# 74LVT574; 74LVTH574

## 3.3 V octal D-type flip-flop; 3-state

Rev. 04 — 11 September 2008 Product data sheet

## 1. General description

The 74LVT574; 74LVTH574 is a high-performance product designed for $V_{CC}$ operation at 3.3 V.

This device is an 8-bit, edge triggered register coupled to eight 3-state output buffers. The two sections of the device are controlled independently by the clock (pin CP) and output enable (pin $\overline{OE}$) control gates. The state of each D input (one setup time before the LOW-to-HIGH clock transition) is transferred to the corresponding flip-flops Q output.

The 3-state output buffers are designed to drive heavily loaded 3-state buses, MOS memories, or MOS microprocessors.

The active LOW output enable (pin $\overline{OE}$) controls all eight 3-state buffers independent of the clock operation.

When pin $\overline{OE}$ is LOW, the stored data appears at the outputs. When pin $\overline{OE}$ is HIGH, the outputs are in the high-impedance OFF-state, which means they will neither drive nor load the bus.

## 2. Features

- Inputs and outputs arranged for easy interfacing to microprocessors
- 3-state outputs for bus interfacing
- Common output enable control
- TTL input and output switching levels
- Input and output interface capability to systems at 5 V supply
- Bus hold data inputs eliminate need for external pull-up resistors to hold unused inputs
- Live insertion and extraction permitted
- No bus current loading when output is tied to 5 V bus
- Power-up reset
- Power-up 3-state
- Latch-up protection
  - JESD78 class II exceeds 500mA
- ESD protection:
  - HBM JESD22-A114E exceeds 2000 V
  - MM JESD22-A115-A exceeds 200 V
- Specified from –40 °C to +85 °C

## 3. Ordering information

**Table 1. Ordering information**

| Type number | Package | | | |
|---|---|---|---|---|
| | Temperature range | Name | Description | Version |
| 74LVT574D | –40 °C to +85 °C | SO20 | plastic small outline package; 20 leads; body width 7.5 mm | SOT163-1 |
| 74LVTH574D | | | | |
| 74LVT574DB | –40 °C to +85 °C | SSOP20 | plastic shrink small outline package; 20 leads; body width 5.3 mm | SOT339-1 |
| 74LVTH574DB | | | | |
| 74LVT574PW | –40 °C to +85 °C | TSSOP20 | plastic thin shrink small outline package; 20 leads; body width 4.4 mm | SOT360-1 |
| 74LVTH574PW | | | | |
| 74LVT574BQ | –40 °C to +85 °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 |

## 4. Functional diagram

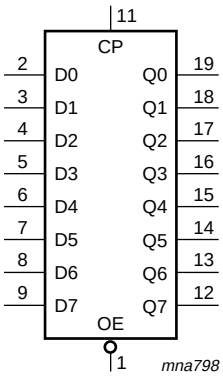



**Fig 1. Logic symbol**

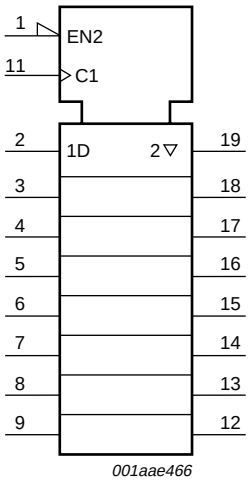



**Fig 2. IEC logic symbol**

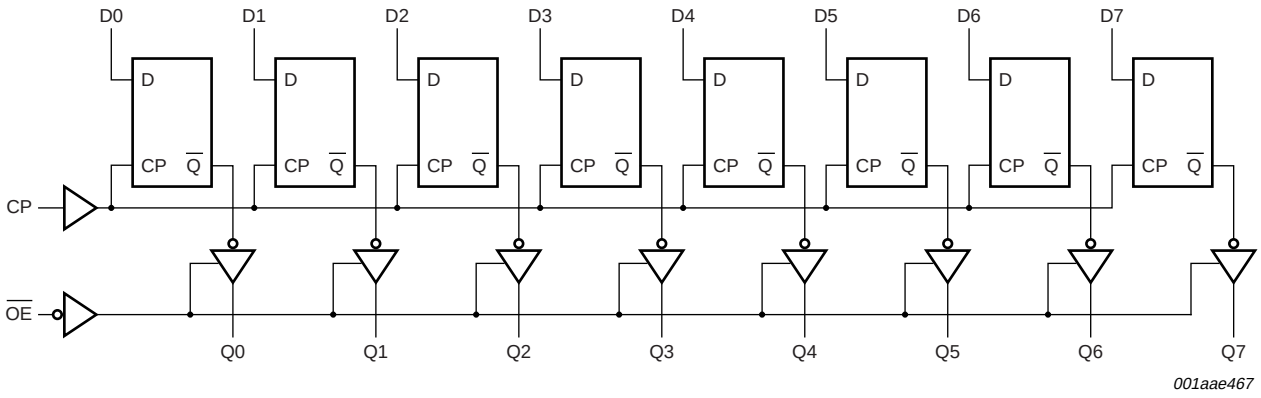



**Fig 3. Logic diagram**

# 5. Pinning information

## 5.1 Pinning

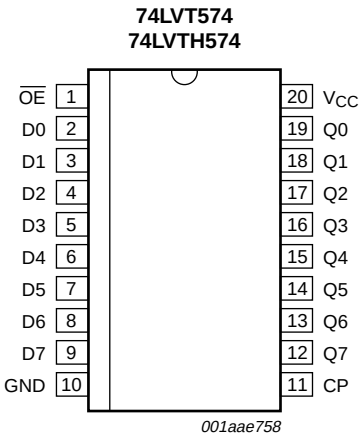
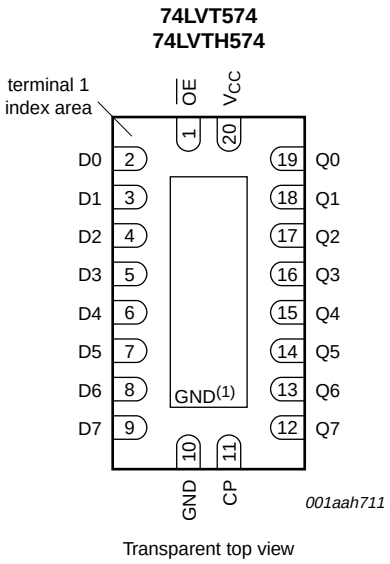



Fig 4. Pin configuration for SO20, and (T)SSOP20




Transparent top view

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

Fig 5. Pin configuration for DHVQFN20

## 5.2 Pin description

Table 2. Pin description

| Symbol | Pin | Description |
|---|---|---|
| $\overline{OE}$ | 1 | output enable input (active LOW) |
| D0 to D7 | 2, 3, 4, 5, 6, 7, 8, 9 | data input |
| GND | 10 | ground (0 V) |
| CP | 11 | clock pulse input (active rising edge) |
| Q0 to Q7 | 19, 18, 17, 16, 15, 14, 13, 12 | data output |
| $V_{CC}$ | 20 | supply voltage |

# 6. Functional description

## 6.1 Function table

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

| Operating mode | Control | | Input | Internal register | Output |
|---|---|---|---|---|---|
| | $\overline{OE}$ | CP | Dn | | Qn |
| Load and read register | L | ↑ | l | L | L |
| | | | h | H | H |
| Hold | L | NC | X | NC | NC |
| Disable outputs | H | X | X | NC | Z |

[1] H = HIGH voltage level;
L = LOW voltage level;
↑ = LOW-to-HIGH clock transition;
h = HIGH voltage level one setup time prior to the LOW-to-HIGH clock transition;
l = LOW voltage level one setup time prior to the LOW-to-HIGH clock transition;
Z = high-impedance OFF-state;
NC = no change;
X = don't care.

# 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 | +4.6 | V |
| $V_I$ | input voltage | | [1] | –0.5 | +7.0 | V |
| $V_O$ | output voltage | output in OFF-state or HIGH-state | [1] | –0.5 | +7.0 | V |
| $I_{IK}$ | input clamping current | $V_I < 0$ V | | - | –50 | mA |
| $I_{OK}$ | output clamping current | $V_O < 0$ V | | - | –50 | mA |
| $I_O$ | output current | output in LOW-state | | - | 128 | mA |
| | | output in HIGH-state | | - | –64 | mA |
| $T_{stg}$ | storage temperature | | | –65 | +150 | °C |
| $T_j$ | junction temperature | | [2] | - | 150 | °C |
| $P_{tot}$ | total power dissipation | $T_{amb}$ = -40 °C to +85 °C | | - | 500 | mW |

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

[2] The performance capability of a high-performance integrated circuit in conjunction with its thermal environment can create junction temperatures which are detrimental to reliability.

[3] For SO20 packages: above 70 °C derate linearly with 8 mW/K.
For SSOP20 and TSSOP20 packages: above 60 °C derate linearly with 5.5 mW/K.
For DHVQFN20 packages: above 60 °C derate linearly with 4.5 mW/K.

## 8. Recommended operating conditions

**Table 5. Recommended operating conditions**

| Symbol | Parameter | Conditions | Min | Max | Unit |
|---|---|---|---|---|---|
| $V_{CC}$ | supply voltage | | 2.7 | 3.6 | V |
| $V_I$ | input voltage | | 0 | 5.5 | V |
| $V_{IH}$ | HIGH-level input voltage | | 2.0 | - | V |
| $V_{IL}$ | LOW-level input voltage | | - | 0.8 | V |
| $I_{OH}$ | HIGH-level output current | | - | –32 | mA |
| $I_{OL}$ | LOW-level output current | | - | 32 | mA |
| | | current duty cycle ≤ 50 %; $f_i \geq 1$ kHz | - | 64 | mA |
| $T_{amb}$ | ambient temperature | in free air | –40 | +85 | °C |
| $\Delta t/\Delta V$ | input transition rise and fall rate | outputs enabled | - | 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 | $T_{amb}$ = –40 °C to +85 °C | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | |
| $V_{IK}$ | input clamping voltage | $V_{CC}$ = 2.7 V; $I_{IK}$ = –18 mA | –1.2 | –0.9 | - | V |
| $V_{OH}$ | HIGH-level output voltage | $V_{CC}$ = 2.7 V to 3.6 V; $I_{OH}$ = –100 µA | $V_{CC}$ – 0.2 | $V_{CC}$ – 0.1 | - | V |
| | | $V_{CC}$ = 2.7 V; $I_{OH}$ = –8 mA | 2.4 | 2.5 | - | V |
| | | $V_{CC}$ = 3.0 V; $I_{OH}$ = –32 mA | 2.0 | 2.2 | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_{CC}$ = 2.7 V | | | | |
| | | $I_{OL}$ = 100 µA | - | 0.1 | 0.2 | V |
| | | $I_{OL}$ = 24 mA | - | 0.3 | 0.5 | V |
| | | $V_{CC}$ = 3.0 V | | | | |
| | | $I_{OL}$ = 16 mA | - | 0.25 | 0.4 | V |
| | | $I_{OL}$ = 32 mA | - | 0.3 | 0.5 | V |
| | | $I_{OL}$ = 64 mA | - | 0.4 | 0.55 | V |
| $V_{OL(pu)}$ | power-up LOW-level output voltage | $V_{CC}$ = 3.6 V; $I_O$ = 1 mA; $V_I$ = GND or $V_{CC}$ [2] | - | 0.13 | 0.55 | V |
| $I_I$ | input leakage current | all input pins; $V_{CC}$ = 0 V or 3.6 V; $V_I$ = 5.5 V | - | 1 | 10 | µA |
| | | control pins; $V_{CC}$ = 3.6 V; $V_I$ = $V_{CC}$ or GND | - | ±0.1 | ±1 | µA |
| | | data pins; $V_{CC}$ = 3.6 V [3] | | | | |
| | | $V_I$ = $V_{CC}$ | - | 0.1 | 1 | µA |
| | | $V_I$ = 0 V | –5 | –1 | - | µA |
| $I_{OFF}$ | power-off leakage current | $V_{CC}$ = 0 V; $V_I$ or $V_O$ = 0 V to 4.5 V | - | 1 | ±100 | µA |
| $I_{LO}$ | output leakage current | $V_O$ = 5.5 V and $V_{CC}$ = 3.0 V; output HIGH [4] | - | 60 | 125 | µA |
| $I_{BHL}$ | bus hold LOW current | $V_{CC}$ = 3.0 V; $V_I$ = 0.8 V | 75 | 150 | - | µA |
| $I_{BHH}$ | bus hold HIGH current | $V_{CC}$ = 3.0 V; $V_I$ = 2.0 V [4] | - | –150 | –75 | µA |
| $I_{BHHO}$ | bus hold HIGH overdrive current | $V_{CC}$ = 3.6 V; $V_I$ = 0V to 3.0 V [4] | - | - | 500 | µA |

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

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

| Symbol | Parameter | Conditions | | $T_{amb}$ = –40 °C to +85 °C | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | Min | Typ[1] | Max | |
| $I_{BHLO}$ | bus hold LOW overdrive current | $V_{CC}$ = 0 V; $V_I$ = 0V to 3.0 V | | –500 | - | - | µA |
| $I_{O(pu/pd)}$ | power-up/power-down output current | $V_{CC} \leq$ 1.2 V; $V_O$ = 0.5 V to $V_{CC}$; $V_I$ = GND or $V_{CC}$; $\overline{OE}$ = don't care | [5] | - | 1 | ±100 | µA |
| $I_{OZ}$ | OFF-state output current | $V_{CC}$ = 3.6 V; $V_I$ = $V_{IH}$ or $V_{IL}$ | | | | | |
| | | output HIGH: $V_O$ = 3.0 V | | - | 1 | 5 | µA |
| | | output LOW: $V_O$ = 0.5 V | | –5 | 1 | - | µA |
| $I_{CC}$ | supply current | $V_{CC}$ = 3.6 V; $V_I$ = GND or $V_{CC}$; $I_O$ = 0 A | | | | | |
| | | outputs HIGH | | - | 0.13 | 0.19 | mA |
| | | outputs LOW | | - | 3 | 12 | mA |
| | | outputs disabled | [6] | - | 0.13 | 0.19 | mA |
| $\Delta I_{CC}$ | additional supply current | per input pin; $V_{CC}$ = 3 V to 3.6 V; one input at $V_{CC}$ – 0.6 V and other inputs at $V_{CC}$ or GND | [7] | - | 0.1 | 0.2 | mA |
| $C_I$ | input capacitance | $V_I$ = 0 V or 3.0 V | | - | 4 | - | pF |
| $C_O$ | output capacitance | outputs disabled; $V_O$ = 0 V or 3.0 V | | - | 8 | - | pF |

[1] Typical values are measured at $V_{CC}$ = 3.3 V and $T_{amb}$ = 25 °C.

[2] For valid test results, data must not be loaded into the flip-flops (or latches) after applying power.

[3] Unused pins at $V_{CC}$ or GND.

[4] This is the bus hold overdrive current required to force the input to the opposite logic state.

[5] This parameter is valid for any $V_{CC}$ between 0 V and 1.2 V with a transition time of up to 10 ms. From $V_{CC}$ = 1.2 V to $V_{CC}$ = 3.3 V ± 0.3 V a transition time of 100 µs is permitted. This parameter is valid for $T_{amb}$ = 25 °C only.

[6] $I_{CC}$ is measured with outputs pulled to $V_{CC}$ or GND.

[7] This is the increase in supply current for each input at the specified voltage level other than $V_{CC}$ or GND.

## 10. Dynamic characteristics

**Table 7. Dynamic characteristics**

*Voltages are referenced to ground (GND = 0 V); for test circuit see Figure 10.*

| Symbol | Parameter | Conditions | $T_{amb}$ = –40 °C to +85 °C | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | |
| $t_{PLH}$ | LOW to HIGH propagation delay | CP to Qn; see Table 6 | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | 1.7 | 3.6 | 5.4 | ns |
| | | $V_{CC}$ = 2.7 V | - | - | 6.2 | ns |
| $t_{PHL}$ | HIGH to LOW propagation delay | CP to Qn; see Table 6 | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | 2.4 | 4.3 | 5.9 | ns |
| | | $V_{CC}$ = 2.7 V | - | - | 6.6 | ns |
| $t_{PZH}$ | OFF-state to HIGH propagation delay | $\overline{OE}$ to Qn; see Figure 7 | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | 1.0 | 2.9 | 4.8 | ns |
| | | $V_{CC}$ = 2.7 V | - | - | 5.9 | ns |

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

*Voltages are referenced to ground (GND = 0 V); for test circuit see Figure 10.*

| Symbol | Parameter | Conditions | | $T_{amb}$ = −40 °C to +85 °C | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | Min | Typ[1] | Max | |
| $t_{PZL}$ | OFF-state to LOW propagation delay | $\overline{OE}$ to Qn; see Figure 8 | | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | | 1.3 | 3.4 | 5.1 | ns |
| | | $V_{CC}$ = 2.7 V | | - | - | 6.2 | ns |
| $t_{PHZ}$ | HIGH to OFF-state propagation delay | $\overline{OE}$ to Qn; see Figure 7 | | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | | 1.9 | 4.0 | 5.5 | ns |
| | | $V_{CC}$ = 2.7 V | | - | - | 5.9 | ns |
| $t_{PLZ}$ | LOW to OFF-state propagation delay | $\overline{OE}$ to Qn; see Figure 8 | | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | | 1.7 | 3.2 | 4.5 | ns |
| | | $V_{CC}$ = 2.7 V | | - | - | 4.5 | ns |
| $t_{su}$ | set-up time | Dn to CP; see Figure 9 | [2] | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | | 2.0 | - | - | ns |
| | | $V_{CC}$ = 2.7 V | | 2.4 | - | - | ns |
| $t_h$ | hold time | Dn to CP; see Figure 9 | [3] | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | | 0.3 | - | - | ns |
| | | $V_{CC}$ = 2.7 V | | 0 | - | - | ns |
| $t_W$ | pulse width | CP input; see Figure 6 | [4] | | | | |
| | | $V_{CC}$ = 3.0 V to 3.6 V | | 3.3 | - | - | ns |
| | | $V_{CC}$ = 2.7 V | | 3.3 | - | - | ns |
| $f_{max}$ | maximum frequency | CP input; $V_{CC}$ = 3.0 V to 3.6 V; see Figure 6 | | 150 | - | - | MHz |

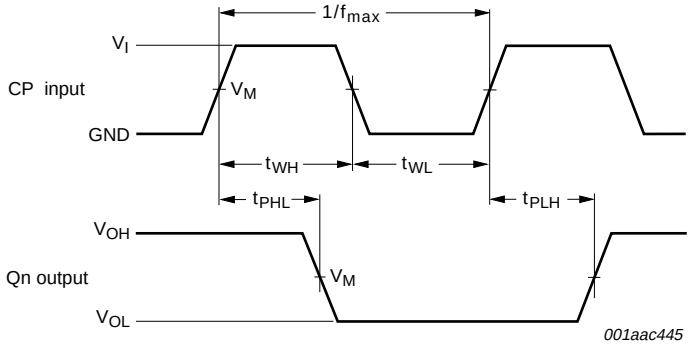
[1] Typical values are at $V_{CC}$ = 3.3 V and $T_{amb}$ = 25 °C.

[2] $t_{su}$ is the same as $t_{su(H)}$ and $t_{su(L)}$

[3] $t_h$ is the same as $t_{h(H)}$ and $t_{h(L)}$

[4] $t_W$ is the same as $t_{WH}$ and $t_{WL}$

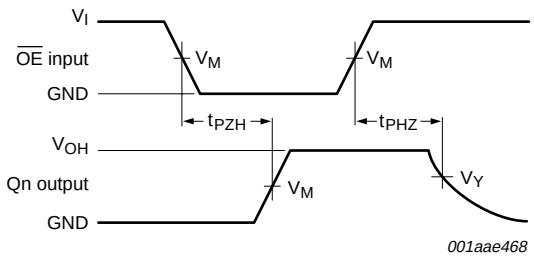
## 11. Waveforms




Measurement points are given in Table 8

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

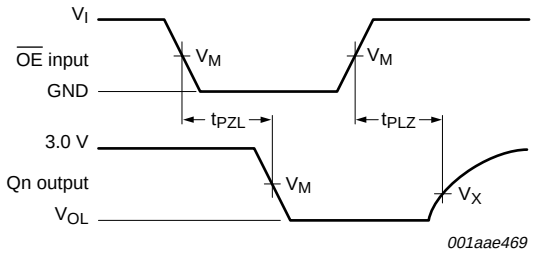
**Fig 6. Propagation delay clock input (CP) to output (Qn), pulse width clock (CP) and maximum clock frequency**




Measurement points are given in Table 8

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

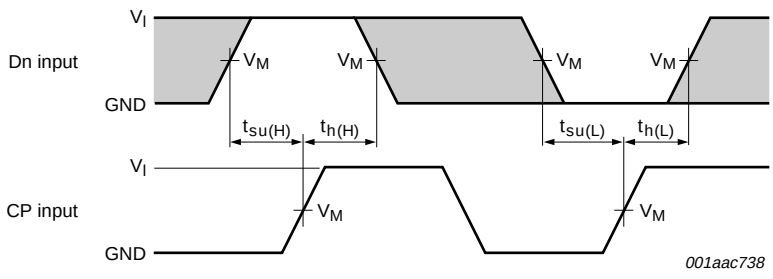
**Fig 7. Output enable time to HIGH-state and output disable time from HIGH-state**




Measurement points are given in Table 8

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

**Fig 8. Output enable time to LOW-state and output disable time from LOW-state**



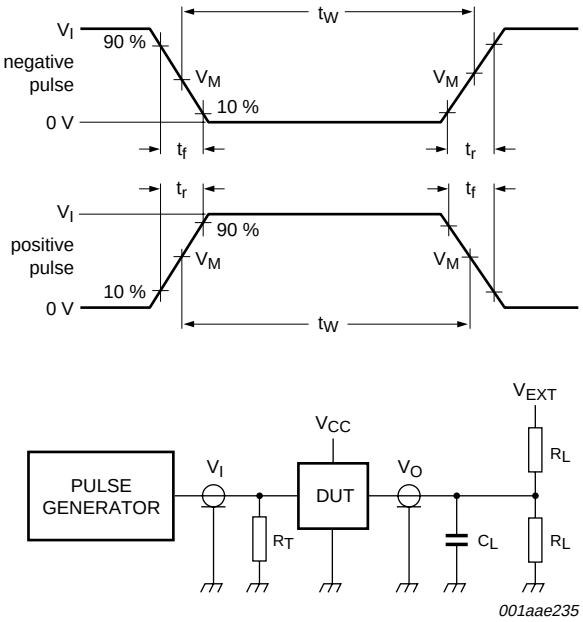

Measurement points are given in Table 8

**Remark:** The shaded areas indicate when the input is permitted to change for predictable output performance.

**Fig 9. Data setup and hold times**

**Table 8. Measurement points**

| Input | Output | | |
|---|---|---|---|
| $V_M$ | $V_M$ | $V_X$ | $V_Y$ |
| 1.5 V | 1.5 V | $V_{OL}$ + 0.3 V | $V_{OH}$ − 0.3 V |




Test data is given in Table 9.

Definitions test circuit:

$R_L$ = Load resistance.

$C_L$ = Load capacitance including jig and probe capacitance.

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

$V_{EXT}$ = Test voltage for switching times.

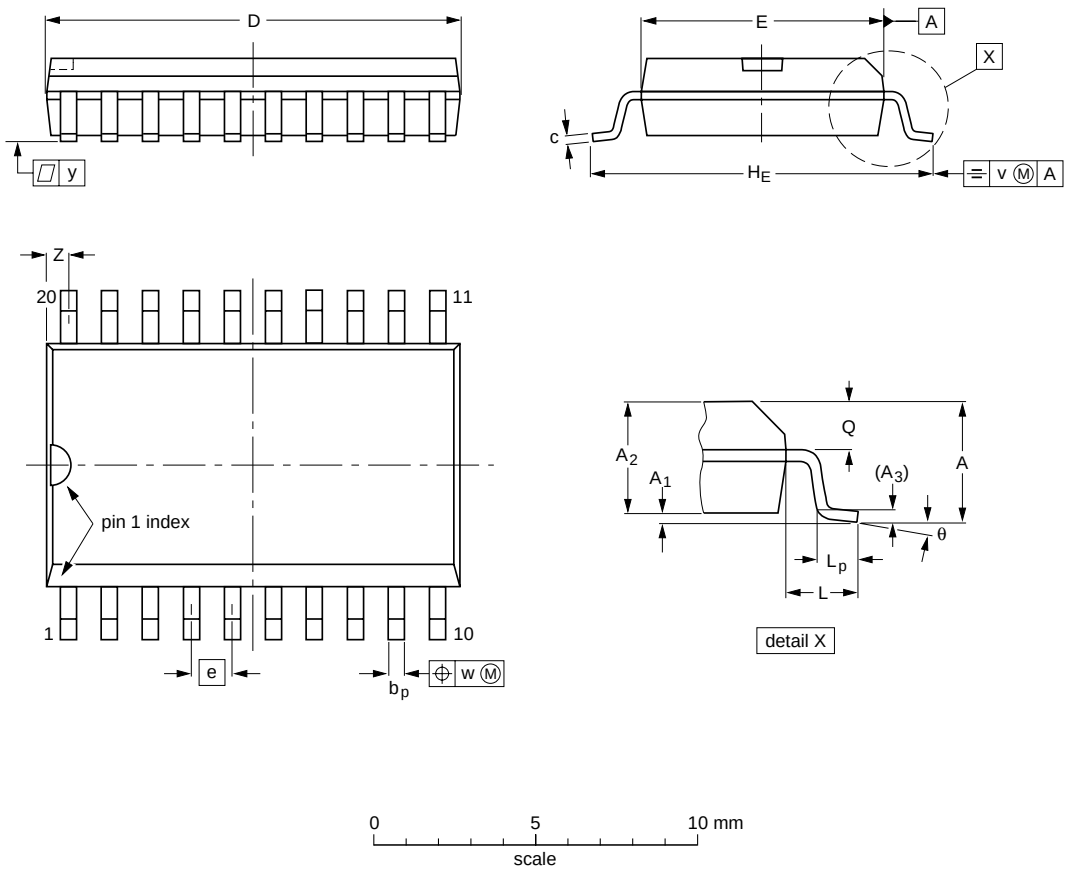
**Fig 10. Load circuitry for switching times**

**Table 9. Test data**

| Input | | | | Load | | $V_{EXT}$ | | |
|---|---|---|---|---|---|---|---|---|
| $V_I$ | $f_i$ | $t_W$ | $t_r$, $t_f$ | $C_L$ | $R_L$ | $t_{PHZ}$, $t_{PZH}$ | $t_{PLZ}$, $t_{PZL}$ | $t_{PLH}$, $t_{PHL}$ |
| 2.7 V | ≤ 10 MHz | 500 ns | ≤ 2.5 ns | 50 pF | 500 Ω | GND | 6 V | open |

## 12. Package outline

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




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

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

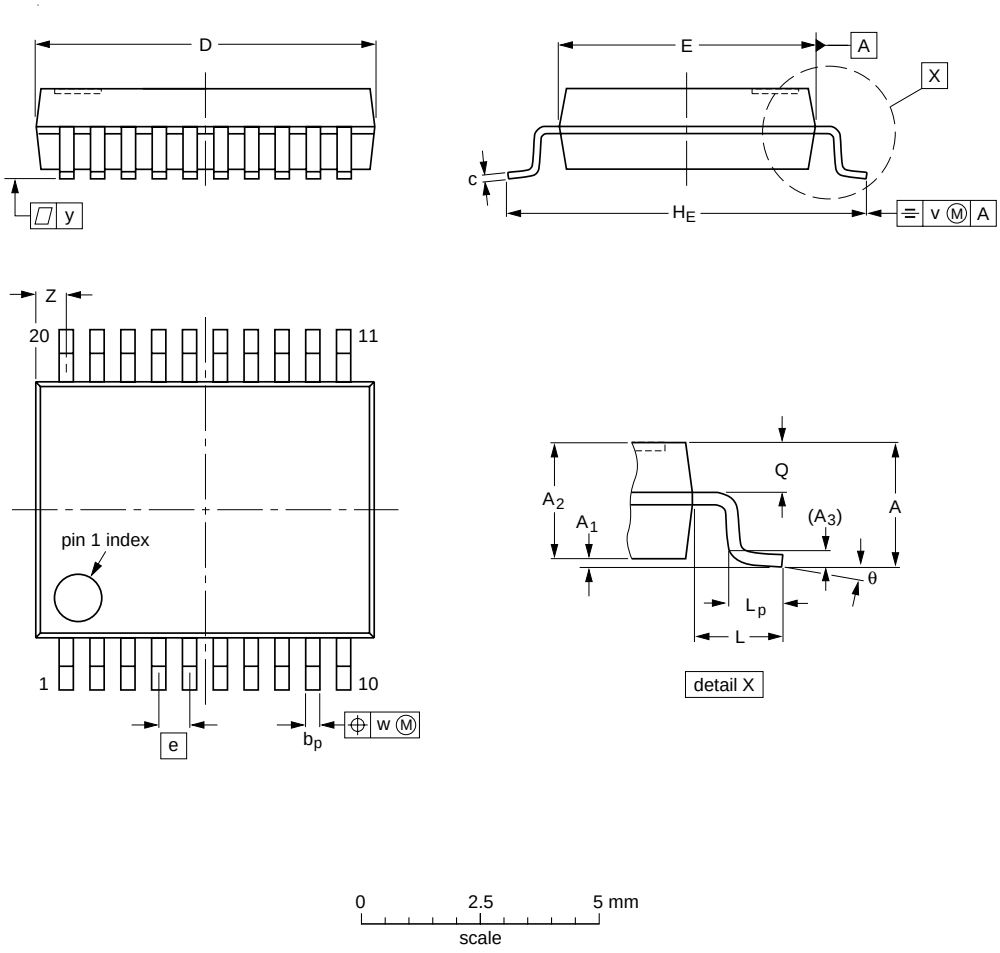
**Note**

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

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

**Fig 11. Package outline SOT163-1 (SO20)**

**SSOP20: plastic shrink small outline package; 20 leads; body width 5.3 mm** **SOT339-1**




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

| UNIT | A max. | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | $D^{(1)}$ | $E^{(1)}$ | e | $H_E$ | L | $L_p$ | Q | v | w | y | $Z^{(1)}$ | θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 2 | 0.21<br>0.05 | 1.80<br>1.65 | 0.25 | 0.38<br>0.25 | 0.20<br>0.09 | 7.4<br>7.0 | 5.4<br>5.2 | 0.65 | 7.9<br>7.6 | 1.25 | 1.03<br>0.63 | 0.9<br>0.7 | 0.2 | 0.13 | 0.1 | 0.9<br>0.5 | $8^o$<br>$0^o$ |

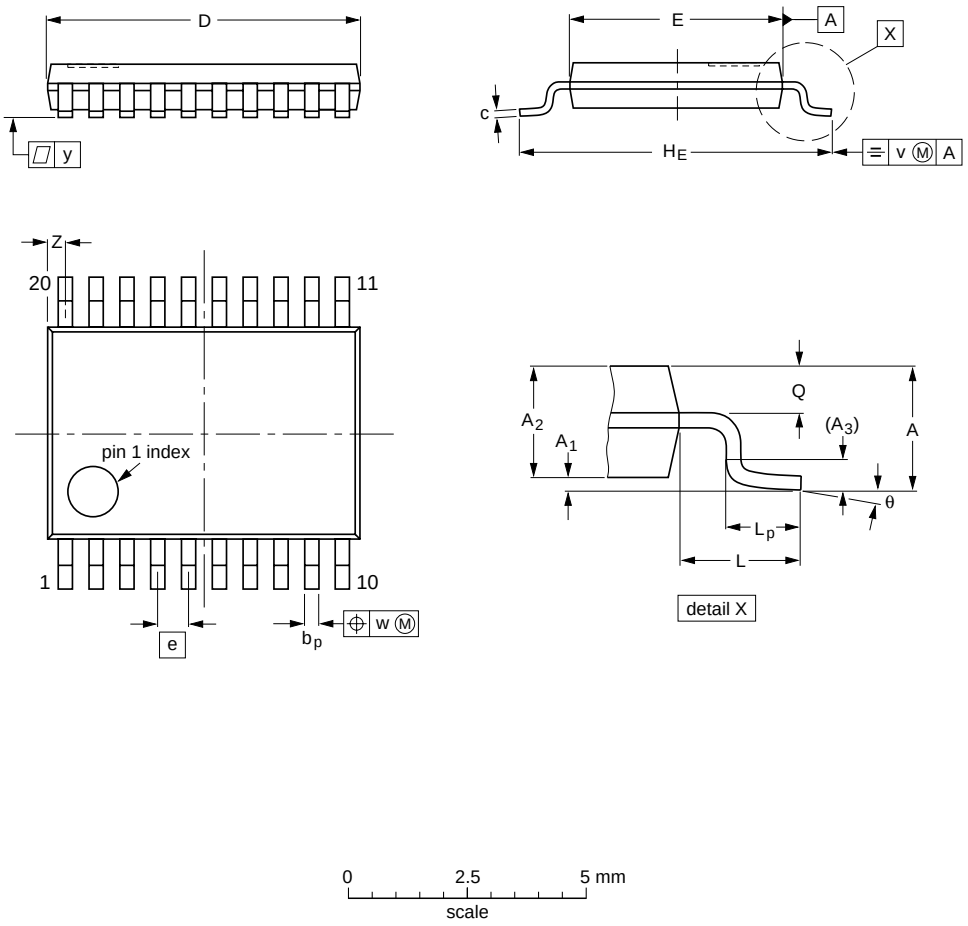
**Note**

1. Plastic or metal protrusions of 0.2 mm maximum per side are not included.

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT339-1 | | MO-150 | | | | ~~99-12-27~~<br>03-02-19 |

**Fig 12. Package outline SOT339-1 (SSOP20)**

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




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

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

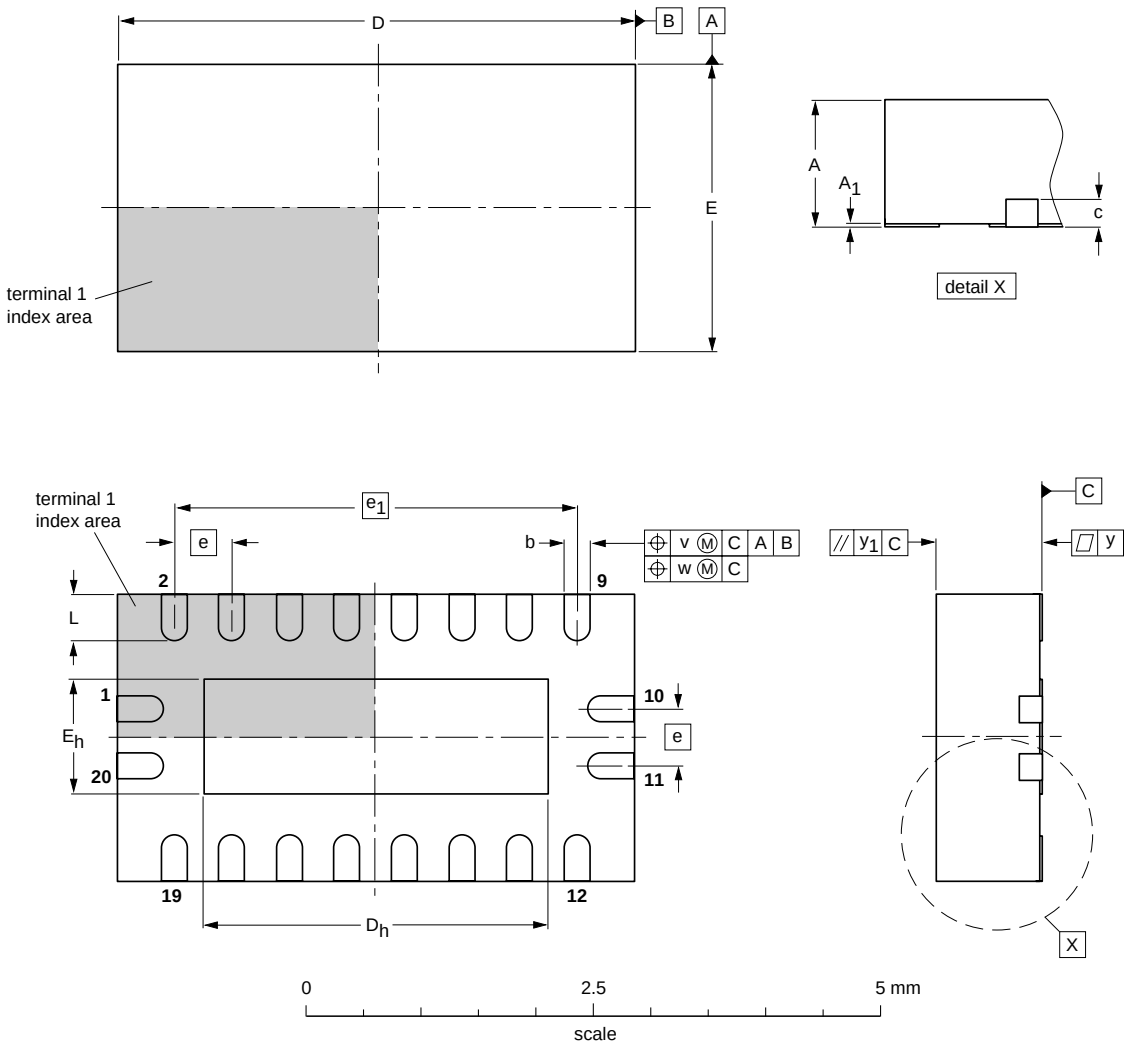
**Notes**

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

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

**Fig 13. Package outline SOT360-1 (TSSOP20)**

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




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

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

**Note**

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

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

**Fig 14. Package outline SOT764-1 (DHVQFN20)**

## 13. Abbreviations

**Table 10. Abbreviations**

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

## 14. Revision history

**Table 11. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| 74LVT_LVTH574_4 | 20080911 | Product data sheet | - | 74LVT_LVTH574_3 |
| Modifications: | • The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors.<br>• Legal texts have been adapted to the new company name where appropriate.<br>• Section 3 “Ordering information” and Section 12 “Package outline”: DHVQFN20 package added.<br>• Table 4 “Limiting values” $P_{tot}$ added. | | | |
| 74LVT_LVTH574_3 | 20060323 | Product data sheet | - | 74LVT574_2 |
| 74LVT574_2 | 19980219 | product specification | - | 74LVT574_1 |
| 74LVT574_1 | 19951114 | product specification | - | - |

# 15. Legal information

## 15.1 Data sheet status

| Document status[1][2] | Product status[3] | Definition |
|---|---|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
| Product [short] data sheet | Production | This document contains the product specification. |

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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Date of release: 11 September 2008

Document identifier: 74LVT_LVTH574_4