# 74HC4351; 74HCT4351

## 8-channel analog multiplexer/demultiplexer with latch

Rev. 6 — 25 July 2024 Product data sheet

## 1. General description

The 74HC4351; 74HCT4351 is a single-pole octal-throw analog switch (SP8T) suitable for use in analog or digital 8:1 multiplexer/demultiplexer applications. The switch features three digital select inputs (S0 to S2), eight independent inputs/outputs (Yn), a common input/output (Z) and two digital enable inputs ($\overline{E}1$ and E2). With $\overline{E}1$ LOW and E2 HIGH, one of the eight switches is selected (low impedance ON-state) by S0 to S2. The data at the select inputs may be latched by using the latch enable input ($\overline{LE}$). When $\overline{LE}$ is HIGH the latch is transparent. When $\overline{E}1$ is HIGH or E2 is LOW all 8 analog switches are turned off. Inputs include clamp diodes. This enables the use of current limiting resistors to interface inputs to voltages in excess of $V_{CC}$.

## 2. Features and benefits

- Wide analog input voltage range from -5 V to +5 V
- Complies with JEDEC standard no. 7A
- Low ON resistance:
  - 80 Ω (typical) at $V_{CC}$ - $V_{EE}$ = 4.5 V
  - 70 Ω (typical) at $V_{CC}$ - $V_{EE}$ = 6.0 V
  - 60 Ω (typical) at $V_{CC}$ - $V_{EE}$ = 9.0 V
- Logic level translation: to enable 5 V logic to communicate with ±5 V analog signals
- Typical ‘break before make’ built-in
- Address latches provided
- 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 -40 °C to +125 °C

## 3. Applications

- Analog multiplexing and demultiplexing
- Digital multiplexing and demultiplexing
- Signal gating

## 4. Ordering information

**Table 1. Ordering information**

| Type number | Package | | | |
|---|---|---|---|---|
| | Temperature range | Name | Description | Version |
| 74HC4351D<br>74HCT4351D | -40 °C to +125 °C | SO20 | plastic small outline package; 20 leads; body width 7.5 mm | SOT163-1 |
| 74HC4351PW | -40 °C to +125 °C | TSSOP20 | plastic thin shrink small outline package; 20 leads; body width 4.4 mm | SOT360-1 |

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## 5. Functional diagram

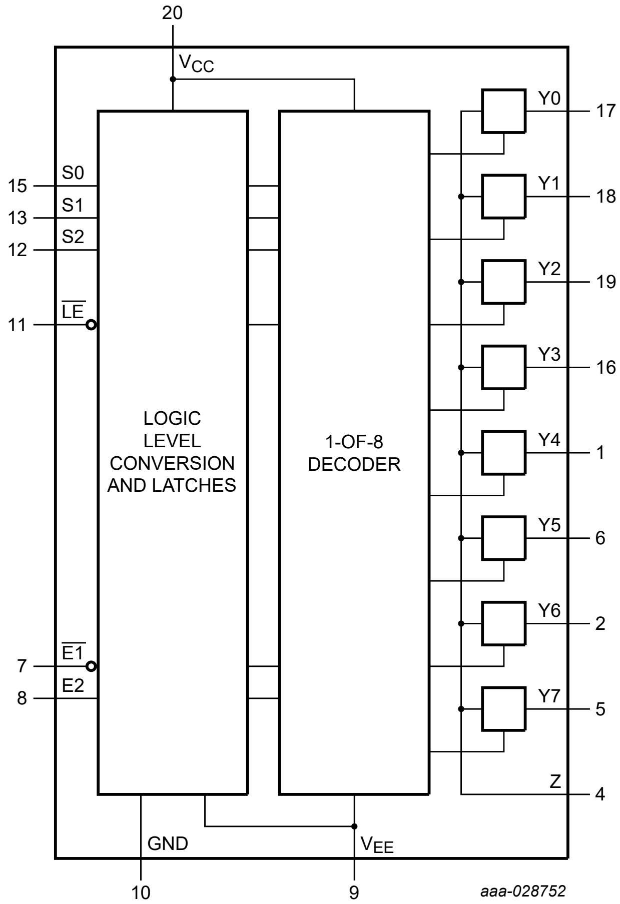



**Fig. 1. Functional diagram**

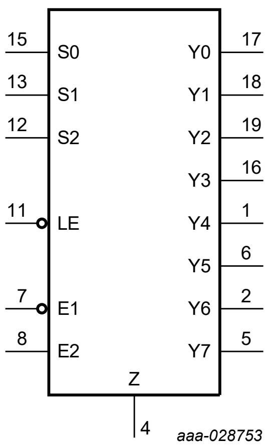



**Fig. 2. Logic symbol**

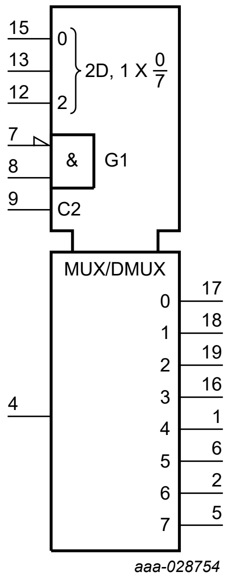



**Fig. 3. IEC logic symbol**

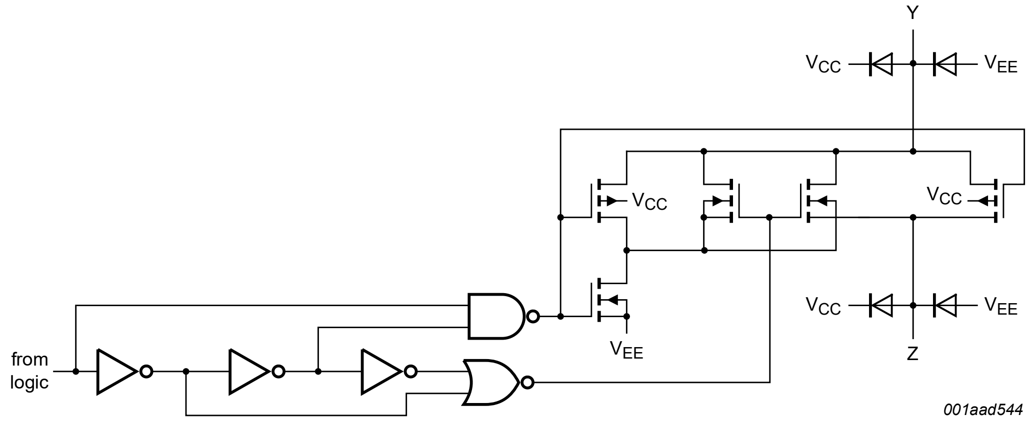
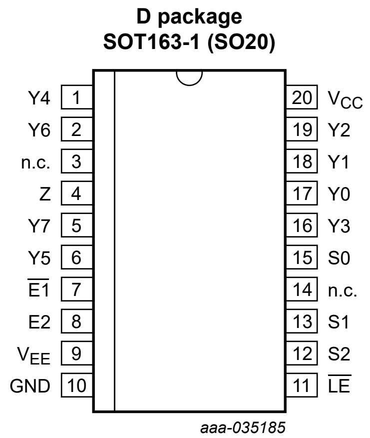
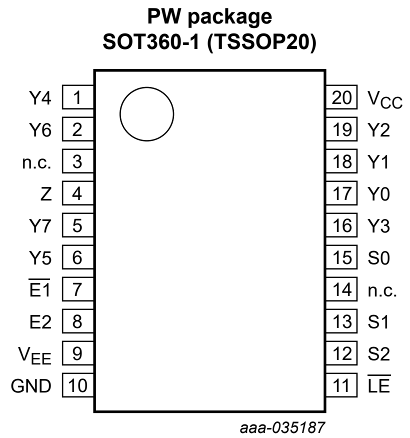



**Fig. 4. Schematic diagram (one switch)**

# 6. Pinning information

## 6.1. Pinning




## 6.2. Pin description

**Table 2. Pin description**

| Symbol | Pin | Description |
|---|---|---|
| $\overline{E1}$ | 7 | enable input (active LOW) |
| E2 | 8 | enable input (active HIGH) |
| $\overline{LE}$ | 11 | latch enable input (active LOW) |
| S0, S1, S2 | 15, 13, 12 | select inputs |
| Y0, Y1, Y2, Y3, Y4, Y5, Y6, Y7 | 17, 18, 19, 16, 1, 6, 2, 5 | independent input or output |
| Z | 4 | common output or input |
| $V_{EE}$ | 9 | supply voltage |
| GND | 10 | ground (0 V) |
| $V_{CC}$ | 20 | supply voltage |
| n.c. | 3, 14 | not connected |

# 7. Functional description

**Table 3. Function table**

*H = HIGH voltage level; L = LOW voltage level; X = don't care; ↓ = HIGH-to-LOW $\overline{LE}$ transition.*

| Input | | | | | | Channel ON |
|---|---|---|---|---|---|---|
| $\overline{E1}$ | E2 | $\overline{LE}$ | S2 | S1 | S0 | |
| H | X | X | X | X | X | none |
| X | L | X | X | X | X | none |
| L | H | H | L | L | L | Y0 |
| L | H | H | L | L | H | Y1 |
| L | H | H | L | H | L | Y2 |
| L | H | H | L | H | H | Y3 |
| L | H | H | H | L | L | Y4 |
| L | H | H | H | L | H | Y5 |
| L | H | H | H | H | L | Y6 |
| L | H | H | H | H | H | Y7 |
| L | H | L | X | X | X | last selected channel "ON" |
| X | X | ↓ | X | X | X | select channels latched |

# 8. Limiting values

**Table 4. Limiting values**

*In accordance with the Absolute Maximum Rating System (IEC 60134). Voltages are referenced to $V_{SS}$ = 0 V (ground).*

| Symbol | Parameter | Conditions | Min | Max | Unit |
|---|---|---|---|---|---|
| $V_{CC}$ | supply voltage | [1] | -0.5 | +11.0 | V |
| $I_{IK}$ | input clamping current | $V_I$ < -0.5 V or $V_I$ > $V_{CC}$ + 0.5 V | - | ±20 | mA |
| $I_{SK}$ | switch clamping current | $V_{SW}$ < -0.5 V or $V_{SW}$ > $V_{CC}$ + 0.5 V | - | ±20 | mA |
| $I_{SW}$ | switch current | -0.5 V < $V_{SW}$ < $V_{CC}$ + 0.5 V | - | ±25 | mA |
| $I_{EE}$ | supply current | | - | ±20 | 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 [2] | - | 500 | mW |
| P | power dissipation | per switch | - | 100 | mW |

[1] To avoid drawing $V_{CC}$ current out of terminal Z, when switch current flows into terminals Yn, the voltage drop across the bidirectional switch must not exceed 0.4 V. If the switch current flows into terminal Z, no $V_{CC}$ current will flow out of terminals Yn. In this case there is no limit for the voltage drop across the switch, but the voltages at Yn and Z may not exceed $V_{CC}$ or $V_{EE}$.

[2] For SOT163-1 (SO20) package: $P_{tot}$ derates linearly with 12.3 mW/K above 109 °C.
For SOT360-1 (TSSOP20) package: $P_{tot}$ derates linearly with 10.0 mW/K above 100 °C.

# 9. Recommended operating conditions

**Table 5. Recommended operating conditions**

| Symbol | Parameter | Conditions | 74HC4351 | | | 74HCT4351 | | | Unit |
|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Typ | Max | |
| $V_{CC}$ | supply voltage | see Fig. 5 and Fig. 6 | | | | | | | |
| | | $V_{CC}$ - GND | 2.0 | 5.0 | 10.0 | 4.5 | 5.0 | 5.5 | V |
| | | $V_{CC}$ - $V_{EE}$ | 2.0 | 5.0 | 10.0 | 2.0 | 5.0 | 10.0 | V |
| $V_I$ | input voltage | | GND | - | $V_{CC}$ | GND | - | $V_{CC}$ | V |
| $V_{SW}$ | switch voltage | | $V_{EE}$ | - | $V_{CC}$ | $V_{EE}$ | - | $V_{CC}$ | V |
| $T_{amb}$ | ambient temperature | | -40 | +25 | +125 | -40 | +25 | +125 | °C |
| Δt/ΔV | 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 |
| | | $V_{CC}$ = 10.0 V | - | - | 31 | - | - | - | ns/V |

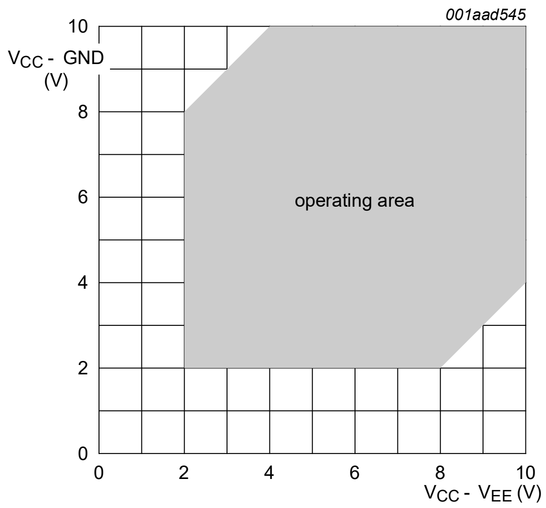



**Fig. 5. Guaranteed operating area as a function of the supply voltages for 74HC4351**

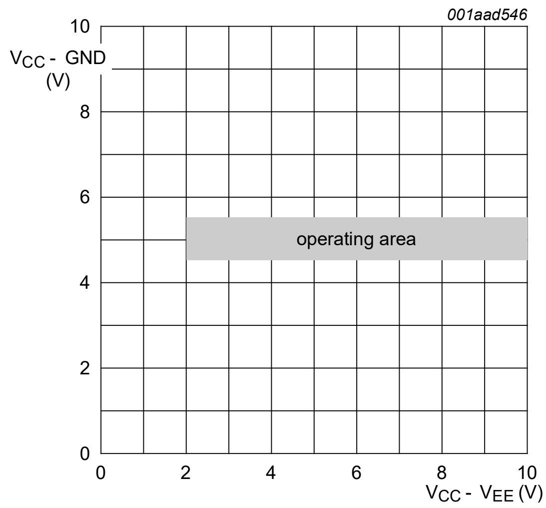



**Fig. 6. Guaranteed operating area as a function of the supply voltages for 74HCT4351**

## 10. Static characteristics

**Table 6. $R_{ON}$ resistance per latch for 74HC4351 and 74HCT4351**

*For test circuit, see Fig. 7*

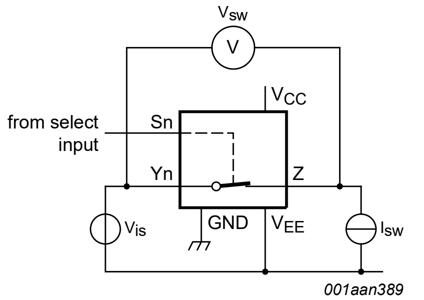
*For 74HC4351: $V_I = V_{IH}$ or $V_{IL}$; $V_{CC}$ - GND or $V_{CC}$ - $V_{EE}$ = 2.0 V, 4.5 V, 6.0 V and 9.0 V.*

*For 74HCT4351: $V_I = V_{IH}$ or $V_{IL}$; $V_{CC}$ - GND = 4.5 V and 5.5 V, $V_{CC}$ - $V_{EE}$ = 2.0 V, 4.5 V, 6.0 V and 9.0 V.*

| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| $R_{ON(peak)}$ | ON resistance (peak) | $V_{is} = V_{CC}$ to $V_{EE}$ [1] | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V; $I_{SW}$ = 100 μA [2] | - | - | - | - | - | - | - | Ω |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V; $I_{SW}$ = 1000 μA | - | 100 | 180 | - | 225 | - | 270 | Ω |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V; $I_{SW}$ = 1000 μA | - | 90 | 160 | - | 200 | - | 240 | Ω |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V; $I_{SW}$ = 1000 μA | - | 70 | 130 | - | 165 | - | 195 | Ω |
| $R_{ON(rail)}$ | ON resistance (rail) | $V_{is} = V_{EE}$ [1] | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V; $I_{SW}$ = 100 μA [2] | - | 150 | - | - | - | - | - | Ω |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V; $I_{SW}$ = 1000 μA | - | 80 | 140 | - | 175 | - | 210 | Ω |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V; $I_{SW}$ = 1000 μA | - | 70 | 120 | - | 150 | - | 180 | Ω |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V; $I_{SW}$ = 1000 μA | - | 60 | 105 | - | 130 | - | 160 | Ω |
| | | $V_{is} = V_{CC}$ [1] | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V; $I_{SW}$ = 100 μA [2] | - | 150 | - | - | - | - | - | Ω |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V; $I_{SW}$ = 1000 μA | - | 90 | 160 | - | 200 | - | 240 | Ω |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V; $I_{SW}$ = 1000 μA | - | 80 | 140 | - | 175 | - | 210 | Ω |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V; $I_{SW}$ = 1000 μA | - | 65 | 120 | - | 150 | - | 180 | Ω |
| $\Delta R_{ON}$ | ON resistance mismatch between channels | $V_{is} = V_{CC}$ to $V_{EE}$ [1] | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V [2] | - | - | - | - | - | - | - | Ω |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 9 | - | - | - | - | - | Ω |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | - | 8 | - | - | - | - | - | Ω |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 6 | - | - | - | - | - | Ω |

[1] $V_{is}$ is the input voltage at a Yn or Z terminal, whichever is assigned as an input.

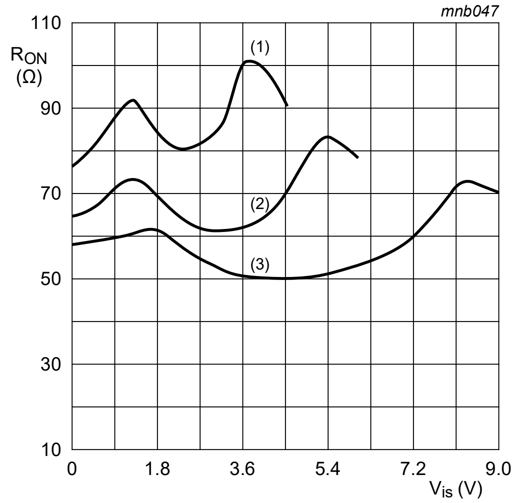
[2] When supply voltages ($V_{CC}$ - $V_{EE}$) near 2.0 V the analog switch ON resistance becomes extremely non-linear. When using a supply of 2 V, it is recommended to use these devices only for transmitting digital signals.




$V_{is}$ = 0 V to ($V_{CC}$ - $V_{EE}$)

$$R_{ON} = \frac{V_{sw}}{I_{sw}}$$

**Fig. 7. Test circuit for measuring $R_{ON}$**




$V_{is}$ = 0 V to ($V_{CC}$ - $V_{EE}$)

(1) $V_{CC}$ = 4.5 V

(2) $V_{CC}$ = 6 V

(3) $V_{CC}$ = 9 V

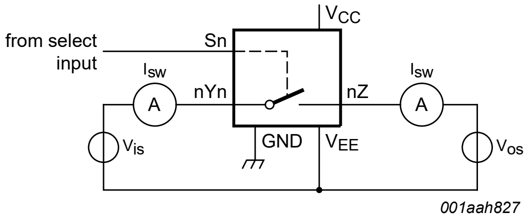
**Fig. 8. Typical $R_{ON}$ as a function of input voltage $V_{is}$**

**Table 7. Static characteristics**

*Voltages are referenced to GND (ground = 0 V);*
*$V_{is}$ is the input voltage at pins Yn or Z, whichever is assigned as an input;*
*$V_{os}$ is the output voltage at pins Z or Yn, whichever is assigned as an output.*

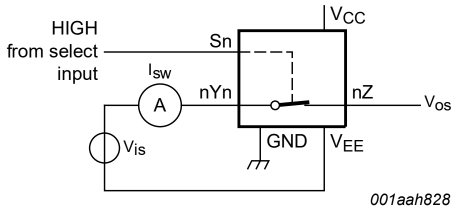
| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| **74HC4351** | | | | | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 2.0 V | 1.5 | 1.2 | - | 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 |
| | | $V_{CC}$ = 9.0 V | 6.3 | 4.7 | - | 6.3 | - | 6.3 | - | 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 |
| | | $V_{CC}$ = 9.0 V | - | 4.3 | 2.7 | - | 2.7 | - | 2.7 | V |
| $I_I$ | input leakage current | $V_{EE}$ = 0 V; $V_I$ = $V_{CC}$ or GND | | | | | | | | |
| | | $V_{CC}$ = 6.0 V | - | - | ±0.1 | - | ±1.0 | - | ±1.0 | μA |
| | | $V_{CC}$ = 10.0 V | - | - | ±0.2 | - | ±2.0 | - | ±2.0 | μA |
| $I_{S(OFF)}$ | OFF-state leakage current | $V_{CC}$ = 10.0 V; $V_{EE}$ = 0 V; $V_I$ = $V_{IH}$ or $V_{IL}$; $\lvert V_{SW} \rvert$ = $V_{CC}$ - $V_{EE}$; see Fig. 9 | | | | | | | | |
| | | per channel | - | - | ±0.1 | - | ±1.0 | - | ±1.0 | μA |
| | | all channels | - | - | ±0.4 | - | ±4.0 | - | ±4.0 | μA |
| $I_{S(ON)}$ | ON-state leakage current | $V_{CC}$ = 10.0 V; $V_{EE}$ = 0 V; $V_I$ = $V_{IH}$ or $V_{IL}$; $\lvert V_{SW} \rvert$ = $V_{CC}$ - $V_{EE}$; see Fig. 10 | - | - | ±0.4 | - | ±4.0 | - | ±4.0 | μA |

| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| $I_{CC}$ | supply current | $V_{EE}$ = 0 V; $V_I$ = $V_{CC}$ or GND; $V_{is}$ = $V_{EE}$ or $V_{CC}$; $V_{os}$ = $V_{CC}$ or $V_{EE}$ | | | | | | | | |
| | | $V_{CC}$ = 6.0 V | - | - | 8.0 | - | 80.0 | - | 160.0 | μA |
| | | $V_{CC}$ = 10.0 V | - | - | 16.0 | - | 160.0 | - | 320.0 | μA |
| $C_I$ | input capacitance | | - | 3.5 | - | - | - | - | - | pF |
| $C_{sw}$ | switch capacitance | independent pins Yn | - | 5 | - | - | - | - | - | pF |
| | | common pins Z | - | 25 | - | - | - | - | - | pF |
| **74HCT4351** | | | | | | | | | | |
| $V_{IH}$ | 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 |
| $I_I$ | input leakage current | $V_I$ = $V_{CC}$ or GND; $V_{CC}$ = 5.5 V; $V_{EE}$ = 0 V | - | - | ±0.1 | - | ±1.0 | - | ±1.0 | μA |
| $I_{S(OFF)}$ | OFF-state leakage current | $V_{CC}$ = 10.0 V; $V_{EE}$ = 0 V; $V_I$ = $V_{IH}$ or $V_{IL}$; $\|V_{SW}\|$ = $V_{CC}$ - $V_{EE}$; see Fig. 9 | | | | | | | | |
| | | per channel | - | - | ±0.1 | - | ±1.0 | - | ±1.0 | μA |
| | | all channels | - | - | ±0.4 | - | ±4.0 | - | ±4.0 | μA |
| $I_{S(ON)}$ | ON-state leakage current | $V_{CC}$ = 10.0 V; $V_{EE}$ = 0 V; $V_I$ = $V_{IH}$ or $V_{IL}$; $\|V_{SW}\|$ = $V_{CC}$ - $V_{EE}$; see Fig. 10 | - | - | ±0.4 | - | ±4.0 | - | ±4.0 | μA |
| $I_{CC}$ | supply current | $V_I$ = $V_{CC}$ or GND; $V_{is}$ = $V_{EE}$ or $V_{CC}$; $V_{os}$ = $V_{CC}$ or $V_{EE}$ | | | | | | | | |
| | | $V_{CC}$ = 5.5 V; $V_{EE}$ = 0 V | - | - | 8.0 | - | 80.0 | - | 160.0 | μA |
| | | $V_{CC}$ = 5.0 V; $V_{EE}$ = -5.0 V | - | - | 16.0 | - | 160.0 | - | 320.0 | μA |
| $\Delta I_{CC}$ | additional supply current | per input; other inputs at $V_{CC}$ or GND; $V_I$ = $V_{CC}$ - 2.1 V; $V_{CC}$ = 4.5 V to 5.5 V; $V_{EE}$ = 0 V | | | | | | | | |
| | | inputs $\overline{E1}$, E2 and Sn | - | 50 | 180 | - | 225 | - | 245 | μA |
| | | input $\overline{LE}$ | - | 150 | 540 | - | 675 | - | 735 | μA |
| $C_I$ | input capacitance | | - | 3.5 | - | - | - | - | - | pF |
| $C_{sw}$ | switch capacitance | independent pins Yn | - | 5 | - | - | - | - | - | pF |
| | | common pins Z | - | 25 | - | - | - | - | - | pF |




$V_{is}$ = $V_{CC}$ and $V_{os}$ = $V_{EE}$ or
$V_{is}$ = $V_{EE}$ and $V_{os}$ = $V_{CC}$

**Fig. 9. Test circuit for measuring OFF-state current**




$V_{is}$ = $V_{CC}$ and $V_{os}$ = open-circuit or
$V_{is}$ = $V_{EE}$ and $V_{os}$ = open-circuit

**Fig. 10. Test circuit for measuring ON-state current**

# 11. Dynamic characteristics

**Table 8. Dynamic characteristics**

*GND = 0 V; $t_r$ = $t_f$ = 6 ns; $C_L$ = 50 pF; for test circuit see Fig. 14.*
*$V_{is}$ is the input voltage at pins Yn or Z, whichever is assigned as an input;*
*$V_{os}$ is the output voltage at pins Z or Yn, whichever is assigned as an output.*

| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| **74HC4351** | | | | | | | | | | |
| $t_{pd}$ | propagation delay | $V_{is}$ to $V_{os}$; $R_L$ = ∞ Ω; see Fig. 11 [1] | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | - | 14 | 60 | - | 75 | - | 90 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 5 | 12 | - | 15 | - | 18 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | - | 4 | 10 | - | 13 | - | 15 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 4 | 8 | - | 10 | - | 12 | ns |
| $t_{on}$ | turn-ON time | $\overline{E1}$ to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | - | 85 | 300 | - | 375 | - | 450 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 31 | 60 | - | 75 | - | 90 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | - | 25 | 51 | - | 64 | - | 77 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 28 | 55 | - | 69 | - | 83 | ns |
| | | E2 to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | - | 85 | 300 | - | 375 | - | 450 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 31 | 60 | - | 75 | - | 90 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | - | 25 | 51 | - | 64 | - | 77 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 25 | 55 | - | 69 | - | 83 | ns |
| | | $\overline{LE}$ to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | - | 91 | 300 | - | 375 | - | 450 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 33 | 60 | - | 75 | - | 90 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | - | 26 | 51 | - | 64 | - | 77 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 27 | 55 | - | 69 | - | 83 | ns |
| | | Sn to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | - | 88 | 300 | - | 375 | - | 450 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 32 | 60 | - | 75 | - | 90 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | - | 26 | 51 | - | 64 | - | 77 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 25 | 50 | - | 63 | - | 75 | ns |

| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| $t_{off}$ | turn-OFF time | $\overline{E1}$ to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | - | 69 | 250 | - | 315 | - | 375 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 25 | 50 | - | 63 | - | 75 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | - | 20 | 43 | - | 54 | - | 64 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 20 | 40 | - | 50 | - | 60 | ns |
| | | E2 to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | - | 72 | 250 | - | 315 | - | 375 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 26 | 50 | - | 63 | - | 75 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | - | 21 | 43 | - | 54 | - | 64 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 19 | 40 | - | 50 | - | 60 | ns |
| | | $\overline{LE}$ to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | - | 83 | 275 | - | 345 | - | 415 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 30 | 55 | - | 69 | - | 83 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | - | 24 | 47 | - | 59 | - | 71 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 26 | 45 | - | 56 | - | 68 | ns |
| | | Sn to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | - | 80 | 275 | - | 345 | - | 415 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 29 | 55 | - | 69 | - | 83 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | - | 23 | 47 | - | 59 | - | 71 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 24 | 48 | - | 60 | - | 72 | ns |
| $t_{su}$ | set-up time | Sn to $\overline{LE}$; $R_L$ = 1 kΩ; see Fig. 13 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | 60 | 17 | - | - | 75 | - | 90 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | 12 | 6 | - | - | 15 | - | 18 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | 10 | 5 | - | - | 13 | - | 15 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | 18 | 9 | - | - | 23 | - | 27 | ns |
| $t_{hold}$ | hold time | Sn to $\overline{LE}$; $R_L$ = 1 kΩ; see Fig. 13 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | 5 | -8 | - | - | 5 | - | 5 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | 5 | -3 | - | - | 5 | - | 5 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | 5 | -2 | - | - | 5 | - | 5 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | 5 | -4 | - | - | 5 | - | 5 | ns |
| $t_{WH(min)}$ | minimum pulse width HIGH | $\overline{LE}$; $R_L$ = 1 kΩ; see Fig. 13 | | | | | | | | |
| | | $V_{CC}$ = 2.0 V; $V_{EE}$ = 0 V | 100 | 11 | - | - | 125 | - | 150 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | 20 | 1 | - | - | 25 | - | 30 | ns |
| | | $V_{CC}$ = 6.0 V; $V_{EE}$ = 0 V | 17 | 3 | - | - | 21 | - | 26 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | 25 | 7 | - | - | 31 | - | 38 | ns |
| $C_{pd}$ | power dissipation capacitance | per switch; $V_I$ = GND to $V_{CC}$ [2] | - | 25 | - | - | - | - | - | pF |
| $C_{sw}$ | switch capacitance | maximum | | | | | | | | |
| | | independent (Yn) | - | 5 | - | - | - | - | - | pF |
| | | common (Z) | - | 25 | - | - | - | - | - | pF |

| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| **74HCT4351** | | | | | | | | | | |
| $t_{pd}$ | propagation delay | $V_{is}$ to $V_{os}$; $R_L = \infty$ Ω; see Fig. 11 [1] | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 6 | 12 | - | 15 | - | 18 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 4 | 8 | - | 10 | - | 12 | ns |
| $t_{on}$ | turn-ON time | $\overline{E1}$ to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 40 | 75 | - | 94 | - | 113 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 31 | 60 | - | 75 | - | 90 | ns |
| | | E2 to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 35 | 70 | - | 88 | - | 105 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 26 | 50 | - | 63 | - | 75 | ns |
| | | $\overline{LE}$ to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 42 | 75 | - | 94 | - | 113 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 37 | 60 | - | 75 | - | 90 | ns |
| | | Sn to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 39 | 75 | - | 94 | - | 113 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 30 | 60 | - | 75 | - | 90 | ns |
| $t_{off}$ | turn-OFF time | $\overline{E1}$ to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 27 | 55 | - | 69 | - | 83 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 20 | 40 | - | 50 | - | 60 | ns |
| | | E2 to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 32 | 60 | - | 75 | - | 90 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 26 | 50 | - | 63 | - | 75 | ns |
| | | $\overline{LE}$ to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 33 | 60 | - | 75 | - | 90 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 30 | 55 | - | 69 | - | 83 | ns |
| | | Sn to $V_{os}$; $R_L$ = 1 kΩ; see Fig. 12 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | - | 33 | 65 | - | 81 | - | 98 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | - | 29 | 55 | - | 69 | - | 83 | ns |
| $t_{su}$ | set-up time | Sn to $\overline{LE}$; $R_L$ = 1 kΩ; see Fig. 13 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | 12 | 6 | - | - | 15 | - | 18 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | 14 | 7 | - | - | 18 | - | 21 | ns |
| $t_{hold}$ | hold time | Sn to $\overline{LE}$; $R_L$ = 1 kΩ; see Fig. 13 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | 5 | -1 | - | - | 5 | - | 5 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | 5 | -2 | - | - | 5 | - | 5 | ns |
| $t_{WH(min)}$ | minimum pulse width HIGH | $\overline{LE}$; $R_L$ = 1 kΩ; see Fig. 13 | | | | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | 25 | 13 | - | - | 31 | - | 38 | ns |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | 25 | 13 | - | - | 31 | - | 38 | ns |
| $C_{pd}$ | power dissipation capacitance | per switch; $V_I$ = GND to $V_{CC}$ - 1.5 V [2] | - | 25 | - | - | - | - | - | pF |

| Symbol | Parameter | Conditions | 25 °C | | | -40 °C to +85 °C | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | Min | Max | Min | Max | |
| $C_{sw}$ | switch capacitance | maximum | | | | | | | | |
| | | independent (Yn) | - | 5 | - | - | - | - | - | pF |
| | | common (Z) | - | 25 | - | - | - | - | - | pF |

[1] $t_{pd}$ is the same as $t_{PHL}$ and $t_{PLH}$.

[2] $C_{PD}$ is used to determine the dynamic power dissipation ($P_D$ in μW).

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

$f_i$ = input frequency in MHz;

$f_o$ = output frequency in MHz;

N = number of inputs switching;

$\Sigma\{(C_L + C_{sw}) \times V_{CC}^2 \times f_o\}$ = sum of outputs;

$C_L$ = output load capacitance in pF;

$C_{sw}$ = switch capacitance in pF;

$V_{CC}$ = supply voltage in V.

## 11.1. Waveforms and test circuit

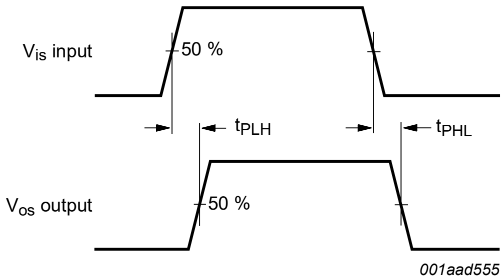
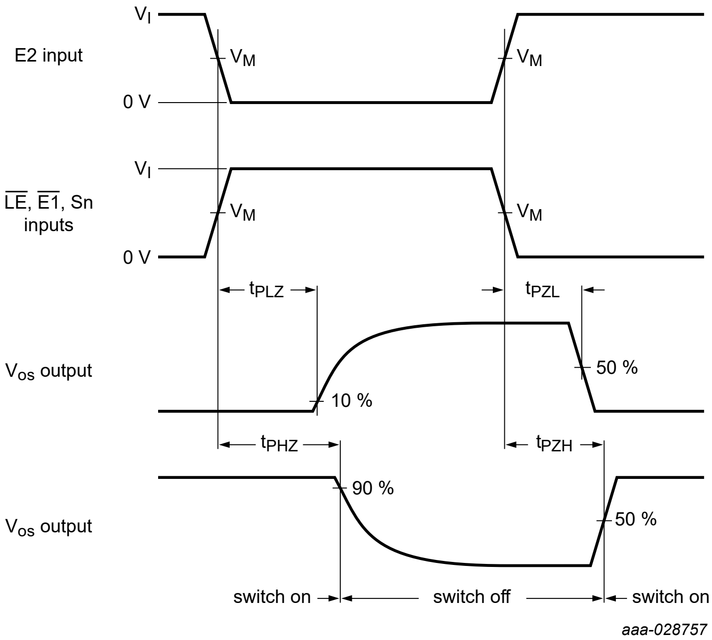
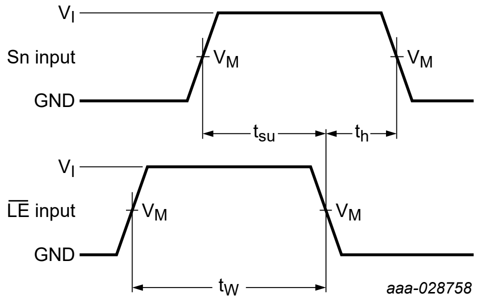



**Fig. 11. Input ($V_{is}$) to output ($V_{os}$) propagation delays**




Measurement points are given in Table 9

**Fig. 12. Turn-ON and turn-OFF times**

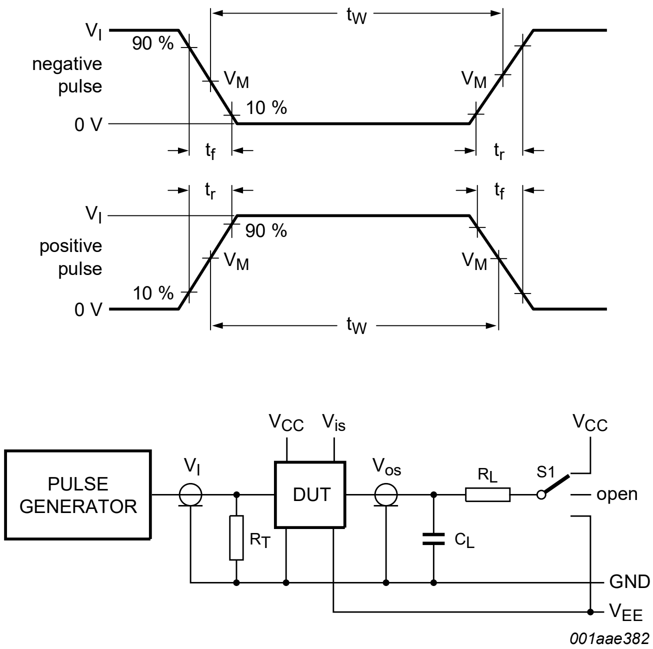



Measurement points are given in Table 9

**Fig. 13. Set-up and hold times from Sn inputs to $\overline{LE}$ input, and minimum pulse width of $\overline{LE}$.**

**Table 9. Measurement points**

| Type | Input | | Output |
|---|---|---|---|
| | $V_I$ | $V_M$ | $V_M$ |
| 74HC4351 | GND to $V_{CC}$ | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ |
| 74HCT4351 | GND to 3 V | 1.3 V | 1.3 V |




Test data is given in Table 10:

Definitions test circuit:

$R_T$ = Termination resistance should be equal to the 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. 14. Test circuit for measuring switching times**

**Table 10. Test data**

| Test | Input | | | | Load | | S1 position |
|---|---|---|---|---|---|---|---|
| | $V_I$ | $V_{is}$ | $t_r$, $t_f$ | | $C_L$ | $R_L$ | |
| | | | at $f_{max}$ | other [1] | | | |
| $t_{PZH}$, $t_{PHZ}$ | [2] | $V_{CC}$ | < 2 ns | 6 ns | 50 pF | 1 kΩ | $V_{EE}$ |
| $t_{PZL}$, $t_{PLZ}$ | [2] | $V_{EE}$ | < 2 ns | 6 ns | 50 pF | 1 kΩ | $V_{CC}$ |
| Other | [2] | pulse | < 2 ns | 6 ns | 50 pF | 1 kΩ | open |

[1] $t_r = t_f = 6$ ns; when measuring $f_{max}$, there is no constraint to $t_r$ and $t_f$ with 50 % duty factor.

[2] $V_I$ values:
For 74HC4351: $V_I = V_{CC}$
For 74HCT4351: $V_I = 3$ V

## 11.2. Additional dynamic characteristics

**Table 11. Additional dynamic characteristics**

*Recommended conditions and typical values; GND = 0 V; $T_{amb}$ = 25 °C; $C_L$ = 50 pF unless stated otherwise.*
*$V_{is}$ is the input voltage at pins Yn or Z, whichever is assigned as an input.*
*$V_{os}$ is the output voltage at pins Yn or Z, whichever is assigned as an output.*

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $d_{sin}$ | sine-wave distortion | $f_i$ = 1 kHz; $R_L$ = 10 kΩ; see Fig. 15 | | | | | |
| | | $V_{is}$ = 4.0 V (p-p); $V_{CC}$ = 2.25 V; $V_{EE}$ = -2.25 V | | - | 0.04 | - | % |
| | | $V_{is}$ = 8.0 V (p-p); $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | | - | 0.02 | - | % |
| | | $f_i$ = 10 kHz; $R_L$ = 10 kΩ; see Fig. 15 | | | | | |
| | | $V_{is}$ = 4.0 V (p-p); $V_{CC}$ = 2.25 V; $V_{EE}$ = -2.25 V | | - | 0.12 | - | % |
| | | $V_{is}$ = 8.0 V (p-p); $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | | - | 0.06 | - | % |
| $\alpha_{iso}$ | isolation (OFF-state) | $R_L$ = 600 Ω; $f_i$ = 1 MHz; see Fig. 16 | | | | | |
| | | $V_{CC}$ = 2.25 V; $V_{EE}$ = -2.25 V | [1] | - | -50 | - | dB |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | [1] | - | -50 | - | dB |
| $V_{ct}$ | crosstalk voltage | between control and any switch (peak-to-peak value); $R_L$ = 600 Ω; $f_i$ = 1 MHz; $\overline{E1}$, E2 or Sn square wave between $V_{CC}$ and GND; $t_r$ = $t_f$ = 6 ns; see Fig. 17 | | | | | |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = 0 V | | - | 120 | - | mV |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | | - | 220 | - | mV |
| $f_{(-3dB)}$ | -3 dB frequency response | $R_L$ = 50 Ω; $C_L$ = 10 pF see Fig. 18 | | | | | |
| | | $V_{CC}$ = 2.25 V; $V_{EE}$ = -2.25 V | [2] | - | 160 | - | MHz |
| | | $V_{CC}$ = 4.5 V; $V_{EE}$ = -4.5 V | [2] | - | 170 | - | MHz |

[1] Adjust input voltage $V_{is}$ to 0 dBm level (0 dBm = 1 mW into 600 Ω).
[2] Adjust input voltage $V_{is}$ to 0 dBm level at $V_{os}$ for 1 MHz (0 dBm = 1 mW into 50 Ω).

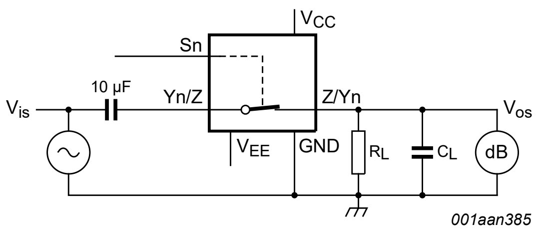
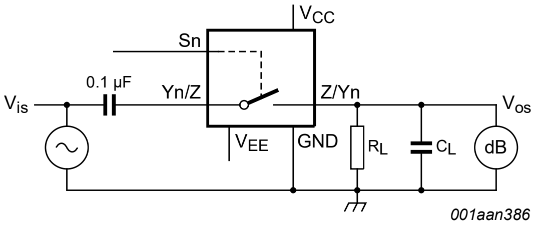
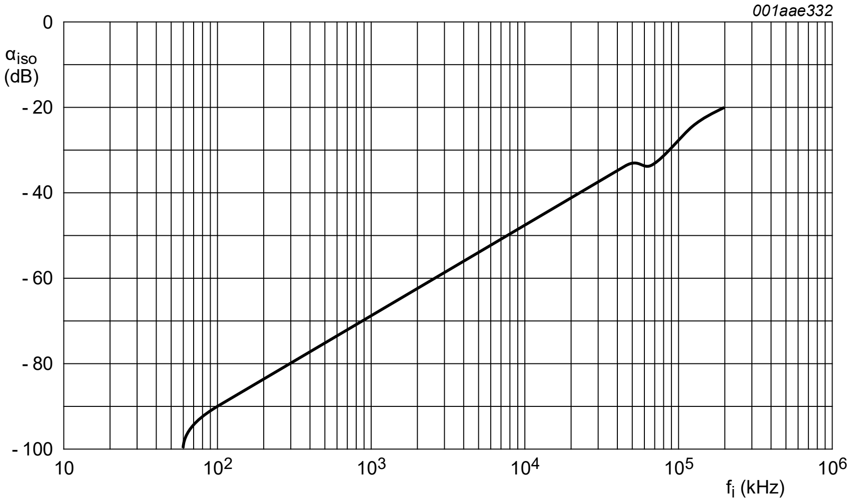



**Fig. 15. Test circuit for measuring sine-wave distortion**




$V_{CC}$ = 4.5 V; GND = 0 V; $V_{EE}$ = -4.5 V; $R_L$ = 600 Ω; $R_S$ = 1 kΩ

a. Test circuit




b. Isolation (OFF-state) as a function of frequency

**Fig. 16. Test circuit for measuring isolation (OFF-state)**

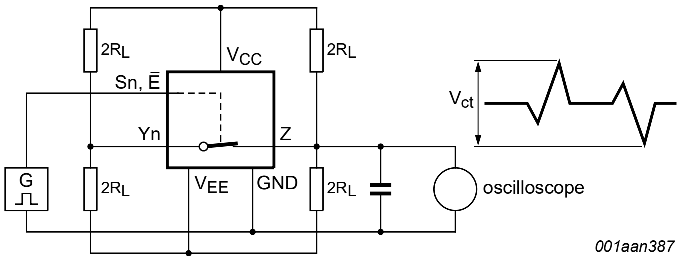
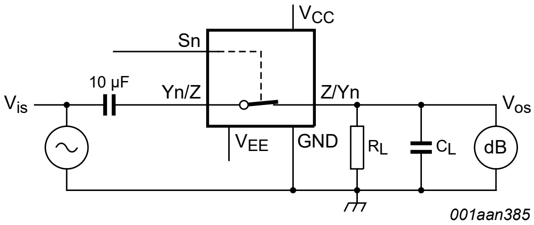
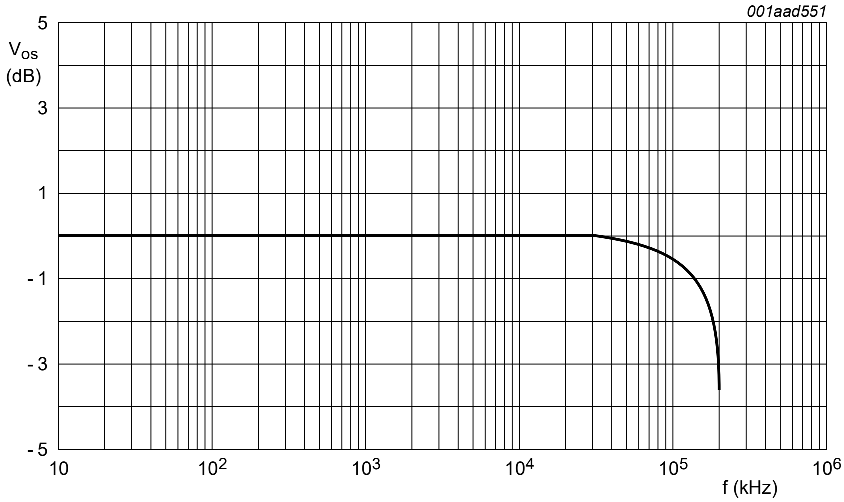



**Fig. 17. Test circuit for measuring crosstalk between control input and any switch**




$V_{CC}$ = 4.5 V; GND = 0 V; $V_{EE}$ = -4.5 V; $R_L$ = 50 Ω; $R_S$ = 1 kΩ

a. Test circuit

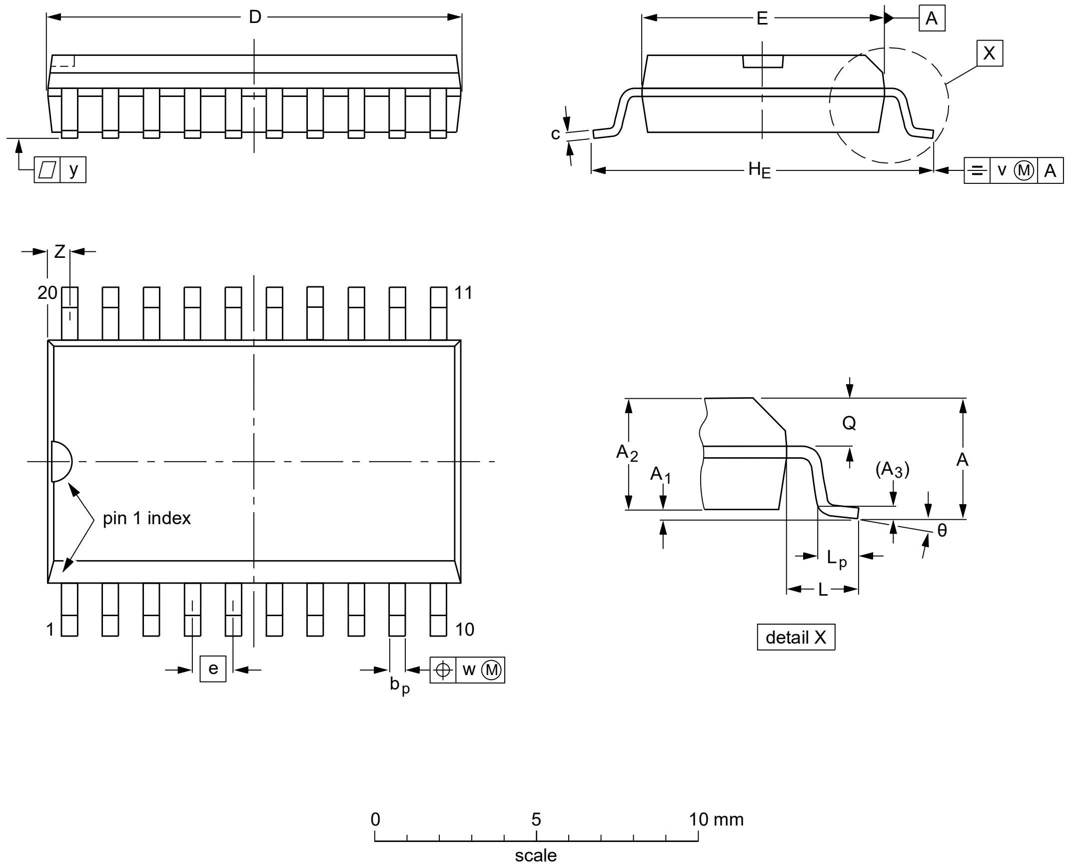



b. Typical frequency response

**Fig. 18. Test circuit for frequency response**

## 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°<br>0° |
| 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 | |

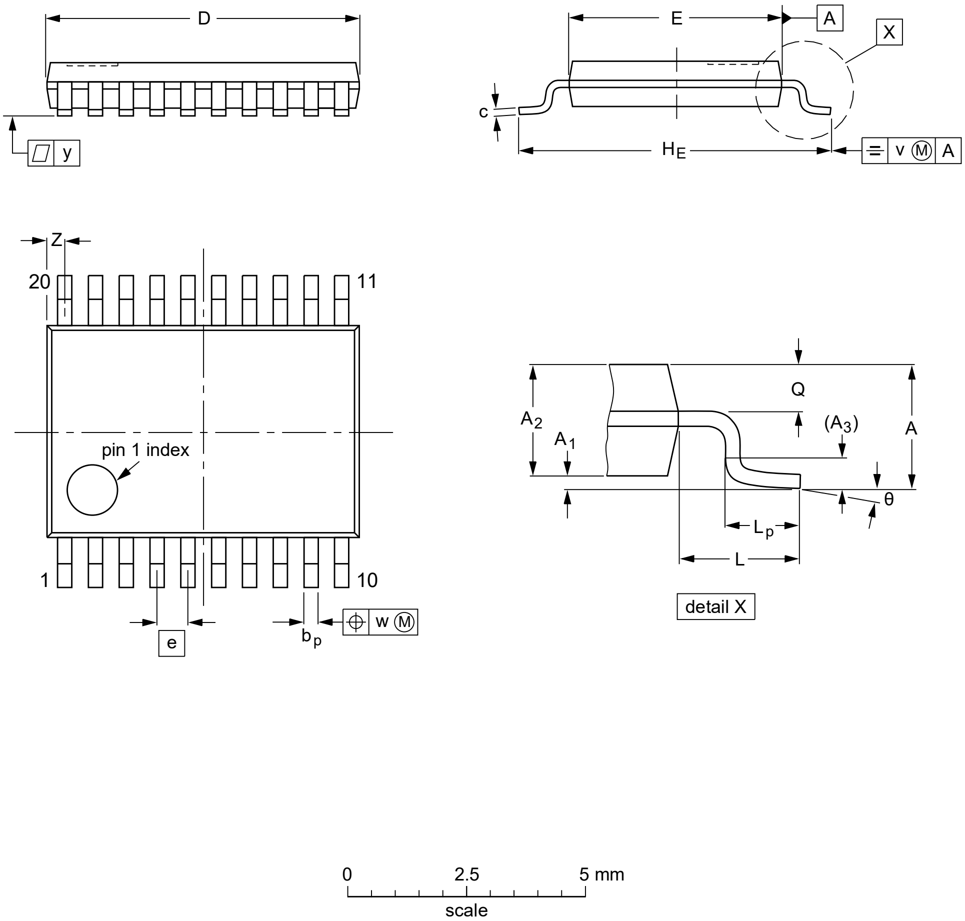
**Note**

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. 19. Package outline SOT163-1 (SO20)

**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°<br>0° |

**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. 20. Package outline SOT360-1 (TSSOP20)**

## 13. Abbreviations

**Table 12. Abbreviations**

| Acronym | Description |
|---|---|
| ANSI | American National Standards Institute |
| CDM | Charged Device Model |
| DUT | Device Under Test |
| ESD | ElectroStatic Discharge |
| ESDA | ElectroStatic Discharge Association |
| HBM | Human Body Model |
| JEDEC | Joint Electron Device Engineering Council |

## 14. Revision history

**Table 13. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| 74HC_HCT4351 v.6 | 20240725 | Product data sheet | - | 74HC_HCT4351 v.5 |
| Modifications: | • Section 2: ESD specification updated according to the latest JEDEC standard. | | | |
| 74HC_HCT4351 v.5 | 20231102 | Product data sheet | - | 74HC_HCT4351 v.4 |
| Modifications: | • Type number 74HC4351DB (SOT339-1/SSOP20) removed. | | | |
| 74HC_HCT4351 v.4 | 20210804 | Product data sheet | - | 74HC_HCT4351 v.3 |
| Modifications: | • Type number 74HC4351PW (SOT360-1/TSSOP20) added.<br>• Type number 74HCT4351DB (SOT339-1/SSOP20) removed.<br>• Section 8: Derating values for $P_{tot}$ total power dissipation updated. | | | |
| 74HC_HCT4351 v.3 | 20180709 | Product data sheet | - | 74HC_HCT4351 v.2 |
| 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 74HC4351N (SOT146-1) and 74HCT4351N (SOT146-1) removed. | | | |
| 74HC_HCT4351 v.2 | 19901201 | Product specification | - | 74HC_HCT4351 v.1 |

# 15. Legal information

### 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 https://www.nexperia.com.

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**Date of release: 25 July 2024**