

# 74HC373; 74HCT373

Octal D-type transparent latch; 3-state

Rev. 6 — 26 February 2016

Product data sheet

## 1. General description

The 74HC373; 74HCT373 is an octal D-type transparent latch with 3-state outputs. The device features latch enable (LE) and output enable ( $\overline{OE}$ ) inputs. When LE is HIGH, data at the inputs enter the latches. In this condition the latches are transparent, a latch output will change each time its corresponding D-input changes. When LE is LOW the latches store the information that was present at the inputs a set-up time preceding the HIGH-to-LOW transition of LE. A HIGH on  $\overline{OE}$  causes the outputs to assume a high-impedance OFF-state. Operation of the  $\overline{OE}$  input does not affect the state of the latches. Inputs include clamp diodes. This enables the use of current limiting resistors to interface inputs to voltages in excess of  $V_{CC}$ .

## 2. Features and benefits

- Input levels:
  - ◆ For 74HC373: CMOS level
  - ◆ For 74HCT373: TTL level
- 3-state non-inverting outputs for bus oriented applications
- Common 3-state output enable input
- Functionally identical to the 74HC563; 74HCT563 and 74HC573; 74HCT573
- Complies with JEDEC standard no. 7 A
- ESD protection:
  - ◆ HBM JESD22-A114F exceeds 2000 V
  - ◆ MM JESD22-A115-A exceeds 200 V
- Multiple package options
- Specified from  $-40\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$  and from  $-40\text{ }^{\circ}\text{C}$  to  $+125\text{ }^{\circ}\text{C}$

## 3. Ordering information

Table 1. Ordering information

| Type number | Package   |        |  |          |
|-------------|---|--------|--|----------|
|             | Temperature range   | Name   | Description  | Version  |
| 74HC373D    | $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$ | SO20   | plastic small outline package; 20 leads;<br>body width 7.5 mm        | SOT163-1 |
| 74HCT373D   |   |        |  |          |
| 74HC373DB   | $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$ | SSOP20 | plastic shrink small outline package; 20 leads;<br>body width 5.3 mm | SOT339-1 |
| 74HCT373DB  |   |        |  |          |

Table 1. Ordering information ...continued

| Type number | Package           |          |  | Version  |
|-------------|-------------------|----------|--|----------|
|             | Temperature range | Name     | Description  |          |
| 74HC373PW   | -40 °C to +125 °C | TSSOP20  | plastic thin shrink small outline package; 20 leads; body width 4.4 mm   | SOT360-1 |
| 74HCT373PW  |                   |          |  |          |
| 74HC373BQ   | -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 |
| 74HCT373BQ  |                   |          |  |          |

## 4. Functional diagram

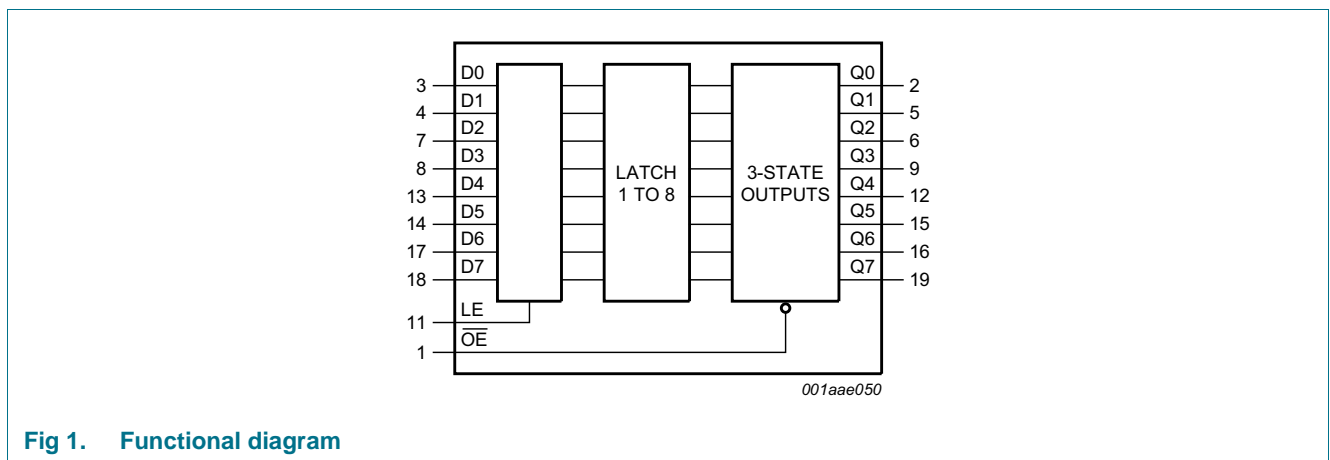


Fig 1. Functional diagram

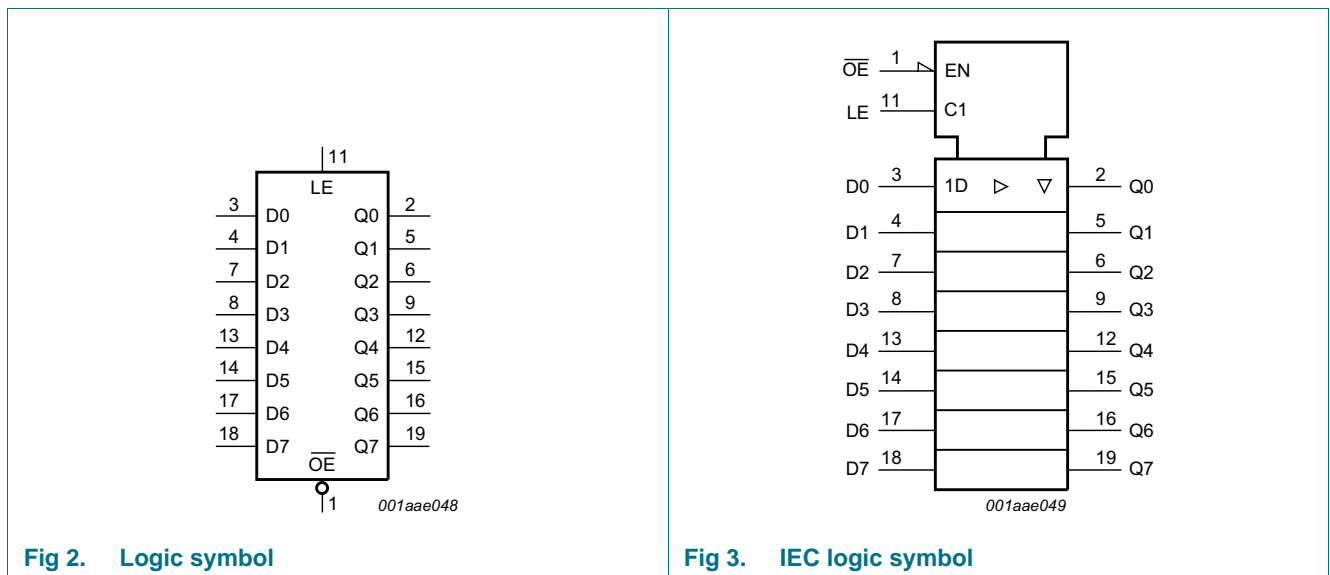


Fig 2. Logic symbol

Fig 3. IEC logic symbol

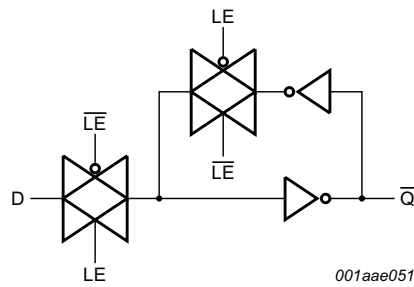


Fig 4. Logic diagram (one latch)

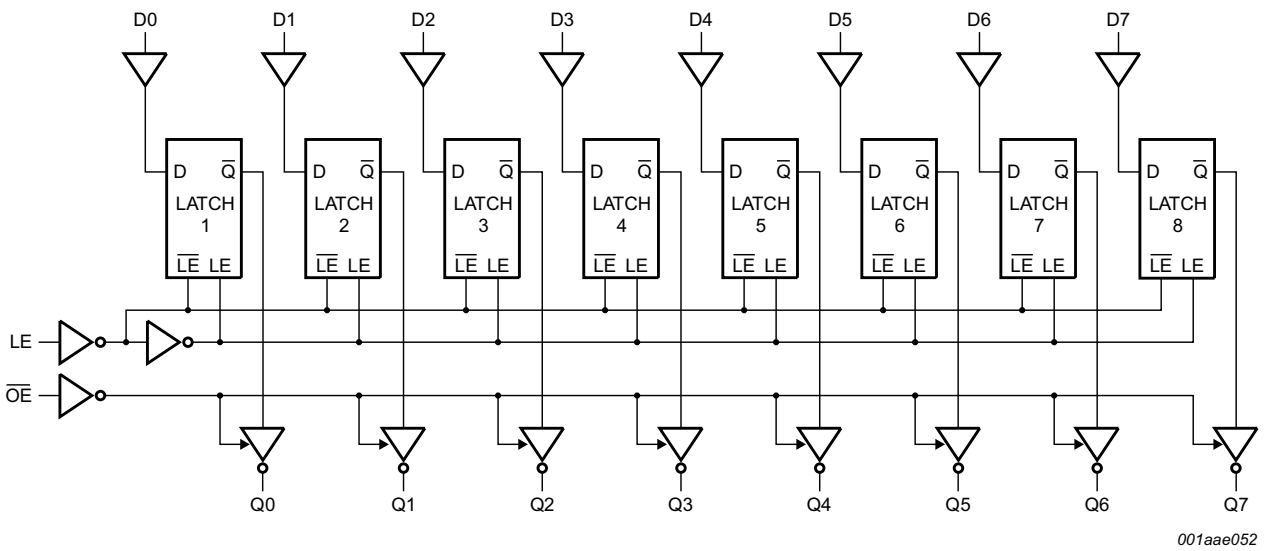
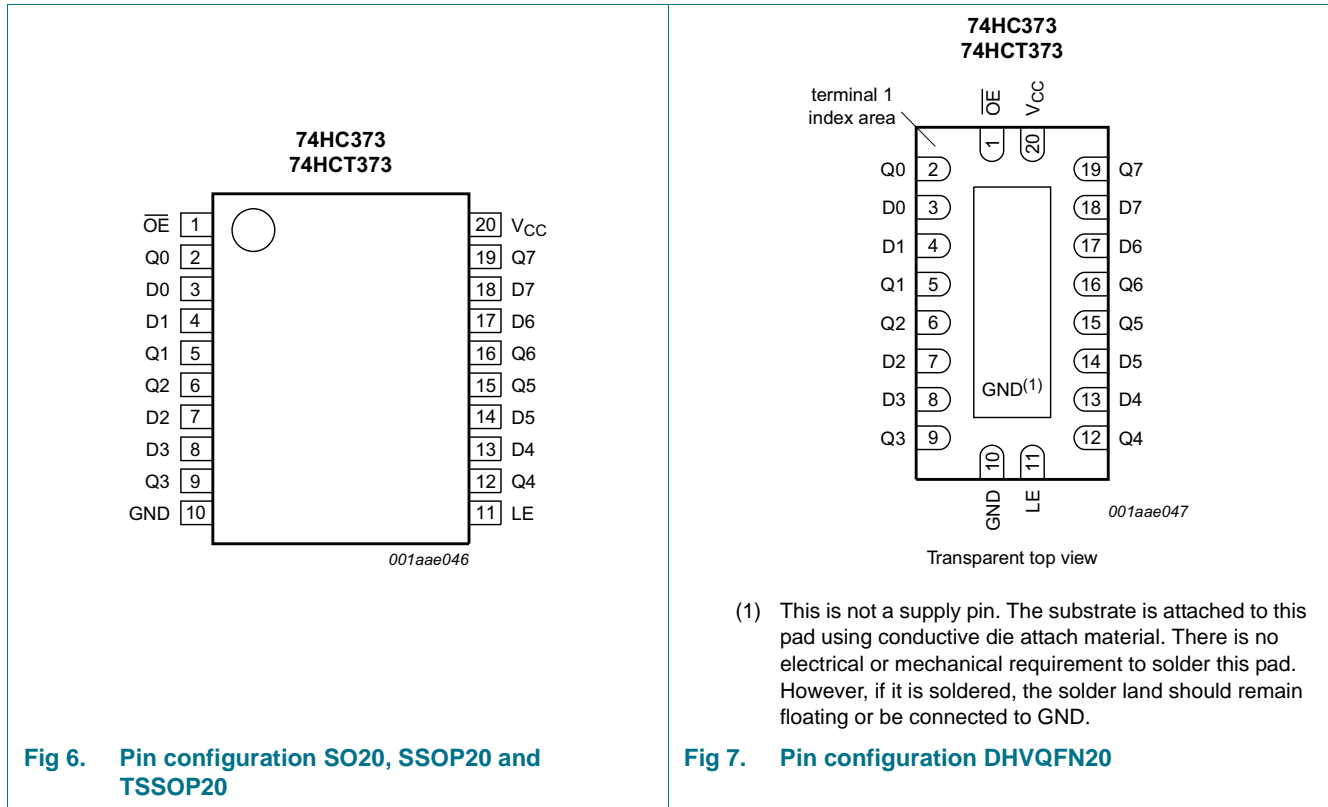


Fig 5. Logic diagram

## 5. Pinning information

### 5.1 Pinning



### 5.2 Pin description

Table 2. Pin description

| Symbol                         | Pin                        | Description                              |
|--------------------------------|----------------------------|--|
| $\overline{\text{OE}}$         | 1                          | 3-state output enable input (active LOW) |
| Q0, Q1, Q2, Q3, Q4, Q5, Q6, Q7 | 2, 5, 6, 9, 12, 15, 16, 19 | 3-state latch output                     |
| D0, D1, D2, D3, D4, D5, D6, D7 | 3, 4, 7, 8, 13, 14, 17, 18 | data input                               |
| GND                            | 10                         | ground (0 V)                             |
| LE                             | 11                         | latch enable input (active HIGH)         |
| V <sub>CC</sub>                | 20                         | supply voltage                           |

## 6. Functional description

### 6.1 Function table

Table 3. Function table<sup>[1]</sup>

| Operating mode                              | Control |    | Input | Internal latches | Output |
|---|---------|----|-------|------------------|--------|
|   | OE      | LE | Dn    |                  | Qn     |
| Enable and read register (transparent mode) | L       | H  | L     | L                | L      |
|   |         |    | H     | H                | H      |
| Latch and read register                     | L       | L  | l     | L                | L      |
|   |         |    | h     | H                | H      |
| Latch register and disable outputs          | H       | X  | X     | X                | Z      |

- [1] H = HIGH voltage level;  
 h = HIGH voltage level one set-up time prior to the HIGH-to-LOW LE transition;  
 L = LOW voltage level;  
 l = LOW voltage level one set-up time prior to the HIGH-to-LOW LE transition;  
 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       | V    |
| $I_{IK}$  | input clamping current  | $V_I < -0.5\text{ V}$ or $V_I > V_{CC} + 0.5\text{ V}$ | -    | $\pm 20$ | mA   |
| $I_{OK}$  | output clamping current | $V_O < -0.5\text{ V}$ or $V_O > V_{CC} + 0.5\text{ V}$ | -    | $\pm 20$ | mA   |
| $I_O$     | output current          | $V_O = -0.5\text{ V}$ to $(V_{CC} + 0.5\text{ V})$     | -    | $\pm 35$ | mA   |
| $I_{CC}$  | supply current          |  | -    | +70      | mA   |
| $I_{GND}$ | ground current          |  | -    | -70      | mA   |
| $T_{stg}$ | storage temperature     |  | -65  | +150     | °C   |
| $P_{tot}$ | total power dissipation | SO20 package <a href="#">[1]</a>                       | -    | 500      | mW   |
|           |                         | SSOP20 package <a href="#">[2]</a>                     | -    | 500      | mW   |
|           |                         | TSSOP20 package <a href="#">[2]</a>                    | -    | 500      | mW   |
|           |                         | DHVQFN20 package <a href="#">[3]</a>                   | -    | 500      | mW   |

- [1] For SO20:  $P_{tot}$  derates linearly with 8 mW/K above 70 °C.  
 [2] For SSOP20 and TSSOP20 packages:  $P_{tot}$  derates linearly with 5.5 mW/K above 60 °C.  
 [3] For DHVQFN20 package:  $P_{tot}$  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              | 74HC373 |      |                 | 74HCT373 |      |                 | Unit |
|------------------|-------------------------------------|-------------------------|---------|------|-----------------|----------|------|-----------------|------|
|                  |                                     |                         | Min     | Typ  | Max             | Min      | Typ  | Max             |      |
| V <sub>CC</sub>  | supply voltage                      |                         | 2.0     | 5.0  | 6.0             | 4.5      | 5.0  | 5.5             | V    |
| V <sub>I</sub>   | input voltage                       |                         | 0       | -    | V <sub>CC</sub> | 0        | -    | V <sub>CC</sub> | V    |
| V <sub>O</sub>   | output voltage                      |                         | 0       | -    | V <sub>CC</sub> | 0        | -    | V <sub>CC</sub> | V    |
| T <sub>amb</sub> | ambient temperature                 |                         | -40     | +25  | +125            | -40      | +25  | +125            | °C   |
| Δt/ΔV            | input transition rise and fall rate | V <sub>CC</sub> = 2.0 V | -       | -    | 625             | -        | -    | -               | ns/V |
|                  |                                     | V <sub>CC</sub> = 4.5 V | -       | 1.67 | 139             | -        | 1.67 | 139             | ns/V |
|                  |                                     | V <sub>CC</sub> = 6.0 V | -       | -    | 83              | -        | -    | -               | ns/V |

## 9. Static characteristics

**Table 6. Static characteristics 74HC373**

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

| Symbol                         | Parameter                 | Conditions  | Min  | Typ  | Max  | Unit |
|--------------------------------|---------------------------|---|------|------|------|------|
| <b>T<sub>amb</sub> = 25 °C</b> |                           |   |      |      |      |      |
| V <sub>IH</sub>                | HIGH-level input voltage  | V <sub>CC</sub> = 2.0 V   | 1.5  | 1.2  | -    | V    |
|                                |                           | V <sub>CC</sub> = 4.5 V   | 3.15 | 2.4  | -    | V    |
|                                |                           | V <sub>CC</sub> = 6.0 V   | 4.2  | 3.2  | -    | V    |
| V <sub>IL</sub>                | LOW-level input voltage   | V <sub>CC</sub> = 2.0 V   | -    | 0.8  | 0.5  | V    |
|                                |                           | V <sub>CC</sub> = 4.5 V   | -    | 2.1  | 1.35 | V    |
|                                |                           | V <sub>CC</sub> = 6.0 V   | -    | 2.8  | 1.8  | V    |
| V <sub>OH</sub>                | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>   | -    | -    | -    |      |
|                                |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 2.0 V  | 1.9  | 2.0  | -    | V    |
|                                |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 4.5 V  | 4.4  | 4.5  | -    | V    |
|                                |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 6.0 V  | 5.9  | 6.0  | -    | V    |
|                                |                           | I <sub>O</sub> = -6.0 mA; V <sub>CC</sub> = 4.5 V   | 3.98 | 4.32 | -    | V    |
| V <sub>OL</sub>                | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>   |      |      |      |      |
|                                |                           | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 2.0 V   | -    | 0    | 0.1  | V    |
|                                |                           | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 4.5 V   | -    | 0    | 0.1  | V    |
|                                |                           | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 6.0 V   | -    | 0    | 0.1  | V    |
|                                |                           | I <sub>O</sub> = 6.0 mA; V <sub>CC</sub> = 4.5 V  | -    | 0.15 | 0.26 | V    |
|                                |                           | I <sub>O</sub> = 7.8 mA; V <sub>CC</sub> = 6.0 V  | -    | 0.16 | 0.26 | V    |
|                                |                           |   |      |      |      |      |
| I <sub>I</sub>                 | input leakage current     | V <sub>I</sub> = V <sub>CC</sub> or GND; V <sub>CC</sub> = 6.0 V  | -    | -    | ±0.1 | μA   |
| I <sub>OZ</sub>                | OFF-state output current  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; V <sub>CC</sub> = 6.0 V;<br>V <sub>O</sub> = V <sub>CC</sub> or GND | -    | -    | ±0.5 | μA   |
| I <sub>CC</sub>                | supply current            | V <sub>CC</sub> = 6.0 V; I <sub>O</sub> = 0 A;<br>V <sub>I</sub> = V <sub>CC</sub> or GND                                 | -    | -    | 8.0  | μA   |
| C <sub>I</sub>                 | input capacitance         |   | -    | 3.5  | -    | pF   |

**Table 6.** Static characteristics 74HC373 ...continued

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

| Symbol  | Parameter                 | Conditions   | Min  | Typ | Max  | Unit |
|---|---------------------------|--|------|-----|------|------|
| <b>T<sub>amb</sub> = -40 °C to +85 °C</b>         |                           |  |      |     |      |      |
| V <sub>IH</sub>                                   | HIGH-level input voltage  | V <sub>CC</sub> = 2.0 V  | 1.5  | -   | -    | V    |
|   |                           | V <sub>CC</sub> = 4.5 V  | 3.15 | -   | -    | V    |
|   |                           | V <sub>CC</sub> = 6.0 V  | 4.2  | -   | -    | V    |
| V <sub>IL</sub>                                   | LOW-level input voltage   | V <sub>CC</sub> = 2.0 V  | -    | -   | 0.5  | V    |
|   |                           | V <sub>CC</sub> = 4.5 V  | -    | -   | 1.35 | V    |
|   |                           | V <sub>CC</sub> = 6.0 V  | -    | -   | 1.8  | V    |
| V <sub>OH</sub>                                   | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>  |      |     |      |      |
|   |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 2.0 V   | 1.9  | -   | -    | V    |
|   |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 4.5 V   | 4.4  | -   | -    | V    |
|   |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 6.0 V   | 5.9  | -   | -    | V    |
|   |                           | I <sub>O</sub> = -6.0 mA; V <sub>CC</sub> = 4.5 V  | 3.84 | -   | -    | V    |
| V <sub>OL</sub>                                   | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>  |      |     |      |      |
|   |                           | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 2.0 V  | -    | -   | 0.1  | V    |
|   |                           | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 4.5 V  | -    | -   | 0.1  | V    |
|   |                           | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 6.0 V  | -    | -   | 0.1  | V    |
|   |                           | I <sub>O</sub> = 6.0 mA; V <sub>CC</sub> = 4.5 V   | -    | -   | 0.33 | V    |
| I <sub>I</sub>                                    | input leakage current     | V <sub>I</sub> = V <sub>CC</sub> or GND; V <sub>CC</sub> = 6.0 V   | -    | -   | ±1.0 | μA   |
|   |                           | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; V <sub>CC</sub> = 6.0 V; V <sub>O</sub> = V <sub>CC</sub> or GND | -    | -   | ±5.0 | μA   |
| I <sub>CC</sub>                                   | supply current            | V <sub>CC</sub> = 6.0 V; I <sub>O</sub> = 0 A; V <sub>I</sub> = V <sub>CC</sub> or GND                                 | -    | -   | 80   | μA   |
| <b>T<sub>amb</sub> = -40 °C to +125 °C</b>        |                           |  |      |     |      |      |
| V <sub>IH</sub>                                   | HIGH-level input voltage  | V <sub>CC</sub> = 2.0 V  | 1.5  | -   | -    | V    |
|   |                           | V <sub>CC</sub> = 4.5 V  | 3.15 | -   | -    | V    |
|   |                           | V <sub>CC</sub> = 6.0 V  | 4.2  | -   | -    | V    |
| V <sub>IL</sub>                                   | LOW-level input voltage   | V <sub>CC</sub> = 2.0 V  | -    | -   | 0.5  | V    |
|   |                           | V <sub>CC</sub> = 4.5 V  | -    | -   | 1.35 | V    |
|   |                           | V <sub>CC</sub> = 6.0 V  | -    | -   | 1.8  | V    |
| V <sub>OH</sub>                                   | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>  |      |     |      |      |
|   |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 2.0 V   | 1.9  | -   | -    | V    |
|   |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 4.5 V   | 4.4  | -   | -    | V    |
|   |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 6.0 V   | 5.9  | -   | -    | V    |
|   |                           | I <sub>O</sub> = -6.0 mA; V <sub>CC</sub> = 4.5 V  | 3.7  | -   | -    | V    |
| I <sub>O</sub> = -7.8 mA; V <sub>CC</sub> = 6.0 V |                           | 5.2  | -    | -   | V    |      |

**Table 6.** Static characteristics 74HC373 ...continued

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

| Symbol          | Parameter                | Conditions  | Min | Typ | Max   | Unit |
|-----------------|--------------------------|---|-----|-----|-------|------|
| V <sub>OL</sub> | LOW-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>   |     |     |       |      |
|                 |                          | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 2.0 V   | -   | -   | 0.1   | V    |
|                 |                          | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 4.5 V   | -   | -   | 0.1   | V    |
|                 |                          | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 6.0 V   | -   | -   | 0.1   | V    |
|                 |                          | I <sub>O</sub> = 6.0 mA; V <sub>CC</sub> = 4.5 V  | -   | -   | 0.4   | V    |
|                 |                          | I <sub>O</sub> = 7.8 mA; V <sub>CC</sub> = 6.0 V  | -   | -   | 0.4   | V    |
| I <sub>I</sub>  | input leakage current    | V <sub>I</sub> = V <sub>CC</sub> or GND; V <sub>CC</sub> = 6.0 V  | -   | -   | ±1.0  | μA   |
| I <sub>OZ</sub> | OFF-state output current | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; V <sub>CC</sub> = 6.0 V;<br>V <sub>O</sub> = V <sub>CC</sub> or GND | -   | -   | ±10.0 | μA   |
| I <sub>CC</sub> | supply current           | V <sub>CC</sub> = 6.0 V; I <sub>O</sub> = 0 A;<br>V <sub>I</sub> = V <sub>CC</sub> or GND                                 | -   | -   | 160   | μA   |

**Table 7.** Static characteristics 74HCT373

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

| Symbol                                    | Parameter                 | Conditions   | Min  | Typ  | Max  | Unit |
|---|---------------------------|--|------|------|------|------|
| <b>T<sub>amb</sub> = 25 °C</b>            |                           |  |      |      |      |      |
| V <sub>IH</sub>                           | HIGH-level input voltage  | V <sub>CC</sub> = 4.5 V to 5.5 V   | 2.0  | 1.6  | -    | V    |
| V <sub>IL</sub>                           | LOW-level input voltage   | V <sub>CC</sub> = 4.5 V to 5.5 V   | -    | 1.2  | 0.8  | V    |
| V <sub>OH</sub>                           | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>  |      |      |      |      |
|   |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 4.5 V   | 4.4  | 4.5  | -    | V    |
|   |                           | I <sub>O</sub> = -6.0 mA; V <sub>CC</sub> = 4.5 V  | 3.98 | 4.32 | -    | V    |
| V <sub>OL</sub>                           | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>  |      |      |      |      |
|   |                           | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 4.5 V  | -    | 0.0  | 0.1  | V    |
|   |                           | I <sub>O</sub> = 6.0 mA; V <sub>CC</sub> = 4.5 V   | -    | 0.16 | 0.26 | V    |
| I <sub>I</sub>                            | input leakage current     | V <sub>I</sub> = V <sub>CC</sub> or GND; V <sub>CC</sub> = 5.5 V   | -    | -    | ±0.1 | μA   |
| I <sub>OZ</sub>                           | OFF-state output current  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; V <sub>CC</sub> = 5.5 V;<br>V <sub>O</sub> = V <sub>CC</sub> or GND                      | -    | -    | ±0.5 | μA   |
| I <sub>CC</sub>                           | supply current            | V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A;<br>V <sub>CC</sub> = 5.5 V  | -    | -    | 8.0  | μA   |
| ΔI <sub>CC</sub>                          | additional supply current | V <sub>I</sub> = V <sub>CC</sub> - 2.1 V;<br>other inputs at V <sub>CC</sub> or GND;<br>V <sub>CC</sub> = 4.5 V to 5.5 V; I <sub>O</sub> = 0 A |      |      |      |      |
|   |                           | D <sub>n</sub>   | -    | 30   | 108  | μA   |
|   |                           | LE   | -    | 150  | 540  | μA   |
|   |                           | OE   | -    | 100  | 360  | μA   |
| C <sub>I</sub>                            | input capacitance         |  | -    | 3.5  | -    | pF   |
| <b>T<sub>amb</sub> = -40 °C to +85 °C</b> |                           |  |      |      |      |      |
| V <sub>IH</sub>                           | HIGH-level input voltage  | V <sub>CC</sub> = 4.5 V to 5.5 V   | 2.0  | -    | -    | V    |
| V <sub>IL</sub>                           | LOW-level input voltage   | V <sub>CC</sub> = 4.5 V to 5.5 V   | -    | -    | 0.8  | V    |
| V <sub>OH</sub>                           | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>  |      |      |      |      |
|   |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 4.5 V   | 4.4  | -    | -    | V    |
|   |                           | I <sub>O</sub> = -6.0 μA; V <sub>CC</sub> = 4.5 V  | 3.84 | -    | -    | V    |



**Table 7. Static characteristics 74HCT373 ...continued**

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

| Symbol                                     | Parameter                 | Conditions   | Min | Typ | Max  | Unit |
|--|---------------------------|--|-----|-----|------|------|
| V <sub>OL</sub>                            | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>  |     |     |      |      |
|  |                           | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 4.5 V  | -   | -   | 0.1  | V    |
|  |                           | I <sub>O</sub> = 6.0 mA; V <sub>CC</sub> = 4.5 V   | -   | -   | 0.33 | V    |
| I <sub>I</sub>                             | input leakage current     | V <sub>I</sub> = V <sub>CC</sub> or GND; V <sub>CC</sub> = 5.5 V   | -   | -   | ±1.0 | μA   |
| I <sub>OZ</sub>                            | OFF-state output current  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; V <sub>CC</sub> = 5.5 V;<br>V <sub>O</sub> = V <sub>CC</sub> or GND                      | -   | -   | ±5.0 | μA   |
| I <sub>CC</sub>                            | supply current            | V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A;<br>V <sub>CC</sub> = 5.5 V  | -   | -   | 80   | μA   |
| ΔI <sub>CC</sub>                           | additional supply current | V <sub>I</sub> = V <sub>CC</sub> - 2.1 V;<br>other inputs at V <sub>CC</sub> or GND;<br>V <sub>CC</sub> = 4.5 V to 5.5 V; I <sub>O</sub> = 0 A |     |     |      |      |
|  |                           | D <sub>n</sub>   | -   | -   | 135  | μA   |
|  |                           | LE   | -   | -   | 675  | μA   |
|  |                           | $\overline{\text{OE}}$   | -   | -   | 450  | μA   |
| <b>T<sub>amb</sub> = -40 °C to +125 °C</b> |                           |  |     |     |      |      |
| V <sub>IH</sub>                            | HIGH-level input voltage  | V <sub>CC</sub> = 4.5 V to 5.5 V   | 2.0 | -   | -    | V    |
| V <sub>IL</sub>                            | LOW-level input voltage   | V <sub>CC</sub> = 4.5 V to 5.5 V   | -   | -   | 0.8  | V    |
| V <sub>OH</sub>                            | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>  |     |     |      |      |
|  |                           | I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 4.5 V   | 4.4 | -   | -    | V    |
|  |                           | I <sub>O</sub> = -6.0 mA; V <sub>CC</sub> = 4.5 V  | 3.7 | -   | -    | V    |
| V <sub>OL</sub>                            | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>  |     |     |      |      |
|  |                           | I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 4.5 V  | -   | -   | 0.1  | V    |
|  |                           | I <sub>O</sub> = 6.0 mA; V <sub>CC</sub> = 4.5 V   | -   | -   | 0.4  | V    |
| I <sub>I</sub>                             | input leakage current     | V <sub>I</sub> = V <sub>CC</sub> or GND; V <sub>CC</sub> = 5.5 V   | -   | -   | ±1.0 | μA   |
| I <sub>OZ</sub>                            | OFF-state output current  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; V <sub>CC</sub> = 5.5 V;<br>V <sub>O</sub> = V <sub>CC</sub> or GND                      | -   | -   | ±10  | μA   |
| I <sub>CC</sub>                            | supply current            | V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A;<br>V <sub>CC</sub> = 5.5 V  | -   | -   | 160  | μA   |
| ΔI <sub>CC</sub>                           | additional supply current | V <sub>I</sub> = V <sub>CC</sub> - 2.1 V;<br>other inputs at V <sub>CC</sub> or GND;<br>V <sub>CC</sub> = 4.5 V to 5.5 V; I <sub>O</sub> = 0 A |     |     |      |      |
|  |                           | D <sub>n</sub>   | -   | -   | 147  | μA   |
|  |                           | LE   | -   | -   | 735  | μA   |
|  |                           | $\overline{\text{OE}}$   | -   | -   | 490  | μA   |

## 10. Dynamic characteristics

**Table 8. Dynamic characteristics 74HC373**

Voltages are referenced to GND (ground = 0 V);  $C_L = 50$  pF unless otherwise specified; for test circuit see [Figure 12](#).

| Symbol                         | Parameter                     | Conditions   | Min | Typ | Max | Unit |
|--------------------------------|-------------------------------|--|-----|-----|-----|------|
| <b>T<sub>amb</sub> = 25 °C</b> |                               |  |     |     |     |      |
| t <sub>pd</sub>                | propagation delay             | Dn to Qn; see <a href="#">Figure 8</a> <sup>[1]</sup>                        |     |     |     |      |
|                                |                               | V <sub>CC</sub> = 2.0 V  | -   | 41  | 150 | ns   |
|                                |                               | V <sub>CC</sub> = 4.5 V  | -   | 15  | 30  | ns   |
|                                |                               | V <sub>CC</sub> = 5 V; C <sub>L</sub> = 15 pF                                | -   | 12  | -   | ns   |
|                                |                               | V <sub>CC</sub> = 6.0 V  | -   | 12  | 26  | ns   |
|                                |                               | LE to Qn; see <a href="#">Figure 9</a>                                       |     |     |     |      |
|                                |                               | V <sub>CC</sub> = 2.0 V  | -   | 50  | 175 | ns   |
|                                |                               | V <sub>CC</sub> = 4.5 V  | -   | 18  | 35  | ns   |
|                                |                               | V <sub>CC</sub> = 5 V; C <sub>L</sub> = 15 pF                                | -   | 15  | -   | ns   |
| V <sub>CC</sub> = 6.0 V        | -                             | 14   | 30  | ns  |     |      |
| t <sub>en</sub>                | enable time                   | $\overline{\text{OE}}$ to Qn; see <a href="#">Figure 10</a> <sup>[2]</sup>   |     |     |     |      |
|                                |                               | V <sub>CC</sub> = 2.0 V  | -   | 44  | 150 | ns   |
|                                |                               | V <sub>CC</sub> = 4.5 V  | -   | 16  | 30  | ns   |
|                                |                               | V <sub>CC</sub> = 6.0 V  | -   | 13  | 26  | ns   |
| t <sub>dis</sub>               | disable time                  | $\overline{\text{OE}}$ to Qn; see <a href="#">Figure 10</a> <sup>[3]</sup>   |     |     |     |      |
|                                |                               | V <sub>CC</sub> = 2.0 V  | -   | 47  | 150 | ns   |
|                                |                               | V <sub>CC</sub> = 4.5 V  | -   | 17  | 30  | ns   |
|                                |                               | V <sub>CC</sub> = 6.0 V  | -   | 14  | 26  | ns   |
| t <sub>t</sub>                 | transition time               | Qn; see <a href="#">Figure 8</a> and <a href="#">Figure 9</a> <sup>[4]</sup> |     |     |     |      |
|                                |                               | V <sub>CC</sub> = 2.0 V  | -   | 14  | 60  | ns   |
|                                |                               | V <sub>CC</sub> = 4.5 V  | -   | 5   | 12  | ns   |
|                                |                               | V <sub>CC</sub> = 6.0 V  | -   | 4   | 10  | ns   |
| t <sub>w</sub>                 | pulse width                   | LE HIGH; see <a href="#">Figure 9</a>  |     |     |     |      |
|                                |                               | V <sub>CC</sub> = 2.0 V  | 80  | 17  | -   | ns   |
|                                |                               | V <sub>CC</sub> = 4.5 V  | 16  | 6   | -   | ns   |
|                                |                               | V <sub>CC</sub> = 6.0 V  | 14  | 5   | -   | ns   |
| t <sub>su</sub>                | set-up time                   | Dn to LE; see <a href="#">Figure 11</a>                                      |     |     |     |      |
|                                |                               | V <sub>CC</sub> = 2.0 V  | 50  | 14  | -   | ns   |
|                                |                               | V <sub>CC</sub> = 4.5 V  | 10  | 5   | -   | ns   |
|                                |                               | V <sub>CC</sub> = 6.0 V  | 9   | 4   | -   | ns   |
| t <sub>h</sub>                 | hold time                     | Dn to LE; see <a href="#">Figure 11</a>                                      |     |     |     |      |
|                                |                               | V <sub>CC</sub> = 2.0 V  | +5  | -8  | -   | ns   |
|                                |                               | V <sub>CC</sub> = 4.5 V  | +5  | -3  | -   | ns   |
|                                |                               | V <sub>CC</sub> = 6.0 V  | +5  | -2  | -   | ns   |
| C <sub>PD</sub>                | power dissipation capacitance | per latch; V <sub>I</sub> = GND to V <sub>CC</sub> <sup>[5]</sup>            | -   | 45  | -   | pF   |

**Table 8. Dynamic characteristics 74HC373 ...continued**

Voltages are referenced to GND (ground = 0 V);  $C_L = 50$  pF unless otherwise specified; for test circuit see [Figure 12](#).

| Symbol                         | Parameter         | Conditions   | Min | Typ | Max | Unit |
|--------------------------------|-------------------|--|-----|-----|-----|------|
| $T_{amb} = -40$ °C to $+85$ °C |                   |  |     |     |     |      |
| $t_{pd}$                       | propagation delay | Dn to Qn; see <a href="#">Figure 8</a> <sup>[1]</sup>                        |     |     |     |      |
|                                |                   | $V_{CC} = 2.0$ V   | -   | -   | 190 | ns   |
|                                |                   | $V_{CC} = 4.5$ V   | -   | -   | 38  | ns   |
|                                |                   | $V_{CC} = 6.0$ V   | -   | -   | 33  | ns   |
|                                |                   | LE to Qn; see <a href="#">Figure 9</a>                                       |     |     |     |      |
|                                |                   | $V_{CC} = 2.0$ V   | -   | -   | 220 | ns   |
|                                |                   | $V_{CC} = 4.5$ V   | -   | -   | 44  | ns   |
| $t_{en}$                       | enable time       | $\overline{OE}$ to Qn; see <a href="#">Figure 10</a> <sup>[2]</sup>          |     |     |     |      |
|                                |                   | $V_{CC} = 2.0$ V   | -   | -   | 190 | ns   |
|                                |                   | $V_{CC} = 4.5$ V   | -   | -   | 38  | ns   |
| $t_{dis}$                      | disable time      | $\overline{OE}$ to Qn; see <a href="#">Figure 10</a> <sup>[3]</sup>          |     |     |     |      |
|                                |                   | $V_{CC} = 2.0$ V   | -   | -   | 190 | ns   |
|                                |                   | $V_{CC} = 4.5$ V   | -   | -   | 38  | ns   |
| $t_t$                          | transition time   | Qn; see <a href="#">Figure 8</a> and <a href="#">Figure 9</a> <sup>[4]</sup> |     |     |     |      |
|                                |                   | $V_{CC} = 2.0$ V   | -   | -   | 75  | ns   |
|                                |                   | $V_{CC} = 4.5$ V   | -   | -   | 15  | ns   |
| $t_W$                          | pulse width       | LE HIGH; see <a href="#">Figure 9</a>  |     |     |     |      |
|                                |                   | $V_{CC} = 2.0$ V   | 100 | -   | -   | ns   |
|                                |                   | $V_{CC} = 4.5$ V   | 20  | -   | -   | ns   |
| $t_{su}$                       | set-up time       | Dn to LE; see <a href="#">Figure 11</a>                                      |     |     |     |      |
|                                |                   | $V_{CC} = 2.0$ V   | 65  | -   | -   | ns   |
|                                |                   | $V_{CC} = 4.5$ V   | 13  | -   | -   | ns   |
| $t_h$                          | hold time         | Dn to LE; see <a href="#">Figure 11</a>                                      |     |     |     |      |
|                                |                   | $V_{CC} = 2.0$ V   | 5   | -   | -   | ns   |
|                                |                   | $V_{CC} = 4.5$ V   | 5   | -   | -   | ns   |
| $t_h$                          | hold time         | $V_{CC} = 6.0$ V   | 5   | -   | -   | ns   |

**Table 8.** Dynamic characteristics 74HC373 ...continued

Voltages are referenced to GND (ground = 0 V);  $C_L = 50$  pF unless otherwise specified; for test circuit see [Figure 12](#).

| Symbol   | Parameter         | Conditions   | Min | Typ | Max | Unit |
|--|-------------------|--|-----|-----|-----|------|
| <b><math>T_{amb} = -40</math> °C to <math>+125</math> °C</b> |                   |  |     |     |     |      |
| $t_{pd}$   | propagation delay | Dn to Qn; see <a href="#">Figure 8</a> <sup>[1]</sup>                        |     |     |     |      |
|  |                   | $V_{CC} = 2.0$ V   | -   | -   | 225 | ns   |
|  |                   | $V_{CC} = 4.5$ V   | -   | -   | 45  | ns   |
|  |                   | $V_{CC} = 6.0$ V   | -   | -   | 38  | ns   |
|  |                   | LE to Qn; see <a href="#">Figure 9</a>                                       |     |     |     |      |
|  |                   | $V_{CC} = 2.0$ V   | -   | -   | 265 | ns   |
|  |                   | $V_{CC} = 4.5$ V   | -   | -   | 53  | ns   |
| $t_{en}$   | enable time       | $\overline{OE}$ to Qn; see <a href="#">Figure 10</a> <sup>[2]</sup>          |     |     |     |      |
|  |                   | $V_{CC} = 2.0$ V   | -   | -   | 225 | ns   |
|  |                   | $V_{CC} = 4.5$ V   | -   | -   | 45  | ns   |
| $t_{dis}$  | disable time      | $\overline{OE}$ to Qn; see <a href="#">Figure 10</a> <sup>[3]</sup>          |     |     |     |      |
|  |                   | $V_{CC} = 2.0$ V   | -   | -   | 225 | ns   |
|  |                   | $V_{CC} = 4.5$ V   | -   | -   | 45  | ns   |
| $t_t$  | transition time   | Qn; see <a href="#">Figure 8</a> and <a href="#">Figure 9</a> <sup>[4]</sup> |     |     |     |      |
|  |                   | $V_{CC} = 2.0$ V   | -   | -   | 90  | ns   |
|  |                   | $V_{CC} = 4.5$ V   | -   | -   | 18  | ns   |
| $t_W$  | pulse width       | LE HIGH; see <a href="#">Figure 9</a>  |     |     |     |      |
|  |                   | $V_{CC} = 2.0$ V   | 120 | -   | -   | ns   |
|  |                   | $V_{CC} = 4.5$ V   | 24  | -   | -   | ns   |
| $t_{su}$   | set-up time       | Dn to LE; see <a href="#">Figure 11</a>                                      |     |     |     |      |
|  |                   | $V_{CC} = 2.0$ V   | 75  | -   | -   | ns   |
|  |                   | $V_{CC} = 4.5$ V   | 15  | -   | -   | ns   |
|  |                   | $V_{CC} = 6.0$ V   | 13  | -   | -   | ns   |

**Table 8.** Dynamic characteristics 74HC373 ...continued

Voltages are referenced to GND (ground = 0 V);  $C_L = 50$  pF unless otherwise specified; for test circuit see [Figure 12](#).

| Symbol | Parameter | Conditions                              | Min | Typ | Max | Unit |
|--------|-----------|---|-----|-----|-----|------|
| $t_h$  | hold time | Dn to LE; see <a href="#">Figure 11</a> |     |     |     |      |
|        |           | $V_{CC} = 2.0$ V                        | 5   | -   | -   | ns   |
|        |           | $V_{CC} = 4.5$ V                        | 5   | -   | -   | ns   |
|        |           | $V_{CC} = 6.0$ V                        | 5   | -   | -   | ns   |

- [1]  $t_{pd}$  is the same as  $t_{PLH}$  and  $t_{PHL}$ .  
 [2]  $t_{en}$  is the same as  $t_{PZH}$  and  $t_{PZL}$ .  
 [3]  $t_{dis}$  is the same as  $t_{PLZ}$  and  $t_{PHZ}$ .  
 [4]  $t_t$  is the same as  $t_{THL}$  and  $t_{TLH}$ .  
 [5]  $C_{PD}$  is used to determine the dynamic power dissipation ( $P_D$  in  $\mu$ W).  
 $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \sum(C_L \times V_{CC}^2 \times f_o)$  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 V;  
 $N$  = number of inputs switching;  
 $\sum(C_L \times V_{CC}^2 \times f_o)$  = sum of outputs.

**Table 9.** Dynamic characteristics 74HCT373

Voltages are referenced to GND (ground = 0 V);  $C_L = 50$  pF unless otherwise specified; for test circuit see [Figure 12](#).

| Symbol                              | Parameter                     | Conditions  | Min | Typ | Max | Unit |
|-------------------------------------|-------------------------------|---|-----|-----|-----|------|
| <b><math>T_{amb} = 25</math> °C</b> |                               |   |     |     |     |      |
| $t_{pd}$                            | propagation delay             | Dn to Qn; see <a href="#">Figure 8</a> <a href="#">[1]</a>                        |     |     |     |      |
|                                     |                               | $V_{CC} = 4.5$ V  | -   | 17  | 30  | ns   |
|                                     |                               | $V_{CC} = 5$ V; $C_L = 15$ pF   | -   | 14  | -   | ns   |
|                                     |                               | LE to Qn; see <a href="#">Figure 9</a>  |     |     |     |      |
|                                     |                               | $V_{CC} = 4.5$ V  | -   | 16  | 32  | ns   |
|                                     |                               | $V_{CC} = 5$ V; $C_L = 15$ pF   | -   | 13  | -   | ns   |
| $t_{en}$                            | enable time                   | $\overline{OE}$ to Qn; see <a href="#">Figure 10</a> <a href="#">[2]</a>          |     |     |     |      |
|                                     |                               | $V_{CC} = 4.5$ V  | -   | 19  | 32  | ns   |
| $t_{dis}$                           | disable time                  | $\overline{OE}$ to Qn; see <a href="#">Figure 10</a> <a href="#">[3]</a>          |     |     |     |      |
|                                     |                               | $V_{CC} = 4.5$ V  | -   | 18  | 30  | ns   |
| $t_t$                               | transition time               | Qn; see <a href="#">Figure 8</a> and <a href="#">Figure 9</a> <a href="#">[4]</a> |     |     |     |      |
|                                     |                               | $V_{CC} = 4.5$ V  | -   | 5   | 12  | ns   |
| $t_W$                               | pulse width                   | LE HIGH; see <a href="#">Figure 9</a>   |     |     |     |      |
|                                     |                               | $V_{CC} = 4.5$ V  | 16  | 4   | -   | ns   |
| $t_{su}$                            | set-up time                   | Dn to LE; see <a href="#">Figure 11</a>   |     |     |     |      |
|                                     |                               | $V_{CC} = 4.5$ V  | 12  | 6   | -   | ns   |
| $t_h$                               | hold time                     | Dn to LE; see <a href="#">Figure 11</a>   |     |     |     |      |
|                                     |                               | $V_{CC} = 4.5$ V  | 4   | -1  | -   | ns   |
| $C_{PD}$                            | power dissipation capacitance | per latch;<br>$V_1 = \text{GND to } (V_{CC} - 1.5 \text{ V})$ <a href="#">[5]</a> | -   | 41  | -   | pF   |

**Table 9. Dynamic characteristics 74HCT373 ...continued**

Voltages are referenced to GND (ground = 0 V);  $C_L = 50$  pF unless otherwise specified; for test circuit see [Figure 12](#).

| Symbol   | Parameter         | Conditions  | Min | Typ | Max | Unit |
|--|-------------------|---|-----|-----|-----|------|
| <b><math>T_{amb} = -40</math> °C to <math>+85</math> °C</b>  |                   |   |     |     |     |      |
| $t_{pd}$   | propagation delay | Dn to Qn; see <a href="#">Figure 8</a> [1]                        |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | -   | -   | 38  | ns   |
|  |                   | LE to Qn; see <a href="#">Figure 9</a>                            |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | -   | -   | 40  | ns   |
| $t_{en}$   | enable time       | $\overline{OE}$ to Qn; see <a href="#">Figure 10</a> [2]          |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | -   | -   | 40  | ns   |
| $t_{dis}$  | disable time      | $\overline{OE}$ to Qn; see <a href="#">Figure 10</a> [3]          |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | -   | -   | 38  | ns   |
| $t_t$  | transition time   | Qn; see <a href="#">Figure 8</a> and <a href="#">Figure 9</a> [4] |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | -   | -   | 15  | ns   |
| $t_W$  | pulse width       | LE HIGH; see <a href="#">Figure 9</a>                             |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | 20  | -   | -   | ns   |
| $t_{su}$   | set-up time       | Dn to LE; see <a href="#">Figure 11</a>                           |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | 15  | -   | -   | ns   |
| $t_h$  | hold time         | Dn to LE; see <a href="#">Figure 11</a>                           |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | 4   | -   | -   | ns   |
| <b><math>T_{amb} = -40</math> °C to <math>+125</math> °C</b> |                   |   |     |     |     |      |
| $t_{pd}$   | propagation delay | Dn to Qn; see <a href="#">Figure 8</a> [1]                        |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | -   | -   | 45  | ns   |
|  |                   | LE to Qn; see <a href="#">Figure 9</a>                            |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | -   | -   | 48  | ns   |
| $t_{en}$   | enable time       | $\overline{OE}$ to Qn; see <a href="#">Figure 10</a> [2]          |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | -   | -   | 48  | ns   |
| $t_{dis}$  | disable time      | $\overline{OE}$ to Qn; see <a href="#">Figure 10</a> [3]          |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | -   | -   | 45  | ns   |
| $t_t$  | transition time   | Qn; see <a href="#">Figure 8</a> and <a href="#">Figure 9</a> [4] |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | -   | -   | 18  | ns   |
| $t_W$  | pulse width       | LE HIGH; see <a href="#">Figure 9</a>                             |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | 24  | -   | -   | ns   |
| $t_{su}$   | set-up time       | Dn to LE; see <a href="#">Figure 11</a>                           |     |     |     |      |
|  |                   | $V_{CC} = 4.5$ V  | 18  | -   | -   | ns   |

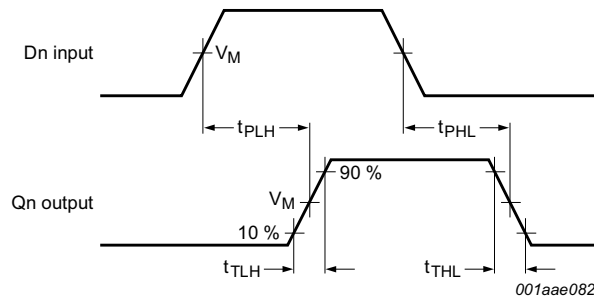
**Table 9. Dynamic characteristics 74HCT373 ...continued**

Voltages are referenced to GND (ground = 0 V);  $C_L = 50$  pF unless otherwise specified; for test circuit see [Figure 12](#).

| Symbol | Parameter | Conditions                              | Min | Typ | Max | Unit |
|--------|-----------|---|-----|-----|-----|------|
| $t_h$  | hold time | Dn to LE; see <a href="#">Figure 11</a> |     |     |     |      |
|        |           | $V_{CC} = 4.5$ V                        | 4   | -   | -   | ns   |

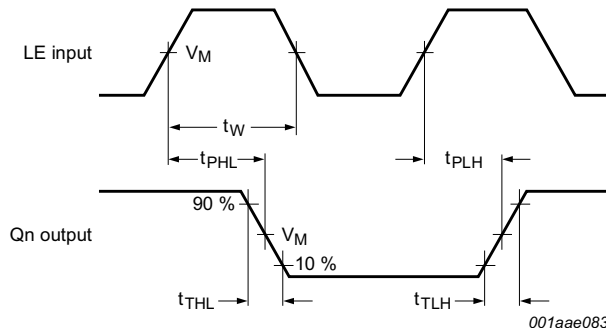
- [1]  $t_{pd}$  is the same as  $t_{PLH}$  and  $t_{PHL}$ .
- [2]  $t_{en}$  is the same as  $t_{PZH}$  and  $t_{PZL}$ .
- [3]  $t_{dis}$  is the same as  $t_{PLZ}$  and  $t_{PHZ}$ .
- [4]  $t_i$  is the same as  $t_{THL}$  and  $t_{TLH}$ .
- [5]  $C_{PD}$  is used to determine the dynamic power dissipation ( $P_D$  in  $\mu$ W).  
 $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \sum(C_L \times V_{CC}^2 \times f_o)$  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 V;  
 $N$  = number of inputs switching;  
 $\sum(C_L \times V_{CC}^2 \times f_o)$  = sum of outputs.

## 11. Waveforms



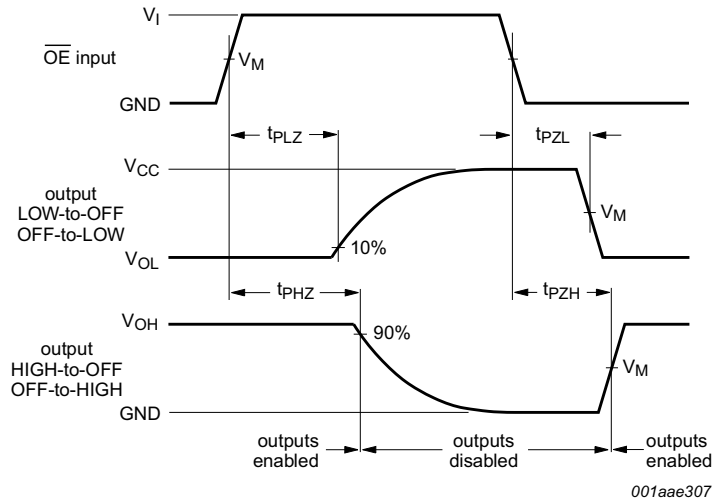
Measurement points are given in [Table 10](#).

**Fig 8. Propagation delay input (Dn) to output (Qn) and transition time output (Qn)**



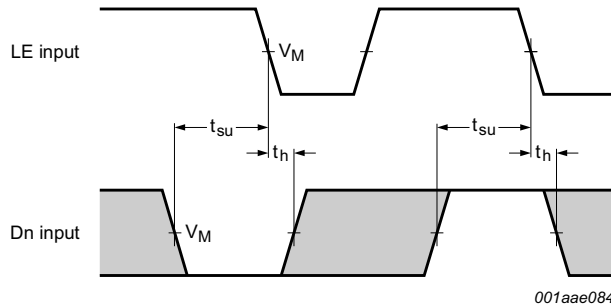
Measurement points are given in [Table 10](#).

**Fig 9. Pulse width latch enable input (LE), propagation delay (LE) to output (Qn) and transition time output (Qn)**



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

**Fig 10. 3-state enable and disable time**



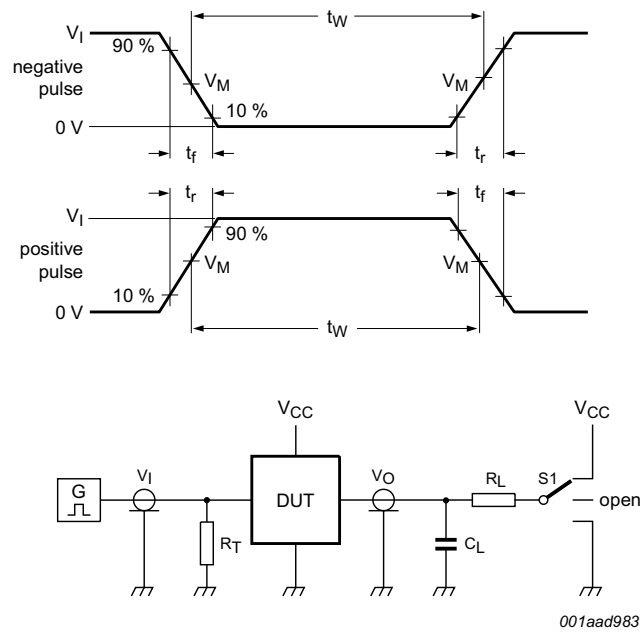
Measurement points are given in [Table 10](#).

**Fig 11. Set-up and hold time data input (Dn) to latch enable input (LE)**

**Table 10. Measurement points**

| Type     | Input       | Output      |
|----------|-------------|-------------|
|          | $V_M$       | $V_M$       |
| 74HC373  | $0.5V_{CC}$ | $0.5V_{CC}$ |
| 74HCT373 | 1.3 V       | 1.3 V       |





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

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 12. Test circuit for measuring switching times**

**Table 11. Test data**

| Type     | Input    |            | Load         |              | S1 position        |                    |                    |
|----------|----------|------------|--------------|--------------|--------------------|--------------------|--------------------|
|          | $V_I$    | $t_r, t_f$ | $C_L$        | $R_L$        | $t_{PHL}, t_{PLH}$ | $t_{PZH}, t_{PHZ}$ | $t_{PZL}, t_{PLZ}$ |
| 74HC373  | $V_{CC}$ | 6 ns       | 15 pF, 50 pF | 1 k $\Omega$ | open               | GND                | $V_{CC}$           |
| 74HCT373 | 3 V      | 6 ns       | 15 pF, 50 pF | 1 k $\Omega$ | open               | GND                | $V_{CC}$           |

12. Package outline

SO20: plastic small outline package; 20 leads; body width 7.5 mm

SOT163-1

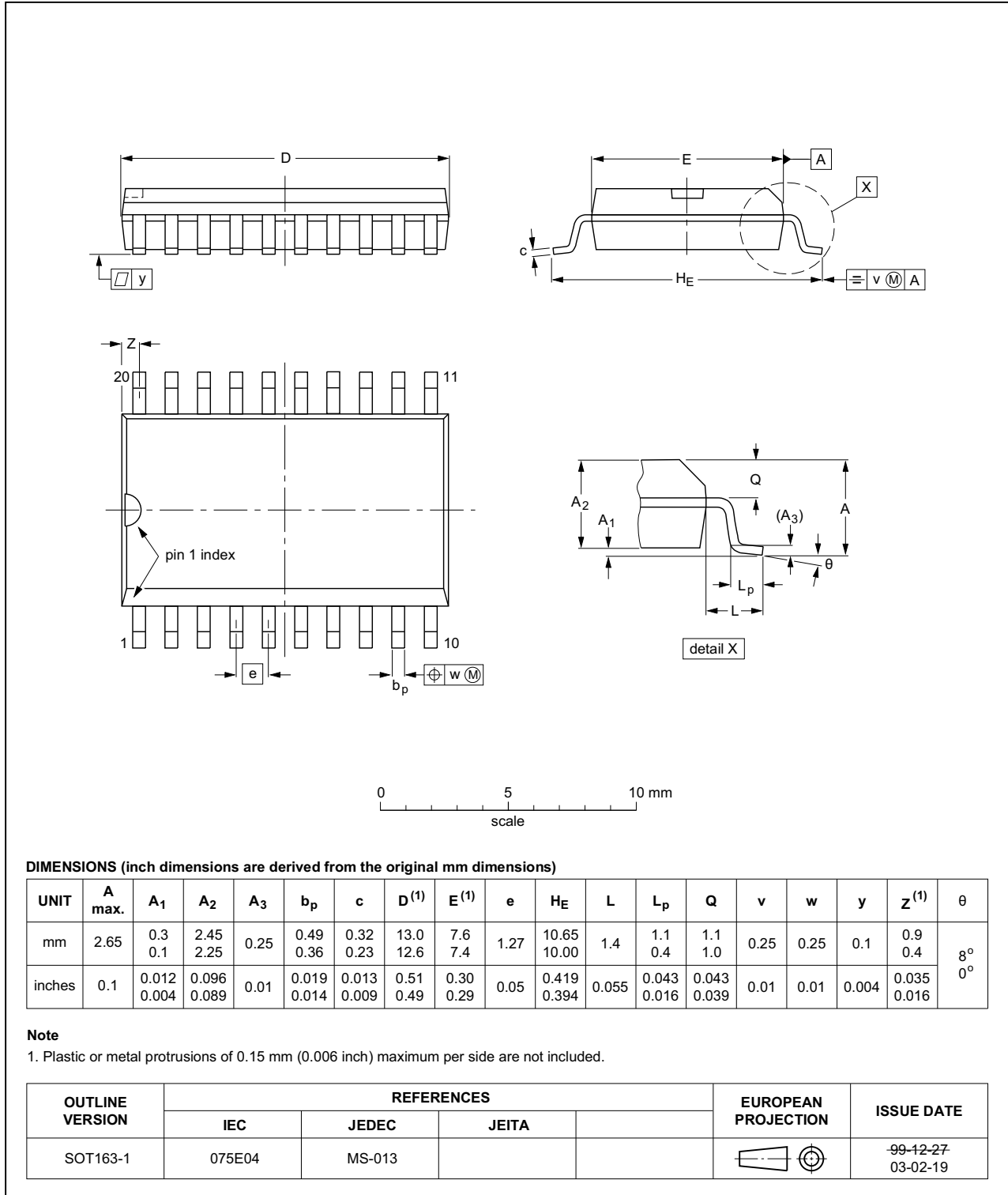


Fig 13. Package outline SOT163-1 (SO20)

SSOP20: plastic shrink small outline package; 20 leads; body width 5.3 mm

SOT339-1

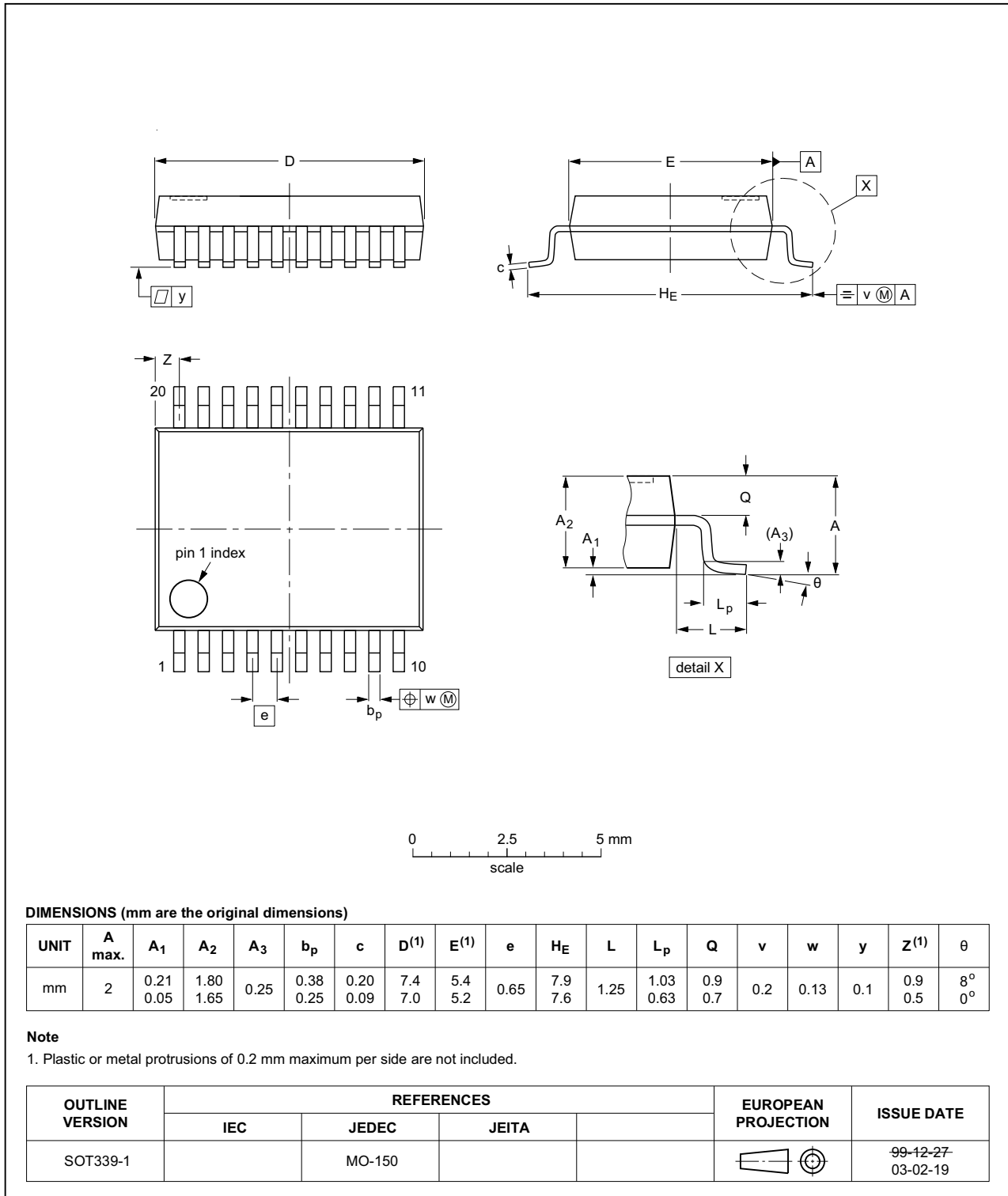


Fig 14. Package outline SOT339-1 (SSOP20)

TSSOP20: plastic thin shrink small outline package; 20 leads; body width 4.4 mm

SOT360-1

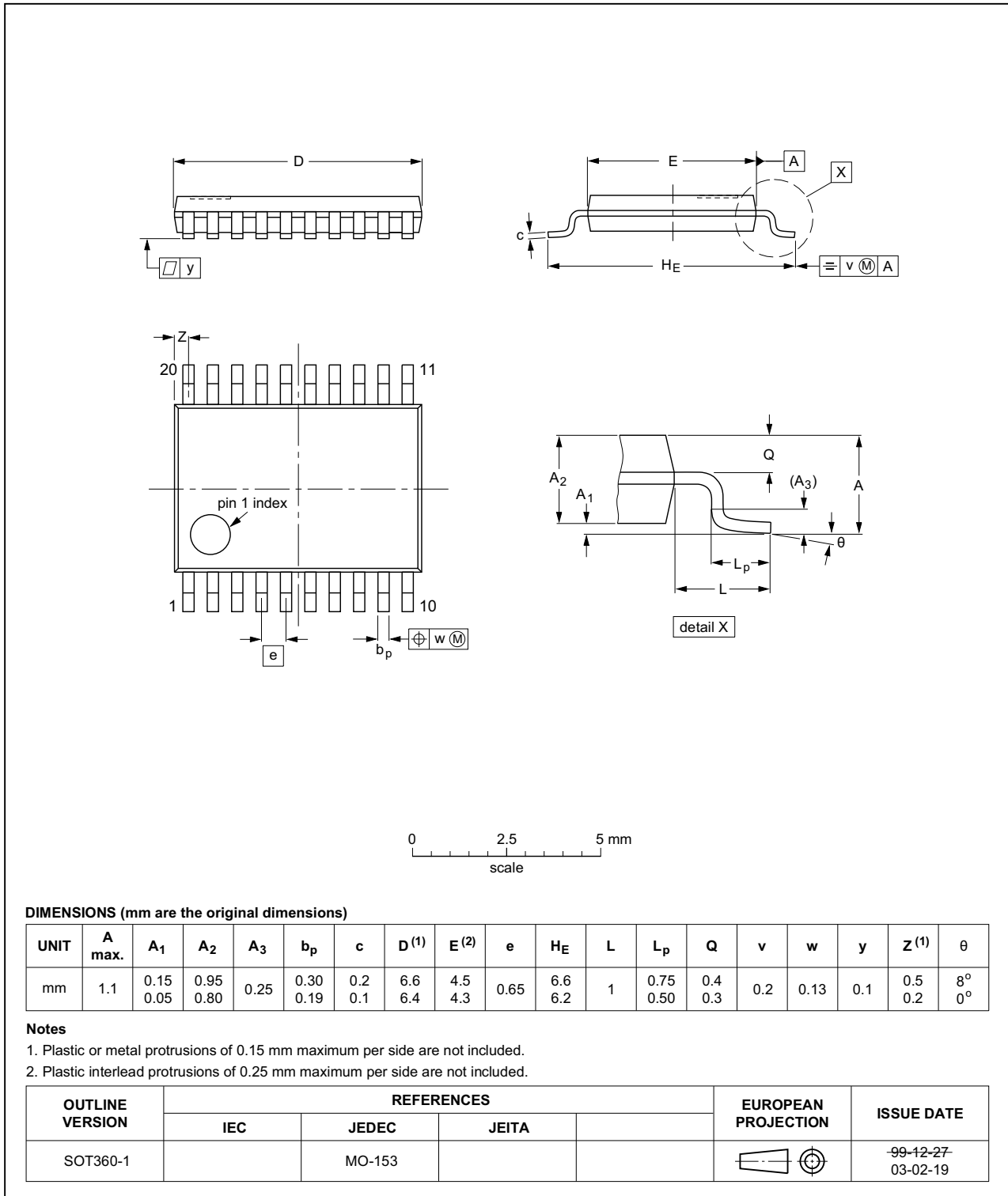


Fig 15. Package outline SOT360-1 (TSSOP20)

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

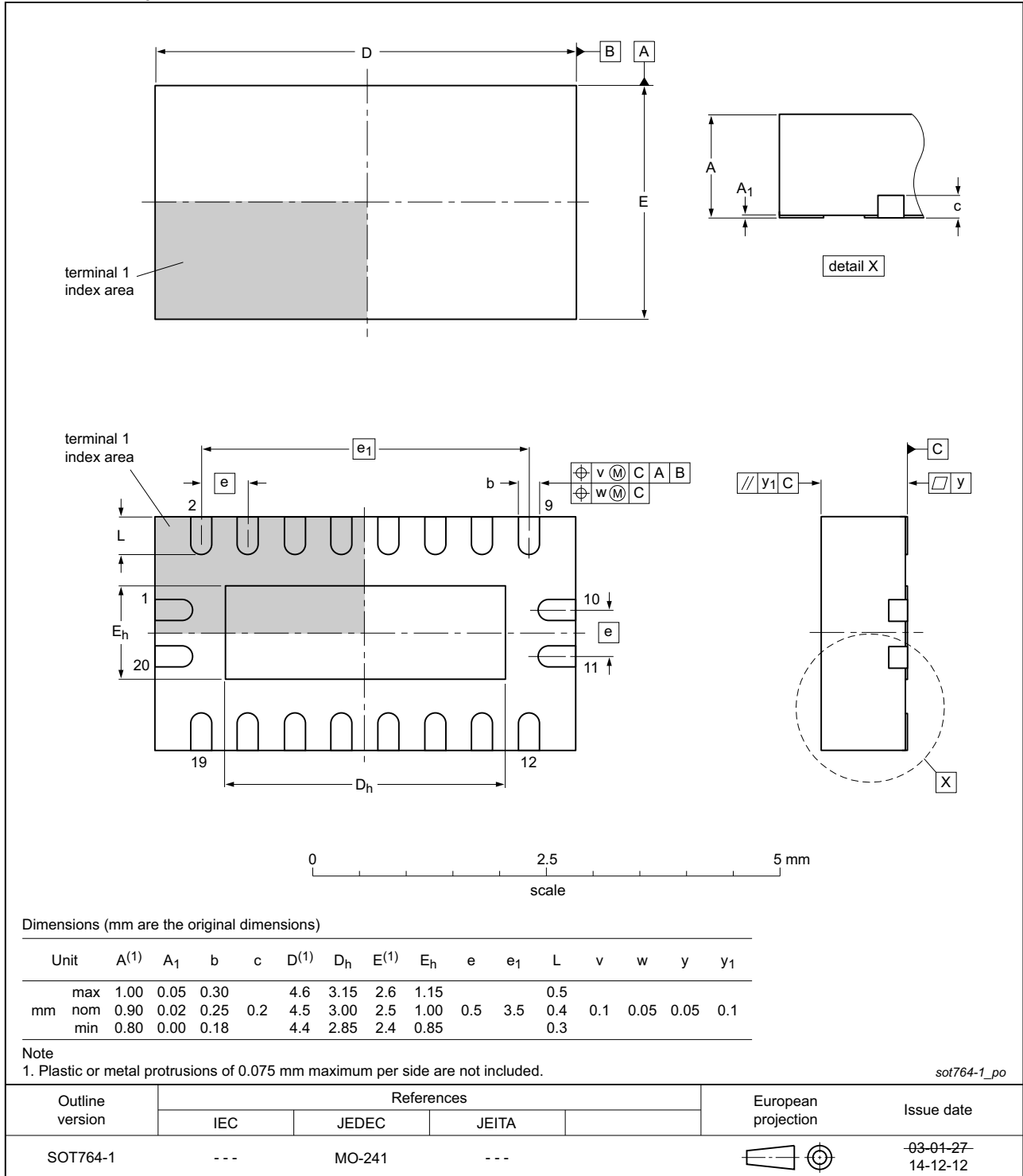


Fig 16. Package outline SOT764-1 (DHVQFN20)

## 13. Abbreviations

Table 12. Abbreviations

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

## 14. Revision history

Table 13. Revision history

| Document ID         | Release date  | Data sheet status     | Change notice | Supersedes          |
|---------------------|---|-----------------------|---------------|---------------------|
| 74HC_HCT373 v.6     | 20160226  | Product data sheet    | -             | 74HC_HCT373 v.5     |
| Modifications:      | <ul style="list-style-type: none"> <li>Type numbers 74HC373N and 74HCT373N (SOT146-1) removed.</li> </ul> |                       |               |                     |
| 74HC_HCT373 v.5     | 20111213  | Product data sheet    | -             | 74HC_HCT373 v.4     |
| Modifications:      | <ul style="list-style-type: none"> <li>Legal pages updated.</li> </ul>                                    |                       |               |                     |
| 74HC_HCT373 v.4     | 20100903  | Product data sheet    | -             | 74HC_HCT373 v.3     |
| 74HC_HCT373 v.3     | 20060120  | Product data sheet    | -             | 74HC_HCT373_CNV v.2 |
| 74HC_HCT373_CNV v.2 | 19970827  | Product specification | -             | -                   |

## 15. Legal information

### 15.1 Data sheet status

| Document status <sup>[1][2]</sup> | Product status <sup>[3]</sup> | 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".

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