

# 74LVC573A

Octal D-type transparent latch  
with 5 V tolerant inputs/outputs; 3-state

Rev. 7 — 30 March 2020

Product data sheet

## 1. General description

The 74LVC573A consists of eight D-type transparent latches, featuring separate D-type inputs for each latch and 3-state true outputs for bus-oriented applications. A Latch Enable (LE) input and an Output Enable ( $\overline{OE}$ ) input are common to all internal latches.

When LE is HIGH, data at the Dn inputs enters the latches. In this condition, the latches are transparent, that is, a latch output changes each time its corresponding D-input changes. When LE is LOW, the latches store the information that was present at the D-inputs one set-up time preceding the HIGH-to-LOW transition of LE.

When  $\overline{OE}$  is LOW, the contents of the eight latches are available at the outputs. When  $\overline{OE}$  is HIGH, the outputs go to the high impedance OFF-state. Operation of the  $\overline{OE}$  input does not affect the state of the latches.

Inputs can be driven from either 3.3 V or 5 V devices. When disabled, up to 5.5 V can be applied to the outputs. These features allow the use of these devices as translators in mixed 3.3 V or 5 V applications.

The 74LVC573A is functionally identical to the 74LVC373A, but has a different pin arrangement.

## 2. Features and benefits

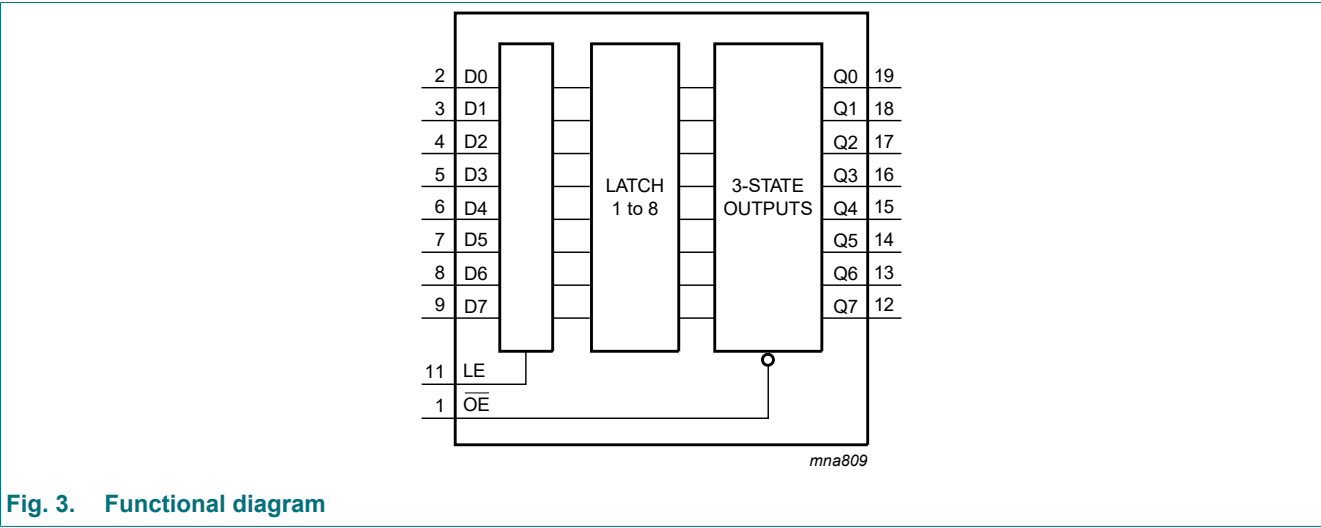
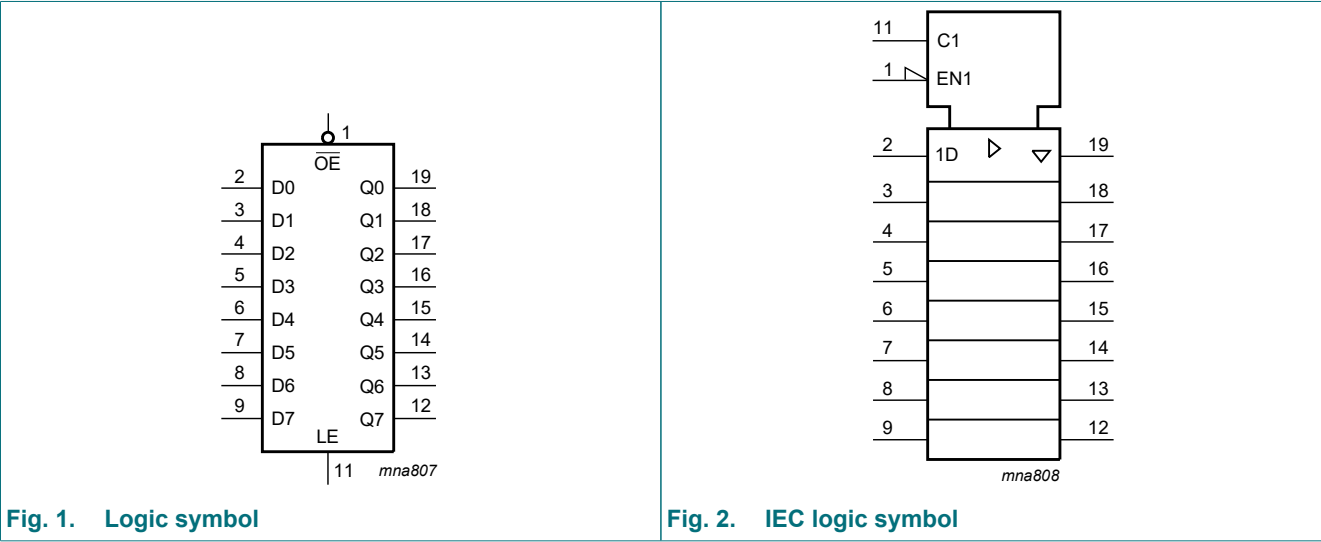
- 5 V tolerant inputs/outputs, for interfacing with 5 V logic
- Supply voltage range from 1.2 V to 3.6 V
- CMOS low power consumption
- Direct interface with TTL levels
- High-impedance when  $V_{CC} = 0$  V
- Flow-through pinout architecture
- Complies with JEDEC standard:
  - JESD8-7A (1.65 V to 1.95 V)
  - JESD8-5A (2.3 V to 2.7 V)
  - JESD8-C/JESD36 (2.7 V to 3.6 V)
- ESD protection:
  - HBM JESD22-A114F exceeds 2000 V
  - MM JESD22-A115-B exceeds 200 V
  - CDM JESD22-C101E exceeds 1000 V
- Specified from -40 °C to +85 °C and -40 °C to +125 °C

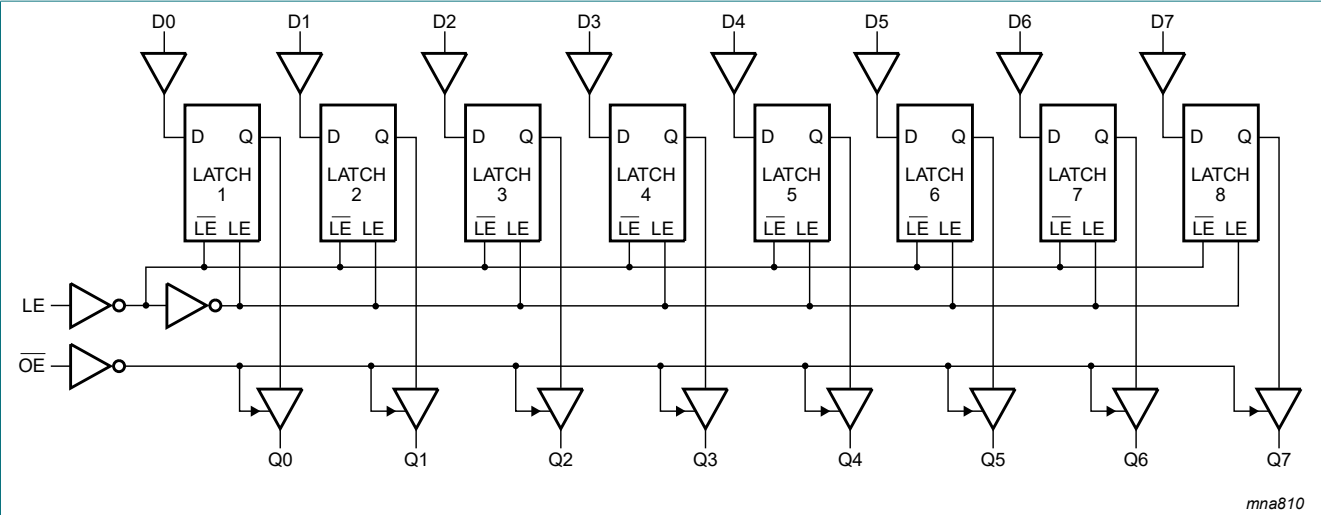
3. Ordering information

Table 1. Ordering information

| Type number | Package           |          |                                                                                                                                      |          |
|-------------|-------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------|----------|
|             | Temperature range | Name     | Description                                                                                                                          | Version  |
| 74LVC573AD  | -40 °C to +125 °C | SO20     | plastic small outline package; 20 leads;<br>body width 7.5 mm                                                                        | SOT163-1 |
| 74LVC573ADB | -40 °C to +125 °C | SSOP20   | plastic shrink small outline package; 20 leads;<br>body width 5.3 mm                                                                 | SOT339-1 |
| 74LVC573APW | -40 °C to +125 °C | TSSOP20  | plastic thin shrink small outline package; 20 leads;<br>body width 4.4 mm                                                            | SOT360-1 |
| 74LVC573ABQ | -40 °C to +125 °C | DHVQFN20 | plastic dual in-line compatible thermal enhanced<br>very thin quad flat package; no leads; 20 terminals;<br>body 2.5 × 4.5 × 0.85 mm | SOT764-1 |

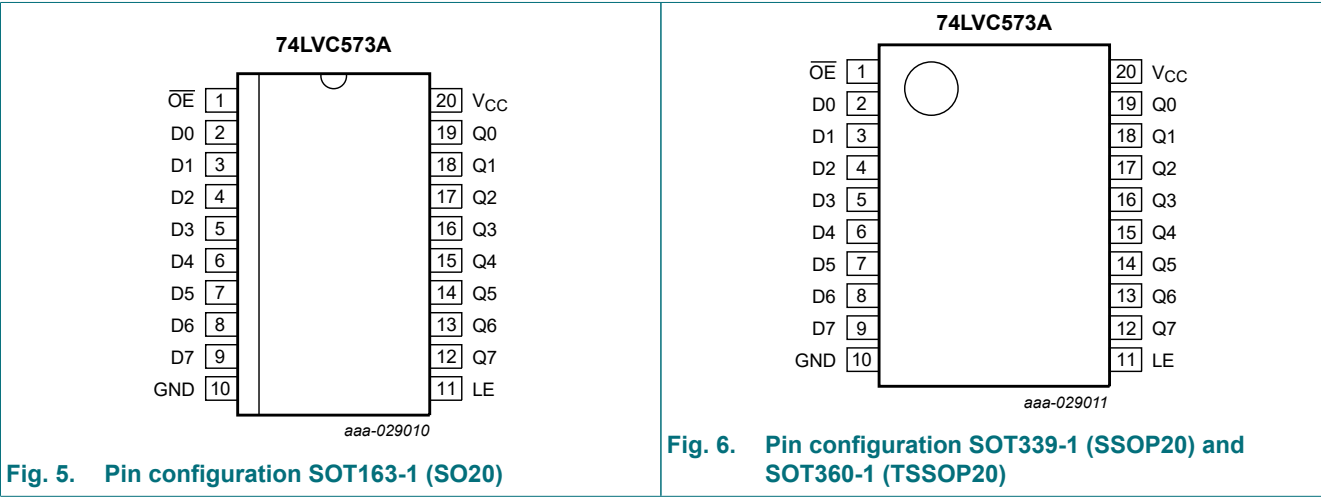
4. Functional diagram



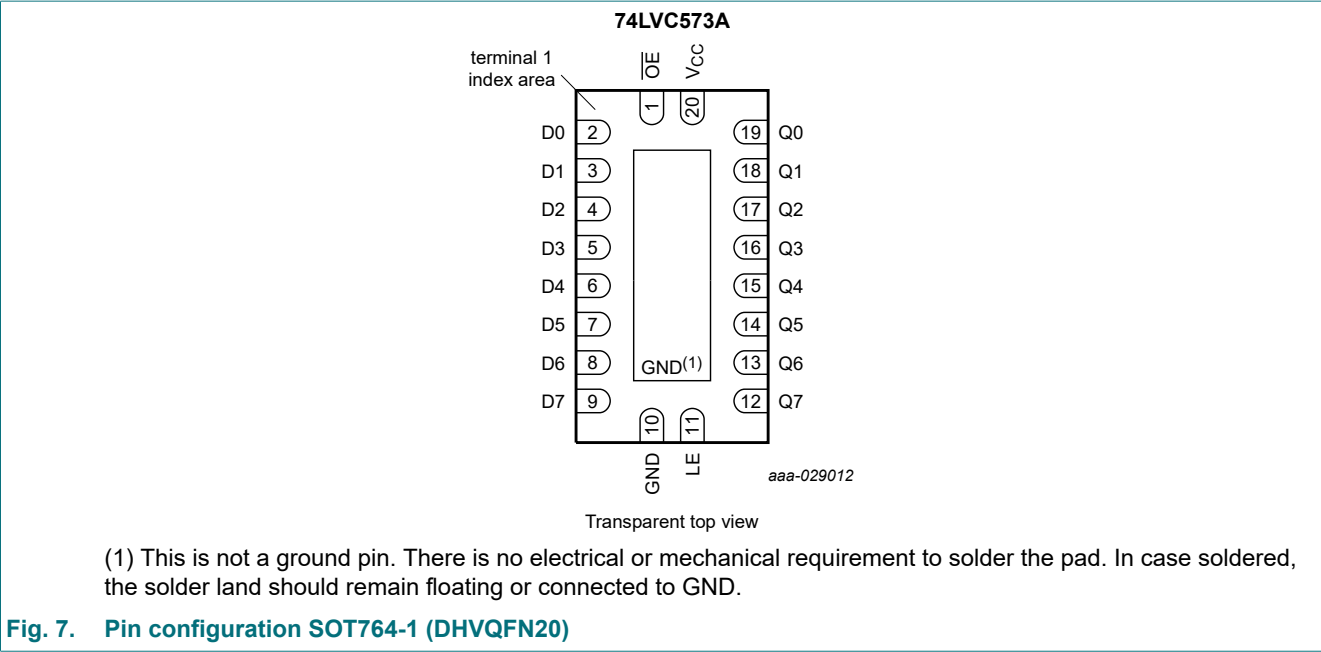


5. Pinning information

5.1. Pinning



Octal D-type transparent latch with 5 V tolerant inputs/outputs; 3-state



5.2. Pin description

Table 2. Pin description

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

6. Functional description

Table 3. Functional table

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  
Z = high-impedance OFF-state

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

## 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 | +6.5           | V    |
| $I_{IK}$  | input clamping current  | $V_I < 0$                                   | -50  | -              | mA   |
| $V_I$     | input voltage           |                                             | -0.5 | +6.5           | V    |
| $I_{OK}$  | output clamping current | $V_O > V_{CC}$ or $V_O < 0$                 | -    | ±50            | mA   |
| $V_O$     | output voltage          |                                             | -0.5 | $V_{CC} + 0.5$ | V    |
| $I_O$     | output current          | $V_O = 0\text{ V to }V_{CC}$                | -    | ±50            | mA   |
| $I_{CC}$  | supply current          |                                             | -    | 100            | mA   |
| $I_{GND}$ | ground current          |                                             | -100 | -              | mA   |
| $T_{stg}$ | storage temperature     |                                             | -65  | +150           | °C   |
| $P_{tot}$ | total power dissipation | $T_{amb} = -40\text{ °C to }+125\text{ °C}$ | -    | 500            | mW   |

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

[2] The output voltage ratings may be exceeded if the output current ratings are observed.

[3] For SOT163-1 (SO20) package:  $P_{tot}$  derates linearly with 12.3 mW/K above 109 °C.

For SOT339-1 (SSOP20) packages:  $P_{tot}$  derates linearly with 10.0 mW/K above 100 °C.

For SOT360-1 (TSSOP20) package:  $P_{tot}$  derates linearly with 10.0 mW/K above 100 °C.

For SOT764-1 (DHVQFN20) package:  $P_{tot}$  derates linearly with 12.9 mW/K above 111 °C.

## 8. Recommended operating conditions

**Table 5. Recommended operating conditions**

| Symbol              | Parameter                           | Conditions                               | Min  | Typ | Max      | Unit |
|---------------------|-------------------------------------|------------------------------------------|------|-----|----------|------|
| $V_{CC}$            | supply voltage                      |                                          | 1.65 | -   | 3.6      | V    |
|                     |                                     | functional                               | 1.2  | -   | -        | V    |
| $V_I$               | input voltage                       |                                          | 0    | -   | 5.5      | V    |
| $V_O$               | output voltage                      | output HIGH- or LOW-state                | 0    | -   | $V_{CC}$ | V    |
|                     |                                     | output 3-state                           | 0    | -   | 5.5      | V    |
| $T_{amb}$           | ambient temperature                 | in free air                              | -40  | -   | +125     | °C   |
| $\Delta t/\Delta V$ | input transition rise and fall rate | $V_{CC} = 1.65\text{ V to }2.7\text{ V}$ | 0    | -   | 20       | ns/V |
|                     |                                     | $V_{CC} = 2.7\text{ V to }3.6\text{ V}$  | 0    | -   | 10       | ns/V |

## 9. Static characteristics

**Table 6. Static characteristics**

At recommended operating conditions. 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                 |      |
| V <sub>IH</sub>  | HIGH-level input voltage  | V <sub>CC</sub> = 1.2 V                                                                                         | 1.08                  | -       | -                   | 1.08                  | -                   | V    |
|                  |                           | V <sub>CC</sub> = 1.65 V to 1.95 V                                                                              | 0.65V <sub>CC</sub>   | -       | -                   | 0.65V <sub>CC</sub>   | -                   | V    |
|                  |                           | V <sub>CC</sub> = 2.3 V to 2.7 V                                                                                | 1.7                   | -       | -                   | 1.7                   | -                   | V    |
|                  |                           | V <sub>CC</sub> = 2.7 V to 3.6 V                                                                                | 2.0                   | -       | -                   | 2.0                   | -                   | V    |
| V <sub>IL</sub>  | LOW-level input voltage   | V <sub>CC</sub> = 1.2 V                                                                                         | -                     | -       | 0.12                | -                     | 0.12                | V    |
|                  |                           | V <sub>CC</sub> = 1.65 V to 1.95 V                                                                              | -                     | -       | 0.35V <sub>CC</sub> | -                     | 0.35V <sub>CC</sub> | V    |
|                  |                           | V <sub>CC</sub> = 2.3 V to 2.7 V                                                                                | -                     | -       | 0.7                 | -                     | 0.7                 | V    |
|                  |                           | V <sub>CC</sub> = 2.7 V to 3.6 V                                                                                | -                     | -       | 0.8                 | -                     | 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> = -100 µA; V <sub>CC</sub> = 1.65 V to 3.6 V                                                     | V <sub>CC</sub> - 0.2 | -       | -                   | V <sub>CC</sub> - 0.3 | -                   | V    |
|                  |                           | I <sub>O</sub> = -4 mA; V <sub>CC</sub> = 1.65 V                                                                | 1.2                   | -       | -                   | 1.05                  | -                   | V    |
|                  |                           | I <sub>O</sub> = -8 mA; V <sub>CC</sub> = 2.3 V                                                                 | 1.8                   | -       | -                   | 1.65                  | -                   | V    |
|                  |                           | I <sub>O</sub> = -12 mA; V <sub>CC</sub> = 2.7 V                                                                | 2.2                   | -       | -                   | 2.05                  | -                   | V    |
|                  |                           | I <sub>O</sub> = -18 mA; V <sub>CC</sub> = 3.0 V                                                                | 2.4                   | -       | -                   | 2.25                  | -                   | V    |
|                  |                           | I <sub>O</sub> = -24 mA; V <sub>CC</sub> = 3.0 V                                                                | 2.2                   | -       | -                   | 2.0                   | -                   | 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> = 100 µA; V <sub>CC</sub> = 1.65 V to 3.6 V                                                      | -                     | -       | 0.2                 | -                     | 0.3                 | V    |
|                  |                           | I <sub>O</sub> = 4 mA; V <sub>CC</sub> = 1.65 V                                                                 | -                     | -       | 0.45                | -                     | 0.65                | V    |
|                  |                           | I <sub>O</sub> = 8 mA; V <sub>CC</sub> = 2.3 V                                                                  | -                     | -       | 0.6                 | -                     | 0.8                 | V    |
|                  |                           | I <sub>O</sub> = 12 mA; V <sub>CC</sub> = 2.7 V                                                                 | -                     | -       | 0.4                 | -                     | 0.6                 | V    |
|                  |                           | I <sub>O</sub> = 24 mA; V <sub>CC</sub> = 3.0 V                                                                 | -                     | -       | 0.55                | -                     | 0.8                 | V    |
| I <sub>I</sub>   | input leakage current     | V <sub>CC</sub> = 3.6 V; V <sub>I</sub> = 5.5 V or GND                                                          | -                     | ±0.1    | ±5                  | -                     | ±20                 | 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> = 3.6 V; V <sub>O</sub> = 5.5 V or GND    | -                     | 0.1     | ±5                  | -                     | ±20                 | µA   |
| I <sub>OFF</sub> | power-off leakage current | V <sub>CC</sub> = 0 V; V <sub>I</sub> or V <sub>O</sub> = 5.5 V                                                 | -                     | 0.1     | ±10                 | -                     | ±20                 | µA   |
| I <sub>CC</sub>  | supply current            | V <sub>CC</sub> = 3.6 V; V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A                          | -                     | 0.1     | 10                  | -                     | 40                  | µA   |
| ΔI <sub>CC</sub> | additional supply current | per input pin; V <sub>CC</sub> = 2.7 V to 3.6 V; V <sub>I</sub> = V <sub>CC</sub> - 0.6 V; I <sub>O</sub> = 0 A | -                     | 5       | 500                 | -                     | 5000                | µA   |
| C <sub>I</sub>   | input capacitance         | V <sub>CC</sub> = 0 V to 3.6 V; V <sub>I</sub> = GND to V <sub>CC</sub>                                         | -                     | 5.0     | -                   | -                     | -                   | pF   |

[1] All typical values are measured at V<sub>CC</sub> = 3.3 V (unless stated otherwise) and T<sub>amb</sub> = 25 °C.

## 10. Dynamic characteristics

**Table 7. Dynamic characteristics**

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

| Symbol    | Parameter         | Conditions                                | -40 °C to +85 °C |         |      | -40 °C to +125 °C |      | Unit |
|-----------|-------------------|-------------------------------------------|------------------|---------|------|-------------------|------|------|
|           |                   |                                           | Min              | Typ [1] | Max  | Min               | Max  |      |
| $t_{pd}$  | propagation delay | Dn to Qn; see <a href="#">Fig. 8</a> [2]  |                  |         |      |                   |      |      |
|           |                   | $V_{CC} = 1.2\text{ V}$                   | -                | 16.0    | -    | -                 | -    | ns   |
|           |                   | $V_{CC} = 1.65\text{ V to }1.95\text{ V}$ | 2.1              | 7.8     | 16.3 | 2.1               | 18.8 | ns   |
|           |                   | $V_{CC} = 2.3\text{ V to }2.7\text{ V}$   | 1.5              | 4.1     | 8.0  | 1.5               | 9.2  | ns   |
|           |                   | $V_{CC} = 2.7\text{ V}$                   | 1.5              | 4.1     | 7.2  | 1.5               | 9.0  | ns   |
|           |                   | $V_{CC} = 3.0\text{ V to }3.6\text{ V}$   | 1.5              | 3.4     | 6.2  | 1.5               | 8.0  | ns   |
|           |                   | LE to Qn; see <a href="#">Fig. 9</a> [2]  |                  |         |      |                   |      |      |
|           |                   | $V_{CC} = 1.2\text{ V}$                   | -                | 16.0    | -    | -                 | -    | ns   |
|           |                   | $V_{CC} = 1.65\text{ V to }1.95\text{ V}$ | 2.0              | 7.7     | 16.0 | 2.0               | 18.4 | ns   |
|           |                   | $V_{CC} = 2.3\text{ V to }2.7\text{ V}$   | 1.5              | 4.1     | 7.8  | 1.5               | 9.1  | ns   |
|           |                   | $V_{CC} = 2.7\text{ V}$                   | 1.5              | 3.7     | 7.5  | 1.5               | 9.5  | ns   |
|           |                   | $V_{CC} = 3.0\text{ V to }3.6\text{ V}$   | 1.5              | 3.4     | 6.5  | 1.5               | 8.5  | ns   |
| $t_{en}$  | enable time       | OE to Qn; see <a href="#">Fig. 10</a> [2] |                  |         |      |                   |      |      |
|           |                   | $V_{CC} = 1.2\text{ V}$                   | -                | 18.0    | -    | -                 | -    | ns   |
|           |                   | $V_{CC} = 1.65\text{ V to }1.95\text{ V}$ | 1.7              | 7.5     | 17.5 | 1.7               | 20.2 | ns   |
|           |                   | $V_{CC} = 2.3\text{ V to }2.7\text{ V}$   | 1.5              | 4.2     | 9.2  | 1.5               | 10.6 | ns   |
|           |                   | $V_{CC} = 2.7\text{ V}$                   | 1.5              | 4.2     | 8.5  | 1.5               | 11.0 | ns   |
|           |                   | $V_{CC} = 3.0\text{ V to }3.6\text{ V}$   | 1.5              | 3.4     | 7.5  | 1.5               | 9.5  | ns   |
| $t_{dis}$ | disable time      | OE to Qn; see <a href="#">Fig. 10</a> [2] |                  |         |      |                   |      |      |
|           |                   | $V_{CC} = 1.2\text{ V}$                   | -                | 8.0     | -    | -                 | -    | ns   |
|           |                   | $V_{CC} = 1.65\text{ V to }1.95\text{ V}$ | 1.0              | 3.3     | 10.1 | 1.0               | 11.6 | ns   |
|           |                   | $V_{CC} = 2.3\text{ V to }2.7\text{ V}$   | 0.3              | 1.8     | 5.7  | 0.3               | 6.6  | ns   |
|           |                   | $V_{CC} = 2.7\text{ V}$                   | 1.5              | 3.0     | 6.5  | 1.5               | 8.5  | ns   |
|           |                   | $V_{CC} = 3.0\text{ V to }3.6\text{ V}$   | 1.5              | 2.5     | 6.0  | 1.5               | 7.5  | ns   |
| $t_W$     | pulse width       | LE HIGH; see <a href="#">Fig. 9</a>       |                  |         |      |                   |      |      |
|           |                   | $V_{CC} = 1.65\text{ V to }1.95\text{ V}$ | 5.0              | -       | -    | 5.0               | -    | ns   |
|           |                   | $V_{CC} = 2.3\text{ V to }2.7\text{ V}$   | 4.0              | -       | -    | 4.0               | -    | ns   |
|           |                   | $V_{CC} = 2.7\text{ V}$                   | 3.2              | -       | -    | 3.2               | -    | ns   |
|           |                   | $V_{CC} = 3.0\text{ V to }3.6\text{ V}$   | 3.2              | 1.6     | -    | 3.2               | -    | ns   |
| $t_{su}$  | set-up time       | Dn to LE; see <a href="#">Fig. 11</a>     |                  |         |      |                   |      |      |
|           |                   | $V_{CC} = 1.65\text{ V to }1.95\text{ V}$ | 4.0              | -       | -    | 4.0               | -    | ns   |
|           |                   | $V_{CC} = 2.3\text{ V to }2.7\text{ V}$   | 2.5              | -       | -    | 2.5               | -    | ns   |
|           |                   | $V_{CC} = 2.7\text{ V}$                   | 1.7              | -       | -    | 1.7               | -    | ns   |
|           |                   | $V_{CC} = 3.0\text{ V to }3.6\text{ V}$   | 1.7              | -       | -    | 1.7               | -    | ns   |
| $t_h$     | hold time         | Dn to LE; see <a href="#">Fig. 11</a>     |                  |         |      |                   |      |      |
|           |                   | $V_{CC} = 1.65\text{ V to }1.95\text{ V}$ | 3.0              | -       | -    | 3.0               | -    | ns   |
|           |                   | $V_{CC} = 2.3\text{ V to }2.7\text{ V}$   | 1.9              | -       | -    | 1.9               | -    | ns   |
|           |                   | $V_{CC} = 2.7\text{ V}$                   | 1.5              | -       | -    | 1.5               | -    | ns   |
|           |                   | $V_{CC} = 3.0\text{ V to }3.6\text{ V}$   | 1.4              | -       | -    | 1.4               | -    | ns   |

## Octal D-type transparent latch with 5 V tolerant inputs/outputs; 3-state

| Symbol      | Parameter                     | Conditions                                   | -40 °C to +85 °C |         |     | -40 °C to +125 °C |     | Unit |
|-------------|-------------------------------|----------------------------------------------|------------------|---------|-----|-------------------|-----|------|
|             |                               |                                              | Min              | Typ [1] | Max | Min               | Max |      |
| $t_{sk(0)}$ | output skew time              | $V_{CC} = 3.0\text{ V to }3.6\text{ V}$ [3]  | -                | -       | 1.0 | -                 | 1.5 | ns   |
| $C_{PD}$    | power dissipation capacitance | per latch; $V_I = \text{GND to } V_{CC}$ [4] |                  |         |     |                   |     |      |
|             |                               | $V_{CC} = 1.65\text{ V to }1.95\text{ V}$    | -                | 7.1     | -   | -                 | -   | pF   |
|             |                               | $V_{CC} = 2.3\text{ V to }2.7\text{ V}$      | -                | 10.3    | -   | -                 | -   | pF   |
|             |                               | $V_{CC} = 3.0\text{ V to }3.6\text{ V}$      | -                | 13.2    | -   | -                 | -   | pF   |

[1] Typical values are measured at  $T_{amb} = 25\text{ °C}$  and  $V_{CC} = 1.2\text{ V}, 1.8\text{ V}, 2.5\text{ V}, 2.7\text{ V}$  and  $3.3\text{ V}$  respectively.

[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] Skew between any two outputs of the same package switching in the same direction. This parameter is guaranteed by design.

[4]  $C_{PD}$  is used to determine the dynamic power dissipation ( $P_D$  in  $\mu\text{W}$ ).

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

$f_i$  = input frequency in MHz;  $f_o$  = output frequency in MHz

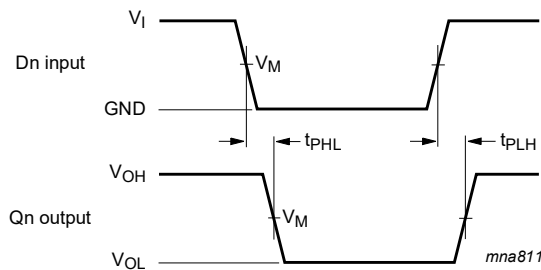
$C_L$  = output load capacitance in pF

$V_{CC}$  = supply voltage in Volts

$N$  = number of inputs switching

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

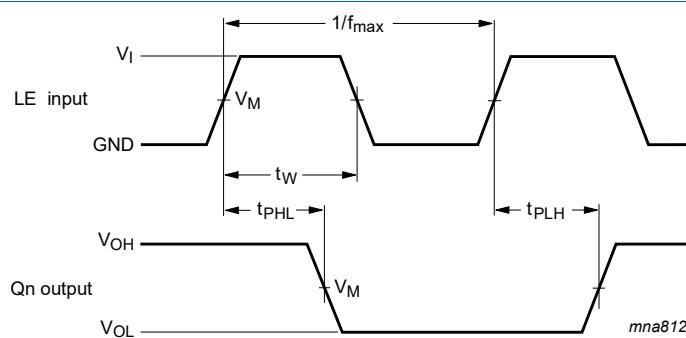
## 10.1. Waveforms and test circuit



Measurement points are given in [Table 8](#).

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

**Fig. 8. Input (Dn) to output (Qn) propagation delays**



Measurement points are given in [Table 8](#).

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

**Fig. 9. Latch Enable input (LE) pulse width, the latch enable input to output (Qn) propagation delays**



Octal D-type transparent latch with 5 V tolerant inputs/outputs; 3-state

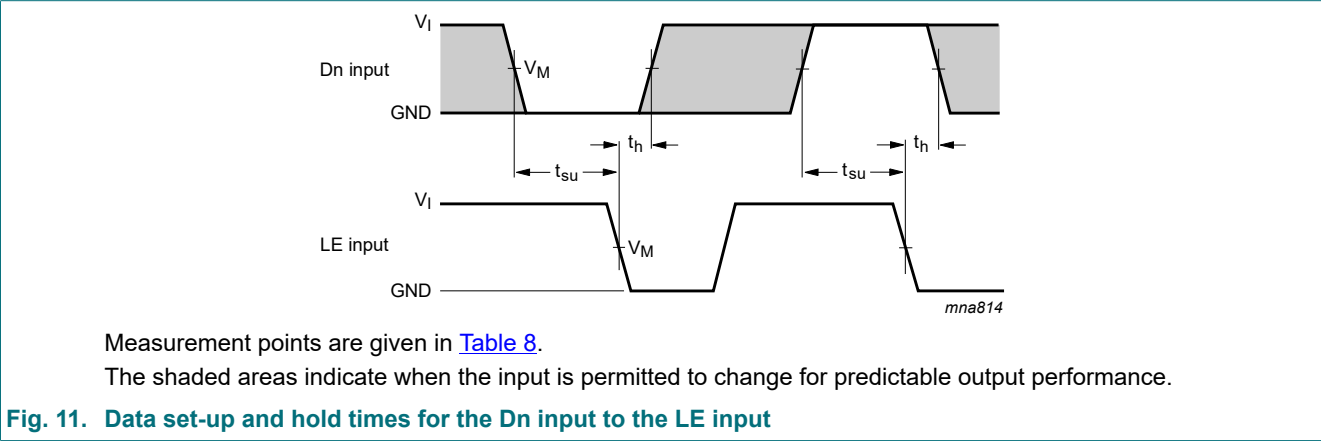
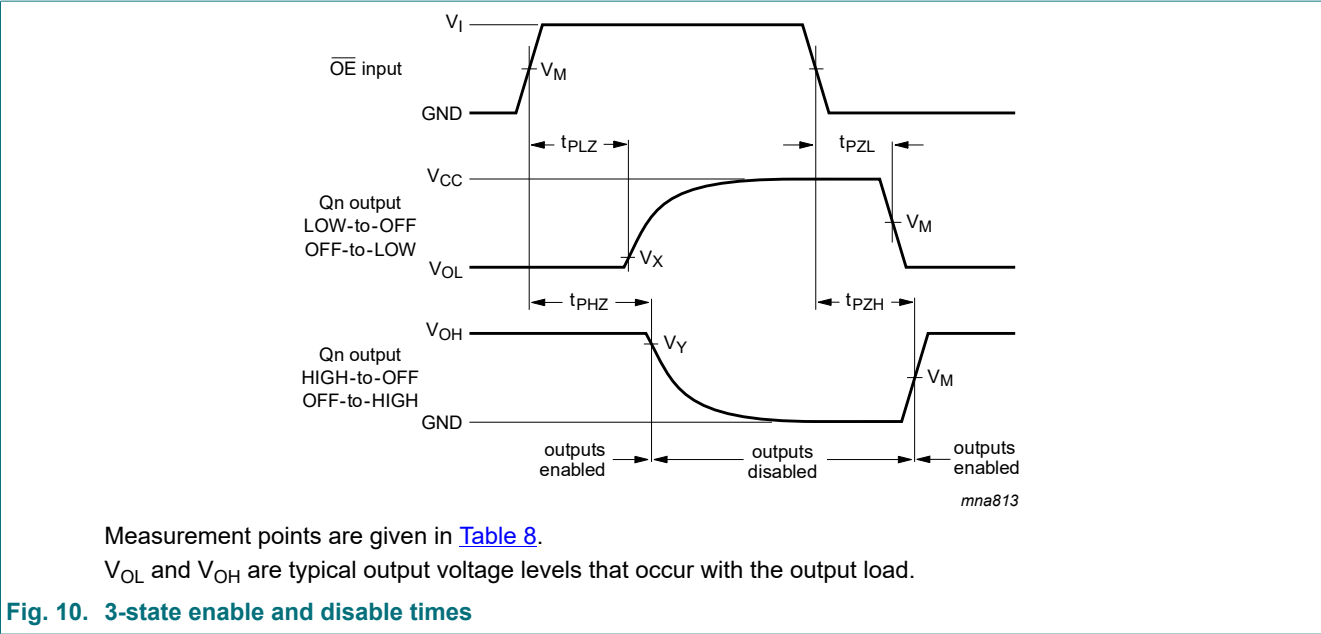


Table 8. Measurement points

| Supply voltage   | Input    |                     | Output              |                           |                           |
|------------------|----------|---------------------|---------------------|---------------------------|---------------------------|
| $V_{CC}$         | $V_I$    | $V_M$               | $V_M$               | $V_X$                     | $V_Y$                     |
| 1.2 V            | $V_{CC}$ | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ | $V_{OL} + 0.15 \text{ V}$ | $V_{OH} - 0.15 \text{ V}$ |
| 1.65 V to 1.95 V | $V_{CC}$ | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ | $V_{OL} + 0.15 \text{ V}$ | $V_{OH} - 0.15 \text{ V}$ |
| 2.3 V to 2.7 V   | $V_{CC}$ | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ | $V_{OL} + 0.15 \text{ V}$ | $V_{OH} - 0.15 \text{ V}$ |
| 2.7 V            | 2.7 V    | 1.5 V               | 1.5 V               | $V_{OL} + 0.3 \text{ V}$  | $V_{OH} - 0.3 \text{ V}$  |
| 3.0 V to 3.6 V   | 2.7 V    | 1.5 V               | 1.5 V               | $V_{OL} + 0.3 \text{ V}$  | $V_{OH} - 0.3 \text{ V}$  |

Octal D-type transparent latch with 5 V tolerant inputs/outputs; 3-state

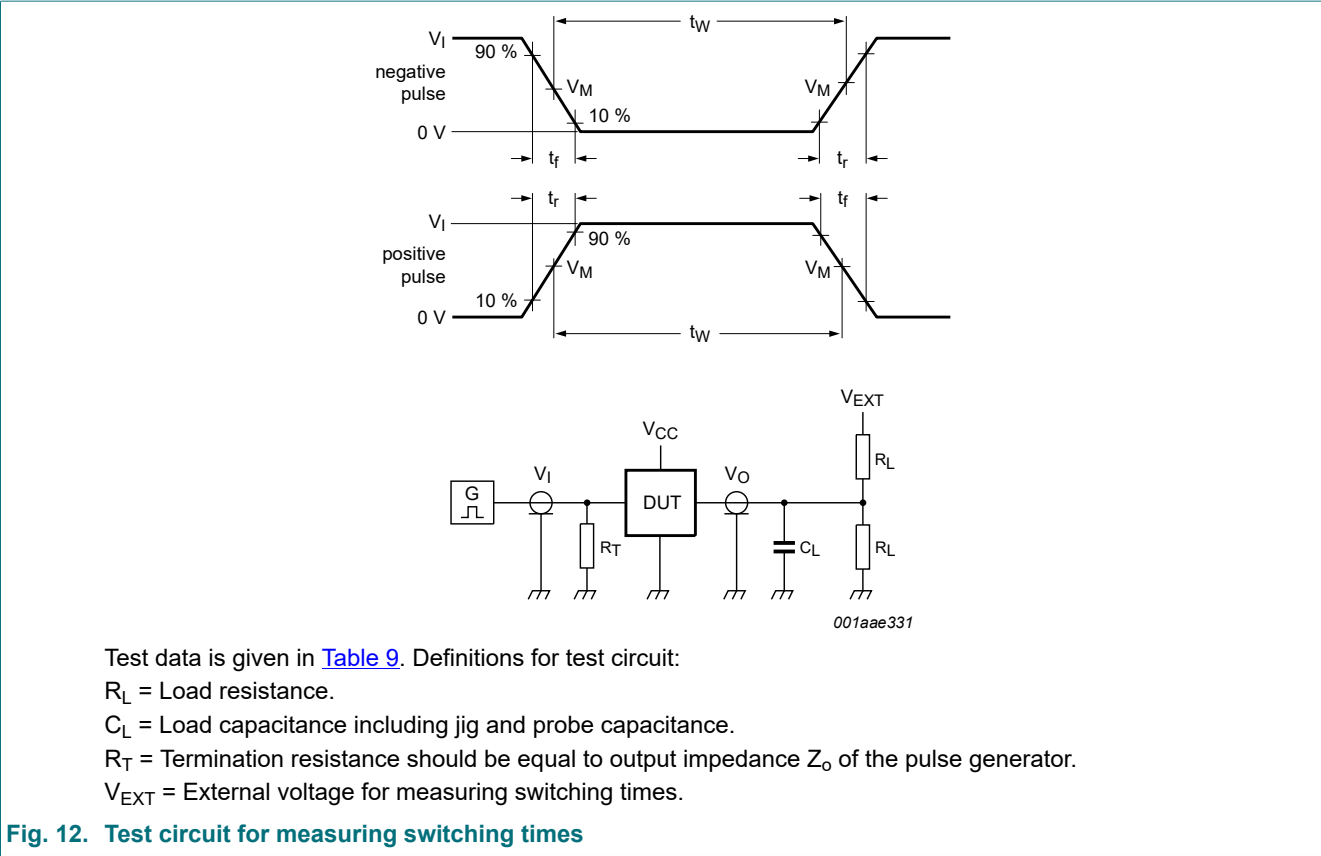


Table 9. Test data

| Supply voltage   | Input    |               | Load  |              | $V_{EXT}$          |                    |                    |
|------------------|----------|---------------|-------|--------------|--------------------|--------------------|--------------------|
|                  | $V_I$    | $t_r, t_f$    | $C_L$ | $R_L$        | $t_{PLH}, t_{PHL}$ | $t_{PLZ}, t_{PZL}$ | $t_{PHZ}, t_{PZH}$ |
| 1.2 V            | $V_{CC}$ | $\leq 2$ ns   | 30 pF | 1 k $\Omega$ | open               | $2 \times V_{CC}$  | GND                |
| 1.65 V to 1.95 V | $V_{CC}$ | $\leq 2$ ns   | 30 pF | 1 k $\Omega$ | open               | $2 \times V_{CC}$  | GND                |
| 2.3 V to 2.7 V   | $V_{CC}$ | $\leq 2$ ns   | 30 pF | 500 $\Omega$ | open               | $2 \times V_{CC}$  | GND                |
| 2.7 V            | 2.7 V    | $\leq 2.5$ ns | 50 pF | 500 $\Omega$ | open               | $2 \times V_{CC}$  | GND                |
| 3.0 V to 3.6 V   | 2.7 V    | $\leq 2.5$ ns | 50 pF | 500 $\Omega$ | open               | $2 \times V_{CC}$  | GND                |

11. Package outline

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

SOT163-1

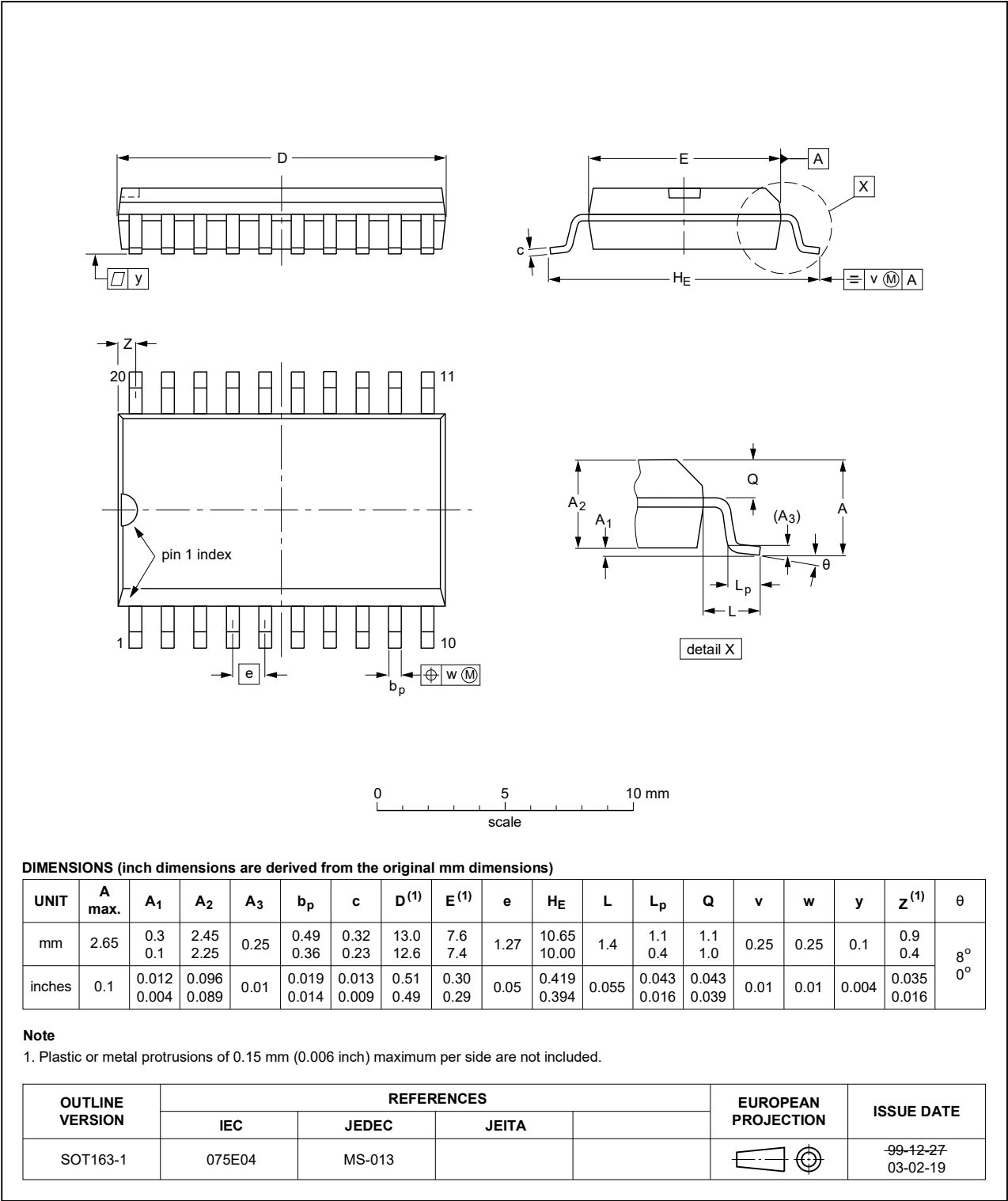


Fig. 13. Package outline SOT163-1 (SO20)

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

SOT339-1

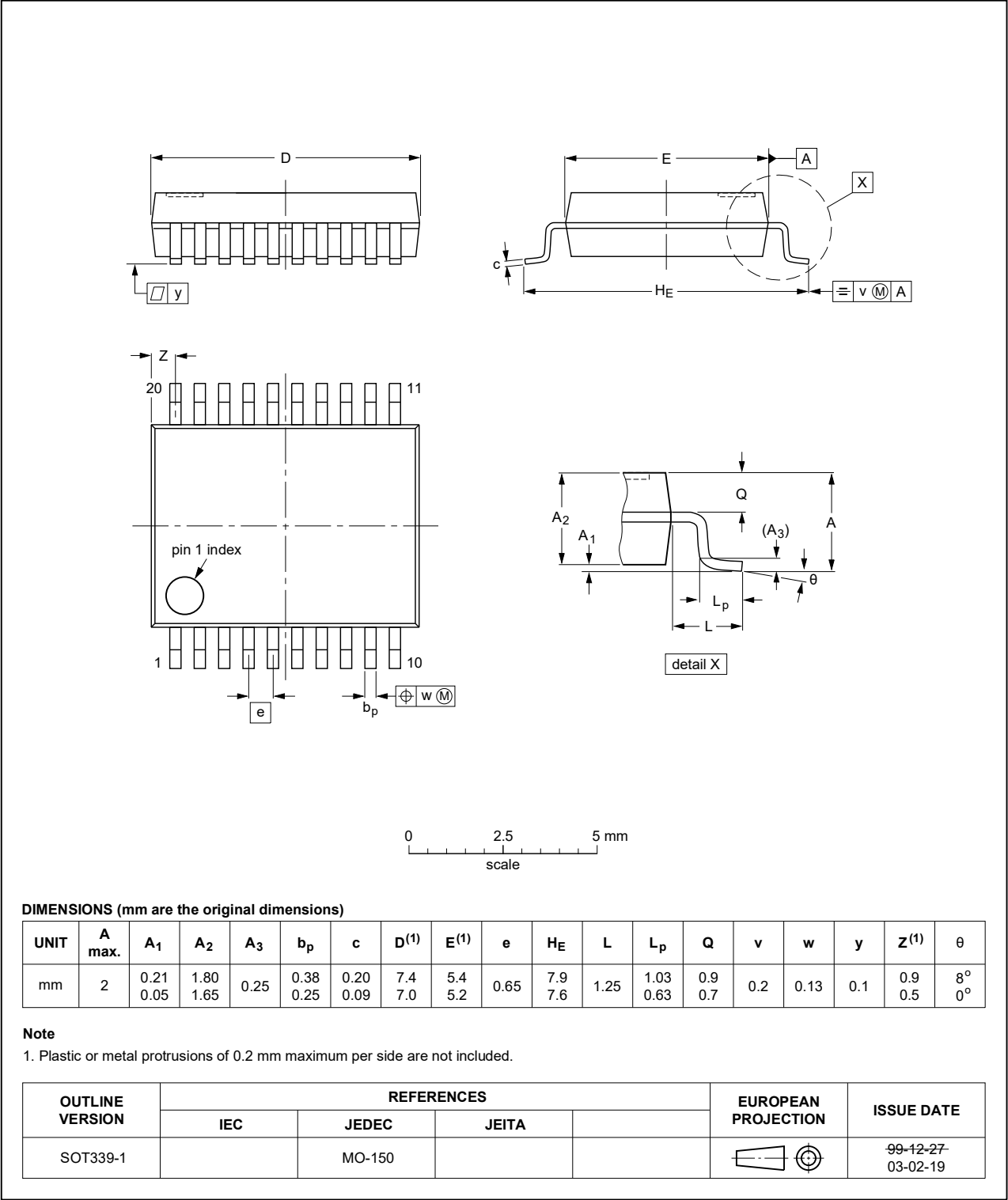


Fig. 14. Package outline SOT339-1 (SSOP20)

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

SOT360-1

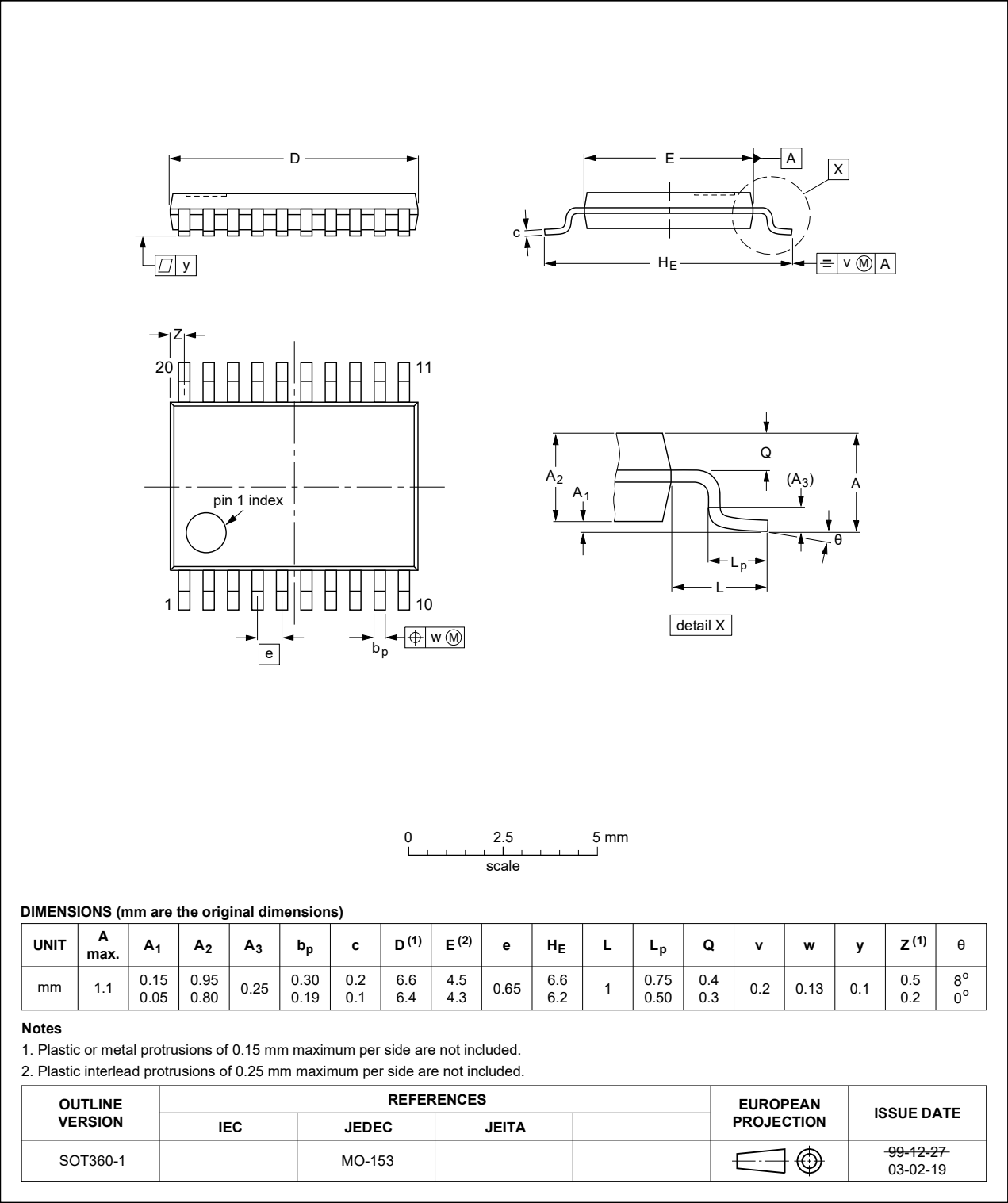


Fig. 15. Package outline SOT360-1 (TSSOP20)

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

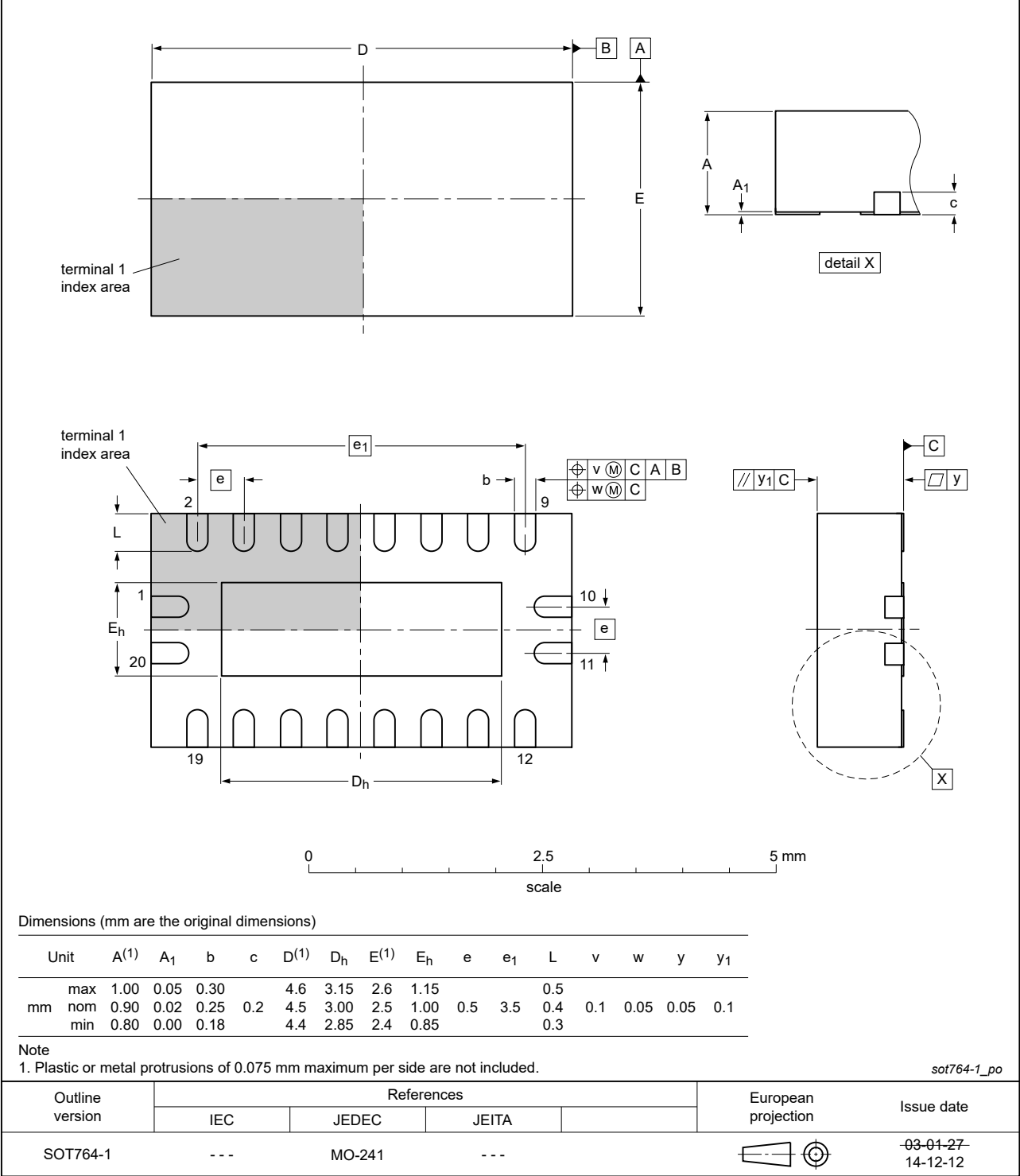


Fig. 16. Package outline SOT764-1 (DHVQFN20)

## 12. Abbreviations

Table 10. Abbreviations

| Acronym | Description                             |
|---------|-----------------------------------------|
| CDM     | Charged 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             |

## 13. Revision history

Table 11. Revision history

| Document ID    | Release date                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Data sheet status     | Change notice | Supersedes    |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|---------------|
| 74LVC573A v.7  | 20200330                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Product data sheet    | -             | 74LVC573A v.6 |
| Modifications: | <ul style="list-style-type: none"> <li><a href="#">Table 4</a>: Derating values for <math>P_{tot}</math> total power dissipation updated.</li> </ul>                                                                                                                                                                                                                                                                                                             |                       |               |               |
| 74LVC573A v.6  | 20180926                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Product data sheet    | -             | 74LVC573A v.5 |
| Modifications: | <ul style="list-style-type: none"> <li>The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.</li> <li>Legal texts have been adapted to the new company name where appropriate.</li> <li>Type number 74LVC573ABX (SOT1045-2) removed.</li> <li><a href="#">Fig. 16</a>: Package outline drawing SOT764-1 updated</li> </ul>                                                                                       |                       |               |               |
| 74LVC573A v.5  | 20130219                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Product data sheet    | -             | 74LVC573A v.4 |
| Modifications: | <ul style="list-style-type: none"> <li>74LVC573ABX added.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                             |                       |               |               |
| 74LVC573A v.4  | 20121129                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Product data sheet    | -             | 74LVC573A v.3 |
| Modifications: | <ul style="list-style-type: none"> <li>The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors.</li> <li>Legal texts have been adapted to the new company name where appropriate.</li> <li><a href="#">Table 4</a>, <a href="#">Table 5</a>, <a href="#">Table 6</a>, <a href="#">Table 7</a>, <a href="#">Table 8</a> and <a href="#">Table 9</a>: values added for lower voltage ranges.</li> </ul> |                       |               |               |
| 74LVC573A v.3  | 20031003                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Product specification | -             | 74LVC573A v.2 |
| 74LVC573A v.2  | 20030526                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Product specification | -             | 74LVC573A v.1 |
| 74LVC573A v.1  | 19980729                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Product specification | -             | -             |

## 14. Legal information

### Data sheet status

| Document status<br>[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".
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