

74HC2G66; 74HCT2G66

Dual single-pole single-throw analog switch

Rev. 8 — 23 September 2010

Product data sheet

1. General description

74HC2G66 and 74HCT2G66 are high-speed Si-gate CMOS devices. They are dual single-pole single-throw analog switches. Each switch has two input/output pins (nY and nZ) and an active HIGH enable input pin (nE). When pin nE is LOW, the analog switch is turned off.

2. Features and benefits

- Wide supply voltage range from 2.0 V to 10.0 V for 74HC2G66
- Very low ON resistance:
 - ◆ 41 Ω (typ.) at $V_{CC} = 4.5$ V
 - ◆ 30 Ω (typ.) at $V_{CC} = 6.0$ V
 - ◆ 21 Ω (typ.) at $V_{CC} = 9.0$ V
- High noise immunity
- Low power dissipation
- 25 mA continuous switch current
- Multiple package options
- ESD protection:
 - ◆ HBM JESD22-A114F exceeds 2000 V
 - ◆ MM JESD22-A115-A exceeds 200 V
- Specified from -40 °C to $+85$ °C and -40 °C to $+125$ °C

3. Ordering information

Table 1. Ordering information

| Type number | Package | | | Version |
|---------------------------|-----------------------|--------|------------------------------------------------------------------------------------------------------------------|----------|
| | Temperature range | Name | Description | |
| 74HC2G66DP 74HCT2G66DP | -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 |
| 74HC2G66DC 74HCT2G66DC | -40 °C to $+125$ °C | VSSOP8 | plastic very thin shrink small outline package; 8 leads; body width 2.3 mm | SOT765-1 |
| 74HC2G66GT 74HCT2G66GT | -40 °C to $+125$ °C | XSON8 | plastic extremely thin small outline package; no leads; 8 terminals; body $1 \times 1.95 \times 0.5$ mm | SOT833-1 |
| 74HC2G66GD 74HCT2G66GD | -40 °C to $+125$ °C | XSON8U | plastic extremely thin small outline package; no leads; 8 terminals; UTLP based; body $3 \times 2 \times 0.5$ mm | SOT996-2 |



4. Marking

Table 2. Marking codes

| Type number | Marking |
|-------------|---------|
| 74HC2G66DP | H66 |
| 74HCT2G66DP | T66 |
| 74HC2G66DC | H66 |
| 74HCT2G66DC | T66 |
| 74HC2G66GT | H66 |
| 74HCT2G66GT | T66 |
| 74HC2G66GD | H66 |
| 74HCT2G66GD | T66 |

5. Functional diagram

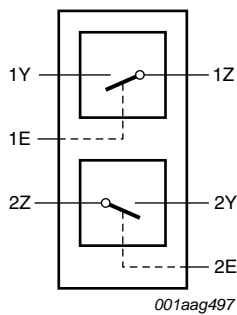


Fig 1. Logic symbol

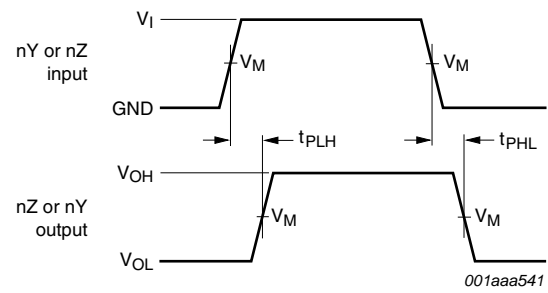
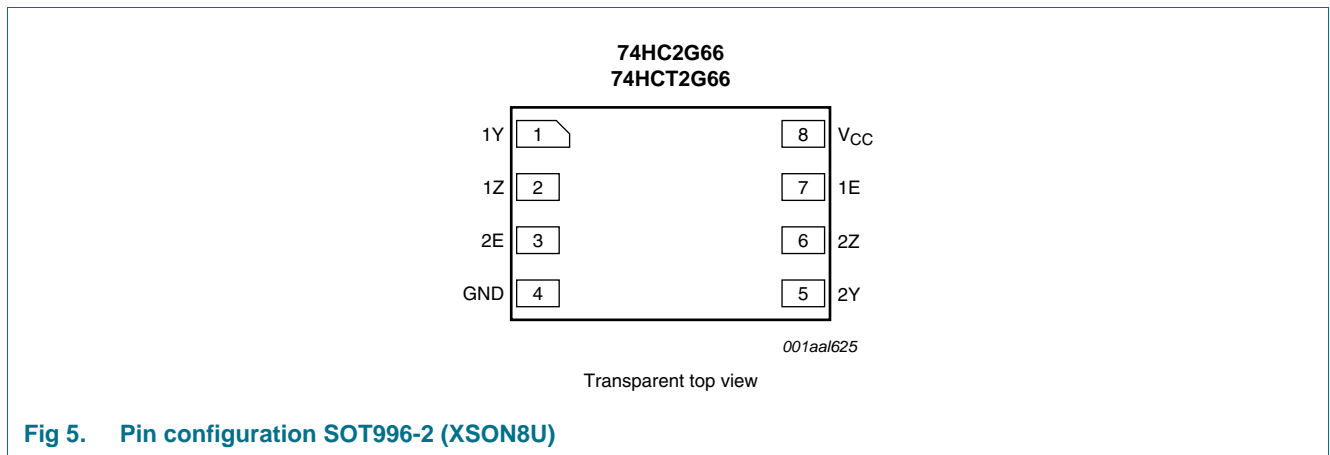
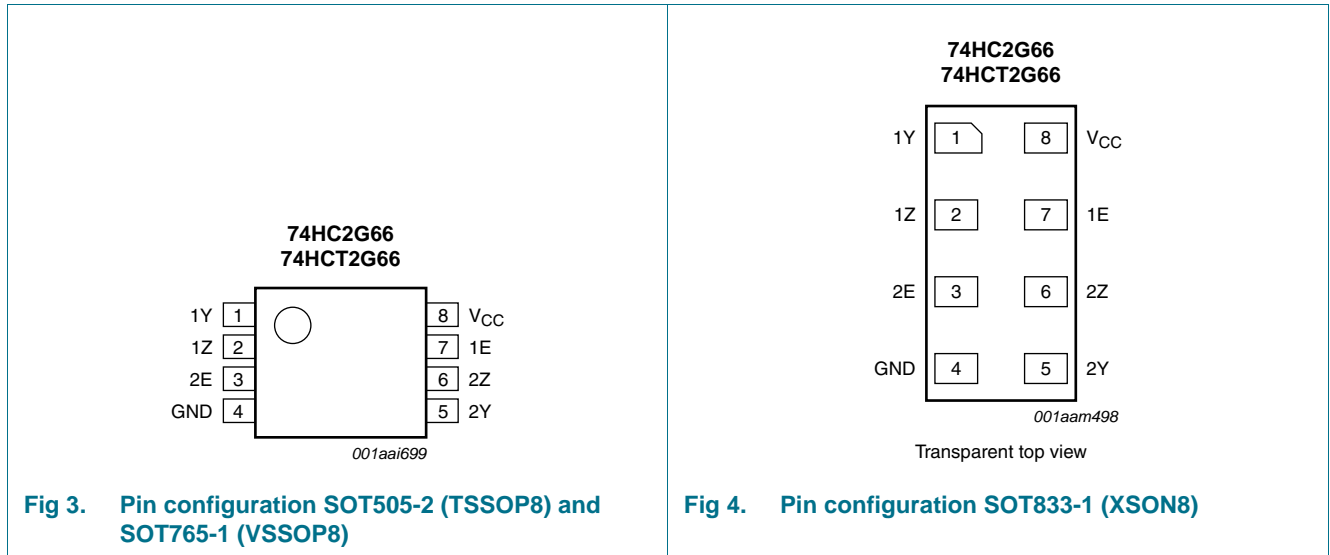


Fig 2. Logic diagram for 1 switch

6. Pinning information

6.1 Pinning



6.2 Pin description

Table 3. Pin description

| Symbol | Pin | Description |
|-----------------|------|-----------------------------|
| 1Y, 2Y | 1, 5 | independent input or output |
| 1Z, 2Z | 2, 6 | independent input or output |
| GND | 4 | ground (0 V) |
| 1E, 2E | 7, 3 | enable input (active HIGH) |
| V _{CC} | 8 | supply voltage |

7. Functional description

Table 4. Function table^[1]

| Input nE | Switch |
|----------|--------|
| L | OFF |
| H | ON |

[1] H = HIGH voltage level; L = LOW voltage level.

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 | +11.0 | 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_{SK} | switch clamping current | $V_I < -0.5\text{ V}$ or $V_I > V_{CC} + 0.5\text{ V}$ | [1] - | ± 20 | mA |
| I_{SW} | switch current | $V_{SW} > -0.5\text{ V}$ or $V_{SW} < V_{CC} + 0.5\text{ V}$ | - | ± 20 | mA |
| I_{CC} | supply current | | - | 30 | mA |
| I_{GND} | ground current | | -30 | - | mA |
| T_{stg} | storage temperature | | -65 | +150 | °C |
| P_{tot} | total power dissipation | $T_{amb} = -40\text{ °C}$ to $+125\text{ °C}$ | | | |
| | | per package | [2] - | 300 | mW |
| | | per switch | [2] - | 100 | mW |

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

[2] For TSSOP8 packages: above 55 °C the value of P_{tot} derates linearly with 2.5 mW/K.

For VSSOP8 packages: above 110 °C the value of P_{tot} derates linearly with 8.0 mW/K.

For XSON8 and XSON8U packages: 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).^[1]

| Symbol | Parameter | Conditions | 74HC2G66 | | | 74HCT2G66 | | | Unit |
|------------------|-------------------------------------|--------------------------|----------|------|-----------------|-----------|------|-----------------|------|
| | | | Min | Typ | Max | Min | Typ | Max | |
| V _{CC} | supply voltage | | 2.0 | 5.0 | 10.0 | 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 |
| V _{SW} | switch voltage | | 0 | - | V _{CC} | 0 | - | V _{CC} | V |
| T _{amb} | ambient temperature | | -40 | +25 | +125 | -40 | +25 | +125 | °C |
| Δt/ΔV | 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 |
| | | V _{CC} = 10.0 V | - | - | 35 | - | - | - | ns/V |

[1] To avoid drawing V_{CC} current out of pin nZ, when switch current flows in pin nY, the voltage drop across the bidirectional switch must not exceed 0.4 V. If the switch current flows into pin nZ, no V_{CC} current will flow out of terminal nY. In this case there is no limit for the voltage drop across the switch, but the voltage at pins nY and nZ may not exceed V_{CC} or GND.

10. Static characteristics

Table 7. Static characteristics

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

| Symbol | Parameter | Conditions | -40 °C to +85 °C | | | -40 °C to +125 °C | | Unit |
|---------------------|---------------------------|-----------------------------------------------------------------|------------------|--------------------|------|-------------------|------|------|
| | | | Min | Typ ^[1] | Max | Min | Max | |
| 74HC2G66 | | | | | | | | |
| 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 _{CC} = 9.0 V | 6.3 | 4.7 | - | 6.3 | - | 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 _{CC} = 9.0 V | - | 4.3 | 2.7 | - | 2.7 | V |
| I _I | input leakage current | nE; V _I = V _{CC} or GND | | | | | | |
| | | V _{CC} = 6.0 V | - | - | ±0.1 | - | ±0.1 | μA |
| | | V _{CC} = 9.0 V | - | - | ±0.2 | - | ±0.2 | μA |
| I _{S(OFF)} | OFF-state leakage current | nY or nZ; V _{CC} = 9.0 V; see Figure 6 | - | 0.1 | 1.0 | - | 1.0 | μA |
| I _{S(ON)} | ON-state leakage current | nY or nZ; V _{CC} = 9.0 V; see Figure 7 | - | 0.1 | 1.0 | - | 1.0 | μA |
| I _{CC} | supply current | nE, nY and nZ = V _{CC} or GND | | | | | | |
| | | V _{CC} = 6.0 V | - | - | 10 | - | 20 | μA |
| | | V _{CC} = 9.0 V | - | - | 20 | - | 40 | μA |

Table 7. Static characteristics ...continued
 Voltages are referenced to GND (ground = 0 V).

| Symbol | Parameter | Conditions | -40 °C to +85 °C | | | -40 °C to +125 °C | | Unit |
|---------------------|-------------------------------|---------------------------------------------------------------------------------------|------------------|--------------------|------|-------------------|------|------|
| | | | Min | Typ ^[1] | Max | Min | Max | |
| C _I | input capacitance | | - | 3.5 | - | - | - | pF |
| C _{PD} | power dissipation capacitance | | - | 9 | - | - | - | pF |
| C _{S(ON)} | ON-state capacitance | | - | 8 | - | - | - | pF |
| 74HCT2G66 | | | | | | | | |
| 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 |
| I _I | input leakage current | nE; V _I = V _{CC} or GND; V _{CC} = 5.5 V | - | - | ±1.0 | - | ±1.0 | μA |
| I _{S(OFF)} | OFF-state leakage current | nY or nZ; V _{CC} = 5.5 V; see Figure 6 | - | 0.1 | 1.0 | - | 1.0 | μA |
| I _{S(ON)} | ON-state leakage current | nY or nZ; V _{CC} = 5.5 V; see Figure 7 | - | 0.1 | 1.0 | - | 1.0 | μA |
| I _{CC} | supply current | nE, nY and nZ = V _{CC} or GND; V _{CC} = 4.5 V to 5.5 V | - | - | 10 | - | 20 | μA |
| ΔI _{CC} | additional supply current | nE = V _{CC} - 2.1 V; I _O = 0 A; V _{CC} = 4.5 V to 5.5 V; | - | - | 375 | - | 410 | μA |
| C _I | input capacitance | | - | 3.5 | - | - | - | pF |
| C _{PD} | power dissipation capacitance | | - | 9 | - | - | - | pF |
| C _{S(ON)} | ON-state capacitance | | - | 8 | - | - | - | pF |

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

10.1 Test circuits

V_I = V_{CC} or GND and V_O = GND or V_{CC}.

Fig 6. Test circuit for measuring OFF-state leakage current

V_I = V_{CC} or GND and V_O = open circuit.

Fig 7. Test circuit for measuring ON-state leakage current

10.2 ON resistance

Table 8. ON resistance for 74HC2G66 and 74HCT2G66

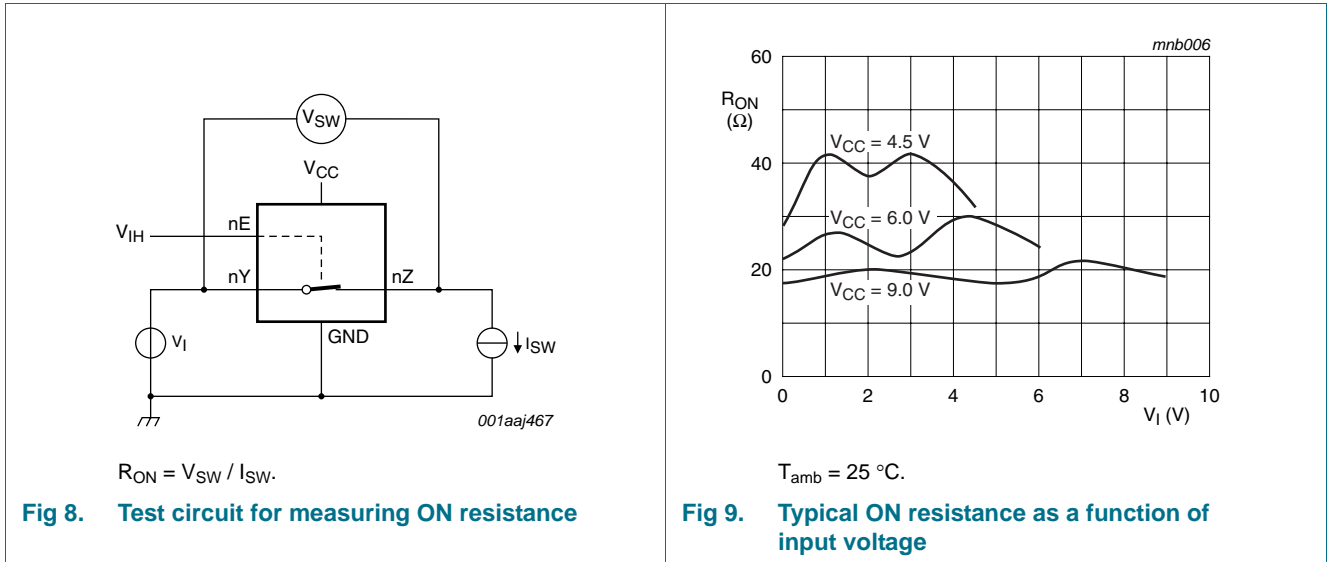
At recommended operating conditions; voltages are referenced to GND (ground 0 V); for graph see [Figure 9](#).

| Symbol | Parameter | Conditions | -40 °C to +85 °C | | | -40 °C to +125 °C | | Unit |
|-------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------|------------------|--------------------|-----|-------------------|-----|------|
| | | | Min | Typ ^[2] | Max | Min | Max | |
| 74HC2G66^[1] | | | | | | | | |
| R _{ON(peak)} | ON resistance (peak) | V _I = GND to V _{CC} ; see Figure 8 and 9 | | | | | | |
| | | I _{SW} = 0.1 mA; V _{CC} = 2.0 V | - | 250 | - | - | - | Ω |
| | | I _{SW} = 1.0 mA; V _{CC} = 4.5 V | - | 41 | 118 | - | 142 | Ω |
| | | I _{SW} = 1.0 mA; V _{CC} = 6.0 V | - | 30 | 105 | - | 126 | Ω |
| | | I _{SW} = 1.0 mA; V _{CC} = 9.0 V | - | 21 | 88 | - | 105 | Ω |
| R _{ON(rail)} | ON resistance (rail) | V _I = GND; see Figure 8 and 9 | | | | | | |
| | | I _{SW} = 0.1 mA; V _{CC} = 2.0 V | - | 65 | - | - | - | Ω |
| | | I _{SW} = 1.0 mA; V _{CC} = 4.5 V | - | 28 | 95 | - | 115 | Ω |
| | | I _{SW} = 1.0 mA; V _{CC} = 6.0 V | - | 22 | 82 | - | 100 | Ω |
| | | I _{SW} = 1.0 mA; V _{CC} = 9.0 V | - | 18 | 70 | - | 80 | Ω |
| | | V _I = V _{CC} ; see Figure 8 and 9 | | | | | | |
| | | I _{SW} = 0.1 mA; V _{CC} = 2.0 V | - | 65 | - | - | - | Ω |
| | | I _{SW} = 1.0 mA; V _{CC} = 4.5 V | - | 31 | 106 | - | 128 | Ω |
| | | I _{SW} = 1.0 mA; V _{CC} = 6.0 V | - | 23 | 94 | - | 113 | Ω |
| | | I _{SW} = 1.0 mA; V _{CC} = 9.0 V | - | 19 | 78 | - | 95 | Ω |
| ΔR _{ON} | ON resistance mismatch between channels | V _I = V _{CC} to GND; see Figure 8 and 9 | | | | | | |
| | | V _{CC} = 4.5 V | - | 5 | - | - | - | Ω |
| | | V _{CC} = 6.0 V | - | 4 | - | - | - | Ω |
| | | V _{CC} = 9.0 V | - | 3 | - | - | - | Ω |
| 74HCT2G66 | | | | | | | | |
| R _{ON(peak)} | ON resistance (peak) | V _I = GND to V _{CC} ; see Figure 8 and 9 | | | | | | |
| | | I _{SW} = 1.0 mA; V _{CC} = 4.5 V | - | 41 | 118 | - | 142 | Ω |
| R _{ON(rail)} | ON resistance (rail) | V _I = GND; see Figure 8 and 9 | | | | | | |
| | | I _{SW} = 1.0 mA; V _{CC} = 4.5 V | - | 28 | 95 | - | 115 | Ω |
| | | V _I = V _{CC} ; see Figure 8 and 9 | | | | | | |
| | | I _{SW} = 1.0 mA; V _{CC} = 4.5 V | - | 31 | 106 | - | 128 | Ω |
| ΔR _{ON} | ON resistance mismatch between channels | V _I = V _{CC} to GND; see Figure 8 and 9 | | | | | | |
| | | V _{CC} = 4.5 V | - | 5 | - | - | - | Ω |

[1] At supply voltages approaching 2 V, the ON resistance becomes extremely non-linear. Therefore it is recommended that these devices be used to transmit digital signals only, when using this supply voltage.

[2] Typical values are measured at T_{amb} = 25 °C.

10.3 ON resistance test circuit and graphs



11. Dynamic characteristics

Table 9. Dynamic characteristics

Voltages are referenced to GND (ground = 0 V); For test circuit see Figure 12.

| Symbol | Parameter | Conditions | -40 °C to +85 °C | | | -40 °C to +125 °C | | Unit |
|------------------|-------------------------------|-----------------------------------------------------------|------------------|--------------------|-----|-------------------|-----|------|
| | | | Min | Typ ^[1] | Max | Min | Max | |
| 74HC2G66 | | | | | | | | |
| t _{pd} | propagation delay | nY to nZ or nZ to nY; R _L = ∞ Ω; see Figure 10 | | [2] | | | | |
| | | V _{CC} = 2.0 V | - | 6.5 | 65 | - | 80 | ns |
| | | V _{CC} = 4.5 V | - | 2 | 13 | - | 15 | ns |
| | | V _{CC} = 6.0 V | - | 1.5 | 11 | - | 14 | ns |
| | | V _{CC} = 9.0 V | - | 1.2 | 10 | - | 12 | ns |
| t _{en} | enable time | nE to nY or nZ; see Figure 11 | | [2] | | | | |
| | | V _{CC} = 2.0 V | - | 40 | 125 | - | 150 | ns |
| | | V _{CC} = 4.5 V | - | 12 | 29 | - | 30 | ns |
| | | V _{CC} = 6.0 V | - | 10 | 21 | - | 26 | ns |
| | | V _{CC} = 9.0 V | - | 7 | 16 | - | 20 | ns |
| t _{dis} | disable time | nE to nY or nZ; see Figure 11 | | [2] | | | | |
| | | V _{CC} = 2.0 V | - | 21 | 145 | - | 175 | ns |
| | | V _{CC} = 4.5 V | - | 12 | 29 | - | 35 | ns |
| | | V _{CC} = 6.0 V | - | 11 | 28 | - | 33 | ns |
| | | V _{CC} = 9.0 V | - | 10 | 23 | - | 27 | ns |
| C _{PD} | power dissipation capacitance | V _I = GND to V _{CC} | | [3] | | | | |
| | | | - | 9 | - | - | - | pF |

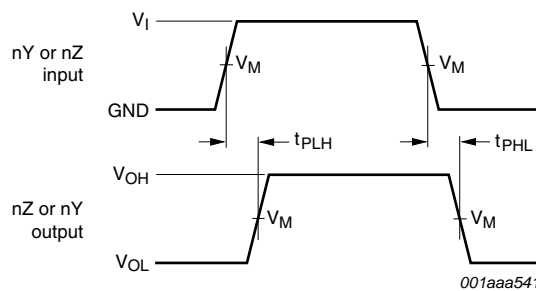
Table 9. Dynamic characteristics ...continued

Voltages are referenced to GND (ground = 0 V); For test circuit see [Figure 12](#).

| Symbol | Parameter | Conditions | -40 °C to +85 °C | | | -40 °C to +125 °C | | Unit |
|------------------|-------------------------------|-----------------------------------------------------------------------------|------------------|--------------------|-----|-------------------|-----|------|
| | | | Min | Typ ^[1] | Max | Min | Max | |
| 74HCT2G66 | | | | | | | | |
| t_{pd} | propagation delay | nY to nZ or nZ to nY; $R_L = \infty \Omega$; see Figure 10 | | | | | | |
| | | $V_{CC} = 4.5 V$ | - | 2 | 15 | - | 18 | ns |
| t_{en} | enable time | nE to nY or nZ; see Figure 11 | | | | | | |
| | | $V_{CC} = 4.5 V$ | - | 13 | 30 | - | 36 | ns |
| t_{dis} | disable time | nE to nY or nZ; see Figure 11 | | | | | | |
| | | $V_{CC} = 4.5 V$ | - | 13 | 44 | - | 53 | ns |
| C_{PD} | power dissipation capacitance | $V_I = GND$ to $V_{CC} - 1.5 V$ | | | | | | |
| | | | - | 9 | - | - | - | pF |

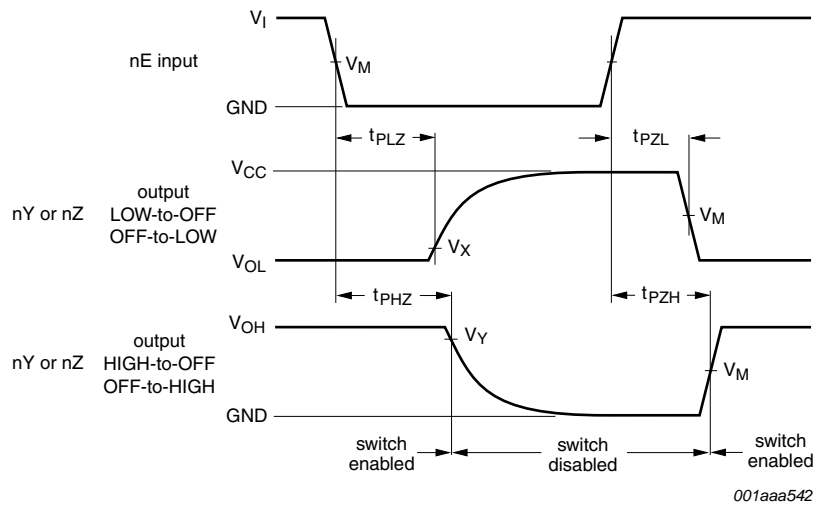
- [1] All typical values are measured at $T_{amb} = 25 \text{ }^\circ\text{C}$.
- [2] t_{pd} is the same as t_{PLH} and t_{PHL} .
 t_{en} is the same as t_{PZL} and t_{PZH} .
 t_{dis} is the same as t_{PLZ} and t_{PHZ} .
- [3] C_{PD} is used to determine the dynamic power dissipation P_D (μW).
 $P_D = C_{PD} \times V_{CC}^2 \times f_i + \Sigma((C_L \times C_{SW}) \times V_{CC}^2 \times f_o)$ where:
 f_i = input frequency in MHz;
 f_o = output frequency in MHz;
 C_L = output load capacitance in pF;
 C_{SW} = maximum switch capacitance in pF (see [Table 7](#));
 V_{CC} = supply voltage in volts;
 $\Sigma((C_L \times C_{SW}) \times V_{CC}^2 \times f_o)$ = sum of outputs.

11.1 Waveforms and test circuit



Measurement points are given in [Table 10](#).
 Logic levels: V_{OL} and V_{OH} are typical output voltage levels that occur with the output load.

Fig 10. Input (nY or nZ) to output (nZ or nY) propagation delays



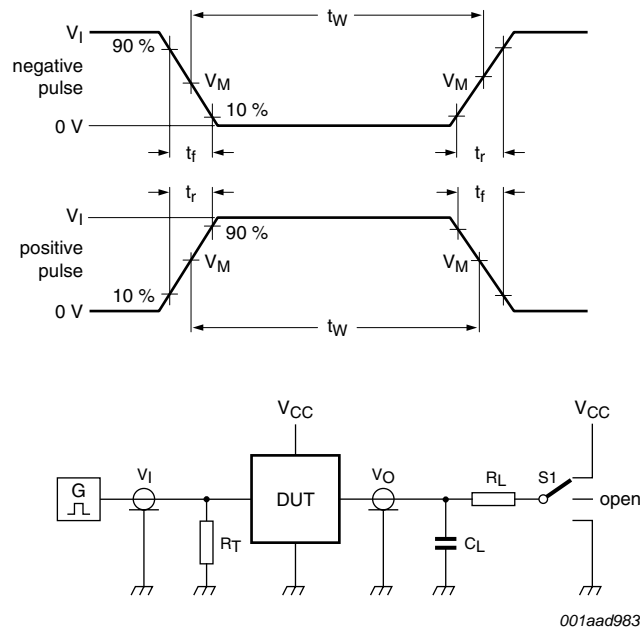
Measurement points are given in [Table 10](#).

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

Fig 11. Enable and disable times

Table 10. Measurement points

| Type | Input | Output | | |
|-----------|-------------|-------------|-----------------|-----------------|
| | V_M | V_M | V_X | V_Y |
| 74HC2G66 | $0.5V_{CC}$ | $0.5V_{CC}$ | $V_{OL} + 10\%$ | $V_{OH} - 10\%$ |
| 74HCT2G66 | 1.3 V | 1.3 V | $V_{OL} + 10\%$ | $V_{OH} - 10\%$ |



Test data is given in [Table 11](#).

Definitions for 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 12. Test circuit for measuring switching times

Table 11. Test data

| Type | Input | | Load | | S1 position | | |
|-----------|-----------------|---------------------------|-------|--------------|--------------------|--------------------|--------------------|
| | V_I | t_r, t_f ^[1] | C_L | R_L | t_{PHL}, t_{PLH} | t_{PZH}, t_{PHZ} | t_{PZL}, t_{PLZ} |
| 74HC2G66 | GND to V_{CC} | 6 ns | 50 pF | 1 k Ω | open | GND | V_{CC} |
| 74HCT2G66 | GND to 3 V | 6 ns | 50 pF | 1 k Ω | open | GND | V_{CC} |

[1] There is no constraint on t_r, t_f with a 50 % duty factor when measuring f_{max} .

11.2 Additional dynamic characteristics

Table 12. Additional dynamic characteristics for 74HC2G66 and 74HCT2G66

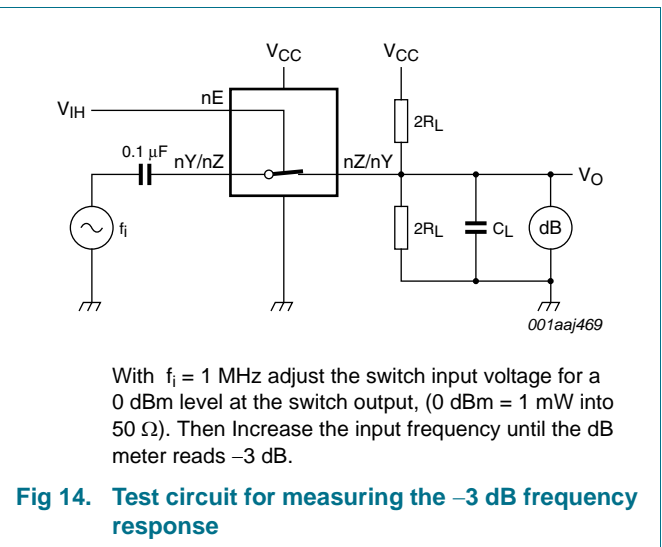
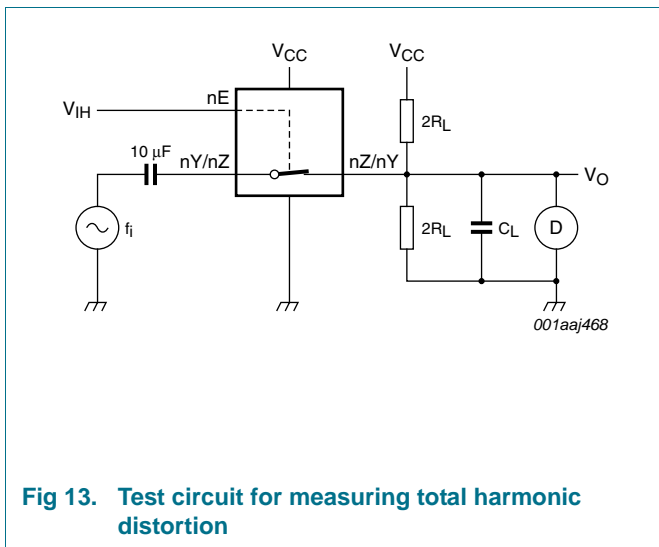
$GND = 0 V$; $t_r = t_f = 6.0 ns$; $C_L = 50 pF$; unless otherwise specified. All typical values are measured at $T_{amb} = 25 ^\circ C$.

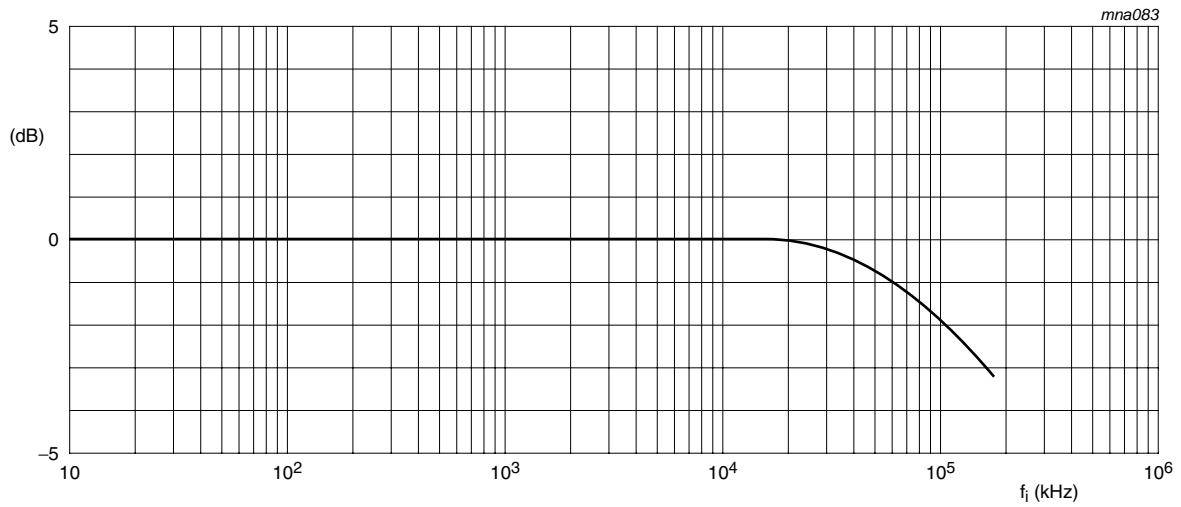
| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|--------|---------------------------|---------------------------------------------------------------------|-----|------|-----|------|---|
| THD | total harmonic distortion | $f_i = 1 kHz$; $R_L = 10 k\Omega$; see Figure 13 | | | | % | |
| | | $V_{CC} = 4.5 V$; $V_I = 4.0 V$ (p-p) | - | 0.04 | - | % | |
| | | $V_{CC} = 9.0 V$; $V_I = 8.0 V$ (p-p) | - | 0.02 | - | % | |
| | | $f_i = 10 kHz$; $R_L = 10 k\Omega$; see Figure 13 | | | | | % |
| | | $V_{CC} = 4.5 V$; $V_I = 4.0 V$ (p-p) | - | 0.12 | - | % | |
| | | $V_{CC} = 9.0 V$; $V_I = 8.0 V$ (p-p) | - | 0.06 | - | % | |

Table 12. Additional dynamic characteristics for 74HC2G66 and 74HCT2G66 ...continued
GND = 0 V; $t_r = t_f = 6.0$ ns; $C_L = 50$ pF; unless otherwise specified. All typical values are measured at $T_{amb} = 25$ °C.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|----------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|------|
| $f_{(-3dB)}$ | -3 dB frequency response | $R_L = 50 \Omega$; $C_L = 10$ pF; see Figure 14 and 15 | | | | |
| | | $V_{CC} = 4.5$ V | - | 180 | - | MHz |
| | | $V_{CC} = 9.0$ V | - | 200 | - | MHz |
| α_{iso} | isolation (OFF-state) | $R_L = 600 \Omega$; $f_i = 1$ MHz; see Figure 16 and 17 | | | | |
| | | $V_{CC} = 4.5$ V | - | -50 | - | dB |
| | | $V_{CC} = 9.0$ V | - | -50 | - | dB |
| V_{ct} | crosstalk voltage | between digital input and switch (peak to peak value); $R_L = 600 \Omega$; $f_i = 1$ MHz; see Figure 18 | | | | |
| | | $V_{CC} = 4.5$ V | - | 110 | - | mV |
| | | $V_{CC} = 9.0$ V | - | 220 | - | mV |
| Xtalk | crosstalk | between switches; $R_L = 600 \Omega$; $f_i = 1$ MHz; see Figure 19 | | | | |
| | | $V_{CC} = 4.5$ V | - | -60 | - | dB |
| | | $V_{CC} = 9.0$ V | - | -60 | - | dB |

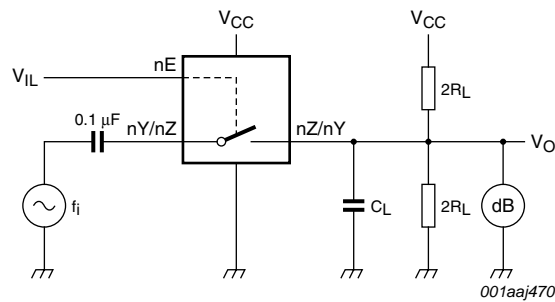
11.3 Test circuits and graphs





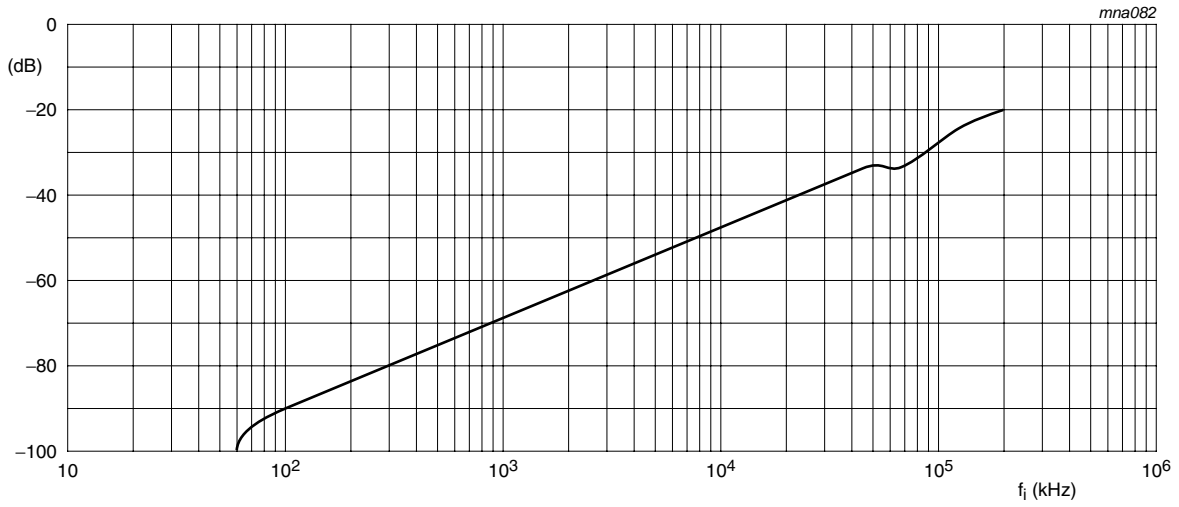
Test conditions: $V_{CC} = 4.5\text{ V}$; $GND = 0\text{ V}$; $R_L = 50\ \Omega$; $R_{SOURCE} = 1\text{ k}\Omega$.

Fig 15. Typical -3 dB frequency response



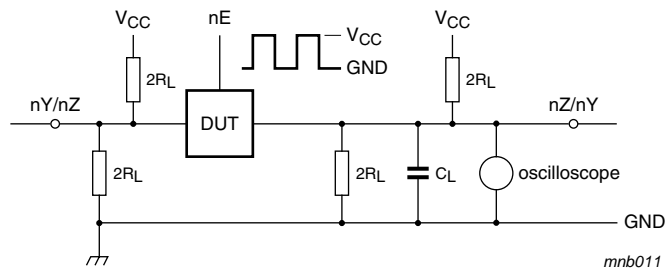
Adjust the switch input voltage for a 0 dBm level (0 dBm = 1 mW into 600 Ω)

Fig 16. Test circuit for measuring isolation (OFF-state)

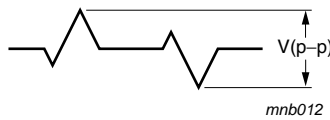


Test conditions: $V_{CC} = 4.5\text{ V}$; $GND = 0\text{ V}$; $R_L = 50\ \Omega$; $R_{SOURCE} = 1\text{ k}\Omega$.

Fig 17. Typical isolation (OFF-state) as a function of frequency



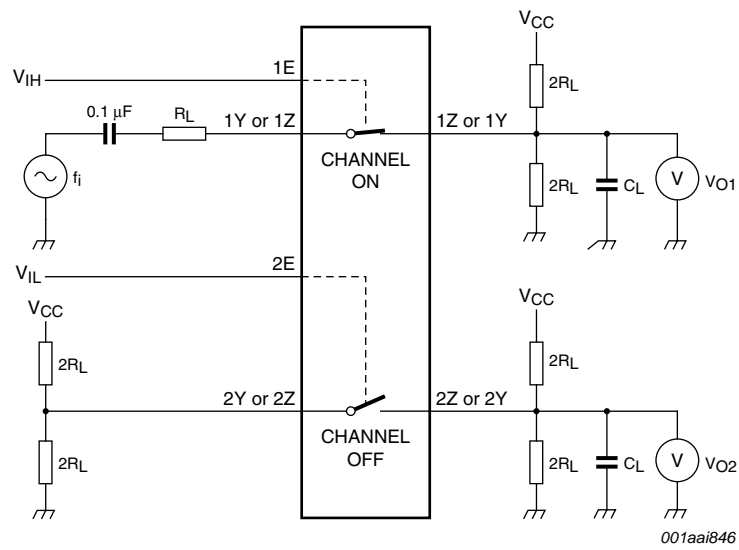
a. Circuit



b. Crosstalk voltage

Adjust the switch input voltage for a 0 dBm level (0 dBm = 1 mW into 600 Ω)

Fig 18. Test circuit for measuring crosstalk voltage (between the digital input and the switch)



001aa1846

Adjust the switch input voltage for a 0 dBm level (0 dBm = 1 mW into 600 Ω)

Fig 19. Test circuit for measuring crosstalk (between the switches)

12. Package outline

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

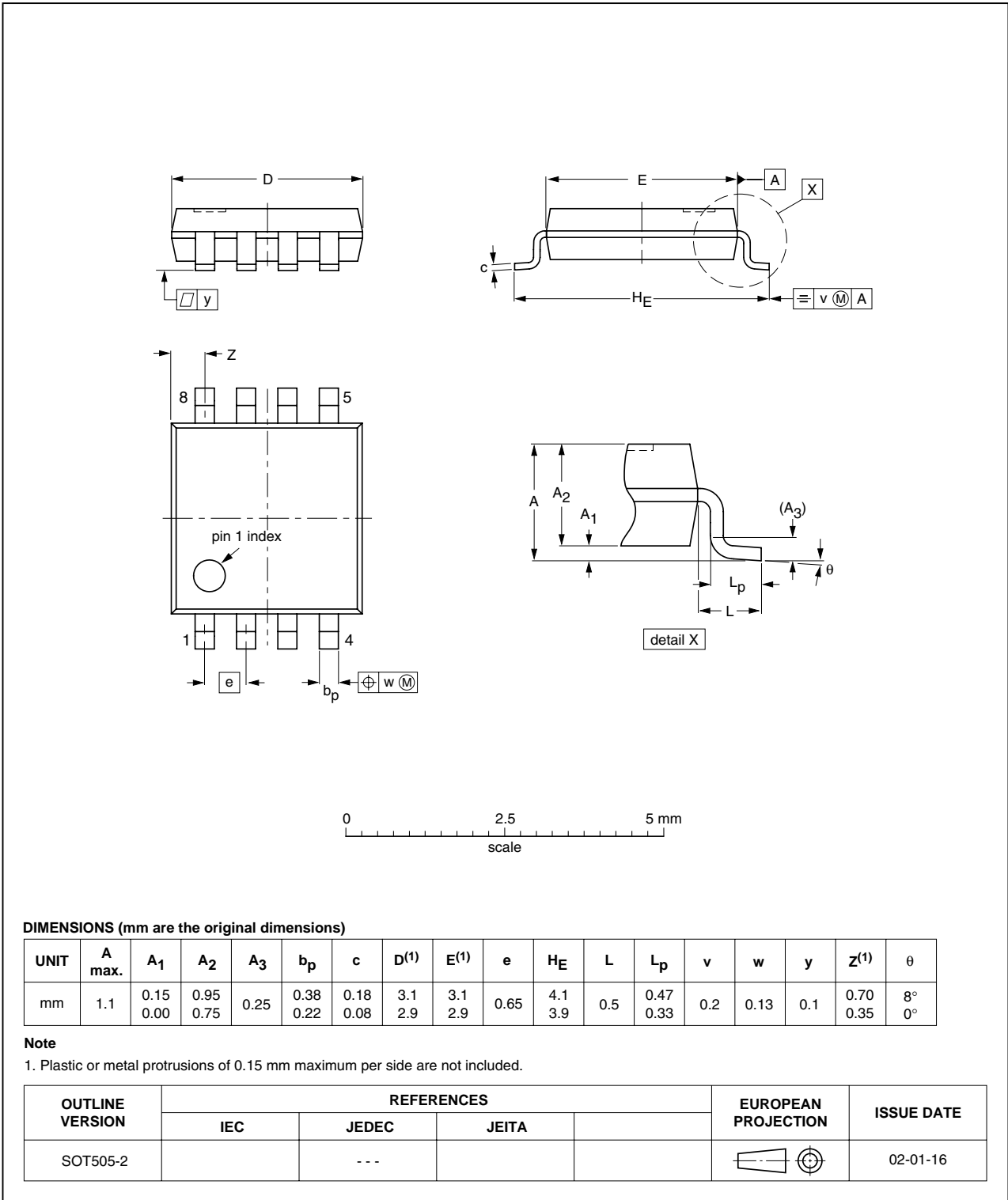


Fig 20. Package outline SOT505-2 (TSSOP8)

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

SOT765-1

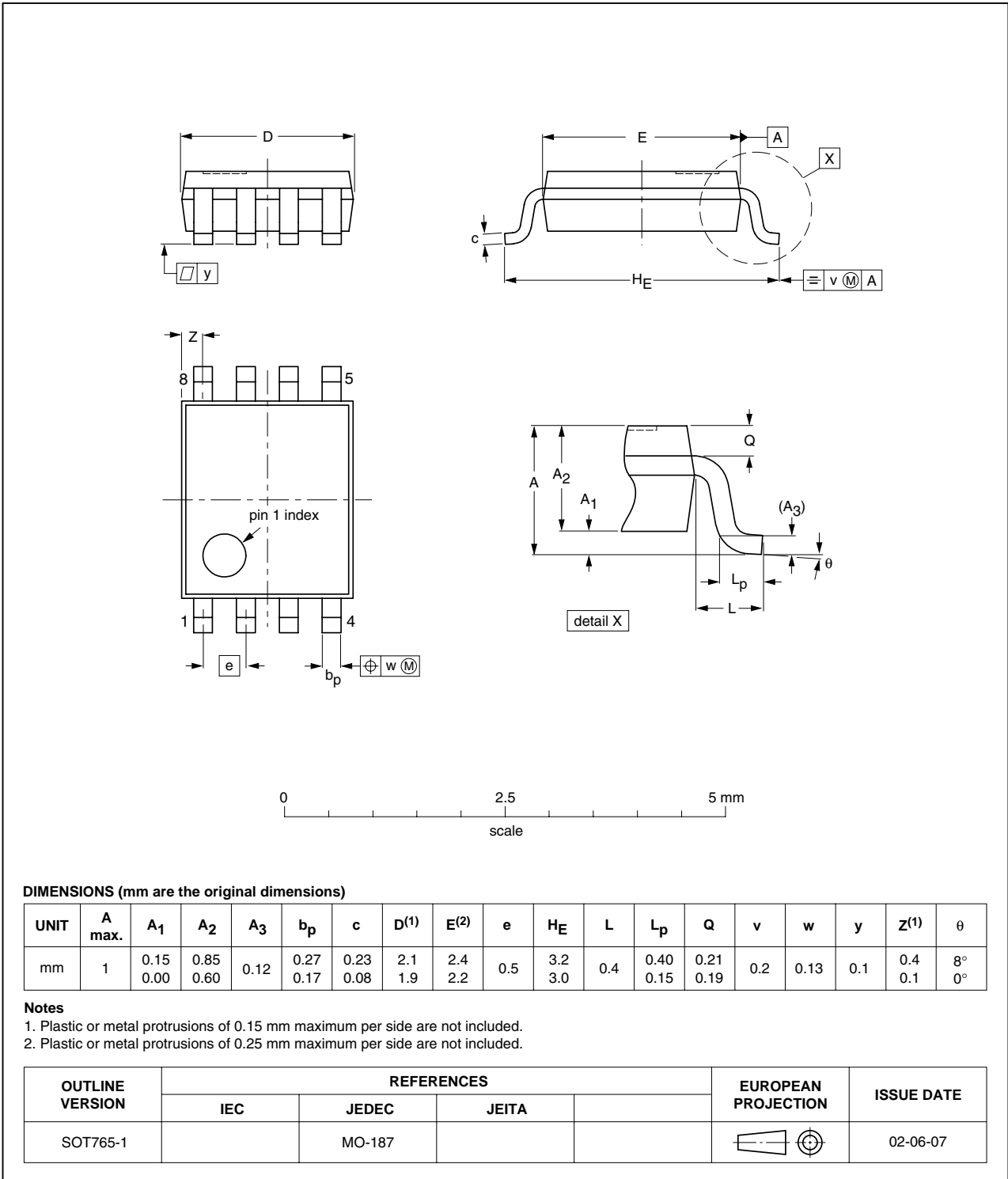


Fig 21. Package outline SOT765-1 (VSSOP8)

XSON8: plastic extremely thin small outline package; no leads; 8 terminals; body 1 x 1.95 x 0.5 mm

SOT833-1

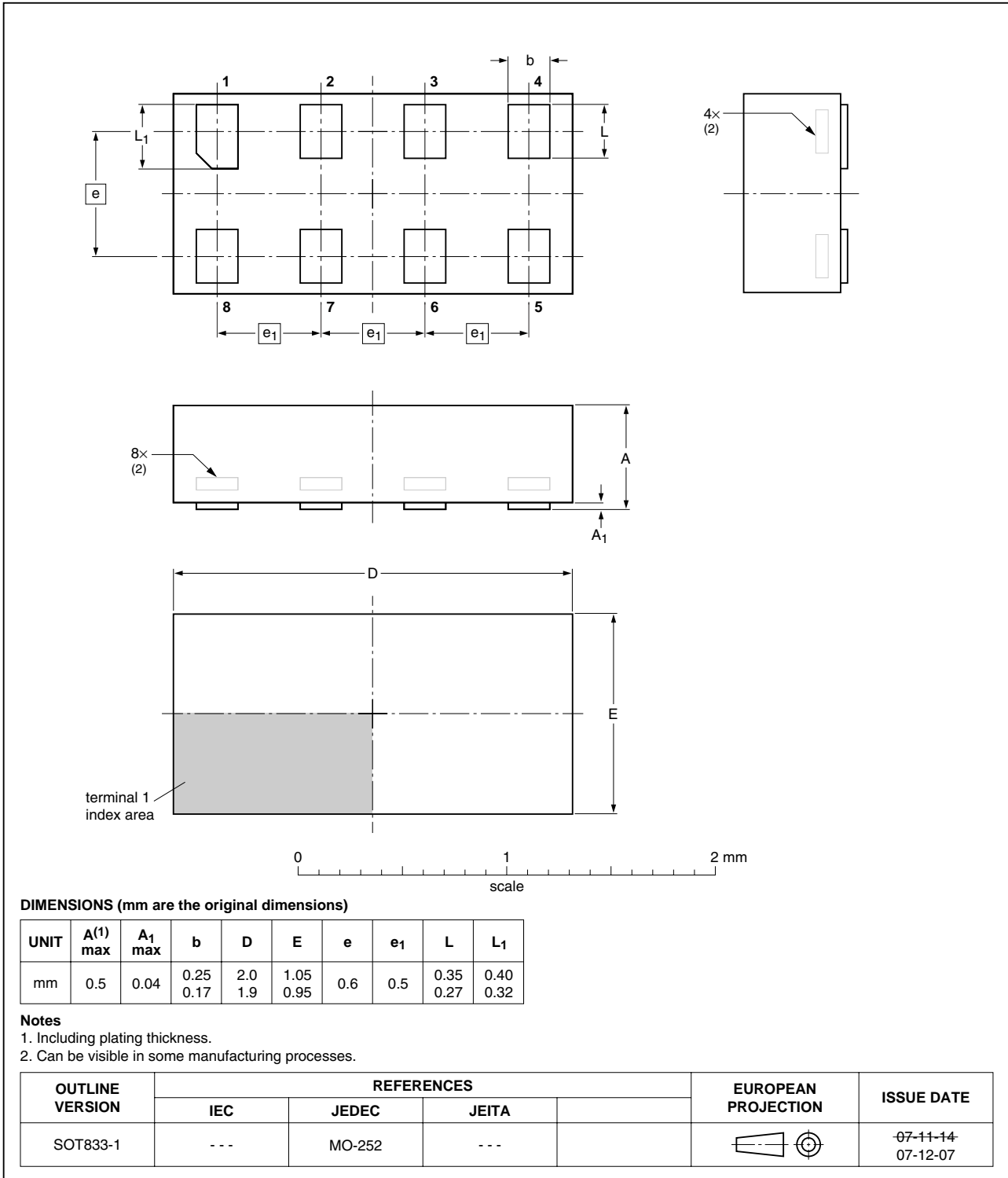


Fig 22. Package outline SOT833-1 (XSON8)

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

SOT996-2

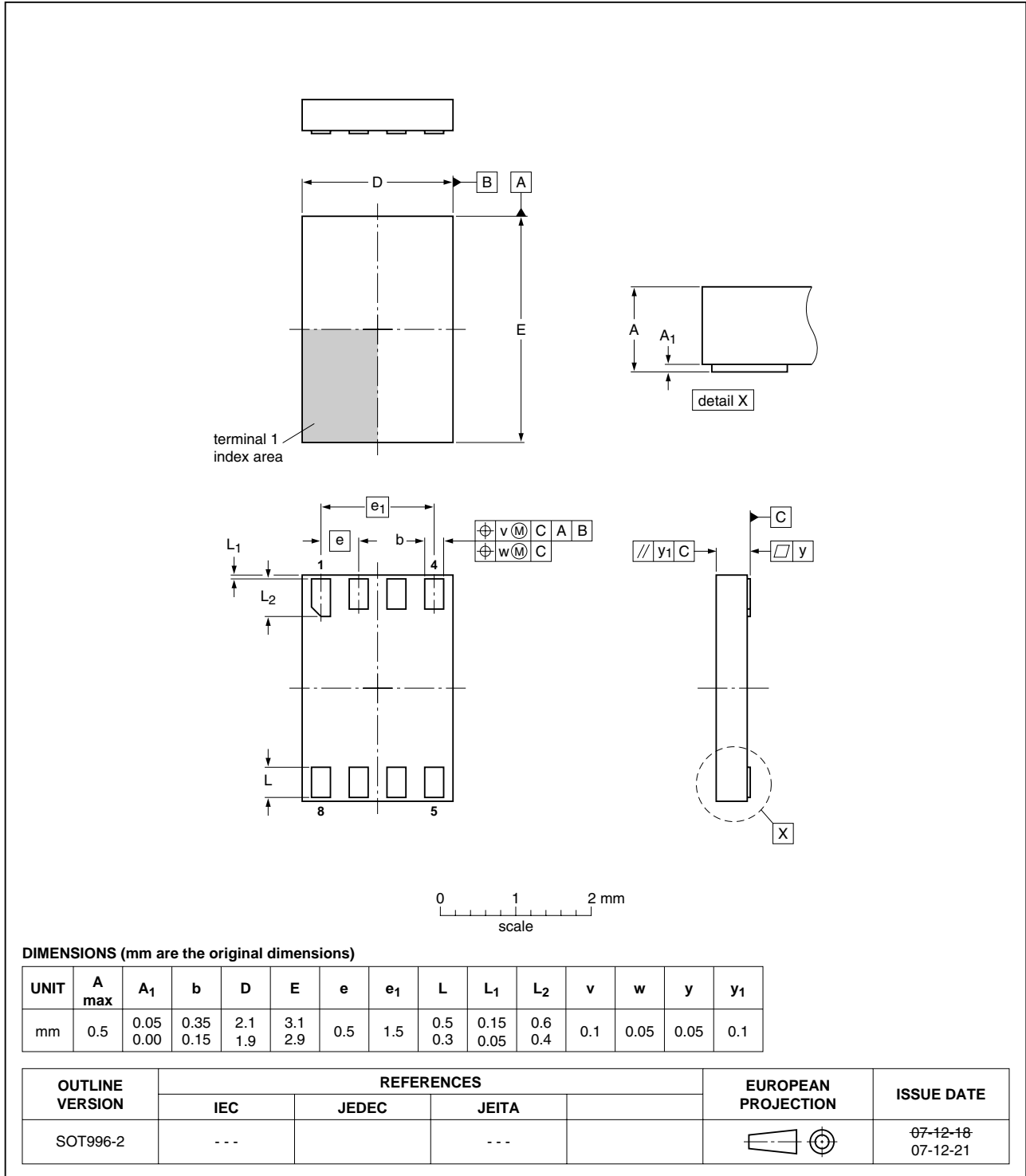


Fig 23. Package outline SOT996-2 (XSON8U)

13. Abbreviations

Table 13. Abbreviations

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

14. Revision history

Table 14. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|------------------|
| 74HC_HCT2G66 v.8 | 20100923 | Product data sheet | - | 74HC_HCT2G66 v.7 |
| Modifications: | <ul style="list-style-type: none"> • Figure 4: Pin configuration drawing centered. | | | |
| 74HC_HCT2G66 v.7 | 20100914 | Product data sheet | - | 74HC_HCT2G66 v.6 |
| Modifications: | <ul style="list-style-type: none"> • Added type number 74HC2G66GT and 74HCT2G66GT (XSON8 package) | | | |
| 74HC_HCT2G66 v.6 | 20100402 | Product data sheet | - | 74HC_HCT2G66 v.5 |
| 74HC_HCT2G66 v.5 | 20090126 | Product data sheet | - | 74HC_HCT2G66 v.4 |
| 74HC_HCT2G66 v.4 | 20040519 | Product specification | - | 74HC_HCT2G66 v.3 |
| 74HC_HCT2G66 v.3 | 20031126 | Product specification | - | 74HC_HCT2G66 v.2 |
| 74HC_HCT2G66 v.2 | 20030808 | Product specification | - | 74HC_HCT2G66 v.1 |
| 74HC_HCT2G66 v.1 | 20030625 | Product specification | - | - |

15. Legal information

15.1 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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