

74HC2G125; 74HCT2G125

Dual buffer/line drivers; 3-state

Rev. 03 — 02 January 2006

Product data sheet

1. General description

The 74HC2G125; 74HCT2G125 is a high-speed, Si-gate CMOS device.

The 74HC2G125; 74HCT2G125 provides two non-inverting buffer/line drivers 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 8 pins packages
- Specified from $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$ and $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$

3. Quick reference data

Table 1: Quick reference data

$GND = 0\text{ V}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$; $t_r = t_f = 6\text{ ns}$

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
74HC2G125						
t_{PHL} , t_{PLH}	propagation delay nA to nY	$C_L = 15\text{ pF}$; $V_{CC} = 5\text{ V}$	-	10	-	ns
C_i	input capacitance		-	1.0	-	pF
C_o	output capacitance		-	1.5	-	pF
C_{PD}	power dissipation capacitance	per buffer; $V_I = GND$ to V_{CC}	[1]			
		output enabled	-	11	-	pF
		output disabled	-	1	-	pF

PHILIPS

Table 1: Quick reference data ...continued

GND = 0 V; $T_{amb} = 25\text{ }^{\circ}\text{C}$; $t_r = t_f = 6\text{ ns}$

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
74HCT2G125						
t_{PHL} , t_{PLH}	propagation delay nA to nY	$C_L = 15\text{ pF}$; $V_{CC} = 5\text{ V}$	-	12	-	ns
C_i	input capacitance		-	1.0	-	pF
C_o	output capacitance		-	1.5	-	pF
C_{PD}	power dissipation capacitance	per buffer; $V_I = \text{GND to } (V_{CC} - 1.5\text{ V})$				
		output enabled	-	11	-	pF
		output disabled	-	1	-	pF

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

4. Ordering information

Table 2: Ordering information

Type number	Package			
	Temperature range	Name	Description	Version
74HC2G125				
74HC2G125DP	-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
74HC2G125DC	-40 °C to +125 °C	VSSOP8	plastic very thin shrink small outline package; 8 leads; body width 2.3 mm	SOT765-1
74HCT2G125				
74HCT2G125DP	-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
74HCT2G125DC	-40 °C to +125 °C	VSSOP8	plastic very thin shrink small outline package; 8 leads; body width 2.3 mm	SOT765-1

5. Marking

Table 3: Marking

Type number	Marking code
74HC2G125DP	H25
74HC2G125DC	H25
74HCT2G125DP	T25
74HCT2G125DC	T25

6. Functional diagram

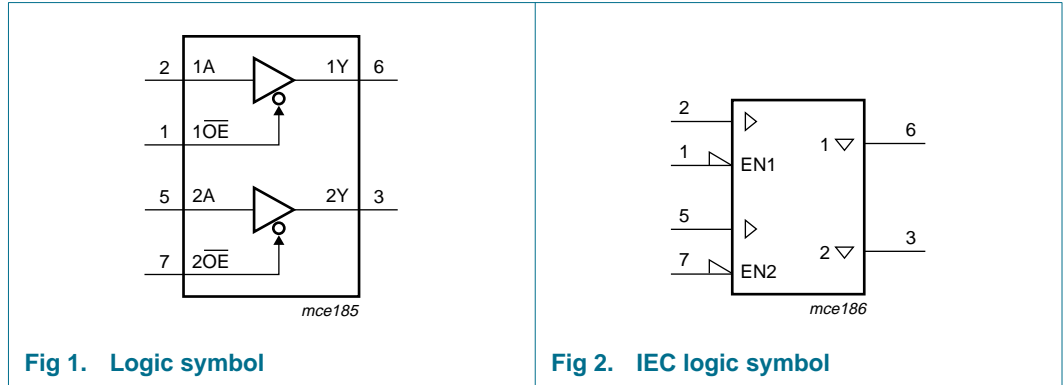


Fig 1. Logic symbol

Fig 2. IEC logic symbol

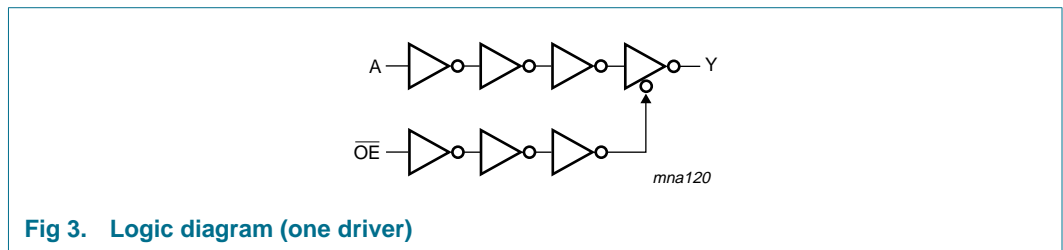


Fig 3. Logic diagram (one driver)

7. Pinning information

7.1 Pinning

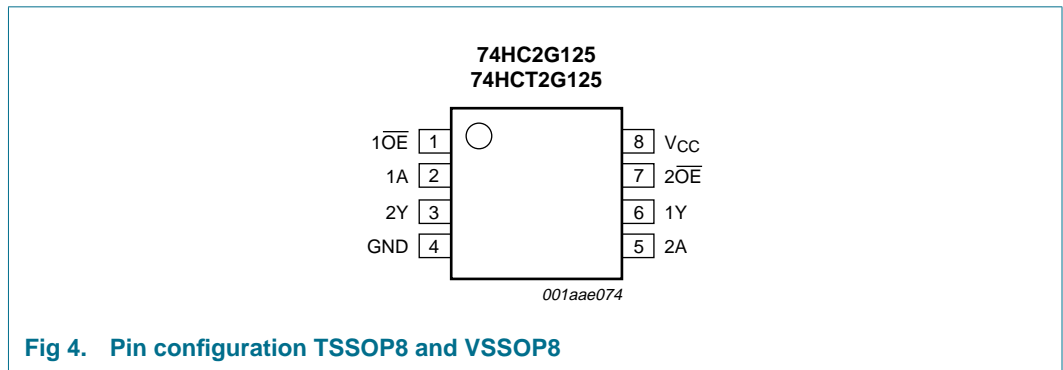


Fig 4. Pin configuration TSSOP8 and VSSOP8

7.2 Pin description

Table 4: Pin description

Symbol	Pin	Description
1OE	1	1 output enable input (active LOW)
1A	2	1 data input A
2Y	3	2 data output Y
GND	4	ground (0 V)
2A	5	2 data input A

Table 4: Pin description ...continued

Symbol	Pin	Description
1Y	6	1 data output Y
2 \overline{OE}	7	2 output enable input (active LOW)
V _{CC}	8	supply voltage

8. Functional description

8.1 Function table

Table 5: Function table [1]

Control	Input	Output
n \overline{OE}	nA	nY
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	$V_I < -0.5\text{ V}$ or $V_I > V_{CC} + 0.5\text{ V}$	[1] -	± 20	mA
I_{OK}	output clamping current	$V_O < -0.5\text{ V}$ or $V_O > V_{CC} + 0.5\text{ V}$	[1] -	± 20	mA
I_O	output current	$V_O = -0.5\text{ V}$ to $(V_{CC} + 0.5\text{ V})$	[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	$T_{amb} = -40\text{ °C}$ to $+125\text{ °C}$	[2] -	300	mW

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

[2] Above 110 °C the value of P_{tot} derates linearly with 8 mW/K.

10. Recommended operating conditions

Table 7: Recommended operating conditions

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
74HC2G125						
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	$V_{CC} = 2.0\text{ V}$	-	-	1000	ns
		$V_{CC} = 4.5\text{ V}$	-	6.0	500	ns
		$V_{CC} = 6.0\text{ V}$	-	-	400	ns
74HCT2G125						
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	$V_{CC} = 4.5\text{ V}$	-	6.0	500	ns

11. Static characteristics

Table 8: Static characteristics 74HC2G125

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$T_{amb} = -40\text{ °C to }+85\text{ °C}$ [1]						
V_{IH}	HIGH-state input voltage	$V_{CC} = 2.0\text{ V}$	1.5	1.2	-	V
		$V_{CC} = 4.5\text{ V}$	3.15	2.4	-	V
		$V_{CC} = 6.0\text{ V}$	4.2	3.2	-	V
V_{IL}	LOW-state input voltage	$V_{CC} = 2.0\text{ V}$	-	0.8	0.5	V
		$V_{CC} = 4.5\text{ V}$	-	2.1	1.35	V
		$V_{CC} = 6.0\text{ V}$	-	2.8	1.8	V
V_{OH}	HIGH-state output voltage	$V_I = V_{IH}$ or V_{IL}				
		$I_O = -20\text{ }\mu\text{A}; V_{CC} = 2.0\text{ V}$	1.9	2.0	-	V
		$I_O = -20\text{ }\mu\text{A}; V_{CC} = 4.5\text{ V}$	4.4	4.5	-	V
		$I_O = -20\text{ }\mu\text{A}; V_{CC} = 6.0\text{ V}$	5.9	6.0	-	V
		$I_O = -6.0\text{ mA}; V_{CC} = 4.5\text{ V}$	3.84	4.32	-	V
		$I_O = -7.8\text{ mA}; V_{CC} = 6.0\text{ V}$	5.34	5.81	-	V
V_{OL}	LOW-state output voltage	$V_I = V_{IH}$ or V_{IL}				
		$I_O = 20\text{ }\mu\text{A}; V_{CC} = 2.0\text{ V}$	-	0	0.1	V
		$I_O = 20\text{ }\mu\text{A}; V_{CC} = 4.5\text{ V}$	-	0	0.1	V
		$I_O = 20\text{ }\mu\text{A}; V_{CC} = 6.0\text{ V}$	-	0	0.1	V
		$I_O = 6.0\text{ mA}; V_{CC} = 4.5\text{ V}$	-	0.15	0.33	V
		$I_O = 7.8\text{ mA}; V_{CC} = 6.0\text{ V}$	-	0.16	0.33	V
I_{LI}	input leakage current	$V_I = V_{CC}$ or GND; $V_{CC} = 6.0\text{ V}$	-	-	± 1.0	μA
I_{OZ}	OFF-state output current	$V_I = V_{IH}$ or $V_{IL}; V_O = V_{CC}$ or GND; $V_{CC} = 6.0\text{ V}$	-	-	± 5.0	μA
I_{CC}	quiescent supply current	$V_I = V_{CC}$ or GND; $I_O = 0\text{ A}; V_{CC} = 6.0\text{ V}$	-	-	10	μA
C_i	input capacitance		-	1.0	-	pF
C_o	output capacitance		-	1.5	-	pF
$T_{amb} = -40\text{ °C to }+125\text{ °C}$						
V_{IH}	HIGH-state input voltage	$V_{CC} = 2.0\text{ V}$	1.5	-	-	V
		$V_{CC} = 4.5\text{ V}$	3.15	-	-	V
		$V_{CC} = 6.0\text{ V}$	4.2	-	-	V
V_{IL}	LOW-state input voltage	$V_{CC} = 2.0\text{ V}$	-	-	0.5	V
		$V_{CC} = 4.5\text{ V}$	-	-	1.35	V
		$V_{CC} = 6.0\text{ V}$	-	-	1.8	V
V_{OH}	HIGH-state output voltage	$V_I = V_{IH}$ or V_{IL}				
		$I_O = -20\text{ }\mu\text{A}; V_{CC} = 2.0\text{ V}$	1.9	-	-	V
		$I_O = -20\text{ }\mu\text{A}; V_{CC} = 4.5\text{ V}$	4.4	-	-	V
		$I_O = -20\text{ }\mu\text{A}; V_{CC} = 6.0\text{ V}$	5.9	-	-	V
		$I_O = -6.0\text{ mA}; V_{CC} = 4.5\text{ V}$	3.7	-	-	V
		$I_O = -7.8\text{ mA}; V_{CC} = 6.0\text{ V}$	5.2	-	-	V

Table 8: Static characteristics 74HC2G125 ...continued

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _{OL}	LOW-state output voltage	V _I = V _{IH} or V _{IL}				
		I _O = 20 μA; V _{CC} = 2.0 V	-	-	0.1	V
		I _O = 20 μA; V _{CC} = 4.5 V	-	-	0.1	V
		I _O = 20 μA; V _{CC} = 6.0 V	-	-	0.1	V
		I _O = 6.0 mA; V _{CC} = 4.5 V	-	-	0.4	V
		I _O = 7.8 mA; V _{CC} = 6.0 V	-	-	0.4	V
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	-	-	±10.0	μA
I _{CC}	quiescent supply current	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 74HCT2G125**

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} = 5.5 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	-	-	375	μA
C _i	input capacitance		-	1.0	-	pF
C _o	output 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

Table 9: Static characteristics 74HCT2G125 ...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; $V_{CC} = 5.5$ V	-	-	± 1.0	μ A
I_{OZ}	OFF-state output current	$V_I = V_{IH}$ or V_{IL} ; $V_O = V_{CC}$ or GND; $V_{CC} = 5.5$ V	-	-	± 10.0	μ A
I_{CC}	quiescent supply current	$V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 5.5$ V	-	-	20	μ A
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	-	-	410	μ A

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

12. Dynamic characteristics

Table 10: Dynamic characteristics 74HC2G125Voltages are referenced to GND (ground = 0 V); $C_L = 50$ pF unless otherwise specified; for test circuit see [Figure 7](#).

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$T_{amb} = -40$ °C to $+85$ °C [1]						
t_{PHL} , t_{PLH}	propagation delay nA to nY	see Figure 5				
		$V_{CC} = 2.0$ V	-	35	115	ns
		$V_{CC} = 4.5$ V	-	11	23	ns
		$V_{CC} = 5.0$ V; $C_L = 15$ pF	-	10	-	ns
		$V_{CC} = 6.0$ V	-	8	20	ns
t_{PZH} , t_{PZL}	3-state output enable time nOE to nY	see Figure 6				
		$V_{CC} = 2.0$ V	-	40	115	ns
		$V_{CC} = 4.5$ V	-	11	23	ns
		$V_{CC} = 6.0$ V	-	8	20	ns
t_{PHZ} , t_{PLZ}	3-state output disable time nOE to nY	see Figure 6				
		$V_{CC} = 2.0$ V	-	24	125	ns
		$V_{CC} = 4.5$ V	-	12	25	ns
		$V_{CC} = 6.0$ V	-	10	21	ns
t_{THL} , t_{TLH}	output transition time	see Figure 5				
		$V_{CC} = 2.0$ V	-	18	75	ns
		$V_{CC} = 4.5$ V	-	6	15	ns
		$V_{CC} = 6.0$ V	-	5	13	ns
C_{PD}	power dissipation capacitance	per buffer; $V_I =$ GND to V_{CC}	[2]			
		output enabled	-	11	-	pF
		output disabled	-	1	-	pF

Table 10: Dynamic characteristics 74HC2G125 ...continued

Voltages are referenced to GND (ground = 0 V); $C_L = 50$ pF unless otherwise specified; for test circuit see [Figure 7](#).

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$T_{amb} = -40$ °C to $+125$ °C						
t_{PHL} , t_{PLH}	propagation delay nA to nY	see Figure 5				
		$V_{CC} = 2.0$ V	-	-	135	ns
		$V_{CC} = 4.5$ V	-	-	27	ns
		$V_{CC} = 6.0$ V	-	-	23	ns
t_{PZH} , t_{PZL}	3-state output enable time nOE to nY	see Figure 6				
		$V_{CC} = 2.0$ V	-	-	135	ns
		$V_{CC} = 4.5$ V	-	-	27	ns
		$V_{CC} = 6.0$ V	-	-	23	ns
t_{PHZ} , t_{PLZ}	3-state output disable time nOE to nY	see Figure 6				
		$V_{CC} = 2.0$ V	-	-	150	ns
		$V_{CC} = 4.5$ V	-	-	30	ns
		$V_{CC} = 6.0$ V	-	-	26	ns
t_{THL} , t_{TLH}	output transition time	see Figure 5				
		$V_{CC} = 2.0$ V	-	-	90	ns
		$V_{CC} = 4.5$ V	-	-	18	ns
		$V_{CC} = 6.0$ V	-	-	15	ns

- [1] All typical values are measured at $T_{amb} = 25$ °C.
- [2] C_{PD} is used to determine the dynamic power dissipation (P_D in μ W).
 $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$ 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 the outputs.

Table 11: Dynamic characteristics 74HCT2G125

Voltages are referenced to GND (ground = 0 V); $C_L = 50$ pF unless otherwise specified; for test circuit see [Figure 7](#).

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$T_{amb} = -40$ °C to $+85$ °C [1]						
t_{PHL} , t_{PLH}	propagation delay nA to nY	see Figure 5				
		$V_{CC} = 4.5$ V	-	15	31	ns
		$V_{CC} = 5.0$ V; $C_L = 15$ pF	-	12	-	ns
t_{PZH} , t_{PZL}	3-state output enable time nOE to nY	see Figure 6 ; $V_{CC} = 4.5$ V	-	15	35	ns
t_{PHZ} , t_{PLZ}	3-state output disable time nOE to nY	see Figure 6 ; $V_{CC} = 4.5$ V	-	15	31	ns
t_{THL} , t_{TLH}	output transition time	see Figure 5 ; $V_{CC} = 4.5$ V	-	6	15	ns

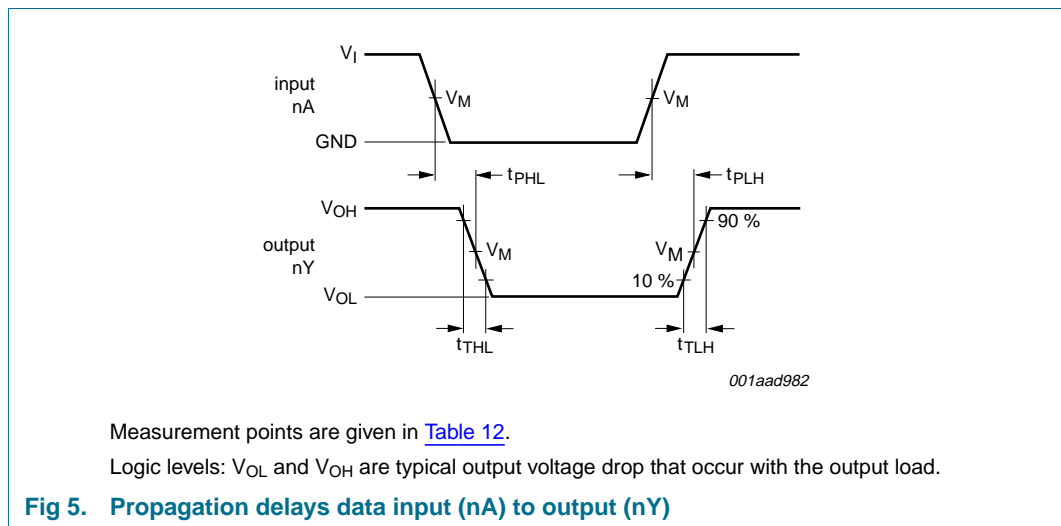
Table 11: Dynamic characteristics 74HCT2G125 ...continued

Voltages are referenced to GND (ground = 0 V); $C_L = 50$ pF unless otherwise specified; for test circuit see [Figure 7](#).

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
C_{PD}	power dissipation capacitance	per buffer; $V_1 = \text{GND to } (V_{CC} - 1.5 \text{ V})$	[2]			
		output enabled	-	11	-	pF
		output disabled	-	1	-	pF
$T_{amb} = -40$ °C to $+125$ °C						
t_{PHL} , t_{PLH}	propagation delay nA to nY	see Figure 5 ; $V_{CC} = 4.5 \text{ V}$	-	-	38	ns
t_{PZH} , t_{PZL}	3-state output enable time nOE to nY	see Figure 6 ; $V_{CC} = 4.5 \text{ V}$	-	-	42	ns
t_{PHZ} , t_{PLZ}	3-state output disable time nOE to nY	see Figure 6 ; $V_{CC} = 4.5 \text{ V}$	-	-	38	ns
t_{THL} , t_{TLH}	output transition time	see Figure 5 ; $V_{CC} = 4.5 \text{ V}$	-	-	18	ns

- [1] All typical values are measured at $T_{amb} = 25$ °C.
- [2] C_{PD} is used to determine the dynamic power dissipation (P_D in μW).
 $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$ 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 the outputs.

13. Waveforms



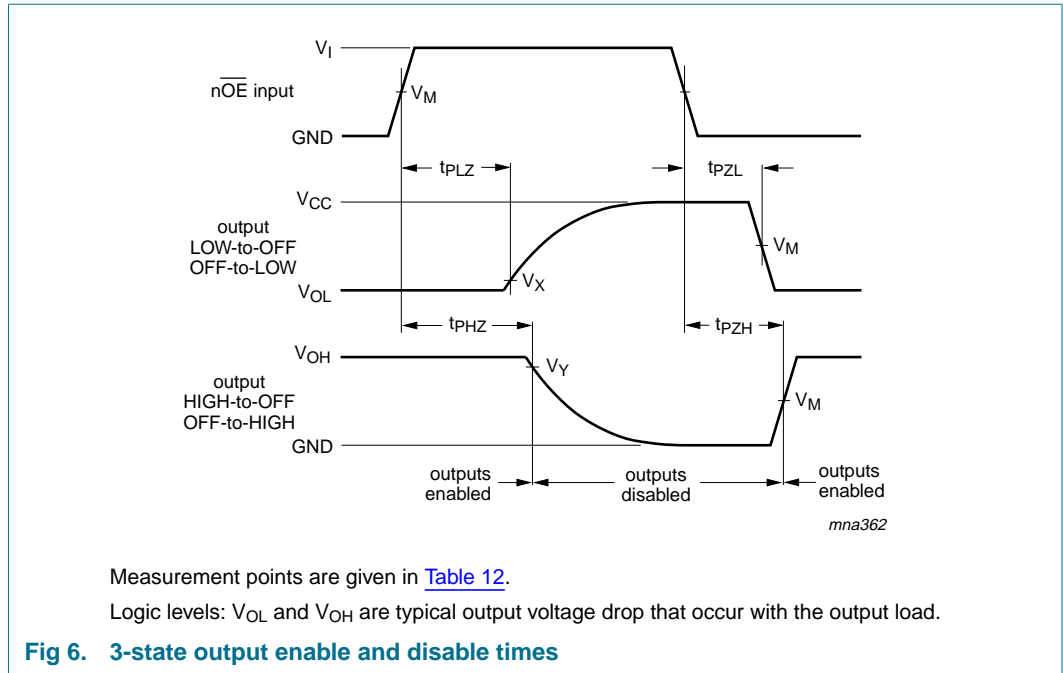


Table 12: Measurement points

Type	Input	Output		
	V_M	V_M	V_X	V_Y
74HC2G125	$0.5V_{CC}$	$0.5V_{CC}$	$V_{OL} + 0.3 V$	$V_{OH} - 0.3 V$
74HCT2G125	1.3 V	1.3 V	$V_{OL} + 0.3 V$	$V_{OH} - 0.3 V$

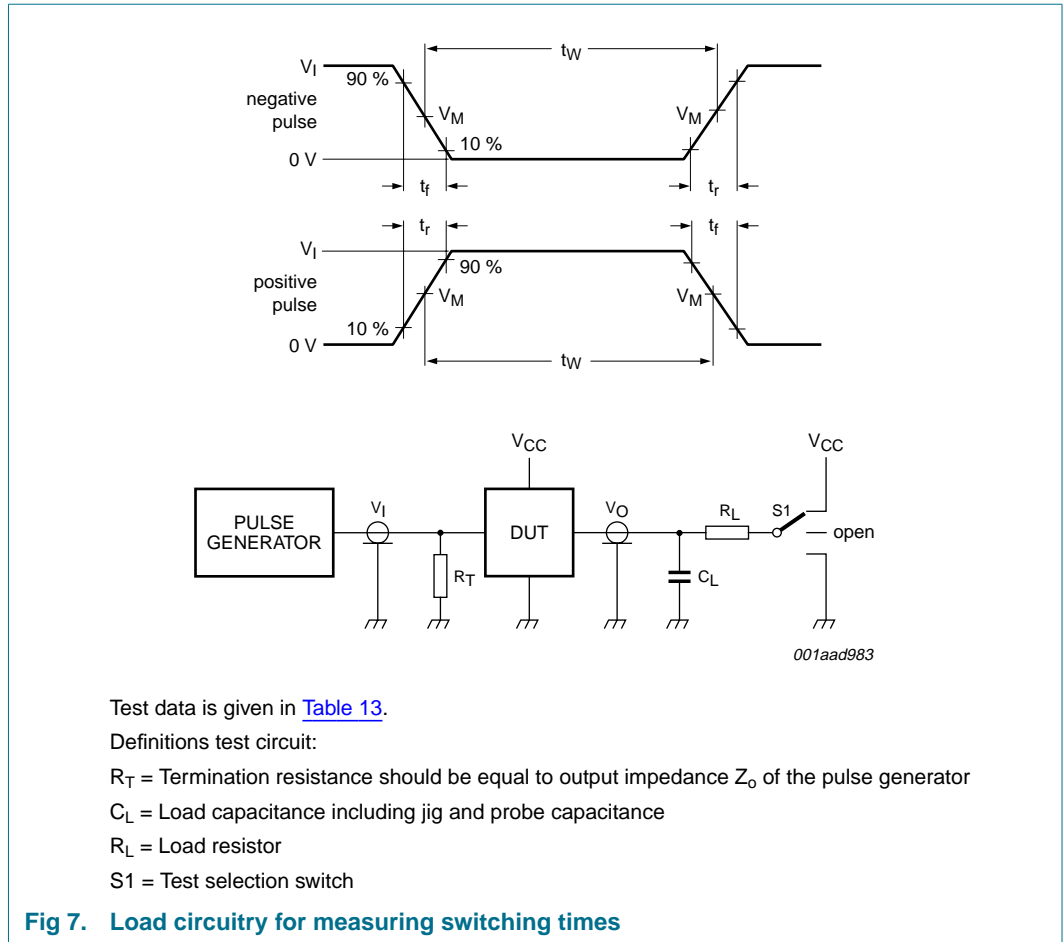


Table 13: Test data

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}
74HC2G125	V_{CC}	6 ns	15 pF, 50 pF	1 k Ω	open	GND	V_{CC}
74HCT2G125	3 V	6 ns	15 pF, 50 pF	1 k Ω	open	GND	V_{CC}

14. Package outline

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

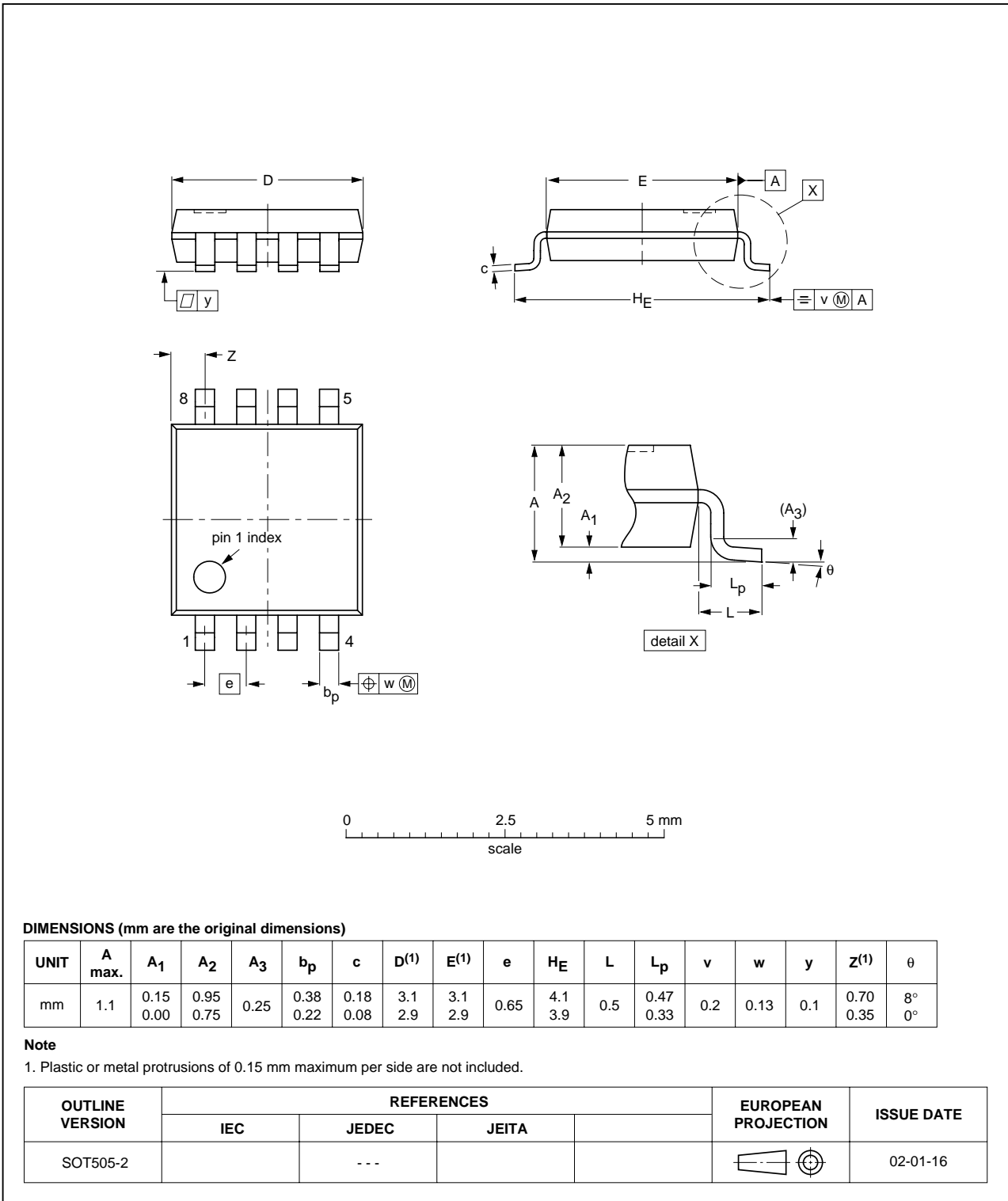


Fig 8. Package outline SOT505-2 (TSSOP8)

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

SOT765-1

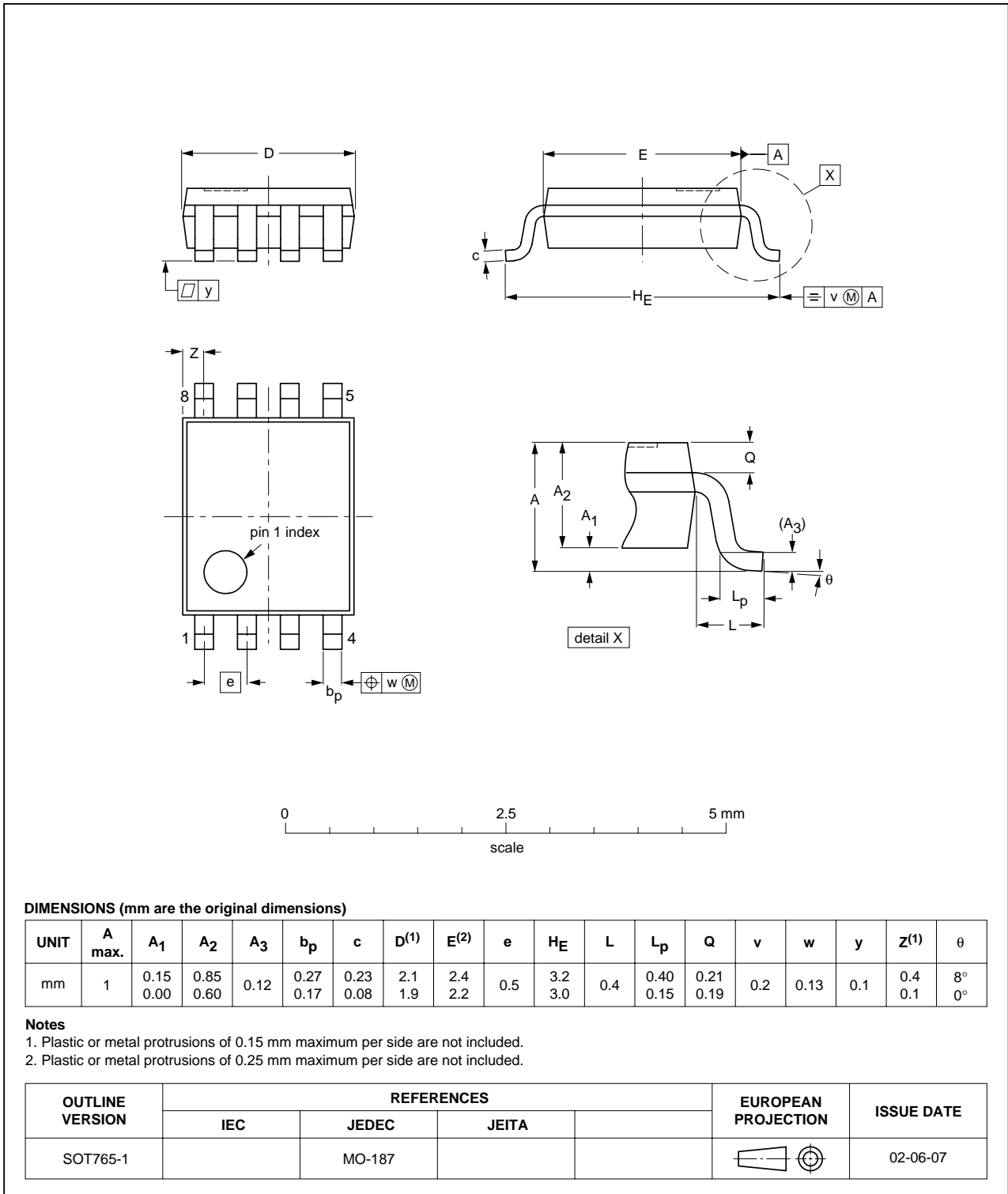


Fig 9. Package outline SOT765-1 (VSSOP8)

15. Abbreviations

Table 14: Abbreviations

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

16. Revision history

Table 15: Revision history

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes
74HC_HCT2G125_3	20060102	Product data sheet	-	-	74HC_HCT2G125_2
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. • Table 6: <ul style="list-style-type: none"> – Changed I_O max value from 25 to 35 – Changed I_{CC} and I_{GND} max value from 50 to 70 • Table 8; $T_{amb} = -40\text{ °C}$ to $+85\text{ °C}$: <ul style="list-style-type: none"> – Changed V_{OH} min value at $I_O = -6.0\text{ mA}$ and $V_{CC} = 4.5\text{ V}$ from 4.13 in 3.84 – Changed V_{OH} min value at $I_O = -7.8\text{ mA}$ and $V_{CC} = 6.0\text{ V}$ from 5.63 in 5.34 • Table 8; $T_{amb} = -40\text{ °C}$ to $+125\text{ °C}$: <ul style="list-style-type: none"> – Changed I_{OZ} max value from 10.4 in 10.0 • Table 9; $T_{amb} = -40\text{ °C}$ to $+85\text{ °C}$: <ul style="list-style-type: none"> – Changed V_{OH} min value at $I_O = -6.0\text{ mA}$ and $V_{CC} = 4.5\text{ V}$ from 4.13 in 3.84 – Changed V_{OL} min value at $I_O = 6.0\text{ mA}$ and $V_{CC} = 4.5\text{ V}$ from 0.15 in 0.16 • Table 9; $T_{amb} = -40\text{ °C}$ to $+125\text{ °C}$: <ul style="list-style-type: none"> – Changed I_{OZ} max value from 10.4 in 10.0 					
74HC_HCT2G125_2	030303	Product specification	-	9397 750 11068	74HC_HCT2G125_1
74HC_HCT2G125_1	030131	Product specification	-	9397 750 10641	-

17. Data sheet status

Level	Data sheet status ^[1]	Product status ^{[2] [3]}	Definition
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
III	Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

[1] Please consult the most recently issued data sheet before initiating or completing a design.

[2] The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL <http://www.semiconductors.philips.com>.

[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

18. Definitions

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

Application information — Applications that are described herein for any of these products are for illustrative purposes only. Philips Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

19. Disclaimers

Life support — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips Semiconductors

21. Contact information

For additional information, please visit: <http://www.semiconductors.philips.com>

For sales office addresses, send an email to: sales.addresses@www.semiconductors.philips.com

customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips Semiconductors for any damages resulting from such application.

Right to make changes — Philips Semiconductors reserves the right to make changes in the products - including circuits, standard cells, and/or software - described or contained herein in order to improve design and/or performance. When the product is in full production (status 'Production'), relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN). Philips Semiconductors assumes no responsibility or liability for the use of any of these products, conveys no license or title under any patent, copyright, or mask work right to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified.

20. Trademarks

Notice — All referenced brands, product names, service names and trademarks are the property of their respective owners.

22. Contents

1	General description	1
2	Features	1
3	Quick reference data	1
4	Ordering information	2
5	Marking	2
6	Functional diagram	3
7	Pinning information	3
7.1	Pinning	3
7.2	Pin description	3
8	Functional description	4
8.1	Function table	4
9	Limiting values	5
10	Recommended operating conditions	5
11	Static characteristics	6
12	Dynamic characteristics	8
13	Waveforms	10
14	Package outline	13
15	Abbreviations	15
16	Revision history	15
17	Data sheet status	16
18	Definitions	16
19	Disclaimers	16
20	Trademarks	16
21	Contact information	16



© Koninklijke Philips Electronics N.V. 2006

All rights are reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent- or other industrial or intellectual property rights.

Date of release: 02 January 2006
Document number: 74HC_HCT2G125_3

Published in The Netherlands