# 74AHC245; 74AHCT245

## Octal bus transceiver; 3-state

Rev. 03 — 25 September 2007 Product data sheet

## 1. General description

The 74AHC/AHCT245 is a high-speed Si-gate CMOS device.

The 74AHC/AHCT245 is an octal transceiver featuring non-inverting 3-state bus compatible outputs in both send and receive directions.

The 74AHC245/74AHCT245 features an Output Enable ($\overline{OE}$) input for easy cascading and a send/receive (DIR) input for direction control.

$\overline{OE}$ controls the outputs so that the buses are effectively isolated.

## 2. Features

- Balanced propagation delays
- All inputs have a Schmitt-trigger action
- Inputs accepts voltages higher than $V_{CC}$
- For 74AHC245 only: operates with CMOS input levels
- For 74AHCT245 only: operates with TTL input levels
- ESD protection:
  - HBM JESD22-A114E exceeds 2000 V
  - MM JESD22-A115-A exceeds 200 V
  - CDM JESD22-C101C exceeds 1000 V
- Multiple package options
- Specified from –40 °C to +85 °C and from –40 °C to +125 °C

## 3. Ordering information

**Table 1: Ordering information**

| Type number | Package | | | |
|---|---|---|---|---|
| | Temperature range | Name | Description | Version |
| 74AHC245D | –40 °C to +125 °C | SO20 | plastic small outline package; 20 leads; body width 7.5 mm | SOT163-1 |
| 74AHCT245D | | | | |
| 74AHC245PW | –40 °C to +125 °C | TSSOP20 | plastic thin shrink small outline package; 20 leads; body width 4.4 mm | SOT360-1 |
| 74AHCT245PW | | | | |
| 74AHC245BQ | –40 °C to +125 °C | DHVQFN20 | plastic dual-in-line compatible thermal enhanced very thin quad flat package no leads; 20 terminals; body 2.5 × 4.5 × 0.85 mm | SOT764-1 |
| 74AHCT245BQ | | | | |

founded by Philips

## 4. Functional diagram

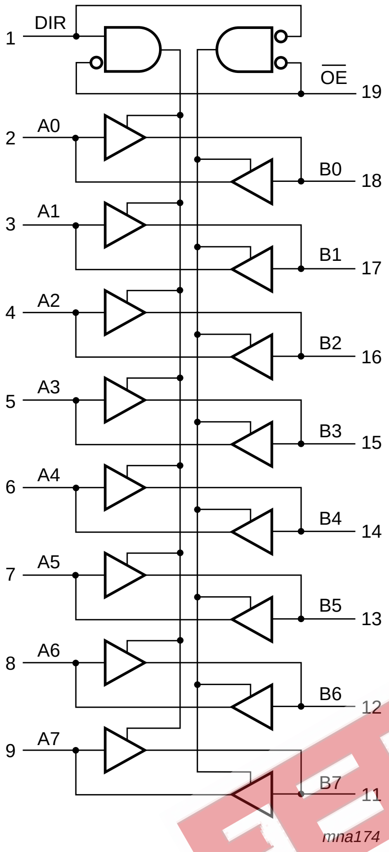


**Fig 1. Logic symbol**

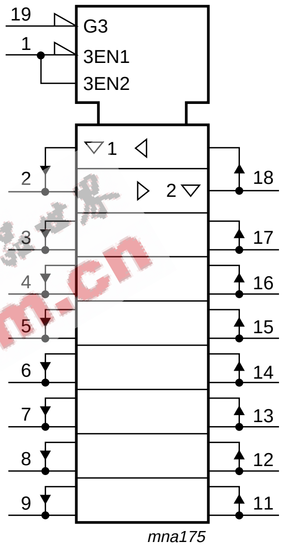


**Fig 2. IEC logic symbol**

# 5. Pinning information

## 5.1 Pinning

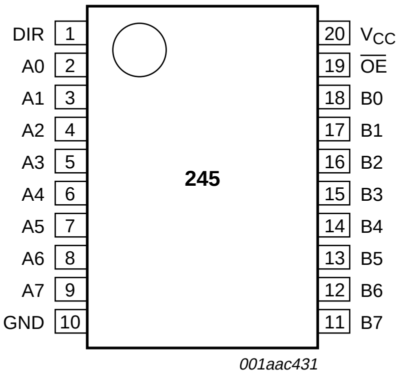
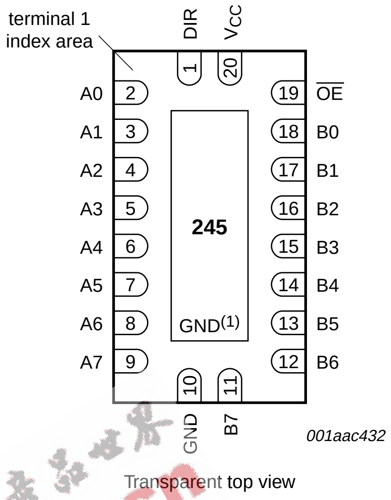


**Fig 3. Pin configuration SO20, TSSOP20**



(1) The die substrate is attached to this pad using conductive die attach material. It can not be used as a supply pin or input.

**Fig 4. Pin configuration DHVQFN20**

## 5.2 Pin description

**Table 2: Pin description**

| Symbol | Pin | Description |
|---|---|---|
| DIR | 1 | direction control |
| A[0:7] | 2, 3, 4, 5, 6, 7, 8, 9 | data input/output |
| B[0:7] | 18, 17, 16, 15, 14, 13, 12, 11 | data input/output |
| GND | 10 | ground (0 V) |
| $\overline{\text{OE}}$ | 19 | output enable input (active LOW) |
| $V_{CC}$ | 20 | supply voltage |

## 6. Functional description

**Table 3: Function table**[1]

| Input | | Input/output | |
|---|---|---|---|
| **$\overline{OE}$** | **DIR** | **An** | **Bn** |
| L | L | A = B | input |
| L | H | input | B = A |
| H | X | Z | Z |

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

## 7. Limiting values

**Table 4: Limiting values**

*In accordance with the Absolute Maximum Rating System (IEC 60134). Voltages are referenced to GND (ground = 0 V).*

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{CC}$ | supply voltage | | | –0.5 | +7.0 | V |
| $V_I$ | input voltage | | | –0.5 | +7.0 | V |
| $I_{IK}$ | input clamping current | $V_I < -0.5$ 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) | | - | ±25 | mA |
| $I_{CC}$ | supply current | | | - | 75 | mA |
| $I_{GND}$ | ground current | | | –75 | - | mA |
| $T_{stg}$ | storage temperature | | | –65 | +150 | °C |
| $P_{tot}$ | total power dissipation | $T_{amb} = -40$ °C to +125 °C | | | | |
| | SO20 package | | [2] | - | 500 | mW |
| | TSSOP20 package | | [3] | - | 500 | mW |
| | DHVQFN20 package | | [4] | - | 500 | mW |

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

[2] $P_{tot}$ derates linearly with 8 mW/K above 70 °C.

[3] $P_{tot}$ derates linearly with 5.5 mW/K above 60 °C.

[4] $P_{tot}$ derates linearly with 4.5 mW/K above 60 °C.

## 8. Recommended operating conditions

**Table 5. Recommended operating conditions**

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

| Symbol | Parameter | Conditions | 74AHC245 | | | 74AHCT245 | | | Unit |
|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Typ | Max | |
| $V_{CC}$ | supply voltage | | 2.0 | 5.0 | 5.5 | 4.5 | 5.0 | 5.5 | V |
| $V_I$ | input voltage | | 0 | - | 5.5 | 0 | - | 5.5 | 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 | $V_{CC}$ = 3.3 V ± 0.3 V | - | - | 100 | - | - | - | ns/V |
| | | $V_{CC}$ = 5.0 V ± 0.5 V | - | - | 20 | - | - | 20 | ns/V |

## 9. Static characteristics

**Table 6. Static characteristics**

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

| Symbol | Parameter | Conditions | 25 °C | | | –40 °C to +85 °C | | –40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| **For type 74AHC245** | | | | | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 2.0 V | 1.5 | - | - | 1.5 | - | 1.5 | - | V |
| | | $V_{CC}$ = 3.0 V | 2.1 | - | - | 2.1 | - | 2.1 | - | V |
| | | $V_{CC}$ = 5.5 V | 3.85 | - | - | 3.85 | - | 3.85 | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 2.0 V | - | - | 0.5 | - | 0.5 | - | 0.5 | V |
| | | $V_{CC}$ = 3.0 V | - | - | 0.9 | - | 0.9 | - | 0.9 | V |
| | | $V_{CC}$ = 5.5 V | - | - | 1.65 | - | 1.65 | - | 1.65 | V |
| $V_{OH}$ | HIGH-level output voltage | $V_I = V_{IH}$ or $V_{IL}$ | | | | | | | | |
| | | $I_O$ = –50 µA; $V_{CC}$ = 2.0 V | 1.9 | 2.0 | - | 1.9 | - | 1.9 | - | V |
| | | $I_O$ = –50 µA; $V_{CC}$ = 3.0 V | 2.9 | 3.0 | - | 2.9 | - | 2.9 | - | V |
| | | $I_O$ = –50 µA; $V_{CC}$ = 4.5 V | 4.4 | 4.5 | - | 4.4 | - | 4.4 | - | V |
| | | $I_O$ = –4.0 mA; $V_{CC}$ = 3.0 V | 2.58 | - | - | 2.48 | - | 2.40 | - | V |
| | | $I_O$ = –8.0 mA; $V_{CC}$ = 4.5 V | 3.94 | - | - | 3.8 | - | 3.70 | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I = V_{IH}$ or $V_{IL}$ | | | | | | | | |
| | | $I_O$ = 50 µA; $V_{CC}$ = 2.0 V | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O$ = 50 µA; $V_{CC}$ = 3.0 V | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O$ = 50 µA; $V_{CC}$ = 4.5 V | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O$ = 4.0 mA; $V_{CC}$ = 3.0 V | - | - | 0.36 | - | 0.44 | - | 0.55 | V |
| | | $I_O$ = 8.0 mA; $V_{CC}$ = 4.5 V | - | - | 0.36 | - | 0.44 | - | 0.55 | V |
| $I_{OZ}$ | OFF-state output current | $V_I = V_{IH}$ or $V_{IL}$; $V_O = V_{CC}$ or GND; $V_{CC}$ = 5.5 V | - | - | ±0.25 | - | ±2.5 | - | ±10.0 | µA |
| $I_I$ | input leakage current | $V_I = V_{CC}$ or GND; $V_{CC}$ = 5.5 V | - | - | 0.1 | - | 1.0 | - | 2.0 | µA |
| $I_{CC}$ | supply current | $V_I = V_{CC}$ or GND; $I_O$ = 0 A; $V_{CC}$ = 5.5 V | - | - | 4.0 | - | 40 | - | 80 | µA |

**Table 6. Static characteristics** *…continued*

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

| Symbol | Parameter | Conditions | 25 °C | | | −40 °C to +85 °C | | −40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| $C_I$ | input capacitance | | - | 3.0 | 10 | - | 10 | - | 10 | pF |
| $C_O$ | output capacitance | | - | 4.0 | - | - | - | - | - | pF |
| **For type 74AHCT245** | | | | | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 4.5 V to 5.5 V | 2.0 | - | - | 2.0 | - | 2.0 | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 4.5 V to 5.5 V | - | - | 0.8 | - | 0.8 | - | 0.8 | V |
| $V_{OH}$ | HIGH-level output voltage | $V_I = V_{IH}$ or $V_{IL}$; $V_{CC}$ = 4.5 V | | | | | | | | |
| | | $I_O$ = −50 µA | 4.4 | 4.5 | - | 4.4 | - | 4.4 | - | V |
| | | $I_O$ = −8.0 mA | 3.94 | - | - | 3.8 | - | 3.70 | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I = V_{IH}$ or $V_{IL}$; $V_{CC}$ = 4.5 V | | | | | | | | |
| | | $I_O$ = 50 µA | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O$ = 8.0 mA | - | - | 0.36 | - | 0.44 | - | 0.55 | V |
| $I_{OZ}$ | OFF-state output current | per input pin; $V_I = V_{IH}$ or $V_{IL}$; $V_{CC}$ = 5.5 V; $I_O$ = 0 A<br>$V_O = V_{CC}$ or GND; other pins at $V_{CC}$ or GND | - | - | ±0.25 | - | ±2.5 | - | ±10.0 | µA |
| $I_I$ | input leakage current | $V_I = V_{IH}$ or $V_{IL}$; $V_{CC}$ = 5.5 V | - | - | 0.1 | - | 1.0 | - | 2.0 | µA |
| $I_{CC}$ | supply current | $V_I = V_{CC}$ or GND; $I_O$ = 0 A; $V_{CC}$ = 5.5 V | - | - | 4.0 | - | 40 | - | 80 | µA |
| $\Delta I_{CC}$ | additional supply current | per input pin; $V_I = V_{CC} - 2.1$ V; $I_O$ = 0 A; other pins at $V_{CC}$ or GND; $V_{CC}$ = 4.5 V to 5.5 V | - | - | 1.35 | - | 1.5 | - | 1.5 | mA |
| $C_I$ | input capacitance | | - | 3 | 10 | - | 10 | - | 10 | pF |
| $C_O$ | output capacitance | | - | 4.0 | - | - | - | - | - | pF |

## 10. Dynamic characteristics

**Table 7. Dynamic characteristics**

*GND = 0 V. For test circuit see Figure 7.*

| Symbol | Parameter | Conditions | 25 °C | | | –40 °C to +85 °C | | –40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | Min | Max | Min | Max | |
| **For type 74AHC245** | | | | | | | | | | |
| $t_{pd}$ | propagation delay | nAn to nYn; see Figure 5 [2] | | | | | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | | | | | | | | |
| | | $C_L$ = 15 pF | - | 5.0 | 8.4 | 1.0 | 10.0 | 1.0 | 10.5 | ns |
| | | $C_L$ = 50 pF | - | 6.5 | 11.9 | 1.0 | 13.5 | 1.0 | 15.0 | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | | | | | | | | |
| | | $C_L$ = 15 pF | - | 3.5 | 5.5 | 1.0 | 6.5 | 1.0 | 7.0 | ns |
| | | $C_L$ = 50 pF | | 5.0 | 7.5 | 1.0 | 8.5 | 1.0 | 9.5 | ns |
| $t_{en}$ | enable time | $n\overline{OE}$ to nYn; see Figure 6 [2] | | | | | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | | | | | | | | |
| | | $C_L$ = 15 pF | - | 6.5 | 13.2 | 1.0 | 15.5 | 1.0 | 16.5 | ns |
| | | $C_L$ = 50 pF | - | 9.0 | 16.7 | 1.0 | 19.0 | 1.0 | 21.0 | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | | | | | | | | |
| | | $C_L$ = 15 pF | - | 4.0 | 8.5 | 1.0 | 10.0 | 1.0 | 11.0 | ns |
| | | $C_L$ = 50 pF | - | 5.0 | 10.6 | 1.0 | 12.0 | 1.0 | 13.5 | ns |
| $t_{dis}$ | disable time | $n\overline{OE}$ to nYn; see Figure 6 [2] | | | | | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | | | | | | | | |
| | | $C_L$ = 15 pF | - | 7.5 | 12.5 | 1.0 | 15.5 | 1.0 | 16.0 | ns |
| | | $C_L$ = 50 pF | - | 10.0 | 15.8 | 1.0 | 18.0 | 1.0 | 20.0 | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | | | | | | | | |
| | | $C_L$ = 15 pF | - | 4.5 | 7.8 | 1.0 | 9.2 | 1.0 | 10.0 | ns |
| | | $C_L$ = 50 pF | - | 6.0 | 9.7 | 1.0 | 11.0 | 1.0 | 12.5 | ns |
| $C_{PD}$ | power dissipation capacitance | $C_L$ = 50 pF; $f_i$ = 1 MHz; $V_I$ = GND to $V_{CC}$ [3] | - | 12 | - | - | - | - | - | pF |

**Table 7. Dynamic characteristics** *...continued*

*GND = 0 V. For test circuit see Figure 7.*

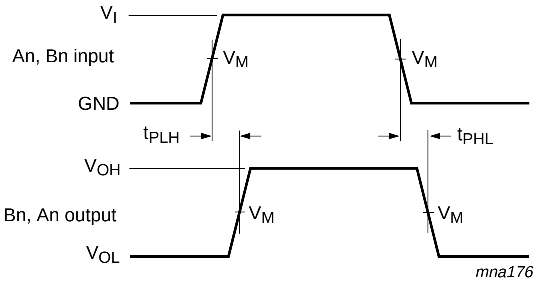
| Symbol | Parameter | Conditions | 25 °C | | | −40 °C to +85 °C | | −40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | Min | Max | Min | Max | |
| **For type 74AHCT245** | | | | | | | | | | |
| $t_{pd}$ | propagation delay | nAn to nYn; see Figure 5 [2] | | | | | | | | |
| | | $V_{CC}$ = 4.5 V to 5.5 V | | | | | | | | |
| | | $C_L$ = 15 pF | - | 3.5 | 7.7 | 1.0 | 8.5 | 1.0 | 10.0 | ns |
| | | $C_L$ = 50 pF | - | 4.5 | 8.7 | 1.0 | 9.5 | 1.0 | 11.0 | ns |
| $t_{en}$ | enable time | n$\overline{OE}$ to nYn; see Figure 6 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V to 5.5 V | | | | | | | | |
| | | $C_L$ = 15 pF | - | 5.0 | 13.8 | 1.0 | 15.0 | 1.0 | 17.5 | ns |
| | | $C_L$ = 50 pF | - | 6.0 | 14.8 | 1.0 | 16.0 | 1.0 | 18.5 | ns |
| $t_{dis}$ | disable time | n$\overline{OE}$ to nYn; see Figure 6 [2] | | | | | | | | |
| | | $V_{CC}$ = 4.5 V to 5.5 V | | | | | | | | |
| | | $C_L$ = 15 pF | - | 5.0 | 14.4 | 1.0 | 15.5 | 1.0 | 18.0 | ns |
| | | $C_L$ = 50 pF | - | 6.0 | 15.4 | 1.0 | 16.5 | 1.0 | 19.5 | ns |
| $C_{PD}$ | power dissipation capacitance | per buffer;<br>$C_L$ = 50 pF; f = 1 MHz;<br>$V_I$ = GND to $V_{CC}$ [3] | - | 15 | - | - | - | - | - | pF |

[1] Typical values are measured at nominal supply voltage ($V_{CC}$ = 3.3 V and $V_{CC}$ = 5.0 V).

[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).
$P_D = C_{PD} \times V_{CC}^2 \times f_i + \sum (C_L \times V_{CC}^2 \times f_o)$ where:
$f_i$ = input frequency in MHz;
$f_o$ = output frequency in MHz;
$C_L$ = output load capacitance in pF;
$V_{CC}$ = supply voltage in Volts.

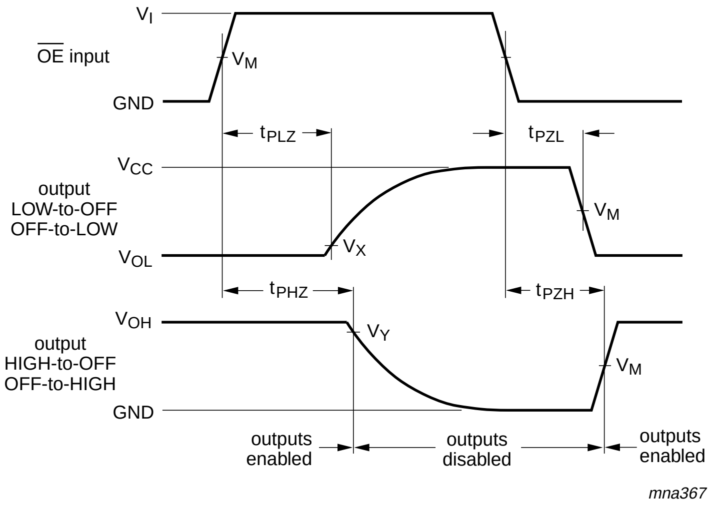
## 11. Waveforms



Measurement points are given in Table 8.

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

**Fig 5. Propagation delay input (An, Bn) to output (Bn, An)**



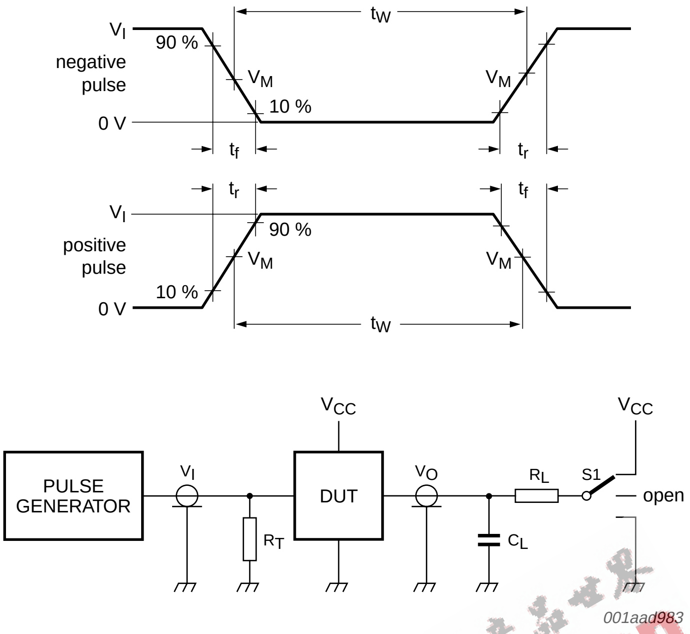
Measurement points are given in Table 8.

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

**Fig 6. enable and disable times**

### Table 8: Measurement points

| Type | Input | Output | | |
|---|---|---|---|---|
| | $V_M$ | $V_M$ | $V_X$ | $V_Y$ |
| 74AHC245 | $0.5V_{CC}$ | $0.5V_{CC}$ | $V_{OL}$ + 0.3 V | $V_{OH}$ – 0.3 V |
| 74AHCT245 | 1.5 V | $0.5V_{CC}$ | $V_{OL}$ + 0.3 V | $V_{OH}$ – 0.3 V |



Test data is given in Table 9.

Definitions test circuit:

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

$C_L$ = Load capacitance including jig and probe capacitance

$R_L$ = Load resistor

S1 = Test selection switch

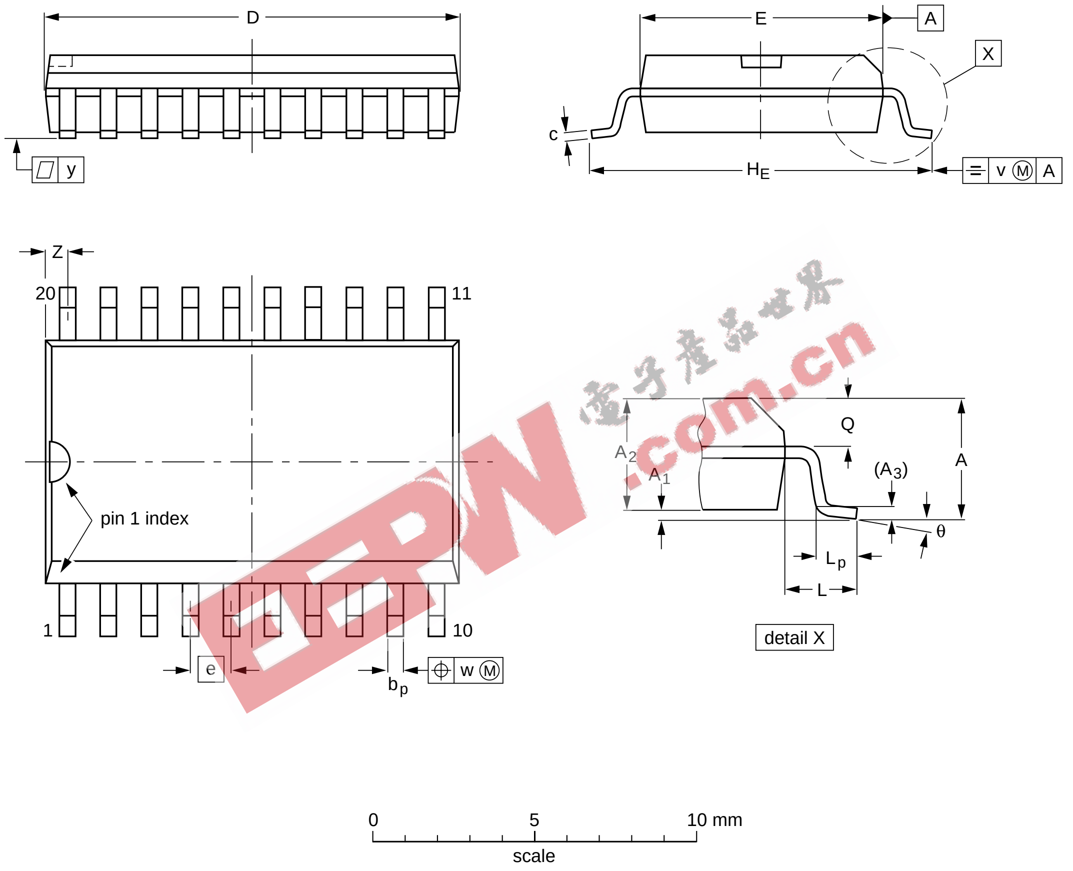
**Fig 7. Load circuitry for switching times**

**Table 9: Test data**

| Type | Input | | Load | | S1 position | | |
|---|---|---|---|---|---|---|---|
| | $V_I$ | $t_r$, $t_f$ | $C_L$ | $R_L$ | $t_{PHL}$, $t_{PLH}$ | $t_{PZH}$, $t_{PHZ}$ | $t_{PZL}$, $t_{PLZ}$ |
| 74AHC245 | $V_{CC}$ | 3.0 ns | 15 pF, 50 pF | 1 kΩ | open | GND | $V_{CC}$ |
| 74AHCT245 | 3.0 V | 3.0 ns | 15 pF, 50 pF | 1 kΩ | open | GND | $V_{CC}$ |

## 12. Package outline

**SO20: plastic small outline package; 20 leads; body width 7.5 mm** **SOT163-1**



**DIMENSIONS (inch dimensions are derived from the original mm dimensions)**

| UNIT | A max. | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | $D^{(1)}$ | $E^{(1)}$ | e | $H_E$ | L | $L_p$ | Q | v | w | y | $Z^{(1)}$ | θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 2.65 | 0.3<br>0.1 | 2.45<br>2.25 | 0.25 | 0.49<br>0.36 | 0.32<br>0.23 | 13.0<br>12.6 | 7.6<br>7.4 | 1.27 | 10.65<br>10.00 | 1.4 | 1.1<br>0.4 | 1.1<br>1.0 | 0.25 | 0.25 | 0.1 | 0.9<br>0.4 | $8^o$<br>$0^o$ |
| inches | 0.1 | 0.012<br>0.004 | 0.096<br>0.089 | 0.01 | 0.019<br>0.014 | 0.013<br>0.009 | 0.51<br>0.49 | 0.30<br>0.29 | 0.05 | 0.419<br>0.394 | 0.055 | 0.043<br>0.016 | 0.043<br>0.039 | 0.01 | 0.01 | 0.004 | 0.035<br>0.016 | |

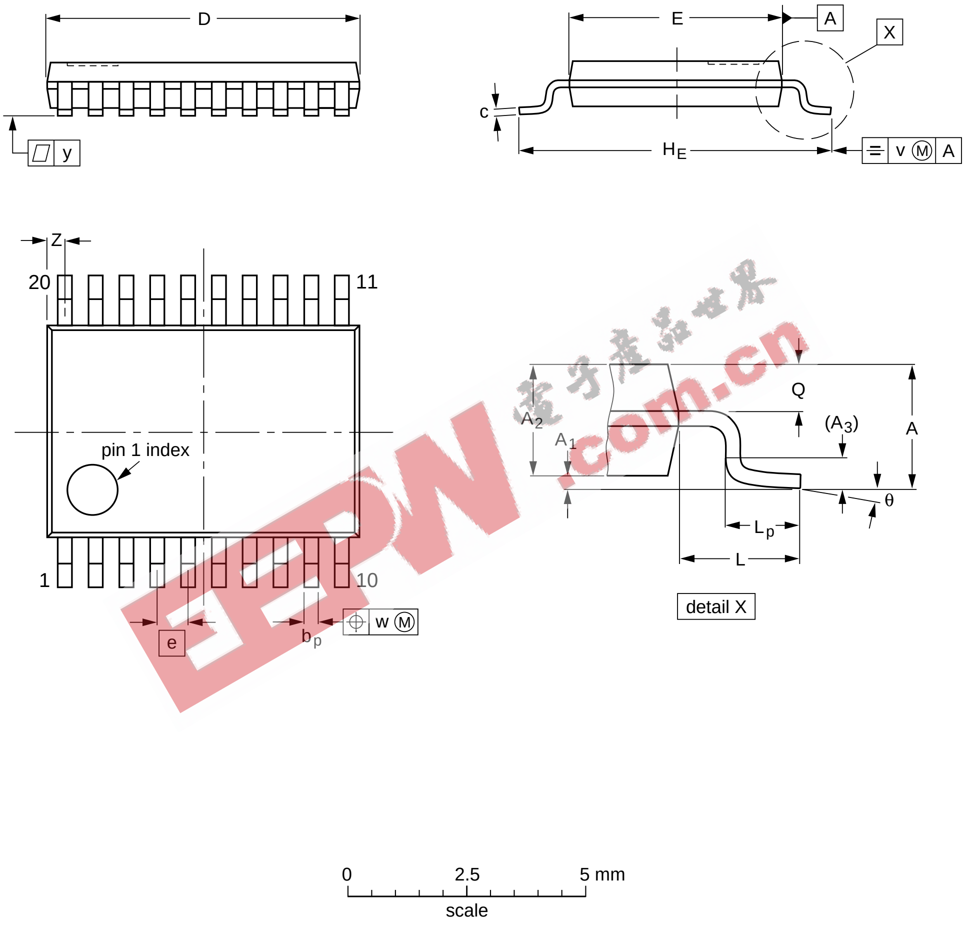
**Note**

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

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT163-1 | 075E04 | MS-013 | | | | ~~99-12-27~~<br>03-02-19 |

Fig 8. Package outline SOT163-1 (SO20)

**TSSOP20: plastic thin shrink small outline package; 20 leads; body width 4.4 mm** **SOT360-1**



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

| UNIT | A max. | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | D (1) | E (2) | e | $H_E$ | L | $L_p$ | Q | v | w | y | Z (1) | θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1 | 0.15<br>0.05 | 0.95<br>0.80 | 0.25 | 0.30<br>0.19 | 0.2<br>0.1 | 6.6<br>6.4 | 4.5<br>4.3 | 0.65 | 6.6<br>6.2 | 1 | 0.75<br>0.50 | 0.4<br>0.3 | 0.2 | 0.13 | 0.1 | 0.5<br>0.2 | 8°<br>0° |

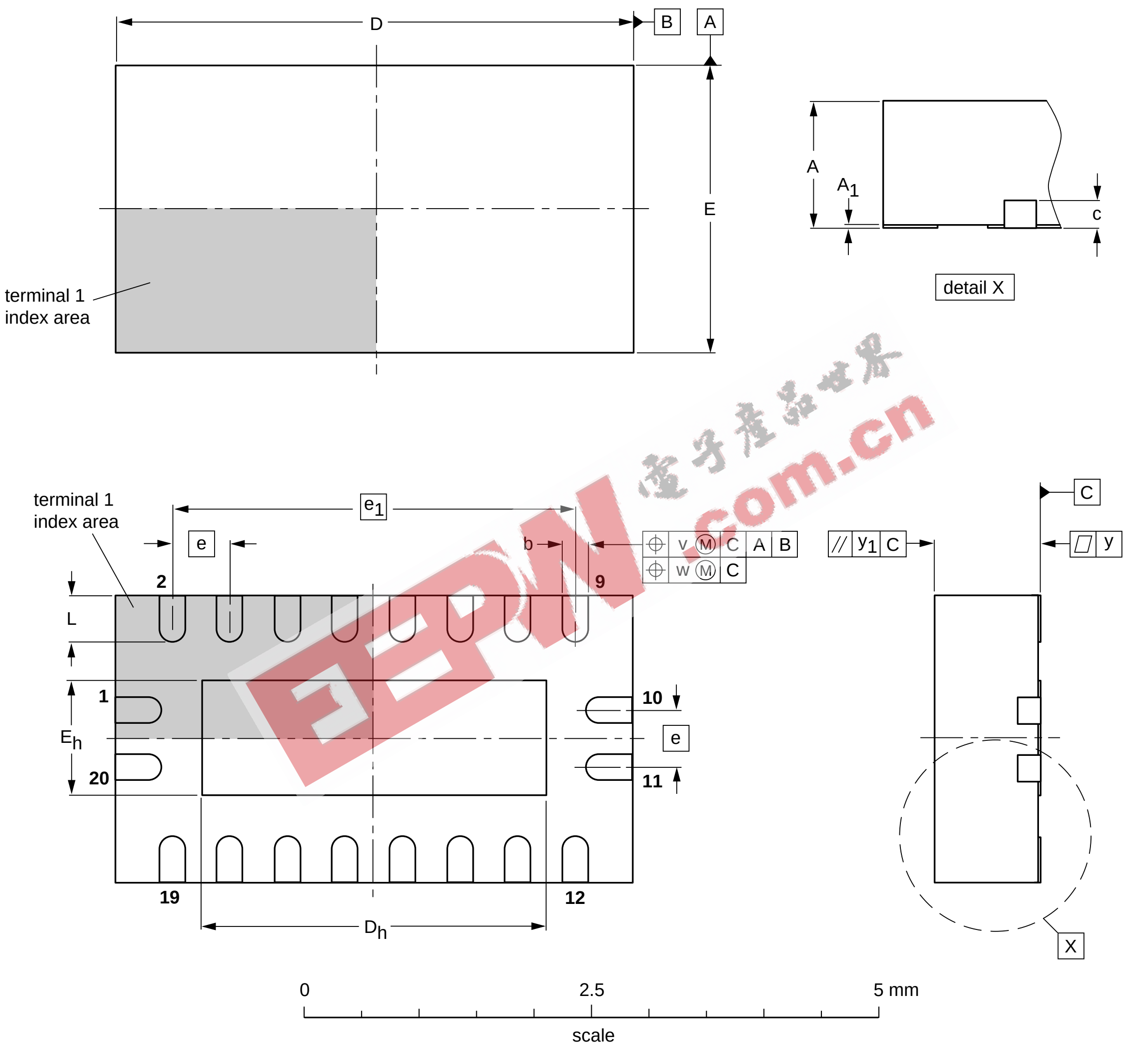
**Notes**

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

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT360-1 | | MO-153 | | | | ~~99-12-27~~<br>03-02-19 |

Fig 9. Package outline SOT360-1 (TSSOP20)

**DHVQFN20: plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 20 terminals; body 2.5 x 4.5 x 0.85 mm** **SOT764-1**



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

| UNIT | $A^{(1)}$ max. | $A_1$ | b | c | $D^{(1)}$ | $D_h$ | $E^{(1)}$ | $E_h$ | e | $e_1$ | L | v | w | y | $y_1$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1 | 0.05<br>0.00 | 0.30<br>0.18 | 0.2 | 4.6<br>4.4 | 3.15<br>2.85 | 2.6<br>2.4 | 1.15<br>0.85 | 0.5 | 3.5 | 0.5<br>0.3 | 0.1 | 0.05 | 0.05 | 0.1 |

**Note**

1. Plastic or metal protrusions of 0.075 mm maximum per side are not included.

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT764-1 | - - - | MO-241 | - - - | | | ~~02-10-17~~<br>03-01-27 |

Fig 10. Package outline SOT764-1 (DHVQFN20)

## 13. Abbreviations

**Table 10: Abbreviations**

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

## 14. Revision history

**Table 11: Revision history**

| Document ID | Release date | Data sheet status | Change notice | Doc. number | Supersedes |
|---|---|---|---|---|---|
| 74AHC_AHCT245_3 | 20070925 | Product data sheet | | - | 74AHC_AHCT245_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 when appropiate.<br>• Section 3: DHVQFN20 package added.<br>• Section 8: derating values added for DHVQFN20 package.<br>• Section 12: outline drawing added for DHVQFN20 package. | | | | |
| 74AHC_AHCT245_2 | 19990928 | Product specification | - | 939775006297 | 74AHC_AHCT245_1 |
| 74AHC_AHCT245_1 | 19980921 | Product specification | - | 939775004255 | - |

# 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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