

# 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

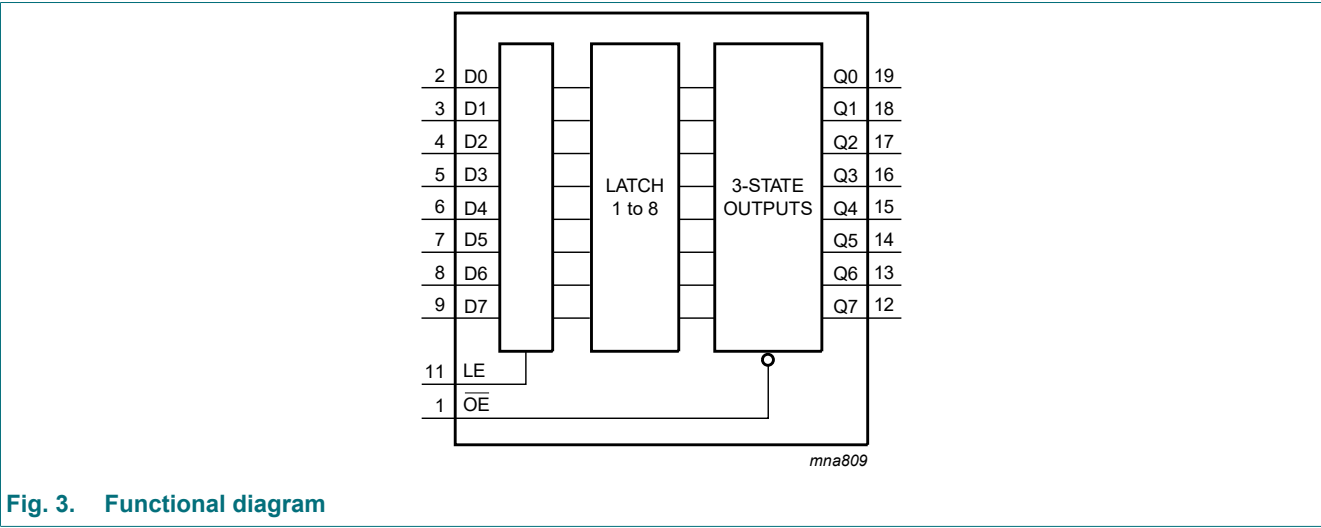
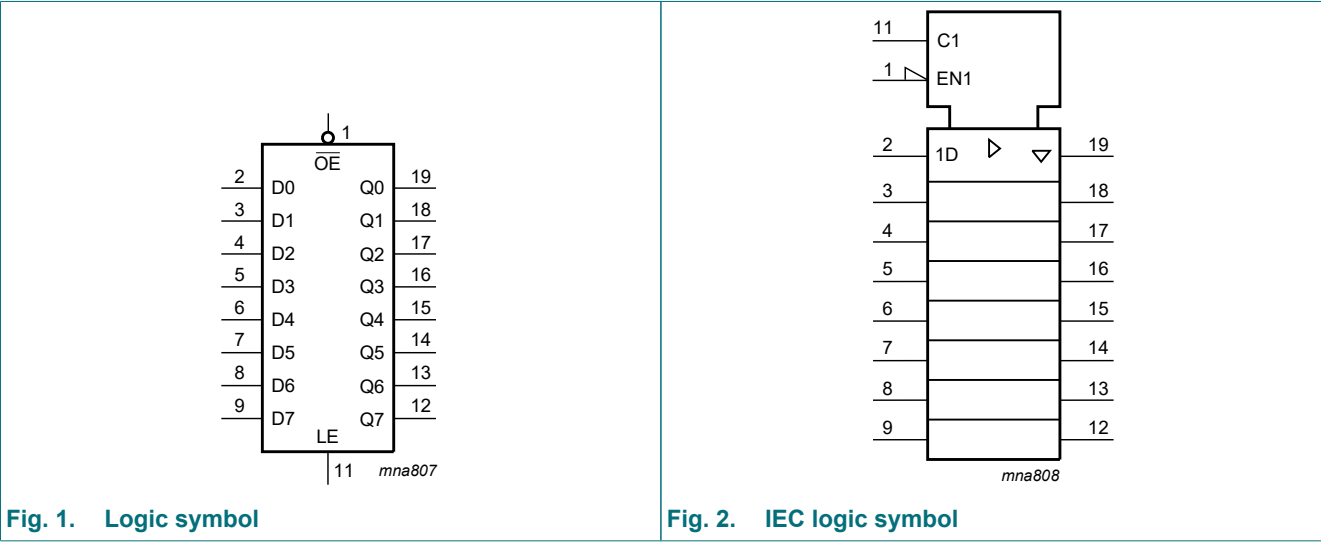
- 5 V tolerant inputs/outputs, for interfacing with 5 V logic
- Supply voltage range from 1.2 V to 3.6 V
- CMOS low power consumption
- Direct interface with TTL levels
- High-impedance when  $V_{CC} = 0$  V
- Flow-through pinout architecture
- Complies with JEDEC standard:
  - JESD8-7A (1.65 V to 1.95 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



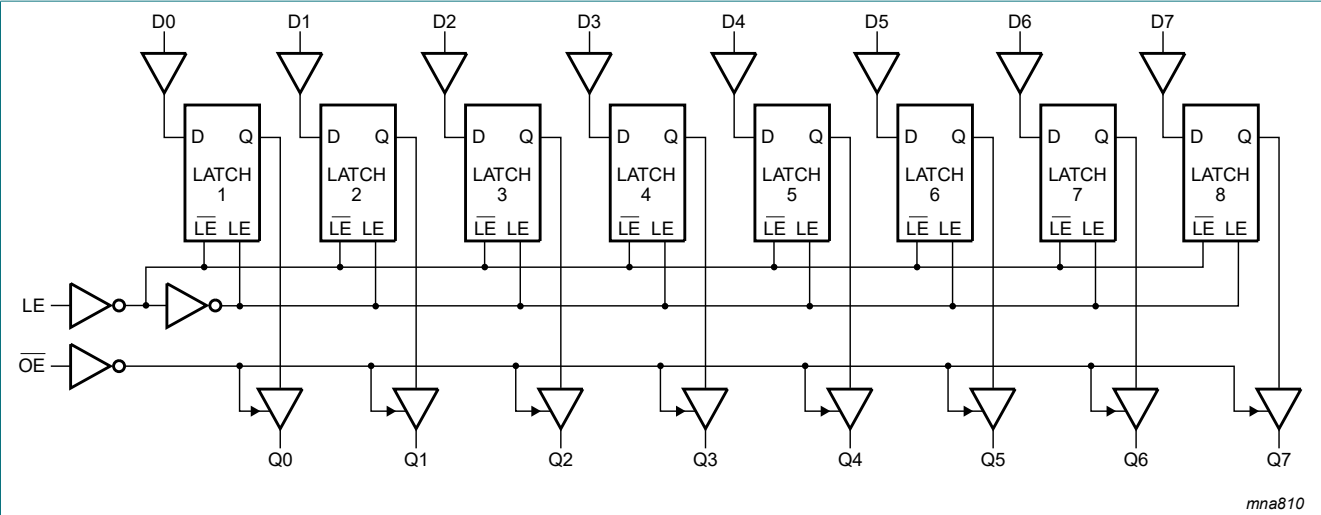


Fig. 4. Logic diagram

5. Pinning information

5.1. Pinning

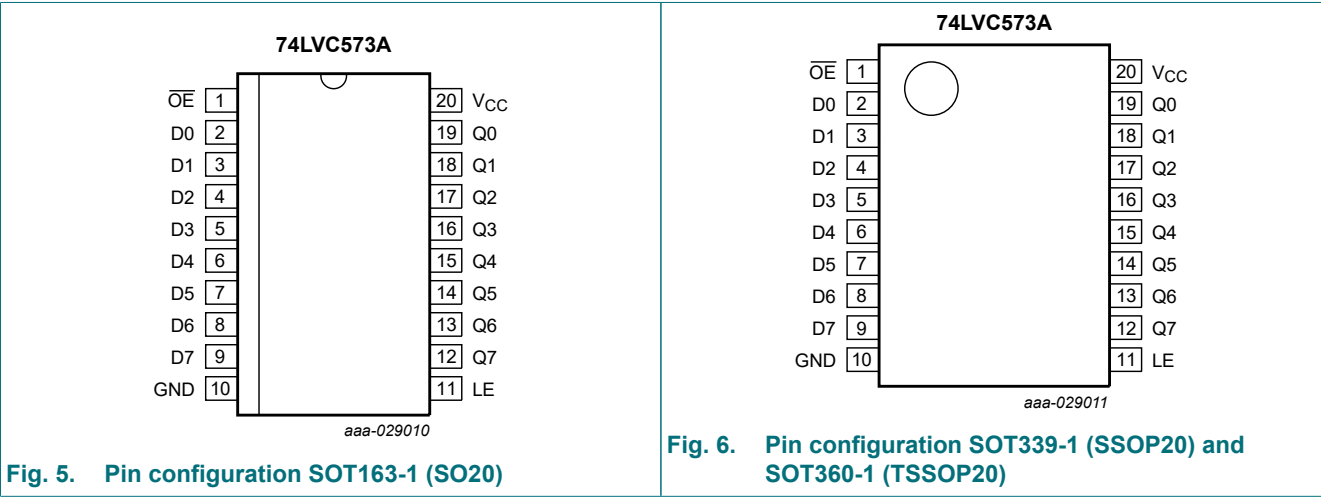
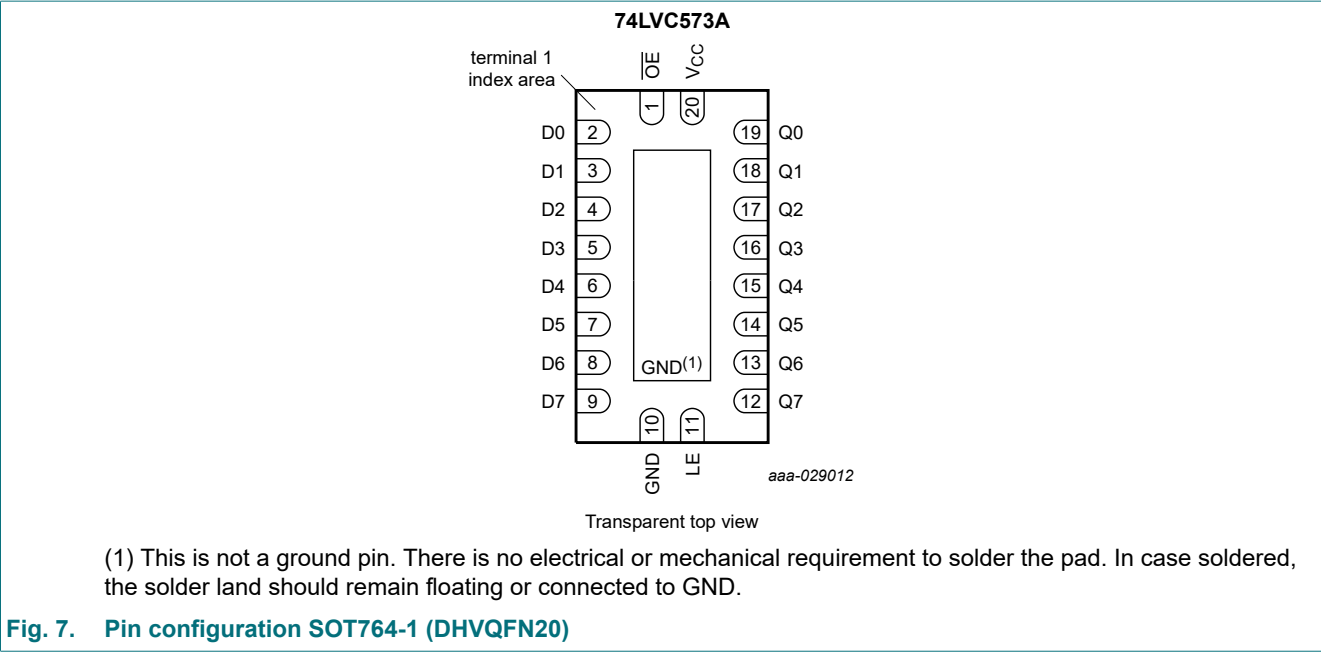


Fig. 5. Pin configuration SOT163-1 (SO20)

Fig. 6. Pin configuration SOT339-1 (SSOP20) and SOT360-1 (TSSOP20)

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           | [1]                                             | -0.5 | +6.5           | V    |
| $I_{OK}$  | output clamping current | $V_O > V_{CC}$ or $V_O < 0$                     | -    | ±50            | mA   |
| $V_O$     | output voltage          | [2]                                             | -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 | $T_{amb} = -40\text{ °C to }+125\text{ °C}$ [3] | -    | 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

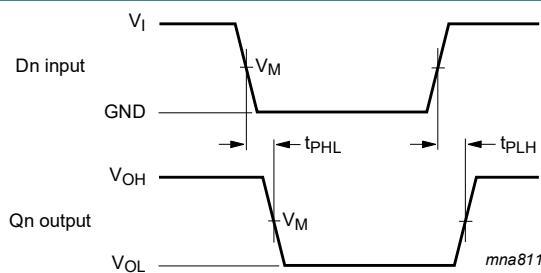
$C_L$  = output load capacitance in pF

$V_{CC}$  = supply voltage in Volts

$N$  = number of inputs switching

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

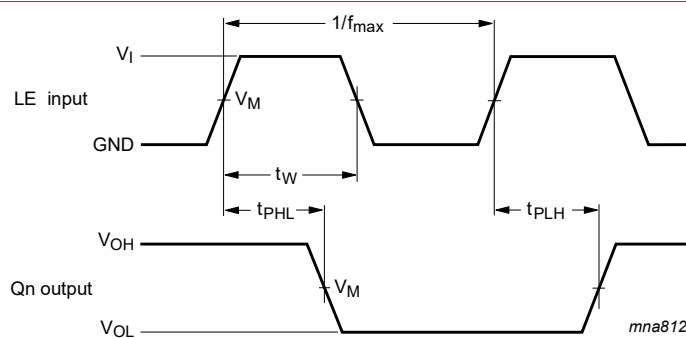
## 10.1. Waveforms and test circuit



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

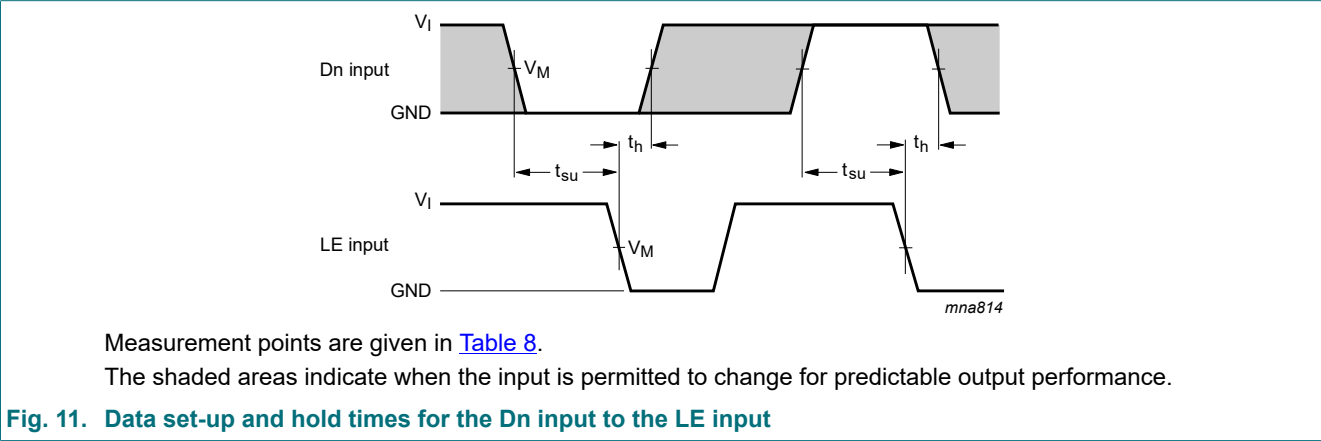
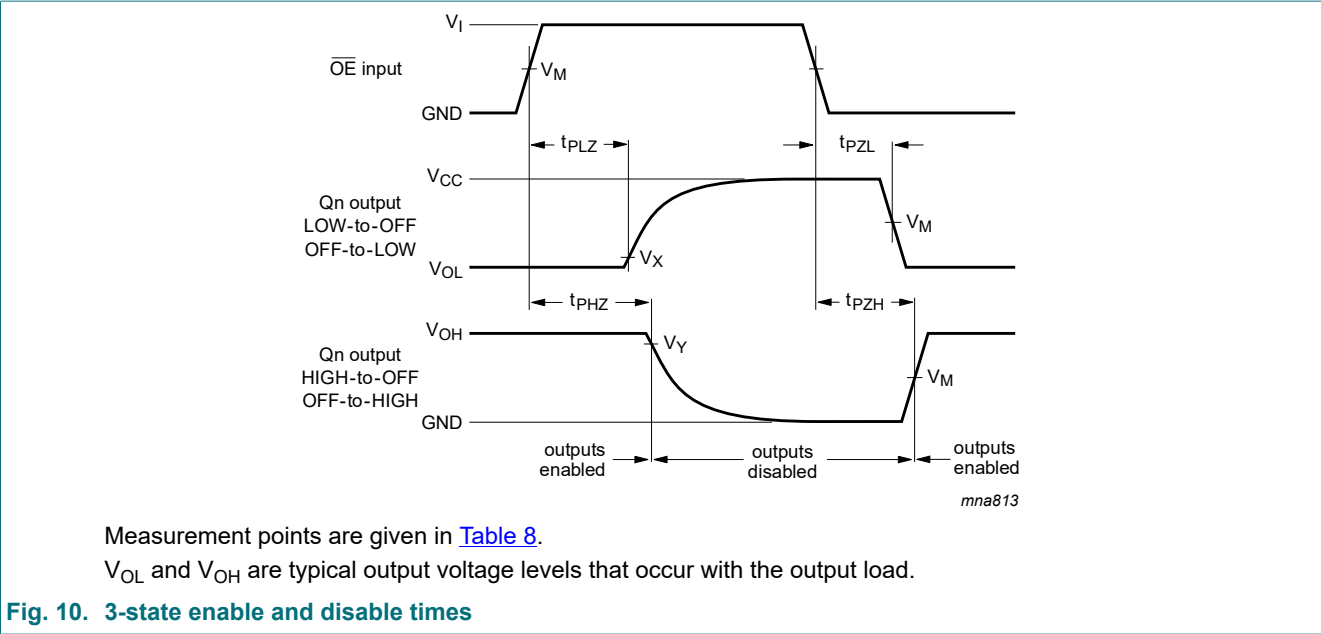


Table 8. Measurement points

| 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

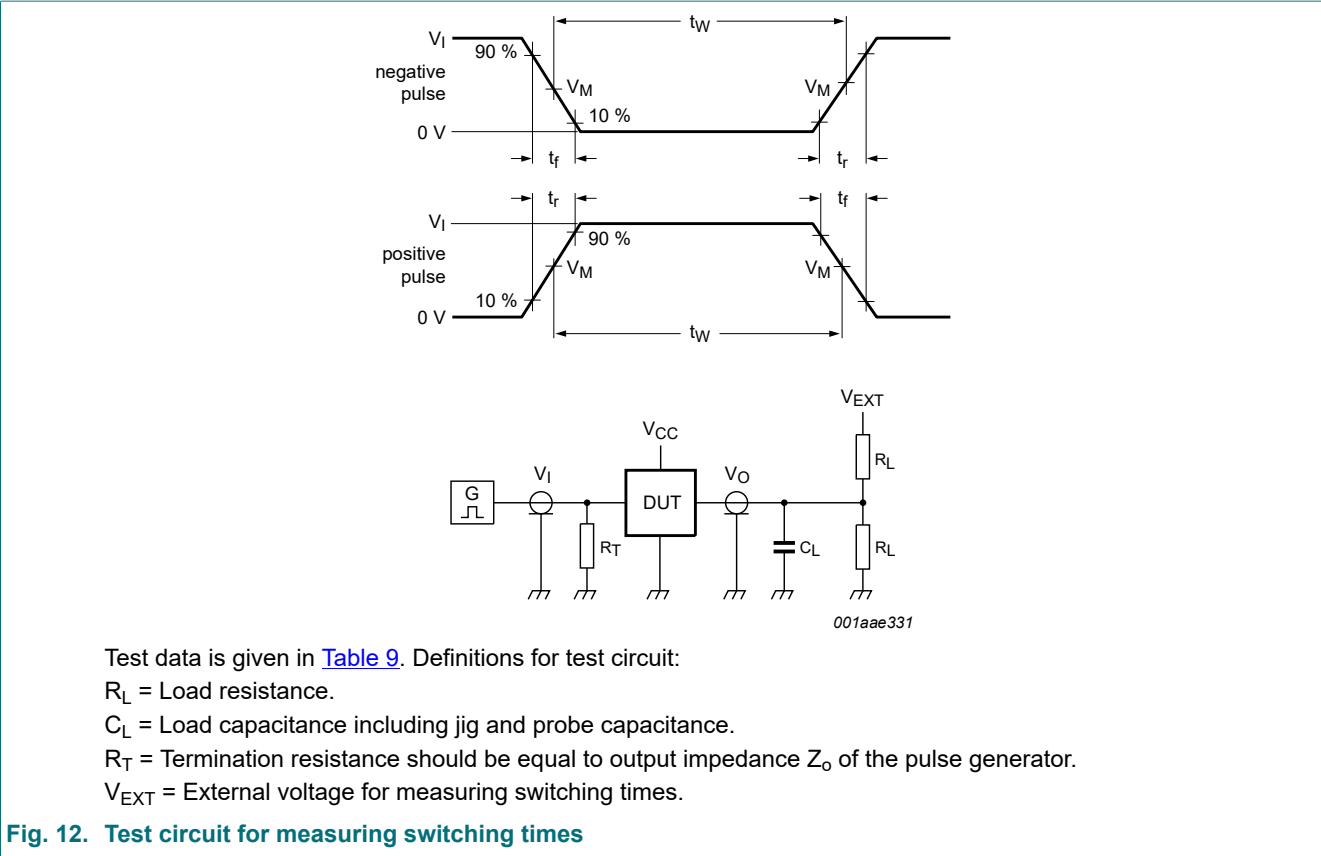


Table 9. Test data

| 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

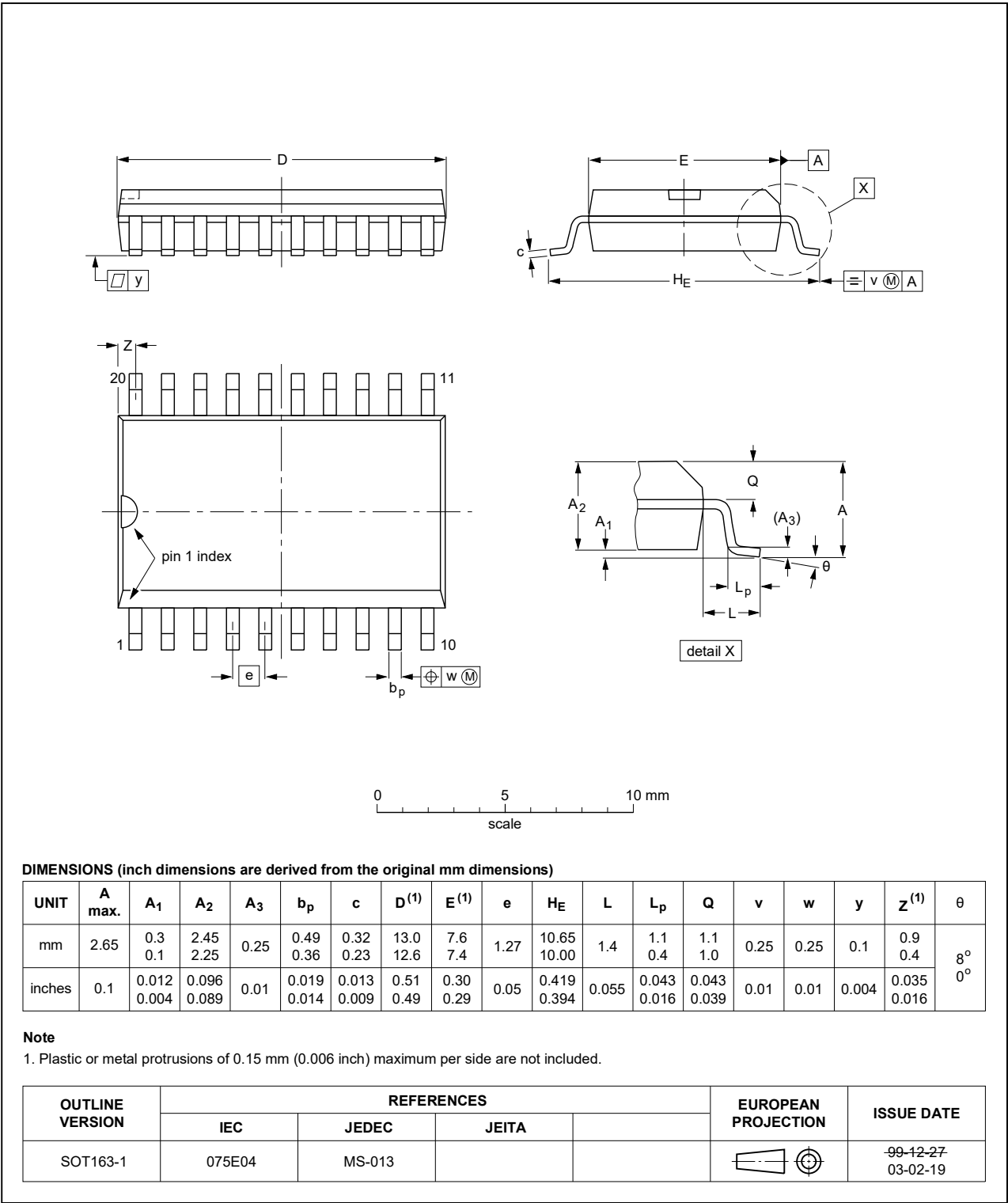


Fig. 13. Package outline SOT163-1 (SO20)

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

SOT339-1

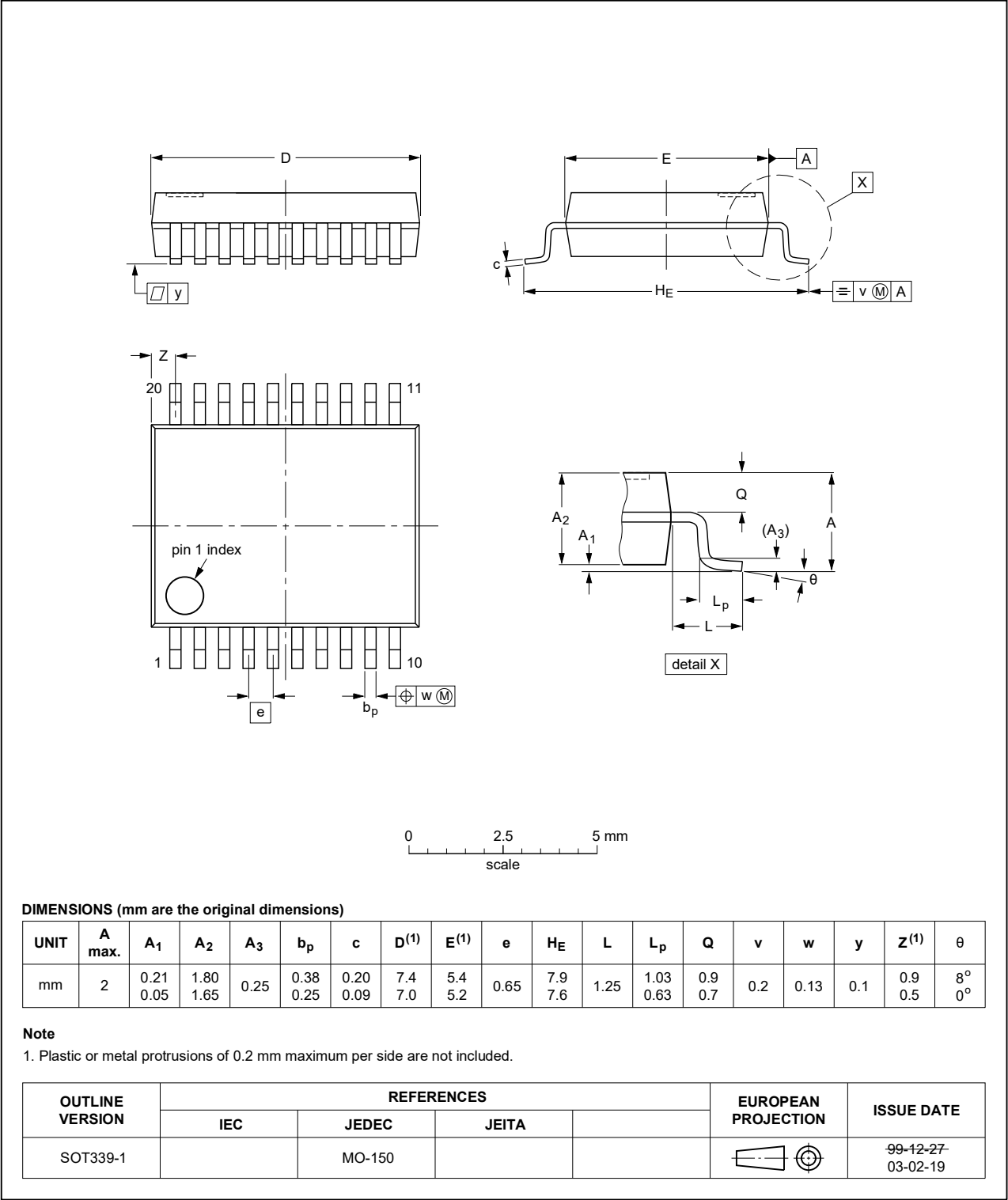


Fig. 14. Package outline SOT339-1 (SSOP20)

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

SOT360-1

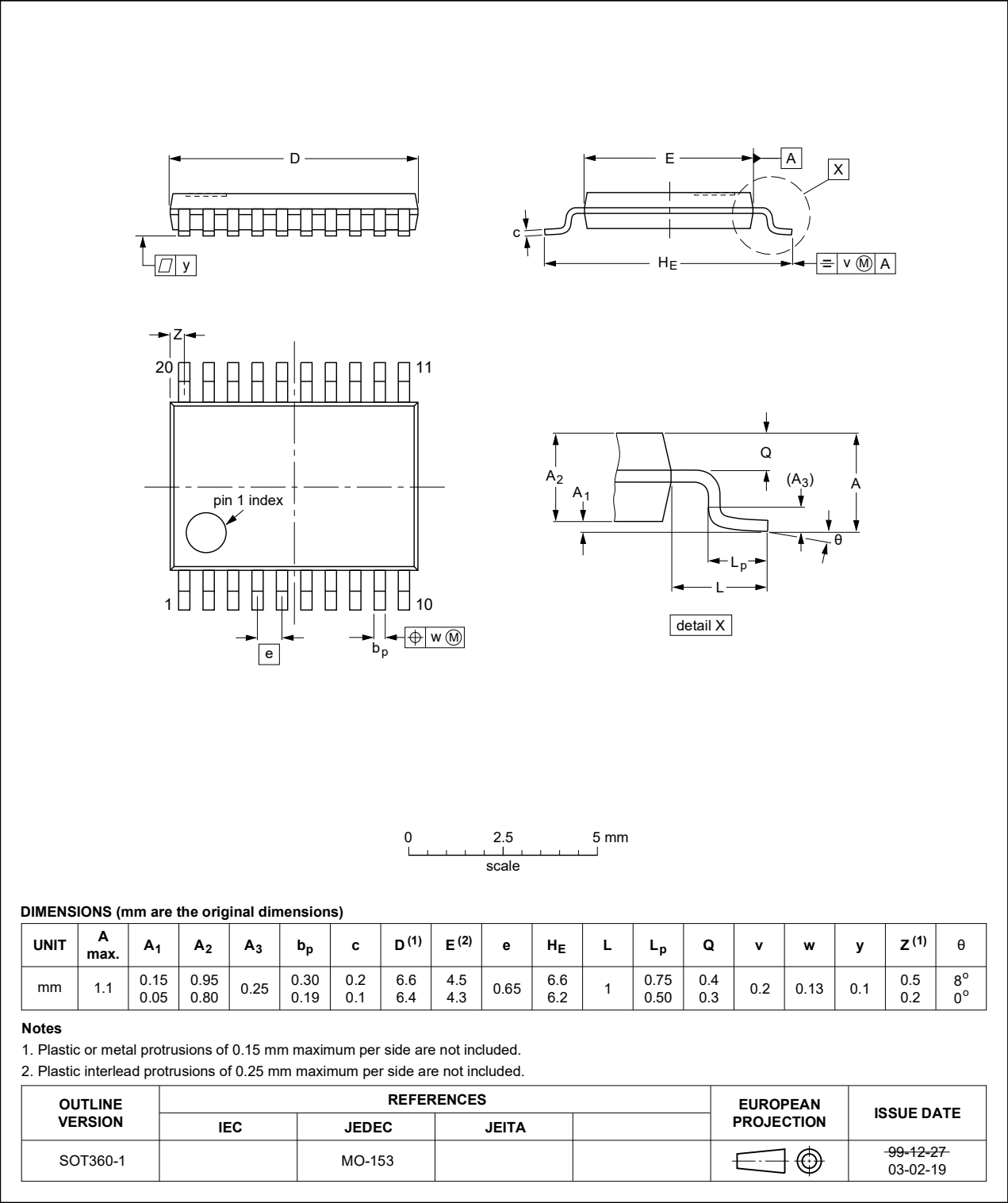


Fig. 15. Package outline SOT360-1 (TSSOP20)

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

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

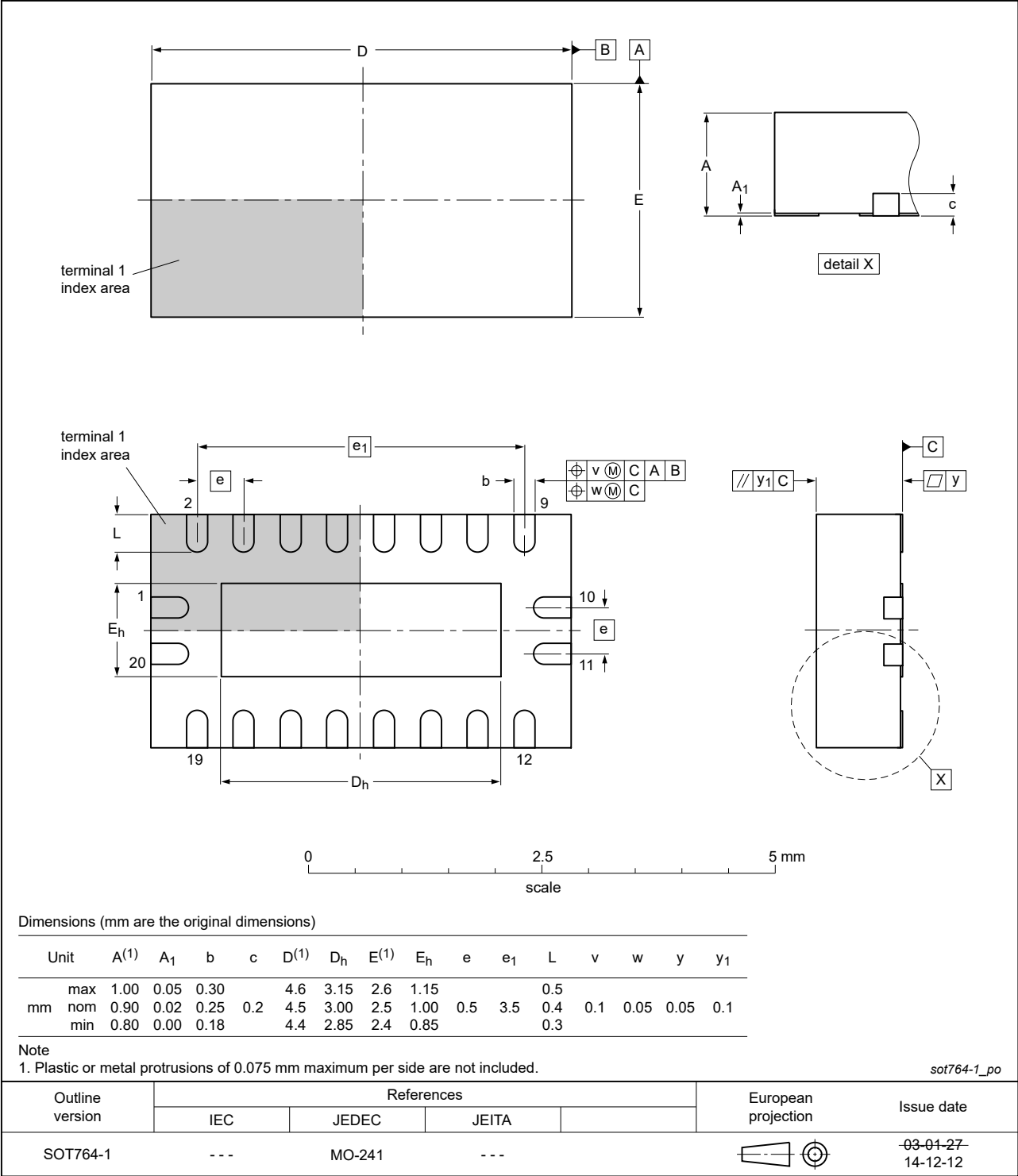


Fig. 16. Package outline SOT764-1 (DHVQFN20)

## 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".
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the internet at <https://www.nexperia.com>.

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Date of release: 30 March 2020