|
| 74HCT1G125 | | | | | | | |
| t_{PHL} , t_{PLH} | propagation delay A to Y | $V_{CC} = 5 \text{ V}$; $C_L = 15 \text{ pF}$ | - | 10 | - | ns | |
| C_i | input capacitance | | - | 1.5 | - | pF | |
| C_{PD} | power dissipation capacitance | $V_I = GND \text{ to } V_{CC} - 1.5 \text{ V}$ | [1] | - | 27 | - | pF |

[1] C_{PD} is used to determine the dynamic power dissipation (P_D in μW).

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

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 the outputs.

4. Ordering information

Table 2: Ordering information

| Type number | Package | | | | Version |
|-------------------|-------------------|--------|---|--|----------|
| | Temperature range | Name | Description | | |
| 74HC1G125 | | | | | |
| 74HC1G125GW | -40 °C to +125 °C | TSSOP5 | plastic thin shrink small outline package; 5 leads; body width 1.25 mm | | SOT353-1 |
| 74HC1G125GV | -40 °C to +125 °C | SC-74A | plastic surface mounted package; 5 leads | | SOT753 |
| 74HCT1G125 | | | | | |
| 74HCT1G125GW | -40 °C to +125 °C | TSSOP5 | plastic thin shrink small outline package; 5 leads; body width 1.25 mm | | SOT353-1 |
| 74HCT1G125GV | -40 °C to +125 °C | SC-74A | plastic surface mounted package; 5 leads | | SOT753 |

5. Marking

Table 3: Marking

| Type number | Marking code |
|--------------|--------------|
| 74HC1G125GW | HM |
| 74HC1G125GV | H25 |
| 74HCT1G125GW | TM |
| 74HCT1G125GV | T25 |

6. Functional diagram

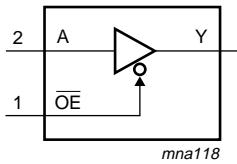


Fig 1. Logic symbol

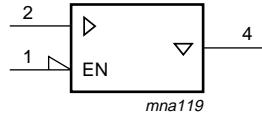


Fig 2. IEC logic symbol

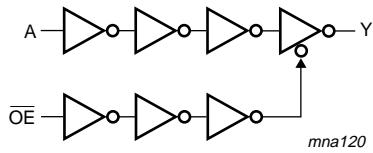


Fig 3. Logic diagram

7. Pinning information

7.1 Pinning

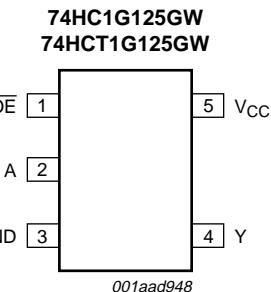


Fig 4. Pin configuration TSSOP5

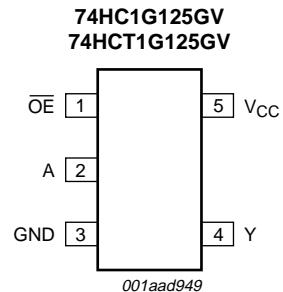


Fig 5. Pin configuration SC-74A

7.2 Pin description

Table 4: Pin description

| Symbol | Pin | Description |
|-----------------|-----|----------------------------------|
| \overline{OE} | 1 | output enable input (active LOW) |
| A | 2 | data input |
| GND | 3 | ground (0 V) |
| Y | 4 | data output |
| V_{CC} | 5 | supply voltage |

8. Functional description

8.1 Function table

Table 5: Function table [1]

| Control | Input | Output |
|---------|-------|--------|
| OE | A | Y |
| L | L | L |
| L | H | H |
| H | X | Z |

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

9. Limiting values

Table 6: 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} | quiescent supply current | | - | 70 | mA |
| I _{GND} | ground current | | - | -70 | mA |
| T _{stg} | storage temperature | | -65 | +150 | °C |
| P _{tot} | total power dissipation | T _{amb} = -40 °C to +125 °C | [2] - | 200 | mW |

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

[2] Above 55 °C the value of P_{tot} derates linearly with 2.5 mW/K.

10. Recommended operating conditions

Table 7: Recommended operating conditions

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---------------------------------|---------------------------|-------------------------|-----|-----|-----------------|------|
| 74HC1G125 | | | | | | |
| V _{CC} | supply voltage | | 2.0 | 5.0 | 6.0 | V |
| V _I | input voltage | | 0 | - | V _{CC} | V |
| V _O | output voltage | | 0 | - | V _{CC} | V |
| T _{amb} | ambient temperature | | -40 | +25 | +125 | °C |
| t _r , t _f | input rise and fall times | V _{CC} = 2.0 V | - | - | 1000 | ns |
| | | V _{CC} = 4.5 V | - | - | 500 | ns |
| | | V _{CC} = 6.0 V | - | - | 400 | ns |
| 74HCT1G125 | | | | | | |
| V _{CC} | supply voltage | | 4.5 | 5.0 | 5.5 | V |
| V _I | input voltage | | 0 | - | V _{CC} | V |
| V _O | output voltage | | 0 | - | V _{CC} | V |
| T _{amb} | ambient temperature | | -40 | +25 | +125 | °C |
| t _r , t _f | input rise and fall times | V _{CC} = 4.5 V | - | - | 500 | ns |

11. Static characteristics

Table 8: Static characteristics 74HC1G125

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---------------------------|---|------|------|------|------|
| T_{amb} = -40 °C to +85 °C [1] | | | | | | |
| V _{IH} | HIGH-state input voltage | V _{CC} = 2.0 V | 1.5 | 1.2 | - | V |
| | | V _{CC} = 4.5 V | 3.15 | 2.4 | - | V |
| | | V _{CC} = 6.0 V | 4.2 | 3.2 | - | V |
| V _{IL} | LOW-state input voltage | V _{CC} = 2.0 V | - | 0.8 | 0.5 | V |
| | | V _{CC} = 4.5 V | - | 2.1 | 1.35 | V |
| | | V _{CC} = 6.0 V | - | 2.8 | 1.8 | V |
| V _{OH} | HIGH-state output voltage | V _I = V _{IH} or V _{IL} | | | | |
| | | I _O = -20 µA; V _{CC} = 2.0 V | 1.9 | 2.0 | - | V |
| | | I _O = -20 µA; V _{CC} = 4.5 V | 4.4 | 4.5 | - | V |
| | | I _O = -20 µA; V _{CC} = 6.0 V | 5.9 | 6.0 | - | V |
| | | I _O = -6.0 mA; V _{CC} = 4.5 V | 3.84 | 4.32 | - | V |
| | | I _O = -7.8 mA; V _{CC} = 6.0 V | 5.34 | 5.81 | - | V |
| V _{OL} | LOW-state output voltage | V _I = V _{IH} or V _{IL} | | | | |
| | | I _O = 20 µA; V _{CC} = 2.0 V | - | 0 | 0.1 | V |
| | | I _O = 20 µA; V _{CC} = 4.5 V | - | 0 | 0.1 | V |
| | | I _O = 20 µA; V _{CC} = 6.0 V | - | 0 | 0.1 | V |
| | | I _O = 6.0 mA; V _{CC} = 4.5 V | - | 0.15 | 0.33 | V |
| | | I _O = 7.8 mA; V _{CC} = 6.0 V | - | 0.16 | 0.33 | V |

Table 8: Static characteristics 74HC1G125 ...continued

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---------------------------|--|------|-----|------|---------|
| I_{LI} | input leakage current | $V_I = V_{CC}$ or GND; $V_{CC} = 6.0$ V | - | - | 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 | μA |
| I_{CC} | quiescent supply current | $V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 6.0$ V | - | - | 10 | μA |
| C_i | input capacitance | | - | 1.5 | - | pF |
| $T_{amb} = -40$ °C to +125 °C | | | | | | |
| V_{IH} | HIGH-state input voltage | $V_{CC} = 2.0$ V | 1.5 | - | - | V |
| | | $V_{CC} = 4.5$ V | 3.15 | - | - | V |
| | | $V_{CC} = 6.0$ V | 4.2 | - | - | V |
| V_{IL} | LOW-state input voltage | $V_{CC} = 2.0$ V | - | - | 0.5 | V |
| | | $V_{CC} = 4.5$ V | - | - | 1.35 | V |
| | | $V_{CC} = 6.0$ V | - | - | 1.8 | V |
| V_{OH} | HIGH-state output voltage | $V_I = V_{IH}$ or V_{IL} | | | | |
| | | $I_O = -20 \mu A$; $V_{CC} = 2.0$ V | 1.9 | - | - | V |
| | | $I_O = -20 \mu A$; $V_{CC} = 4.5$ V | 4.4 | - | - | V |
| | | $I_O = -20 \mu A$; $V_{CC} = 6.0$ V | 5.9 | - | - | V |
| | | $I_O = -6.0$ mA; $V_{CC} = 4.5$ V | 3.7 | - | - | V |
| | | $I_O = -7.8$ mA; $V_{CC} = 6.0$ V | 5.2 | - | - | V |
| V_{OL} | LOW-state output voltage | $V_I = V_{IH}$ or V_{IL} | | | | |
| | | $I_O = 20 \mu A$; $V_{CC} = 2.0$ V | - | - | 0.1 | V |
| | | $I_O = 20 \mu A$; $V_{CC} = 4.5$ V | - | - | 0.1 | V |
| | | $I_O = 20 \mu A$; $V_{CC} = 6.0$ V | - | - | 0.1 | V |
| | | $I_O = 6.0$ mA; $V_{CC} = 4.5$ V | - | - | 0.4 | V |
| I_{LI} | input leakage current | $V_I = V_{CC}$ or GND; $V_{CC} = 6.0$ V | - | - | 1.0 | μA |
| | | $V_I = V_{IH}$ or V_{IL} ; $V_O = V_{CC}$ or GND; $V_{CC} = 6.0$ V | - | - | 10 | μA |
| | | $V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 6.0$ V | - | - | 20 | μA |

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

Table 9: Static characteristics 74HCT1G125

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|-------------------------------------|--|------|------|------|------|
| T_{amb} = -40 °C to +85 °C [1] | | | | | | |
| V _{IH} | HIGH-state input voltage | V _{CC} = 4.5 V to 5.5 V | 2.0 | 1.6 | - | V |
| V _{IL} | LOW-state input voltage | V _{CC} = 4.5 V to 5.5 V | - | 1.2 | 0.8 | V |
| V _{OH} | HIGH-state output voltage | V _I = V _{IH} or V _{IL} ; V _{CC} = 4.5 V | | | | |
| | | I _O = -20 µA | 4.4 | 4.5 | - | V |
| | | I _O = -6.0 mA | 3.84 | 4.32 | - | V |
| V _{OL} | LOW-state output voltage | V _I = V _{IH} or V _{IL} ; V _{CC} = 4.5 V | | | | |
| | | I _O = 20 µA | - | 0 | 0.1 | V |
| | | I _O = 6.0 mA | - | 0.16 | 0.33 | V |
| I _{LI} | input leakage current | V _I = V _{CC} or GND; V _{CC} = 5.5 V | - | - | 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 | µA |
| I _{CC} | quiescent supply current | V _I = V _{CC} or GND; I _O = 0 A; V _{CC} = 6.0 V | - | - | 10 | µA |
| ΔI _{CC} | additional quiescent supply current | V _I = V _{CC} - 2.1 V; I _O = 0 A; V _{CC} = 4.5 V to 5.5 V | - | - | 500 | µA |
| C _i | input capacitance | | - | 1.5 | - | pF |
| T_{amb} = -40 °C to +125 °C | | | | | | |
| V _{IH} | HIGH-state input voltage | V _{CC} = 4.5 V to 5.5 V | 2.0 | - | - | V |
| V _{IL} | LOW-state input voltage | V _{CC} = 4.5 V to 5.5 V | - | - | 0.8 | V |
| V _{OH} | HIGH-state output voltage | V _I = V _{IH} or V _{IL} ; V _{CC} = 4.5 V | | | | |
| | | I _O = -20 µA | 4.4 | - | - | V |
| | | I _O = -6.0 mA | 3.7 | - | - | V |
| V _{OL} | LOW-state output voltage | V _I = V _{IH} or V _{IL} ; V _{CC} = 4.5 V | | | | |
| | | I _O = 20 µA | - | - | 0.1 | V |
| | | I _O = 6.0 mA | - | - | 0.4 | V |
| I _{LI} | input leakage current | V _I = V _{CC} or GND; V _{CC} = 5.5 V | - | - | 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 | - | - | 10 | µA |
| I _{CC} | quiescent supply current | V _I = V _{CC} or GND; I _O = 0 A; V _{CC} = 6.0 V | - | - | 20 | µA |
| ΔI _{CC} | additional quiescent supply current | V _I = V _{CC} - 2.1 V; I _O = 0 A; V _{CC} = 4.5 V to 5.5 V | - | - | 850 | µA |

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

12. Dynamic characteristics

Table 10: Dynamic characteristics 74HC1G125

Voltages are referenced to GND (ground = 0 V); $C_L = 50 \text{ pF}$ unless otherwise specified; for test circuit see [Figure 8](#)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|---|--|---|-----|--------------------|----------------------|----------------------|----|
| $T_{amb} = -40^{\circ}\text{C} \text{ to } +85^{\circ}\text{C}$ [1] | | | | | | | |
| t_{PHL}, t_{PLH} | propagation delay A to Y | see Figure 6 $V_{CC} = 2.0 \text{ V}$ $V_{CC} = 4.5 \text{ V}$ $V_{CC} = 5 \text{ V}; C_L = 15 \text{ pF}$ $V_{CC} = 6.0 \text{ V}$ | - | 24 10 9 8 | 125 25 - 21 | ns ns ns ns | |
| t_{PZH}, t_{PZL} | 3-state output enable time \overline{OE} to Y | see Figure 7 $V_{CC} = 2.0 \text{ V}$ $V_{CC} = 4.5 \text{ V}$ $V_{CC} = 6.0 \text{ V}$ | - | 19 9 7 | 155 31 26 | ns ns ns | |
| t_{PHZ}, t_{PLZ} | 3-state output disable time \overline{OE} to Y | see Figure 7 $V_{CC} = 2.0 \text{ V}$ $V_{CC} = 4.5 \text{ V}$ $V_{CC} = 6.0 \text{ V}$ | - | 18 12 11 | 155 31 26 | ns ns ns | |
| C_{PD} | power dissipation capacitance | $V_I = \text{GND to } V_{CC}$ | [2] | - | 30 | - | pF |
| $T_{amb} = -40^{\circ}\text{C} \text{ to } +125^{\circ}\text{C}$ | | | | | | | |
| t_{PHL}, t_{PLH} | propagation delay A to Y | see Figure 6 $V_{CC} = 2.0 \text{ V}$ $V_{CC} = 4.5 \text{ V}$ $V_{CC} = 6.0 \text{ V}$ | - | - | 150 30 26 | ns ns ns | |
| t_{PZH}, t_{PZL} | 3-state output enable time \overline{OE} to Y | see Figure 7 $V_{CC} = 2.0 \text{ V}$ $V_{CC} = 4.5 \text{ V}$ $V_{CC} = 6.0 \text{ V}$ | - | - | 190 38 32 | ns ns ns | |
| t_{PHZ}, t_{PLZ} | 3-state output disable time \overline{OE} to Y | see Figure 7 $V_{CC} = 2.0 \text{ V}$ $V_{CC} = 4.5 \text{ V}$ $V_{CC} = 6.0 \text{ V}$ | - | - | 190 38 32 | ns ns ns | |

[1] All typical values are measured at $T_{amb} = 25^{\circ}\text{C}$.

[2] C_{PD} is used to determine the dynamic power dissipation (P_D in μW).

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

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 the outputs.

Table 11: Dynamic characteristics 74HCT1G125

Voltages are referenced to GND (ground = 0 V); $CL = 50 \text{ pF}$ unless otherwise specified; for test circuit see [Figure 8](#)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|---|---|---|-----|-----|-----|------|----|
| $T_{amb} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ [1] | | | | | | | |
| t_{PHL}, t_{PLH} | propagation delay A to Y | see Figure 6 $V_{CC} = 4.5 \text{ V}$ $V_{CC} = 5 \text{ V}; C_L = 15 \text{ pF}$ | - | 11 | 30 | ns | |
| t_{PZH}, t_{PZL} | 3-state output enable time \overline{OE} to Y | $V_{CC} = 4.5 \text{ V}$; see Figure 7 | - | 10 | - | ns | |
| t_{PHZ}, t_{PLZ} | 3-state output disable time \overline{OE} to Y | $V_{CC} = 4.5 \text{ V}$; see Figure 7 | - | 11 | 31 | ns | |
| C_{PD} | power dissipation capacitance | $V_I = \text{GND}$ to $V_{CC} - 1.5 \text{ V}$ | [2] | - | 27 | - | pF |
| $T_{amb} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ | | | | | | | |
| t_{PHL}, t_{PLH} | propagation delay A to Y | $V_{CC} = 4.5 \text{ V}$; see Figure 6 | - | - | 36 | ns | |
| t_{PZH}, t_{PZL} | 3-state output enable time \overline{OE} to Y | $V_{CC} = 4.5 \text{ V}$; see Figure 7 | - | - | 42 | ns | |
| t_{PHZ}, t_{PLZ} | 3-state output disable time \overline{OE} to Y | $V_{CC} = 4.5 \text{ V}$; see Figure 7 | - | - | 38 | ns | |

[1] All typical values are measured at $T_{amb} = 25^{\circ}\text{C}$.

[2] C_{PD} is used to determine the dynamic power dissipation (P_D in μW).

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

f_i = input frequency in MHz;

f_o = output frequency in MHz;

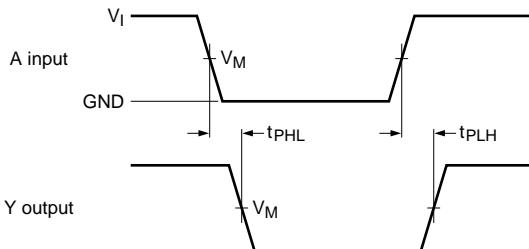
C_L = output load capacitance in pF;

V_{CC} = supply voltage in V;

N = number of inputs switching;

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

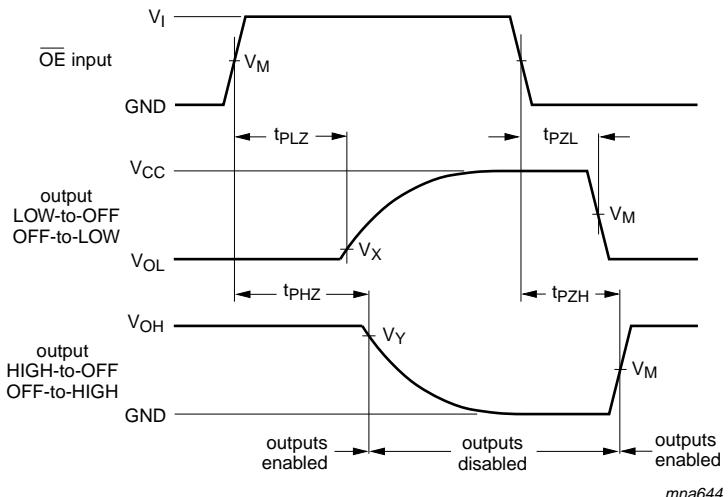
13. Waveforms



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Measurement points are given in [Table 12](#).

Fig 6. Propagation delay data input (A) to output (Y)



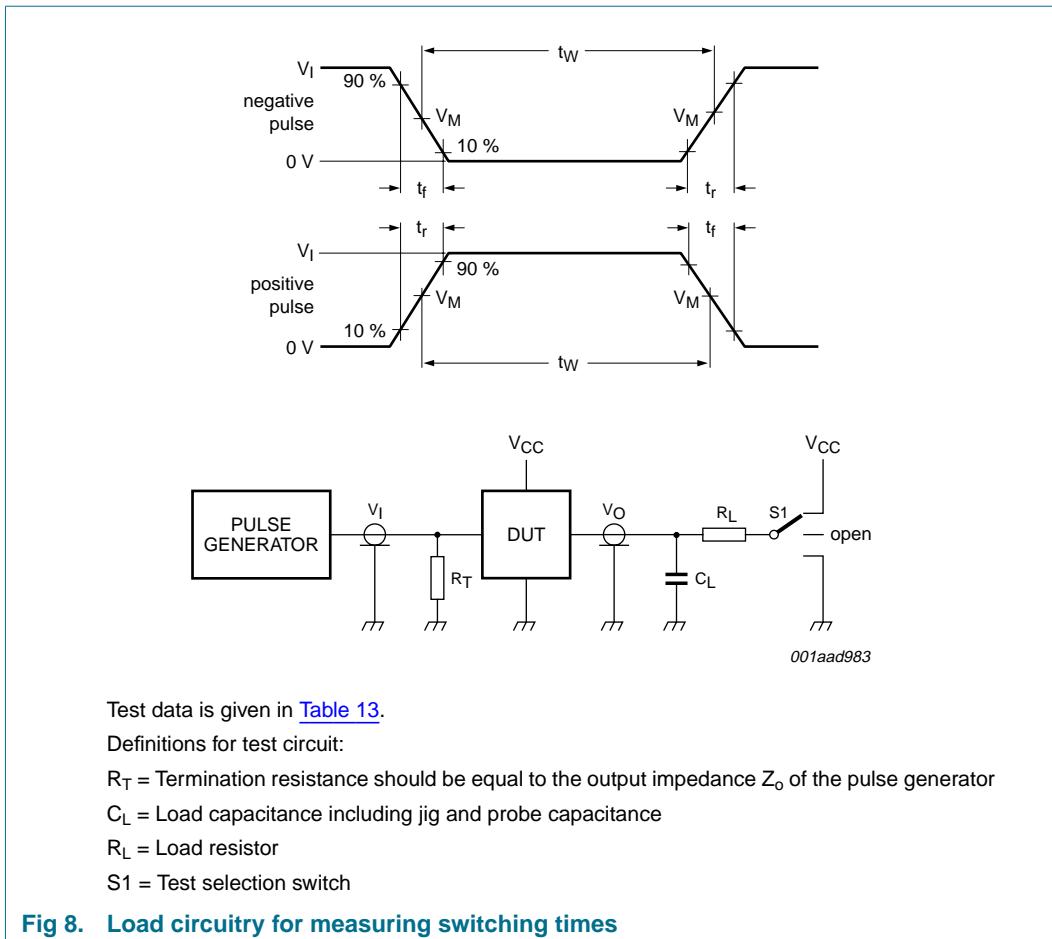
Measurement points are given in [Table 12](#).

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

Fig 7. Enable and disable times

Table 12: Measurement points

| Type | Input V_M | Output | | |
|------------|----------------|-------------|-------------------------|-------------------------|
| | | V_M | V_X | V_Y |
| 74HC1G125 | $0.5V_{CC}$ | $0.5V_{CC}$ | $V_{OL} + 0.3\text{ V}$ | $V_{OH} - 0.3\text{ V}$ |
| 74HCT1G125 | 1.3 V | 1.3 V | $V_{OL} + 0.3\text{ V}$ | $V_{OH} - 0.3\text{ V}$ |

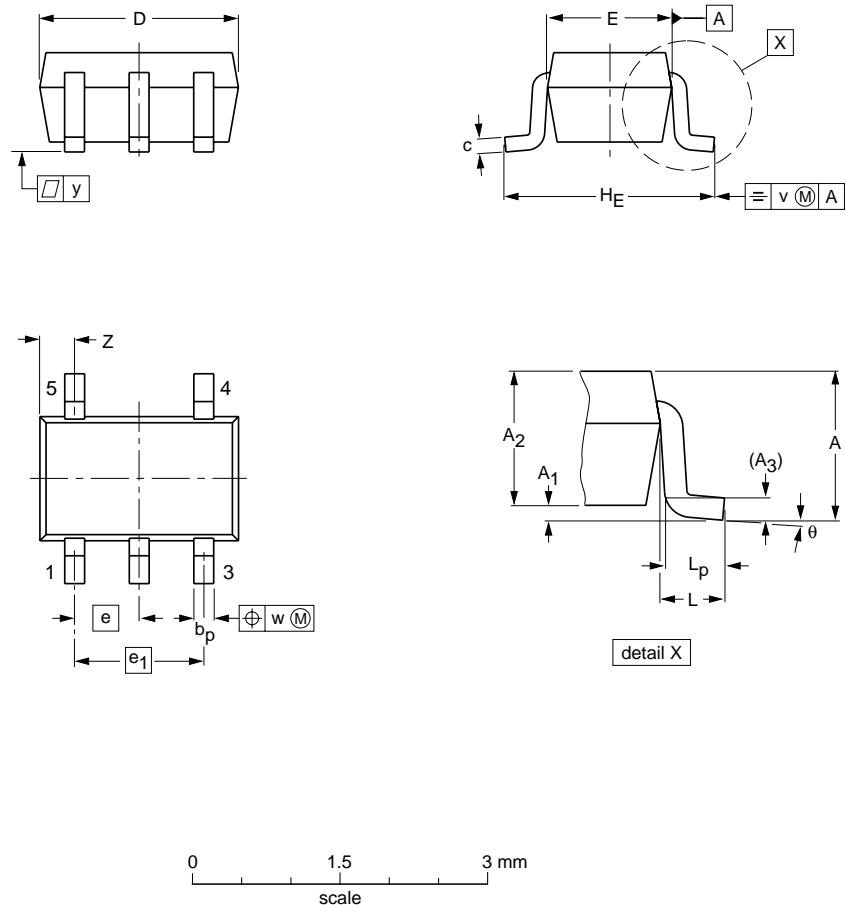
**Table 13: Test data**

| Type | Input | | Load | | S1 position | | | |
|------------|----------|------------|-----------------|--------------|--------------------|--------------------|--------------------|----------|
| | V_I | t_r, t_f | C_L | R_L | t_{PLH}, t_{PHL} | t_{PZH}, t_{PHZ} | t_{PZL}, t_{PLZ} | |
| 74HC1G125 | V_{CC} | 6 ns | 15 pF, 50 pF | 1 k Ω | open | GND | | V_{CC} |
| 74HCT1G125 | 3 V | 6 ns | 15 pF, 50 pF | 1 k Ω | open | GND | | V_{CC} |

14. Package outline

TSSOP5: plastic thin shrink small outline package; 5 leads; body width 1.25 mm

SOT353-1



DIMENSIONS (mm are the original dimensions)

| UNIT | A max. | A ₁ | A ₂ | A ₃ | b _p | c | D ⁽¹⁾ | E ⁽¹⁾ | e | e ₁ | H _E | L | L _p | v | w | y | Z ⁽¹⁾ | θ |
|------|-----------|----------------|----------------|----------------|----------------|--------------|------------------|------------------|------|----------------|----------------|-------|----------------|-----|-----|-----|------------------|----------|
| mm | 1.1 | 0.1 0 | 1.0 0.8 | 0.15 | 0.30 0.15 | 0.25 0.08 | 2.25 1.85 | 1.35 1.15 | 0.65 | 1.3 | 2.25 2.0 | 0.425 | 0.46 0.21 | 0.3 | 0.1 | 0.1 | 0.60 0.15 | 7° 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 | | | |
| SOT353-1 | | MO-203 | SC-88A | | | 00-09-01 03-02-19 |

Fig 9. Package outline SOT353-1 (TSSOP5)

Plastic surface mounted package; 5 leads

SOT753

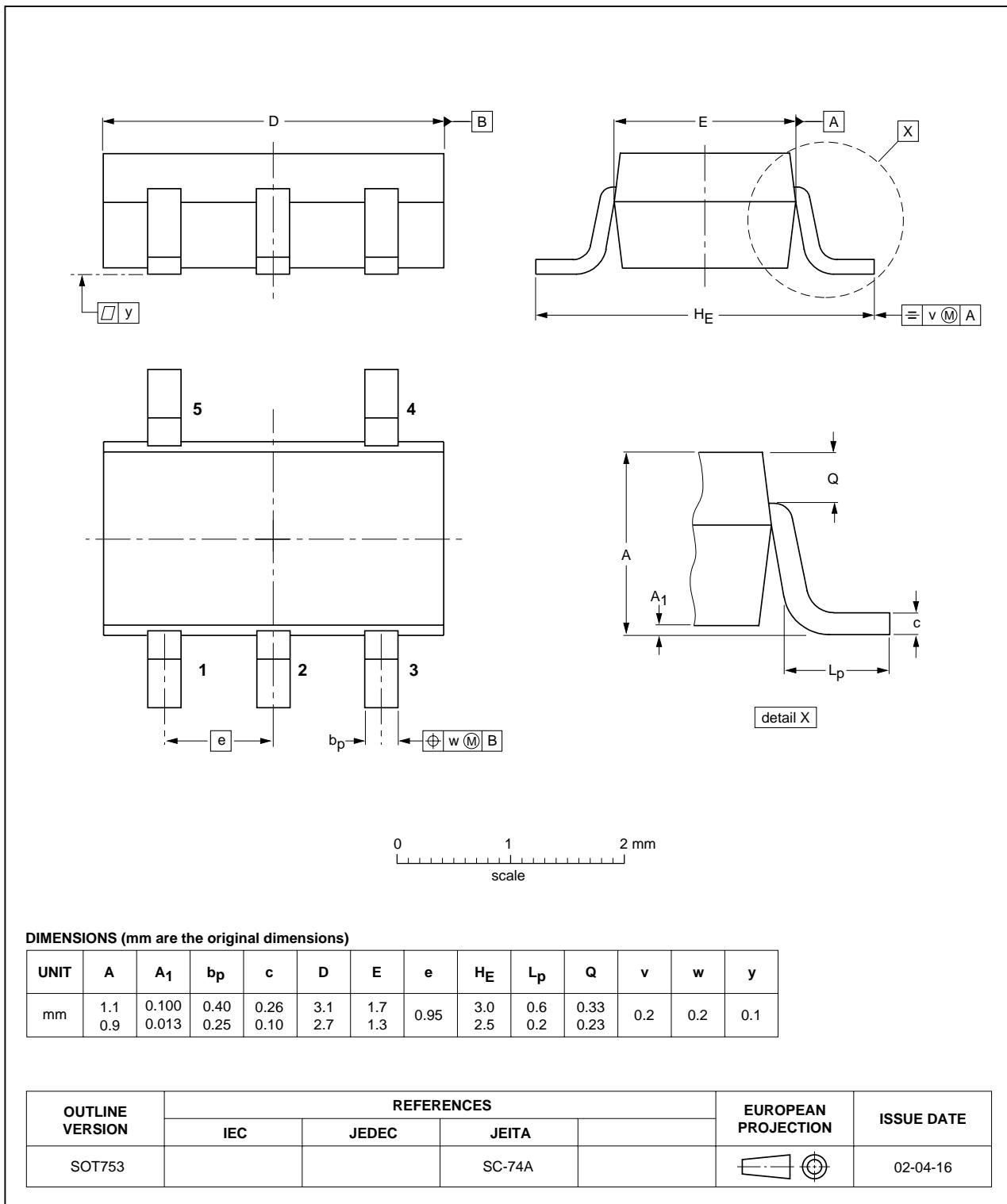


Fig 10. Package outline SOT753 (SC-74A)

15. Abbreviations

Table 14: Abbreviations

| Acronym | Description |
|---------|---|
| CMOS | Complementary Metal Oxide Semiconductor |
| ESD | ElectroStatic Discharge |
| HBM | Human Body Model |
| TTL | Transistor-Transistor Logic |
| MM | Machine Model |

16. Revision history

Table 15: Revision history

| Document ID | Release date | Data sheet status | Change notice | Doc. number | Supersedes |
|-----------------|--------------|--|---------------|----------------|-----------------|
| 74HC_HCT1G125_5 | 20051223 | Product data sheet | ECN05_085 | - | 74HC_HCT1G125_4 |
| Modifications: | | <ul style="list-style-type: none"> • The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors. • In Table 6 "Limiting values" <ul style="list-style-type: none"> – I_O: changed max value ± 12.5 into ± 35 – I_{CC}: changed max value 25 into 70 – I_{GND}: changed max value -25 into -70 • In Table 8 "Static characteristics 74HC1G125"; $T_{amb} = -40 \text{ }^{\circ}\text{C}$ to $+85 \text{ }^{\circ}\text{C}$ <ul style="list-style-type: none"> – V_{OH}: changed condition $I_O = -2.0 \text{ mA}$ into $I_O = -6.0 \text{ mA}$ and min value from 4.13 into 3.84 – V_{OH}: changed condition $I_O = -2.6 \text{ mA}$ into $I_O = -7.8 \text{ mA}$ and min value from 5.63 into 5.34 – V_{OL}: changed condition $I_O = 2.0 \text{ mA}$ into $I_O = 6.0 \text{ mA}$ – V_{OL}: changed condition $I_O = 2.6 \text{ mA}$ into $I_O = 7.8 \text{ mA}$ • In Table 8 "Static characteristics 74HC1G125"; $T_{amb} = -40 \text{ }^{\circ}\text{C}$ to $+125 \text{ }^{\circ}\text{C}$ <ul style="list-style-type: none"> – V_{OH}: changed condition $I_O = -2.0 \text{ mA}$ into $I_O = -6.0 \text{ mA}$ – V_{OL}: changed condition $I_O = 2.0 \text{ mA}$ into $I_O = 6.0 \text{ mA}$ • In Table 9 "Static characteristics 74HCT1G125"; $T_{amb} = -40 \text{ }^{\circ}\text{C}$ to $+85 \text{ }^{\circ}\text{C}$ <ul style="list-style-type: none"> – V_{OH}: changed condition $I_O = -2.0 \text{ mA}$ into $I_O = -6.0 \text{ mA}$ and min value from 4.13 into 3.84 – V_{OL}: changed condition $I_O = 2.0 \text{ mA}$ into $I_O = 6.0 \text{ mA}$ and typ value from 0.15 into 0.16 • In Table 9 "Static characteristics 74HCT1G125"; $T_{amb} = -40 \text{ }^{\circ}\text{C}$ to $+125 \text{ }^{\circ}\text{C}$ <ul style="list-style-type: none"> – V_{OH}: changed condition $I_O = -2.0 \text{ mA}$ into $I_O = -6.0 \text{ mA}$ – V_{OL}: changed condition $I_O = 2.0 \text{ mA}$ into $I_O = 6.0 \text{ mA}$ | | | |
| 74HC_HCT1G125_4 | 20040727 | Product specification | - | 9397 750 13725 | 74HC_HCT1G125_3 |
| 74HC_HCT1G125_3 | 20020517 | Product specification | - | 9397 750 09718 | 74HC_HCT1G125_2 |
| 74HC_HCT1G125_2 | 20010302 | Product specification | - | 9397 750 07966 | 74HC_HCT1G125_1 |
| 74HC_HCT1G125_1 | 19981110 | Product specification | - | 9397 750 03693 | - |

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| Level | Data sheet status [1] | Product status [2][3] | Definition |
|-------|-----------------------|-----------------------|--|
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[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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