# 74HC151; 74HCT151

## 8-input multiplexer

Rev. 11 — 11 March 2024 Product data sheet

## 1. General description

The 74HC151; 74HCT151 is an 8-bit multiplexer with eight binary inputs (I0 to I7), three select inputs (S0 to S2) and an enable input ($\overline{E}$). One of the eight binary inputs is selected by the select inputs and routed to the complementary outputs (Y and $\overline{Y}$). A HIGH on $\overline{E}$ forces the output Y LOW and output $\overline{Y}$ HIGH. Inputs also include clamp diodes that enable the use of current limiting resistors to interface inputs to voltages in excess of $V_{CC}$.

## 2. Features and benefits

- Wide supply voltage range from 2.0 V to 6.0 V
- CMOS low power dissipation
- High noise immunity
- Latch-up performance exceeds 100 mA per JESD 78 Class II Level B
- Input levels:
  - For 74HC151: CMOS level
  - For 74HCT151: TTL level
- Non-inverting data path
- Complies with JEDEC standards
  - JESD8C (2.7 V to 3.6 V)
  - JESD7A (2.0 V to 6.0 V)
- ESD protection:
- • HBM: ANSI/ESDA/JEDEC JS-001 class 2 exceeds 2000 V
  - CDM: ANSI/ESDA/JEDEC JS-002 class C3 exceeds 1000 V
- Specified from -40 °C to +85 °C and from -40 °C to +125 °C

## 3. Ordering information

**Table 1. Ordering information**

| Type number | Package | | | |
|---|---|---|---|---|
| | Temperature range | Name | Description | Version |
| 74HC151D<br>74HCT151D | -40 °C to +125 °C | SO16 | plastic small outline package; 16 leads; body width 3.9 mm | SOT109-1 |
| 74HC151PW<br>74HCT151PW | -40 °C to +125 °C | TSSOP16 | plastic thin shrink small outline package; 16 leads; body width 4.4 mm | SOT403-1 |
| 74HC151BQ | -40 °C to +125 °C | DHVQFN16 | plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 16 terminals; body 2.5 × 3.5 × 0.85 mm | SOT763-1 |

## 4. Functional diagram

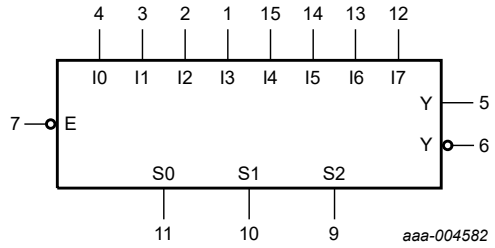


**Fig. 1. Logic symbol**

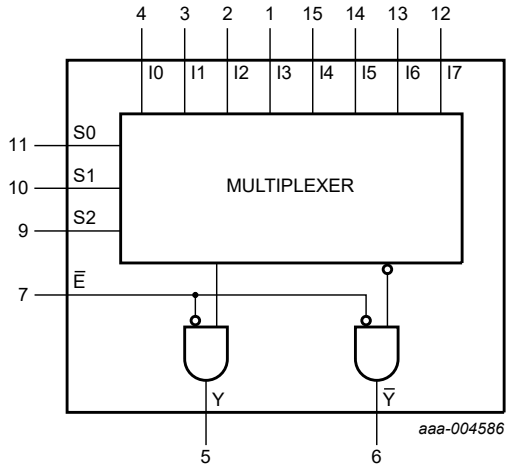


**Fig. 2. Functional diagram**

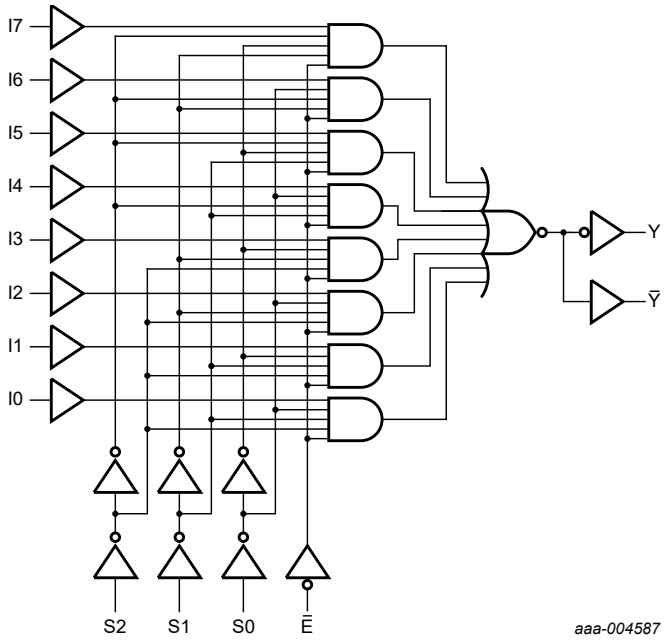


**Fig. 3. Logic diagram**


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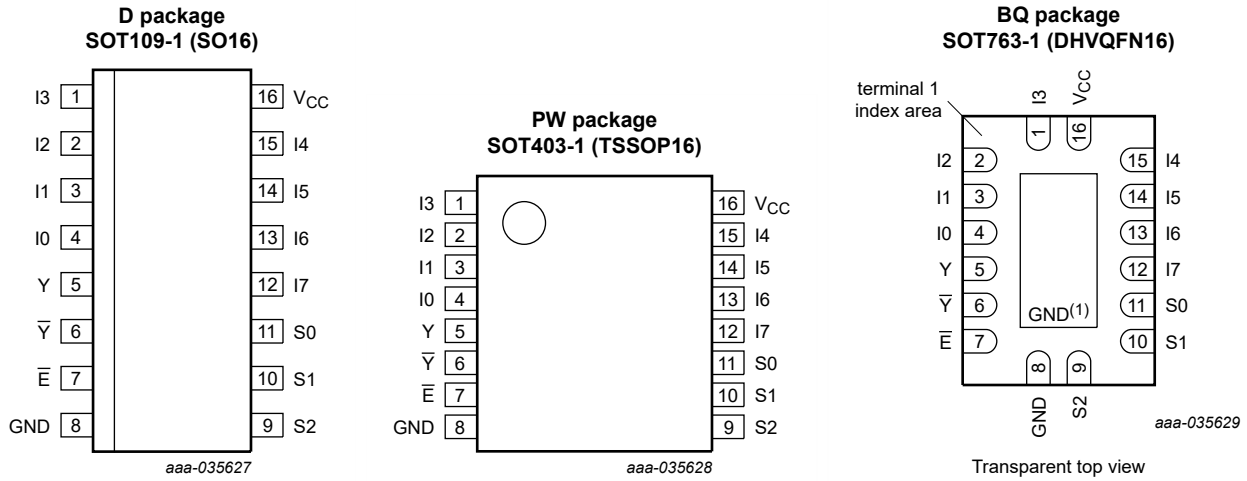
# 5. Pinning information

## 5.1. Pinning




(1) This is not a ground pin. There is no electrical or mechanical requirement to solder the pad. In case soldered, the solder land should remain floating or connected to GND.

## 5.2. Pin description

**Table 2. Pin description**

| Symbol | Pin | Description |
|---|---|---|
| I0, I1, I2, I3, I4, I5, I6, I7 | 4, 3, 2, 1, 15, 14, 13, 12 | data inputs |
| Y | 5 | multiplexer output |
| $\overline{Y}$ | 6 | complementary multiplexer output |
| $\overline{E}$ | 7 | enable input (active LOW) |
| GND | 8 | ground (0 V) |
| S0, S1, S2 | 11, 10, 9 | common data select inputs |
| $V_{CC}$ | 16 | supply voltage |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# 6. Functional description

**Table 3. Function table**

*H = HIGH voltage level; L = LOW voltage level; X = don't care.*

| Input | | | | | | | | | | | | Output | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\overline{E}$ | S2 | S1 | S0 | I0 | I1 | I2 | I3 | I4 | I5 | I6 | I7 | $\overline{Y}$ | Y |
| H | X | X | X | X | X | X | X | X | X | X | X | H | L |
| L | L | L | L | L | X | X | X | X | X | X | X | H | L |
| L | L | L | L | H | X | X | X | X | X | X | X | L | H |
| L | L | L | H | X | L | X | X | X | X | X | X | H | L |
| L | L | L | H | X | H | X | X | X | X | X | X | L | H |
| L | L | H | L | X | X | L | X | X | X | X | X | H | L |
| L | L | H | L | X | X | H | X | X | X | X | X | L | H |
| L | L | H | H | X | X | X | L | X | X | X | X | H | L |
| L | L | H | H | X | X | X | H | X | X | X | X | L | H |
| L | H | L | L | X | X | X | X | L | X | X | X | H | L |
| L | H | L | L | X | X | X | X | H | X | X | X | L | H |
| L | H | L | H | X | X | X | X | X | L | X | X | H | L |
| L | H | L | H | X | X | X | X | X | H | X | X | L | H |
| L | H | H | L | X | X | X | X | X | X | L | X | H | L |
| L | H | H | L | X | X | X | X | X | X | H | X | L | H |
| L | H | H | H | X | X | X | X | X | X | X | L | H | L |
| L | H | H | H | X | X | X | X | X | X | X | H | L | H |

# 7. Limiting values

**Table 4. Limiting values**

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

| Symbol | Parameter | Conditions | Min | Max | Unit |
|---|---|---|---|---|---|
| $V_{CC}$ | supply voltage | | -0.5 | +7 | V |
| $I_{IK}$ | input clamping current | $V_I < -0.5$ V or $V_I > V_{CC} + 0.5$ V | - | ±20 | mA |
| $I_{OK}$ | output clamping current | $V_O < -0.5$ V or $V_O > V_{CC} + 0.5$ V | - | ±20 | mA |
| $I_O$ | output current | $V_O = -0.5$ V to $(V_{CC} + 0.5$ V) | - | ±25 | mA |
| $I_{CC}$ | supply current | | - | +50 | mA |
| $I_{GND}$ | ground current | | -50 | - | mA |
| $T_{stg}$ | storage temperature | | -65 | +150 | °C |
| $P_{tot}$ | total power dissipation | $T_{amb}$ = -40 °C to +125 °C [1] | - | 500 | mW |

[1] For SOT109-1 (SO16) package: $P_{tot}$ derates linearly with 12.4 mW/K above 110 °C.
For SOT403-1 (TSSOP16) package: $P_{tot}$ derates linearly with 8.5 mW/K above 91 °C.
For SOT763-1 (DHVQFN16) package: $P_{tot}$ derates linearly with 11.2 mW/K above 106 °C.


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# 8. Recommended operating conditions

**Table 5. Recommended operating conditions**

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

| Symbol | Parameter | Conditions | 74HC151 | | | 74HCT151 | | | Unit |
|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Typ | Max | |
| $V_{CC}$ | supply voltage | | 2.0 | 5.0 | 6.0 | 4.5 | 5.0 | 5.5 | V |
| $V_I$ | input voltage | | 0 | - | $V_{CC}$ | 0 | - | $V_{CC}$ | V |
| $V_O$ | output voltage | | 0 | - | $V_{CC}$ | 0 | - | $V_{CC}$ | V |
| $T_{amb}$ | ambient temperature | | -40 | +25 | +125 | -40 | +25 | +125 | °C |
| $\Delta t/\Delta V$ | input transition rise and fall rate | $V_{CC}$ = 2.0 V | - | - | 625 | - | - | - | ns/V |
| | | $V_{CC}$ = 4.5 V | - | 1.67 | 139 | - | 1.67 | 139 | ns/V |
| | | $V_{CC}$ = 6.0 V | - | - | 83 | - | - | - | ns/V |

# 9. Static characteristics

**Table 6. Static characteristics**

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

| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| **74HC151** | | | | | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 2.0 V | 1.5 | 1.2 | - | 1.5 | - | 1.5 | - | V |
| | | $V_{CC}$ = 4.5 V | 3.15 | 2.4 | - | 3.15 | - | 3.15 | - | V |
| | | $V_{CC}$ = 6.0 V | 4.2 | 3.2 | - | 4.2 | - | 4.2 | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 2.0 V | - | 0.8 | 0.5 | - | 0.5 | - | 0.5 | V |
| | | $V_{CC}$ = 4.5 V | - | 2.1 | 1.35 | - | 1.35 | - | 1.35 | V |
| | | $V_{CC}$ = 6.0 V | - | 2.8 | 1.8 | - | 1.8 | - | 1.8 | V |
| $V_{OH}$ | HIGH-level output voltage | $V_I$ = $V_{IH}$ or $V_{IL}$ | | | | | | | | |
| | | $I_O$ = -20 µA; $V_{CC}$ = 2.0 V | 1.9 | 2.0 | - | 1.9 | - | 1.9 | - | V |
| | | $I_O$ = -20 µA; $V_{CC}$ = 4.5 V | 4.4 | 4.5 | - | 4.4 | - | 4.4 | - | V |
| | | $I_O$ = -20 µA; $V_{CC}$ = 6.0 V | 5.9 | 6.0 | - | 5.9 | - | 5.9 | - | V |
| | | $I_O$ = -4.0 mA; $V_{CC}$ = 4.5 V | 3.98 | 4.32 | - | 3.84 | - | 3.7 | - | V |
| | | $I_O$ = -5.2 mA; $V_{CC}$ = 6.0 V | 5.48 | 5.81 | - | 5.34 | - | 5.2 | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I$ = $V_{IH}$ or $V_{IL}$ | | | | | | | | |
| | | $I_O$ = 20 µA; $V_{CC}$ = 2.0 V | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O$ = 20 µA; $V_{CC}$ = 4.5 V | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O$ = 20 µA; $V_{CC}$ = 6.0 V | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O$ = 4.0 mA; $V_{CC}$ = 4.5 V | - | 0.15 | 0.26 | - | 0.33 | - | 0.4 | V |
| | | $I_O$ = 5.2 mA; $V_{CC}$ = 6.0 V | - | 0.16 | 0.26 | - | 0.33 | - | 0.4 | V |
| $I_I$ | input leakage current | $V_I$ = $V_{CC}$ or GND; $V_{CC}$ = 6.0 V | - | - | ±0.1 | - | ±1.0 | - | ±1.0 | µA |
| $I_{CC}$ | supply current | $V_I$ = $V_{CC}$ or GND; $I_O$ = 0 A; $V_{CC}$ = 6.0 V | - | - | 8.0 | - | 80 | - | 160 | µA |
| $C_I$ | input capacitance | | - | 3.5 | - | - | - | - | - | pF |


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| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| **74HCT151** | | | | | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 4.5 V to 5.5 V | 2.0 | 1.6 | - | 2.0 | - | 2.0 | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 4.5 V to 5.5 V | - | 1.2 | 0.8 | - | 0.8 | - | 0.8 | V |
| $V_{OH}$ | HIGH-level output voltage | $V_I$ = $V_{IH}$ or $V_{IL}$; $V_{CC}$ = 4.5 V | | | | | | | | |
| | | $I_O$ = -20 µA | 4.4 | 4.5 | - | 4.4 | - | 4.4 | - | V |
| | | $I_O$ = -4 mA | 3.98 | 4.32 | - | 3.84 | - | 3.7 | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I$ = $V_{IH}$ or $V_{IL}$; $V_{CC}$ = 4.5 V | | | | | | | | |
| | | $I_O$ = 20 µA | - | 0 | 0.1 | - | 0.1 | - | 0.1 | V |
| | | $I_O$ = 4.0 mA | - | 0.15 | 0.26 | - | 0.33 | - | 0.4 | V |
| $I_I$ | input leakage current | $V_I$ = $V_{CC}$ or GND; $V_{CC}$ = 5.5 V | - | - | ±0.1 | - | ±1.0 | - | ±1.0 | µA |
| $I_{CC}$ | supply current | $V_I$ = $V_{CC}$ or GND; $I_O$ = 0 A; $V_{CC}$ = 5.5 V | - | - | 8.0 | - | 80 | - | 160 | µA |
| $\Delta I_{CC}$ | additional supply current | $V_I$ = $V_{CC}$ - 2.1 V; other inputs at $V_{CC}$ or GND; $V_{CC}$ = 4.5 V to 5.5 V; $I_O$ = 0 A | | | | | | | | |
| | | per input pin; In inputs | - | 45 | 162 | - | 203 | - | 221 | µA |
| | | per input pin; $\overline{E}$ input | - | 30 | 108 | - | 135 | - | 147 | µA |
| | | per input pin; Sn input | - | 150 | 540 | - | 675 | - | 735 | µA |
| $C_I$ | input capacitance | | - | 3.5 | - | - | - | - | - | pF |


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## 10. Dynamic characteristics

**Table 7. Dynamic characteristics**

*Voltages are referenced to GND (ground = 0 V); $C_L$ = 50 pF unless otherwise specified; for test circuit see Fig. 6.*

| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| **74HC151** | | | | | | | | | | |
| $t_{pd}$ | propagation delay | In to Y; see Fig. 4 [1] | | | | | | | | |
| | | $V_{CC}$ = 2.0 V | - | 52 | 170 | - | 215 | - | 255 | ns |
| | | $V_{CC}$ = 4.5 V | - | 19 | 34 | - | 43 | - | 51 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 17 | - | - | - | - | - | ns |
| | | $V_{CC}$ = 6.0 V | - | 15 | 29 | - | 37 | - | 43 | ns |
| | | In to $\overline{Y}$; see Fig. 4 [1] | | | | | | | | |
| | | $V_{CC}$ = 2.0 V | - | 58 | 185 | - | 230 | - | 280 | ns |
| | | $V_{CC}$ = 4.5 V | - | 21 | 37 | - | 46 | - | 56 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 17 | - | - | - | - | - | ns |
| | | $V_{CC}$ = 6.0 V | - | 17 | 31 | - | 39 | - | 48 | ns |
| | | Sn to Y; see Fig. 5 [1] | | | | | | | | |
| | | $V_{CC}$ = 2.0 V | - | 61 | 185 | - | 230 | - | 280 | ns |
| | | $V_{CC}$ = 4.5 V | - | 22 | 37 | - | 46 | - | 56 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 19 | - | - | - | - | - | ns |
| | | $V_{CC}$ = 6.0 V | - | 18 | 31 | - | 39 | - | 48 | ns |
| | | Sn to $\overline{Y}$; see Fig. 5 [1] | | | | | | | | |
| | | $V_{CC}$ = 2.0 V | - | 61 | 205 | - | 255 | - | 310 | ns |
| | | $V_{CC}$ = 4.5 V | - | 22 | 41 | - | 51 | - | 62 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 19 | - | - | - | - | - | ns |
| | | $V_{CC}$ = 6.0 V | - | 18 | 35 | - | 43 | - | 53 | ns |
| | | $\overline{E}$ to Y; see Fig. 5 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V | - | 41 | 125 | - | 155 | - | 190 | ns |
| | | $V_{CC}$ = 4.5 V | - | 15 | 25 | - | 31 | - | 38 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 12 | - | - | - | - | - | ns |
| | | $V_{CC}$ = 6.0 V | - | 12 | 21 | - | 26 | - | 32 | ns |
| | | $\overline{E}$ to $\overline{Y}$; see Fig. 5 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V | - | 47 | 145 | - | 180 | - | 220 | ns |
| | | $V_{CC}$ = 4.5 V | - | 17 | 29 | - | 36 | - | 44 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 14 | - | - | - | - | - | ns |
| | | $V_{CC}$ = 6.0 V | - | 14 | 25 | - | 31 | - | 38 | ns |
| $t_t$ | transition time | Y, $\overline{Y}$; see Fig. 4 [2] | | | | | | | | |
| | | $V_{CC}$ = 2.0 V | - | 19 | 75 | - | 95 | - | 110 | ns |
| | | $V_{CC}$ = 4.5 V | - | 7 | 15 | - | 19 | - | 22 | ns |
| | | $V_{CC}$ = 6.0 V | - | 6 | 13 | - | 16 | - | 19 | ns |
| $C_{PD}$ | power dissipation capacitance | $C_L$ = 50 pF; f = 1 MHz; $V_I$ = GND to $V_{CC}$ [3] | - | 40 | - | - | - | - | - | pF |


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| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| **74HCT151** | | | | | | | | | | |
| $t_{pd}$ | propagation delay | In to Y; see Fig. 4 [1] | | | | | | | | |
| | | $V_{CC}$ = 4.5 V | - | 22 | 38 | - | 48 | - | 57 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 19 | - | - | - | - | - | ns |
| | | In to $\overline{Y}$; see Fig. 4 [1] | | | | | | | | |
| | | $V_{CC}$ = 4.5 V | - | 22 | 38 | - | 48 | - | 57 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 19 | - | - | - | - | - | ns |
| | | Sn to Y; see Fig. 5 [1] | | | | | | | | |
| | | $V_{CC}$ = 4.5 V | - | 23 | 41 | - | 51 | - | 62 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 20 | - | - | - | - | - | ns |
| | | Sn to $\overline{Y}$; see Fig. 5 [1] | | | | | | | | |
| | | $V_{CC}$ = 4.5 V | - | 25 | 43 | - | 54 | - | 65 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 20 | - | - | - | - | - | ns |
| | | $\overline{E}$ to Y; see Fig. 5 [1] | | | | | | | | |
| | | $V_{CC}$ = 4.5 V | - | 16 | 29 | - | 36 | - | 44 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 13 | - | - | - | - | - | ns |
| | | $\overline{E}$ to $\overline{Y}$; see Fig. 5 [1] | | | | | | | | |
| | | $V_{CC}$ = 4.5 V | - | 21 | 36 | - | 45 | - | 54 | ns |
| | | $V_{CC}$ = 5 V; $C_L$ = 15 pF | - | 18 | - | - | - | - | - | ns |
| $t_t$ | transition time | Y, $\overline{Y}$; see Fig. 4 [2] | | | | | | | | |
| | | $V_{CC}$ = 4.5 V | - | 7 | 15 | - | 19 | - | 22 | ns |
| $C_{PD}$ | power dissipation capacitance | $C_L$ = 50 pF; f = 1 MHz; $V_I$ = GND to $V_{CC}$ - 1.5 V [3] | - | 40 | - | - | - | - | - | pF |

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


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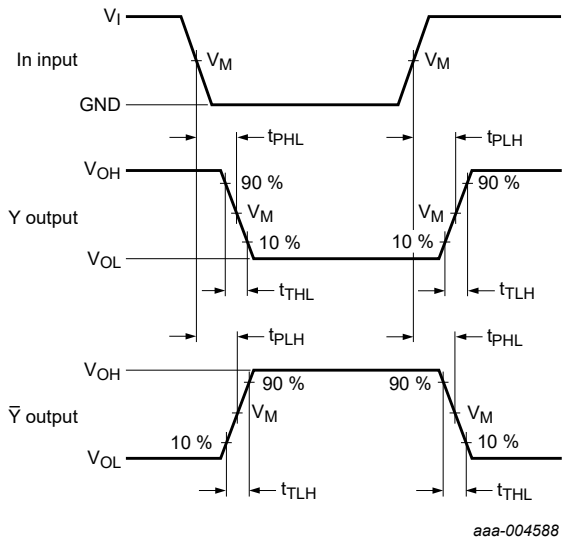
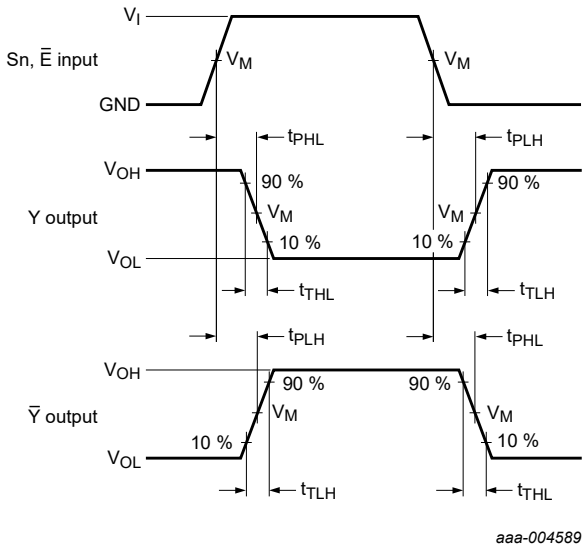
## 10.1. Waveforms and test circuit




Measurement points are given in Table 8.

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

**Fig. 4. Propagation delay input (In) to output (Y, $\overline{Y}$) and the output (Y, $\overline{Y}$) transition time**




Measurement points are given in Table 8.

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

**Fig. 5. Propagation delay input (Sn, $\overline{E}$) to output (Y, $\overline{Y}$) and output (Y, $\overline{Y}$) transitions time**

**Table 8. Measurement points**

| Type | Input | Output |
|---|---|---|
| | $V_M$ | $V_M$ |
| 74HC151 | 0.5 × $V_{CC}$ | 0.5 × $V_{CC}$ |
| 74HCT151 | 1.3 V | 1.3 V |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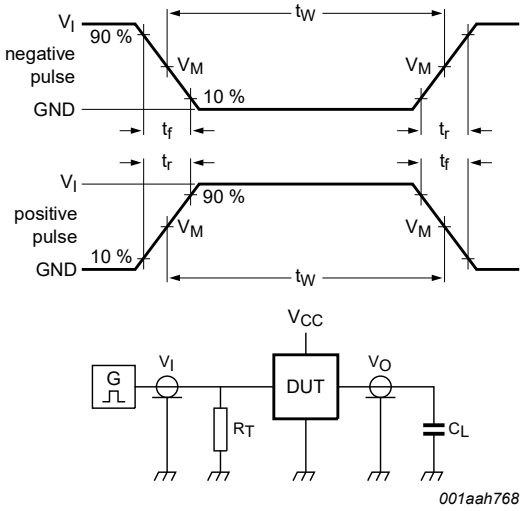


Test data is given in Table 9.

Definitions test circuit:

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

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

$R_L$ = Load resistance;

S1 = Test selection switch.

**Fig. 6. Test circuit for measuring switching times**

**Table 9. Test data**

| Type | Input | | Load | Test |
|---|---|---|---|---|
| | $V_I$ | $t_r$, $t_f$ | $C_L$ | |
| 74HC151 | $V_{CC}$ | 6.0 ns | 15 pF, 50 pF | $t_{PLH}$, $t_{PHL}$ |
| 74HCT151 | 3.0 V | 6.0 ns | 15 pF, 50 pF | $t_{PLH}$, $t_{PHL}$ |


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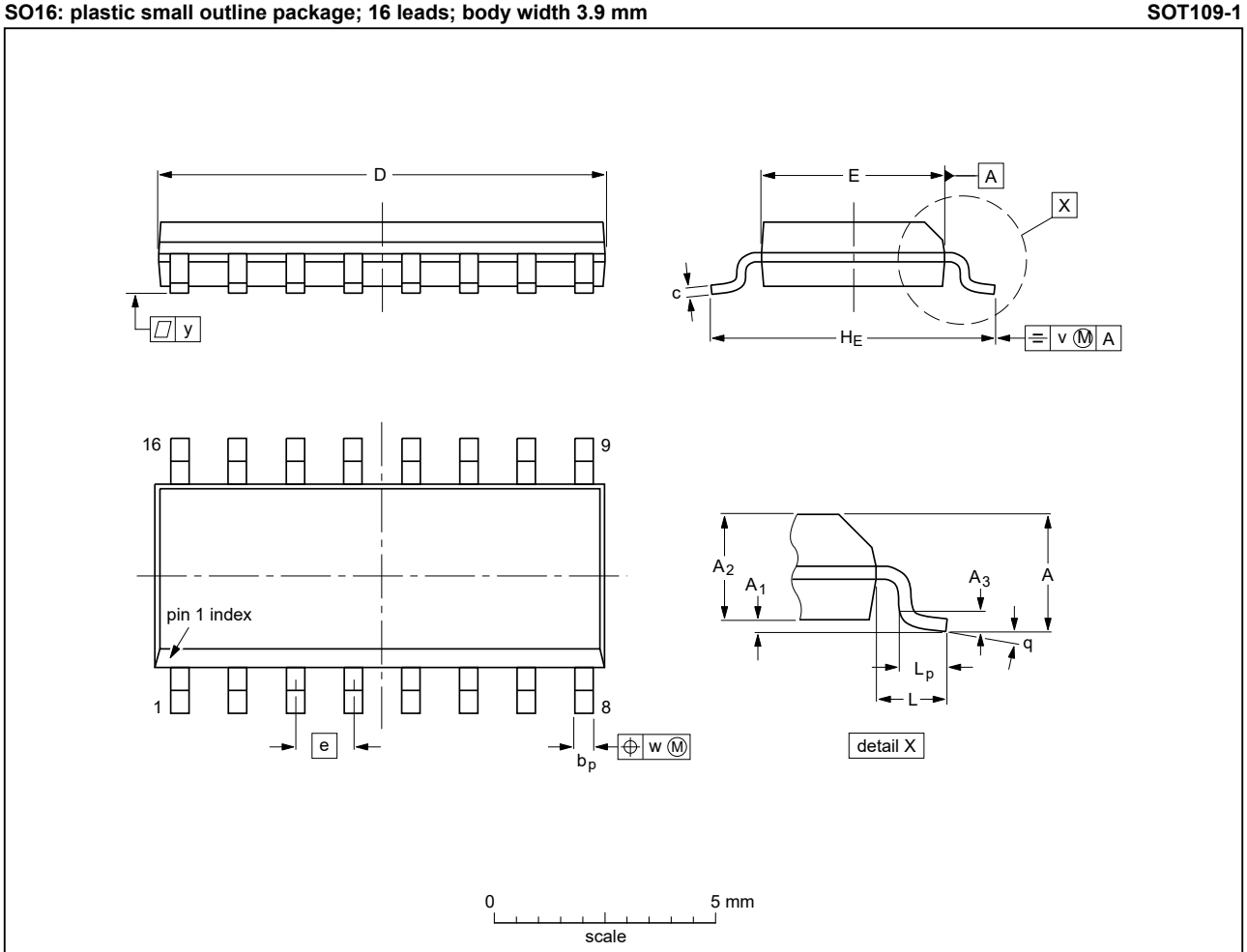
# 11. Package outline

**SO16: plastic small outline package; 16 leads; body width 3.9 mm** **SOT109-1**




Dimensions (inch dimensions are derived from the original mm dimensions)

| Unit | | A | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | $D^{(1)}$ | $E^{(1)}$ | e | $H_E$ | L | $L_p$ | v | w | y | θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 1.75 | 0.25 | | | 0.51 | 0.25 | 10.0 | 4.0 | | 6.2 | | 1.27 | | | | 8° |
| | nom | | | | 0.25 | | | | | 1.27 | | 1.05 | | 0.2 | 0.25 | 0.1 | |
| | min | | 0.10 | 1.25 | | 0.31 | 0.10 | 9.8 | 3.8 | | 5.8 | | 0.4 | | | | 0° |
| inches | max | 0.069 | 0.010 | | | 0.020 | 0.010 | 0.394 | 0.16 | | 0.244 | | 0.05 | | | | 8° |
| | nom | | | | 0.01 | | | | | 0.05 | | 0.041 | | 0.008 | 0.01 | 0.004 | |
| | min | | 0.004 | 0.049 | | 0.012 | 0.004 | 0.386 | 0.15 | | 0.228 | | 0.016 | | | | 0° |

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

*sot109-1_po*

| Outline version | References | | | | European projection | Issue date |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT109-1 | | MS-012 | | | | ~~03-02-19~~ 23-10-27 |

**Fig. 7. Package outline SOT109-1 (SO16)**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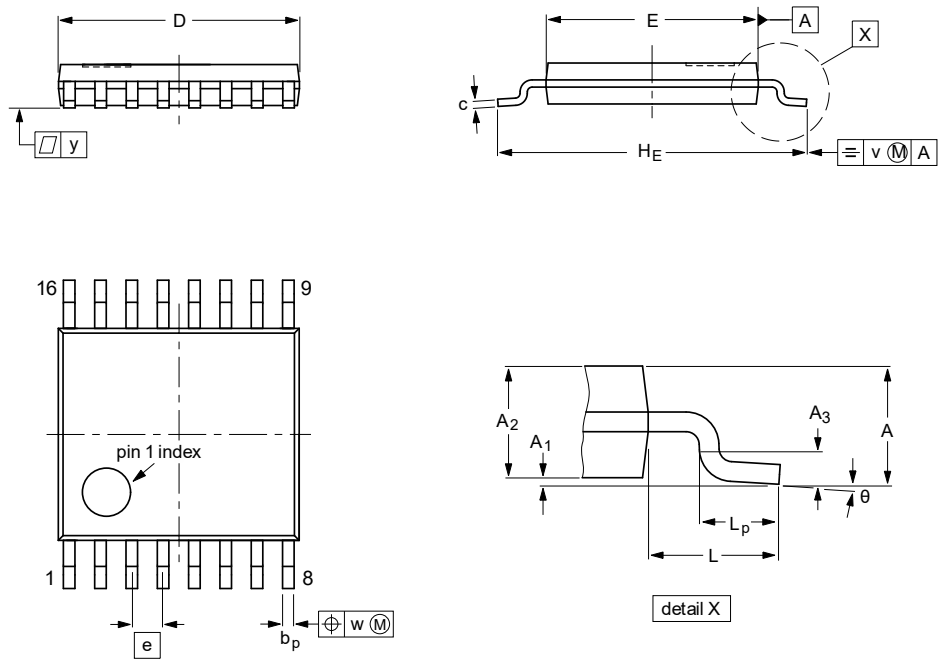
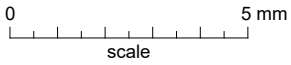
**TSSOP16: plastic thin shrink small outline package; 16 leads; body width 4.4 mm** **SOT403-1**




Dimensions (mm are the original dimensions)

| Unit | | A | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | $D^{(1)}$ | $E^{(2)}$ | e | $H_E$ | L | $L_p$ | v | w | y | θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 1.20 | 0.15 | 1.05 | | 0.30 | 0.2 | 5.1 | 4.5 | | 6.6 | | 0.75 | | | | 8° |
| | nom | | | | 0.25 | | | | | 0.65 | | 1 | | 0.2 | 0.1 | 0.1 | |
| | min | | 0.05 | 0.80 | | 0.19 | 0.09 | 4.9 | 4.3 | | 6.2 | | 0.45 | | | | 0° |

Note
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.

*sot403-1_po*

| Outline version | References | | | | European projection | Issue date |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT403-1 | | MO-153 | | | | ~~03-02-18~~ 23-10-27 |

**Fig. 8. Package outline SOT403-1 (TSSOP16)**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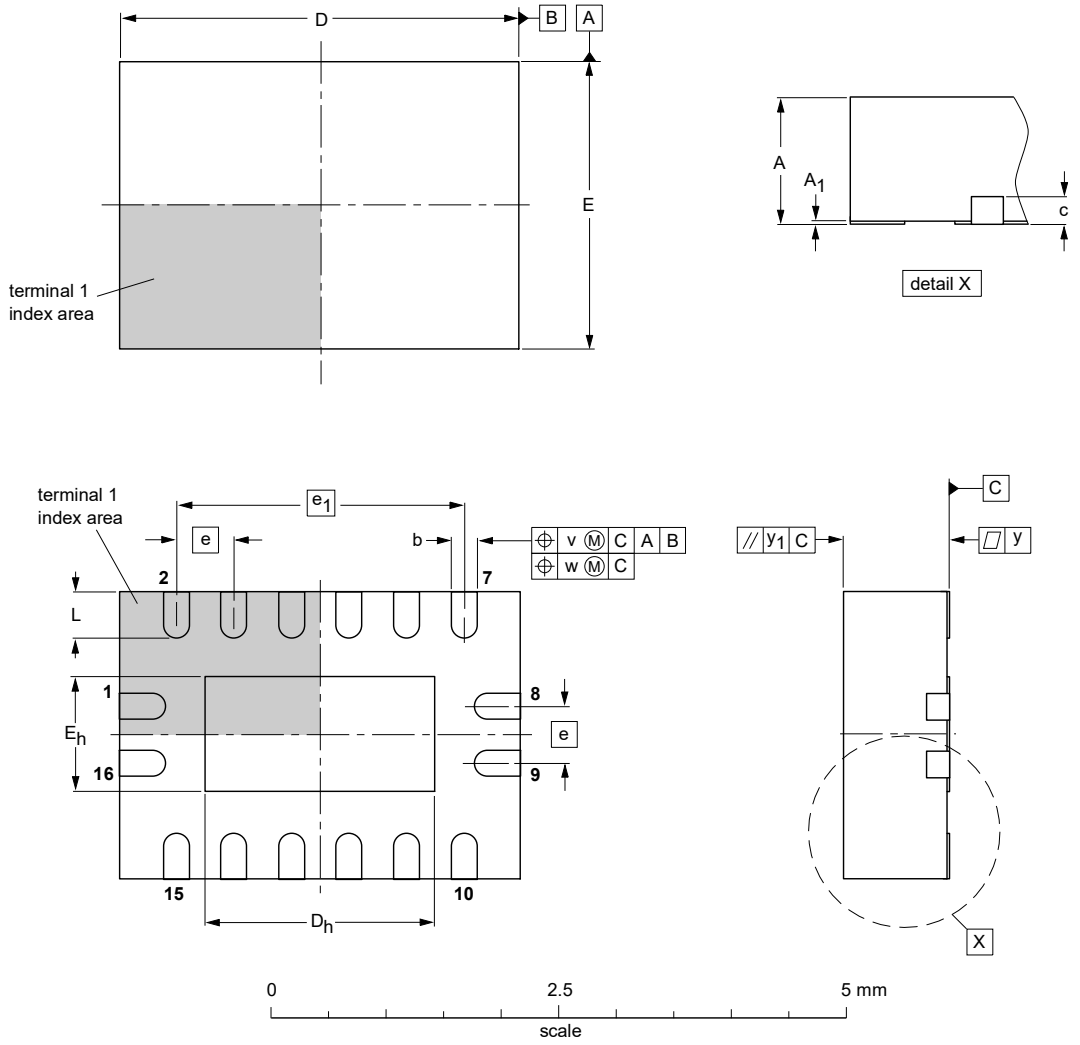
**DHVQFN16: plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 16 terminals; body 2.5 x 3.5 x 0.85 mm** **SOT763-1**




**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 | 3.6<br>3.4 | 2.15<br>1.85 | 2.6<br>2.4 | 1.15<br>0.85 | 0.5 | 2.5 | 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 | | | |
| SOT763-1 | - - - | MO-241 | - - - | | | ~~02-10-17~~<br>03-01-27 |

**Fig. 9. Package outline SOT763-1 (DHVQFN16)**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# 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 |
| TTL | Transistor-Transistor Logic |

# 13. Revision history

**Table 11. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| 74HC_HCT151 v.11 | 20240311 | Product data sheet | - | 74HC_HCT151 v.10 |
| Modifications: | • Fig. 7, Fig. 8: Aligned SO and TSSOP package outline drawings to JEDEC MS-012 and MO-153.<br>• Section 2: ESD specification updated according to the latest JEDEC standard. | | | |
| 74HC_HCT151 v.10 | 20221019 | Product data sheet | - | 74HC_HCT151 v.9 |
| Modifications: | • Type number 74HC151BQ (SOT763-1/DHVQFN16) added. | | | |
| 74HC_HCT151 v.9 | 20220706 | Product data sheet | - | 74HC_HCT151 v.8 |
| Modifications: | • Section 2 updated.<br>• Type number 74HC151DB (SOT338-1/SSOP16) removed. | | | |
| 74HC_HCT151 v.8 | 20210318 | Product data sheet | - | 74HC_HCT151 v.7 |
| Modifications: | • Type number 74HC151DB (SOT338-1/SSOP16) added. | | | |
| 74HC_HCT151 v.7 | 20210114 | Product data sheet | - | 74HC_HCT151 v.6 |
| Modifications: | • The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.<br>• Legal texts have been adapted to the new company name where appropriate.<br>• Type numbers 74HC151DB and 74HCT151DB (SOT338-1/SSOP16) removed.<br>• Section 7: Derating values for $P_{tot}$ total power dissipation have been updated. | | | |
| 74HC_HCT151 v.6 | 20151228 | Product data sheet | - | 74HC_HCT151 v.5 |
| Modifications: | • Type numbers 74HC151N and 74HCT151N (SOT38-4) removed. | | | |
| 74HC_HCT151 v.5 | 20150126 | Product data sheet | - | 74HC_HCT151 v.4 |
| Modifications: | • Table 7: Power dissipation capacitance condition for 74HCT151 is corrected. | | | |
| 74HC_HCT151 v.4 | 20130211 | Product data sheet | - | 74HC_HCT151 v.3 |
| Modifications: | • New descriptive title (errata). | | | |
| 74HC_HCT151 v.3 | 20120919 | Product data sheet | - | 74HC_HCT151_CNV v.2 |
| 74HC_HCT151_CNV v.2 | 19970827 | Product specification | - | |


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| Document status [1][2] | Product status [3] | Definition |
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