# 74LVC1G384-Q100

## Bilateral switch

Rev. 5 — 9 September 2025 Product data sheet

## 1. General description

The 74LVC1G384-Q100 is a single pole, single throw analog switch. It has two input/output terminals (Y and Z) and an enable pin ($\overline{E}$). When $\overline{E}$ is HIGH, the analog switch is turned off. Control inputs can be driven from either 3.3 V or 5 V devices. This feature allows the use of these devices as translators in mixed 3.3 V and 5 V environments.

Schmitt-trigger action at control inputs makes the circuit tolerant of slower input rise and fall times.

This product has been qualified to the Automotive Electronics Council (AEC) standard Q100 (Grade 1) and is suitable for use in automotive applications.

## 2. Features and benefits

- Automotive product qualification in accordance with AEC-Q100 (Grade 1)
  - Specified from -40 °C to +85 °C and -40 °C to +125 °C
- Wide supply voltage range from 1.65 V to 5.5 V
- Very low ON resistance:
  - 7.5 Ω (typical) at $V_{CC}$ = 2.7 V
  - 6.5 Ω (typical) at $V_{CC}$ = 3.3 V
  - 6 Ω (typical) at $V_{CC}$ = 5 V
- 32 mA continuous switch current
- High noise immunity
- CMOS low power dissipation
- TTL interface compatibility at 3.3 V
- Latch-up performance meets requirements of JESD 78 Class I
- Overvoltage tolerant inputs to 5.5 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

## 3. Ordering information

**Table 1. Ordering information**

| Type number | Package | | | |
|---|---|---|---|---|
| | Temperature range | Name | Description | Version |
| 74LVC1G384GW-Q100 | -40 °C to +125 °C | TSSOP5 | plastic thin shrink small outline package; 5 leads; body width 1.25 mm | SOT353-1 |
| 74LVC1G384GV-Q100 | -40 °C to +125 °C | SC-74A | plastic surface-mounted package; 5 leads | SOT753 |
| 74LVC1G384GZ-Q100 | -40 °C to +125 °C | XSON5 | plastic thermal enhanced extremely thin small outline package with side-wettable flanks (SWF); no leads; 5 terminals; body 1.1 × 0.85 × 0.5 mm | SOT8065-1 |

# 4. Marking

**Table 2. Marking**

| Type number | Marking code[1] |
|---|---|
| 74LVC1G384GW-Q100 | YL |
| 74LVC1G384GV-Q100 | YL |
| 74LVC1G384GZ-Q100 | YL |

[1] The pin 1 indicator is located on the lower left corner of the device, below the marking code.

# 5. Functional diagram

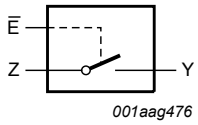



**Fig. 1. Logic symbol**

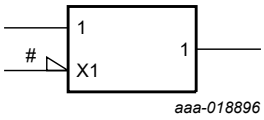



**Fig. 2. IEC logic symbol**

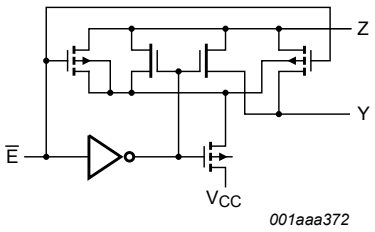
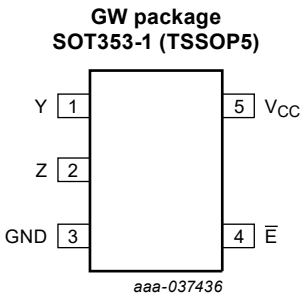
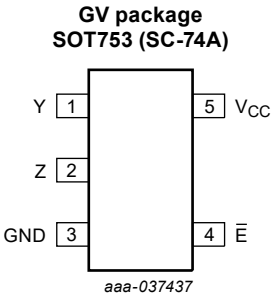


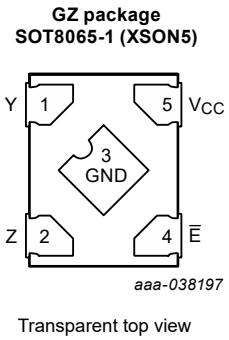

**Fig. 3. Logic diagram**

# 6. Pinning information

## 6.1. Pinning




Transparent top view

### 6.2. Pin description

**Table 3. Pin description**

| Symbol | Pin | Description |
|---|---|---|
| Y | 1 | independent input or output |
| Z | 2 | independent output or input |
| GND | 3 | ground (0 V) |
| $\overline{E}$ | 4 | enable input (active LOW) |
| $V_{CC}$ | 5 | supply voltage |

## 7. Functional description

**Table 4. Function table**

*H = HIGH voltage level; L = LOW voltage level.*

| Input $\overline{E}$ | Switch |
|---|---|
| L | ON-state |
| H | OFF-state |

## 8. Limiting values

**Table 5. 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 |
| $V_I$ | input voltage | [1] | -0.5 | +6.5 | V |
| $I_{IK}$ | input clamping current | $V_I$ < -0.5 V or $V_I$ > $V_{CC}$ + 0.5 V | -50 | - | mA |
| $I_{SK}$ | switch clamping current | $V_I$ < -0.5 V or $V_I$ > $V_{CC}$ + 0.5 V | - | ±50 | mA |
| $V_{SW}$ | switch voltage | enable and disable mode [2] | -0.5 | $V_{CC}$ + 0.5 | V |
| $I_{SW}$ | switch current | $V_{SW}$ > -0.5 V or $V_{SW}$ < $V_{CC}$ + 0.5 V | - | ±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 ° C to +125 °C [3] | - | 250 | mW |

[1] The minimum input voltage rating may be exceeded if the input current rating is observed.
[2] The minimum and maximum switch voltage ratings may be exceeded if the switch clamping current rating is observed.
[3] For SOT353-1 (TSSOP5) package: $P_{tot}$ derates linearly with 3.3 mW/K above 74 °C.
For SOT753 (SC-74A) package: $P_{tot}$ derates linearly with 3.8 mW/K above 85 °C.
For SOT8065-1 (XSON5) package: $P_{tot}$ derates linearly with 3.2 mW/K above 72 °C.

# 9. Recommended operating conditions

**Table 6. Recommended operating conditions**

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{CC}$ | supply voltage | | 1.65 | - | 5.5 | V |
| $V_I$ | input voltage | | 0 | - | 5.5 | V |
| $V_{SW}$ | switch voltage | [1] | 0 | - | $V_{CC}$ | V |
| $T_{amb}$ | ambient temperature | | -40 | - | +125 | °C |
| $\Delta t/\Delta V$ | input transition rise and fall rate | $V_{CC}$ = 1.65 V to 2.7 V | - | - | 20 | ns/V |
| | | $V_{CC}$ = 2.7 V to 5.5 V | - | - | 10 | ns/V |

[1] To avoid sinking GND current from terminal Z when switch current flows in terminal Y, the voltage drop across the bidirectional switch must not exceed 0.4 V. If the switch current flows into terminal Z, no GND current will flow from terminal Y. In this case, there is no limit for the voltage drop across the switch.

# 10. Static characteristics

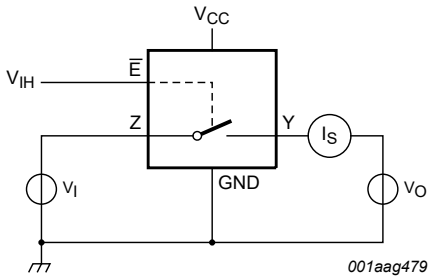
**Table 7. Static characteristics**

*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 | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 1.65 V to 1.95 V | 0.65 × $V_{CC}$ | - | - | 0.65 × $V_{CC}$ | - | V |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 1.7 | - | - | 1.7 | - | V |
| | | $V_{CC}$ = 2.7 V to 3.6 V | 2.0 | - | - | 2.0 | - | V |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 0.7 × $V_{CC}$ | - | - | 0.7 × $V_{CC}$ | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 1.65 V to 1.95 V | - | - | 0.35 × $V_{CC}$ | - | 0.35 × $V_{CC}$ | V |
| | | $V_{CC}$ = 2.3 V to 2.7 V | - | - | 0.7 | - | 0.7 | V |
| | | $V_{CC}$ = 2.7 V to 3.6 V | - | - | 0.8 | - | 0.8 | V |
| | | $V_{CC}$ = 4.5 V to 5.5 V | - | - | 0.3 × $V_{CC}$ | - | 0.3 × $V_{CC}$ | V |
| $I_I$ | input leakage current | pin $\overline{E}$; $V_I$ = 5.5 V or GND; $V_{CC}$ = 0 V to 5.5 V [2] | - | ±0.1 | ±1 | - | ±1 | µA |
| $I_{S(OFF)}$ | OFF-state leakage current | $V_{CC}$ = 5.5 V; see Fig. 4 [2] | - | ±0.1 | ±0.2 | - | ±0.5 | µA |
| $I_{S(ON)}$ | ON-state leakage current | $V_{CC}$ = 5.5 V; see Fig. 5 [2] | - | ±0.1 | ±1 | - | ±2 | µA |
| $I_{CC}$ | supply current | $V_I$ = 5.5 V or GND; $V_{SW}$ = GND or $V_{CC}$; $V_{CC}$ = 1.65 V to 5.5 V [2] | - | 0.1 | 4 | - | 4 | µA |
| $\Delta I_{CC}$ | additional supply current | pin $\overline{E}$; $V_I$ = $V_{CC}$ - 0.6 V; $V_{SW}$ = GND or $V_{CC}$; $V_{CC}$ = 5.5 V [2] | - | 5 | 500 | - | 500 | µA |
| $C_I$ | input capacitance | | - | 2.0 | - | - | - | pF |
| $C_{S(OFF)}$ | OFF-state capacitance | | - | 5.0 | - | - | - | pF |
| $C_{S(ON)}$ | ON-state capacitance | | - | 9.5 | - | - | - | pF |

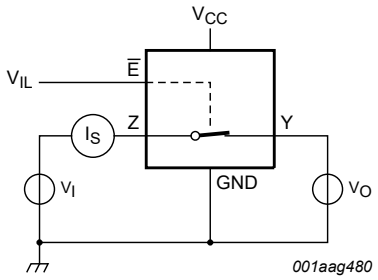
[1] All typical values are measured at $T_{amb}$ = 25 °C.
[2] These typical values are measured at $V_{CC}$ = 3.3 V.

## 10.1. Test circuits




$V_I = V_{CC}$ or GND and $V_O$ = GND or $V_{CC}$.

**Fig. 4. Test circuit for measuring OFF-state leakage current**




$V_I = V_{CC}$ or GND and $V_O$ = open circuit.

**Fig. 5. Test circuit for measuring ON-state leakage current**

## 10.2. ON resistance

**Table 8. ON resistance**

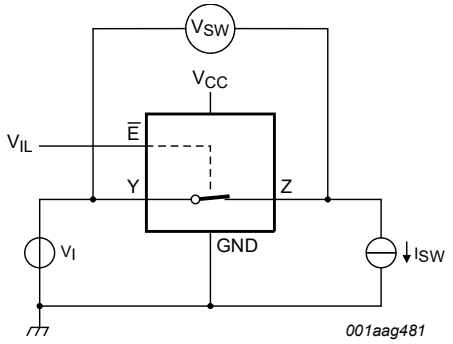
*At recommended operating conditions; voltages are referenced to GND (ground 0 V); for graphs see Fig. 7 to Fig. 12.*

| Symbol | Parameter | Conditions | -40 °C to +85 °C | | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | Min | Max | |
| $R_{ON(peak)}$ | ON resistance (peak) | $V_I$ = GND to $V_{CC}$; see Fig. 6 | | | | | | |
| | | $I_{SW}$ = 4 mA;$V_{CC}$ = 1.65 V to 1.95 V | - | 34.0 | 130 | - | 195 | Ω |
| | | $I_{SW}$ = 8 mA; $V_{CC}$ = 2.3 V to 2.7 V | - | 12.0 | 30 | - | 45 | Ω |
| | | $I_{SW}$ = 12 mA; $V_{CC}$ = 2.7 V | - | 10.4 | 25 | - | 38 | Ω |
| | | $I_{SW}$ = 24 mA; $V_{CC}$ = 3 V to 3.6 V | - | 7.8 | 20 | - | 30 | Ω |
| | | $I_{SW}$ = 32 mA; $V_{CC}$ = 4.5 V to 5.5 V | - | 6.2 | 15 | - | 23 | Ω |
| $R_{ON(rail)}$ | ON resistance (rail) | $V_I$ = GND; see Fig. 6 | | | | | | |
| | | $I_{SW}$ = 4 mA;$V_{CC}$ = 1.65 V to 1.95 V | - | 8.2 | 18 | - | 27 | Ω |
| | | $I_{SW}$ = 8 mA; $V_{CC}$ = 2.3 V to 2.7 V | - | 7.1 | 16 | - | 24 | Ω |
| | | $I_{SW}$ = 12 mA; $V_{CC}$ = 2.7 V | - | 6.9 | 14 | - | 21 | Ω |
| | | $I_{SW}$ = 24 mA; $V_{CC}$ = 3 V to 3.6 V | - | 6.5 | 12 | - | 18 | Ω |
| | | $I_{SW}$ = 32 mA; $V_{CC}$ = 4.5 V to 5.5 V | - | 5.8 | 10 | - | 15 | Ω |
| | | $V_I$ = $V_{CC}$; see Fig. 6 | | | | - | | |
| | | $I_{SW}$ = 4 mA;$V_{CC}$ = 1.65 V to 1.95 V | - | 10.4 | 30 | - | 45 | Ω |
| | | $I_{SW}$ = 8 mA; $V_{CC}$ = 2.3 V to 2.7 V | - | 7.6 | 20 | - | 30 | Ω |
| | | $I_{SW}$ = 12 mA; $V_{CC}$ = 2.7 V | - | 7.0 | 18 | - | 27 | Ω |
| | | $I_{SW}$ = 24 mA; $V_{CC}$ = 3 V to 3.6 V | - | 6.1 | 15 | - | 23 | Ω |
| | | $I_{SW}$ = 32 mA; $V_{CC}$ = 4.5 V to 5.5 V | - | 4.9 | 10 | - | 15 | Ω |

| Symbol | Parameter | Conditions | -40 °C to +85 °C | | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | Min | Max | |
| $R_{ON(flat)}$ | ON resistance (flatness) | $V_I$ = GND to $V_{CC}$ [2] | | | | | | |
| | | $I_{SW}$ = 4 mA;$V_{CC}$ = 1.65 V to 1.95 V | - | 26.0 | - | - | - | Ω |
| | | $I_{SW}$ = 8 mA; $V_{CC}$ = 2.3 V to 2.7 V | - | 5.0 | - | - | - | Ω |
| | | $I_{SW}$ = 12 mA; $V_{CC}$ = 2.7 V | - | 3.5 | - | - | - | Ω |
| | | $I_{SW}$ = 24 mA; $V_{CC}$ = 3 V to 3.6 V | - | 2.0 | - | - | - | Ω |
| | | $I_{SW}$ = 32 mA; $V_{CC}$ = 4.5 V to 5.5 V | - | 1.5 | - | - | - | Ω |

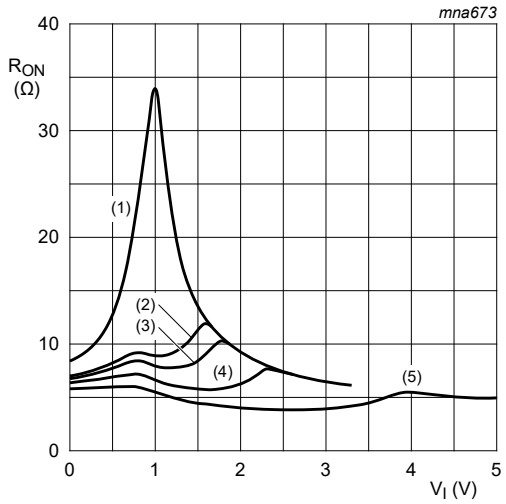
[1] Typical values are measured at $T_{amb}$ = 25 °C and nominal $V_{CC}$.
[2] Flatness is defined as the difference between the maximum and minimum value of ON resistance measured at identical $V_{CC}$ and temperature.

## 10.3. ON resistance test circuit and graphs



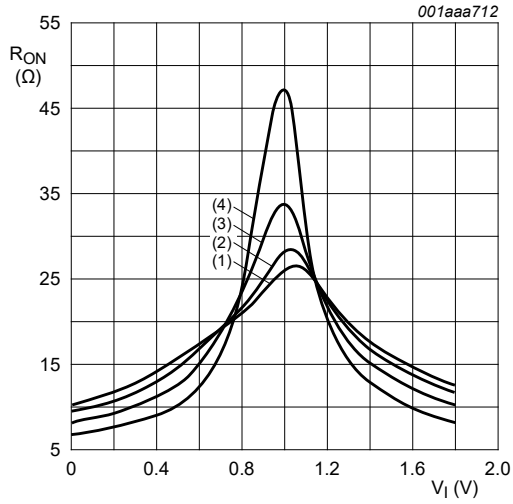

$R_{ON} = V_{SW} / I_{SW}$.

**Fig. 6. Test circuit for measuring ON resistance**



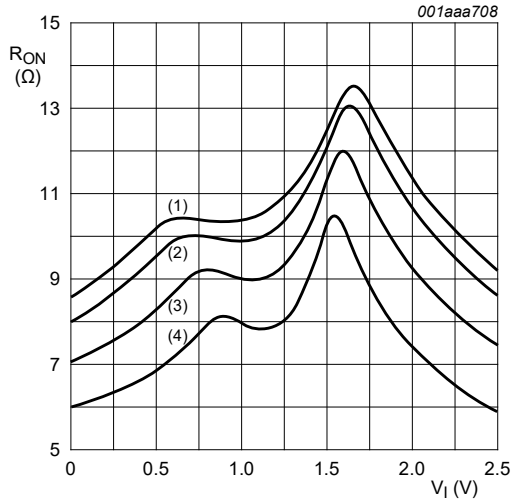

(1) $V_{CC}$ = 1.8 V
(2) $V_{CC}$ = 2.5 V
(3) $V_{CC}$ = 2.7 V
(4) $V_{CC}$ = 3.3 V
(5) $V_{CC}$ = 5.0 V

**Fig. 7. Typical ON resistance as a function of input voltage; $T_{amb}$ = 25 °C**



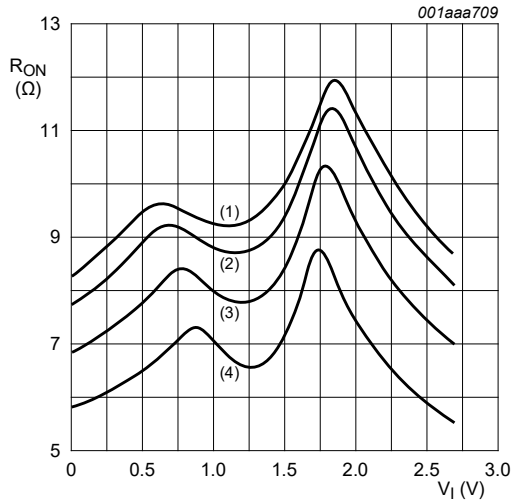

(1) $T_{amb}$ = 125 °C
(2) $T_{amb}$ = 85 °C
(3) $T_{amb}$ = 25 °C
(4) $T_{amb}$ = -40 °C

**Fig. 8. ON resistance as a function of input voltage; $V_{CC}$ = 1.8 V**



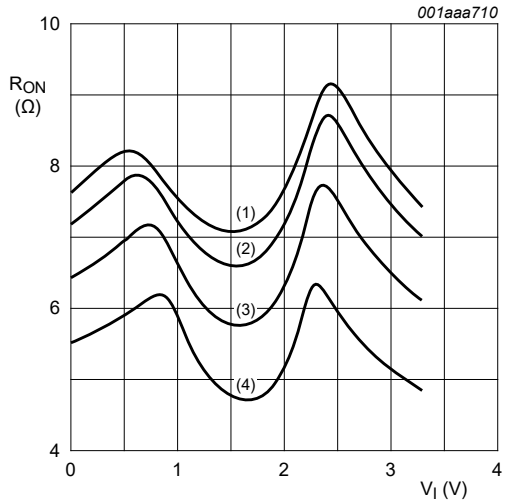

(1) $T_{amb}$ = 125 °C
(2) $T_{amb}$ = 85 °C
(3) $T_{amb}$ = 25 °C
(4) $T_{amb}$ = -40 °C

**Fig. 9. ON resistance as a function of input voltage; $V_{CC}$ = 2.5 V**



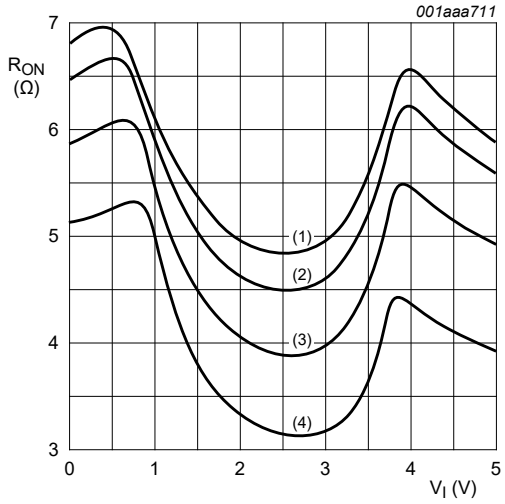

(1) $T_{amb}$ = 125 °C
(2) $T_{amb}$ = 85 °C
(3) $T_{amb}$ = 25 °C
(4) $T_{amb}$ = -40 °C

**Fig. 10. ON resistance as a function of input voltage; $V_{CC}$ = 2.7 V**




(1) $T_{amb}$ = 125 °C
(2) $T_{amb}$ = 85 °C
(3) $T_{amb}$ = 25 °C
(4) $T_{amb}$ = -40 °C

**Fig. 11. ON resistance as a function of input voltage; $V_{CC}$ = 3.3 V**




(1) $T_{amb}$ = 125 °C
(2) $T_{amb}$ = 85 °C
(3) $T_{amb}$ = 25 °C
(4) $T_{amb}$ = -40 °C

**Fig. 12. ON resistance as a function of input voltage; $V_{CC}$ = 5.0 V**

# 11. Dynamic characteristics

**Table 9. Dynamic characteristics**

*At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 15.*

| Symbol | Parameter | Conditions | -40 °C to +85 °C | | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | Min | Max | |
| $t_{pd}$ | propagation delay | Y to Z or Z to Y; see Fig. 13 [2][3] | | | | | | |
| | | $V_{CC}$ = 1.65 V to 1.95 V | - | 0.8 | 2.0 | - | 3.0 | ns |
| | | $V_{CC}$ = 2.3 V to 2.7 V | - | 0.4 | 1.2 | - | 2.0 | ns |
| | | $V_{CC}$ = 2.7 V | - | 0.4 | 1.0 | - | 1.5 | ns |
| | | $V_{CC}$ = 3.0 V to 3.6 V | - | 0.3 | 0.8 | - | 1.5 | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | - | 0.2 | 0.6 | - | 1.0 | ns |
| $t_{en}$ | enable time | $\overline{E}$ to Y or Z; see Fig. 14 [4] | | | | | | |
| | | $V_{CC}$ = 1.65 V to 1.95 V | 1.0 | 10.0 | 12.0 | 1.0 | 15.5 | ns |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 1.0 | 5.7 | 6.5 | 1.0 | 8.5 | ns |
| | | $V_{CC}$ = 2.7 V | 1.0 | 5.4 | 6.0 | 1.0 | 8.0 | ns |
| | | $V_{CC}$ = 3.0 V to 3.6 V | 1.0 | 4.8 | 5.0 | 1.0 | 6.5 | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 1.0 | 3.3 | 4.2 | 1.0 | 5.5 | ns |
| $t_{dis}$ | disable time | $\overline{E}$ to Y or Z; see Fig. 14 [5] | | | | | | |
| | | $V_{CC}$ = 1.65 V to 1.95 V | 1.0 | 7.4 | 10.0 | 1.0 | 13.0 | ns |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 1.0 | 4.1 | 6.9 | 1.0 | 9.0 | ns |
| | | $V_{CC}$ = 2.7 V | 1.0 | 4.9 | 7.5 | 1.0 | 9.5 | ns |
| | | $V_{CC}$ = 3.0 V to 3.6 V | 1.0 | 5.4 | 6.5 | 1.0 | 8.5 | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 1.0 | 3.6 | 5.0 | 1.0 | 6.5 | ns |
| $C_{PD}$ | power dissipation capacitance | $C_L$ = 50 pF; $f_i$ = 10 MHz; $V_I$ = GND to $V_{CC}$ [6] | | | | | | |
| | | $V_{CC}$ = 2.5 V | - | 13.7 | - | - | - | pF |
| | | $V_{CC}$ = 3.3 V | - | 15.2 | - | - | - | pF |
| | | $V_{CC}$ = 5.0 V | - | 18.3 | - | - | - | pF |

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

[2] Propagation delay is the calculated RC time constant of the typical ON resistance of the switch and the specified capacitance when driven by an ideal voltage source (zero output impedance).

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

[4] $t_{en}$ is the same as $t_{PZH}$ and $t_{PZL}$.

[5] $t_{dis}$ is the same as $t_{PLZ}$ and $t_{PHZ}$.

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

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

$f_i$ = input frequency in MHz;

$f_o$ = output frequency in MHz;

$C_L$ = output load capacitance in pF;

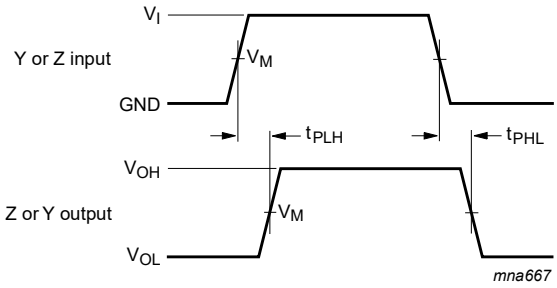
$C_{S(ON)}$ = maximum ON-state switch capacitance in pF;

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

N = number of inputs switching;

$\Sigma\{(C_L + C_{S(ON)}) \times V_{CC}^2 \times f_o\}$ = sum of the outputs.

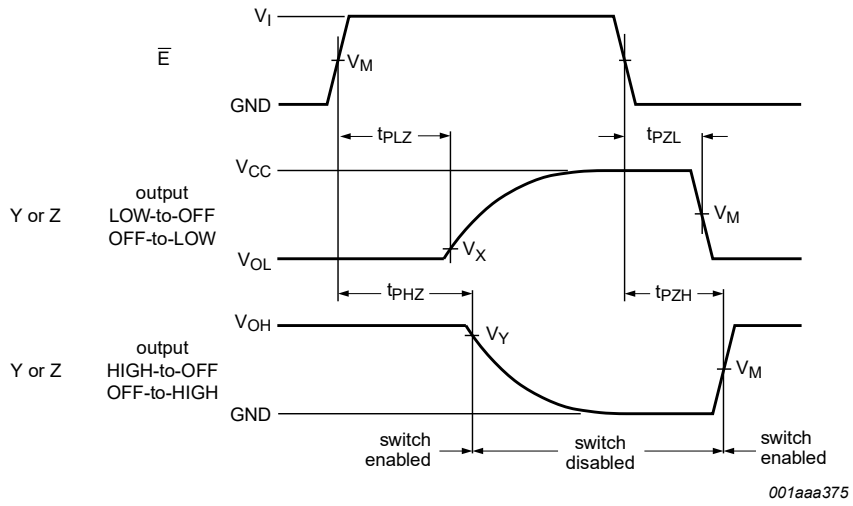
## 11.1. Waveforms and test circuit




Measurement points are given in Table 10.

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

**Fig. 13. Input (Y or Z) to output (Z or Y) propagation delays**



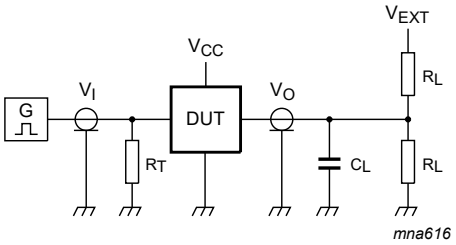

Measurement points are given in Table 10.

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

**Fig. 14. Enable and disable times**

**Table 10. Measurement points**

| Supply voltage | Input | Output | | |
|---|---|---|---|---|
| $V_{CC}$ | $V_M$ | $V_M$ | $V_X$ | $V_Y$ |
| 1.65 V to 1.95 V | 0.5 × $V_{CC}$ | 0.5 × $V_{CC}$ | $V_{OL}$ + 0.15 V | $V_{OH}$ - 0.15 V |
| 2.3 V to 2.7 V | 0.5 × $V_{CC}$ | 0.5 × $V_{CC}$ | $V_{OL}$ + 0.15 V | $V_{OH}$ - 0.15 V |
| 2.7 V | 1.5 V | 1.5 V | $V_{OL}$ + 0.3 V | $V_{OH}$ - 0.3 V |
| 3.0 V to 3.6 V | 1.5 V | 1.5 V | $V_{OL}$ + 0.3 V | $V_{OH}$ - 0.3 V |
| 4.5 V to 5.5 V | 0.5 × $V_{CC}$ | 0.5 × $V_{CC}$ | $V_{OL}$ + 0.3 V | $V_{OH}$ - 0.3 V |




Test data is given in Table 11.

Definitions for 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;

$V_{EXT}$ = External voltage for measuring switching times.

**Fig. 15. Test circuit for measuring switching times**

**Table 11. Test data**

| Supply voltage | Input | | Load | | $V_{EXT}$ | | |
|---|---|---|---|---|---|---|---|
| $V_{CC}$ | $V_I$ | $t_r$, $t_f$ | $C_L$ | $R_L$ | $t_{PLH}$, $t_{PHL}$ | $t_{PZH}$, $t_{PHZ}$ | $t_{PZL}$, $t_{PLZ}$ |
| 1.65 V to 1.95 V | $V_{CC}$ | ≤ 2.0 ns | 30 pF | 1 kΩ | open | GND | 2 × $V_{CC}$ |
| 2.3 V to 2.7 V | $V_{CC}$ | ≤ 2.0 ns | 30 pF | 500 Ω | open | GND | 2 × $V_{CC}$ |
| 2.7 V | 2.7 V | ≤ 2.5 ns | 50 pF | 500 Ω | open | GND | 6 V |
| 3.0 V to 3.6 V | 2.7 V | ≤ 2.5 ns | 50 pF | 500 Ω | open | GND | 6 V |
| 4.5 V to 5.5 V | $V_{CC}$ | ≤ 2.5 ns | 50 pF | 500 Ω | open | GND | 2 × $V_{CC}$ |

## 11.2. Additional dynamic characteristics

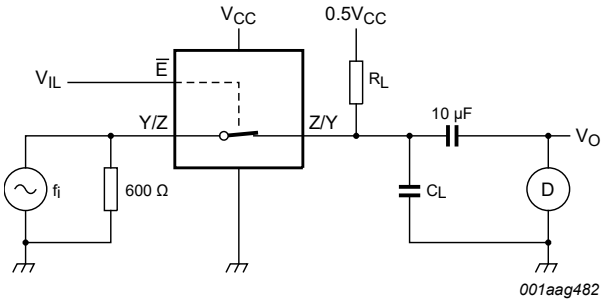
**Table 12. Additional dynamic characteristics**

*At recommended operating conditions; typical values measured at $T_{amb}$ = 25 °C.*

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| THD | total harmonic distortion | $R_L$ = 10 kΩ; $C_L$ = 50 pF; $f_i$ = 1 kHz; see Fig. 16 | | | | |
| | | $V_{CC}$ = 1.65 V | - | 0.032 | - | % |
| | | $V_{CC}$ = 2.3 V | - | 0.008 | - | % |
| | | $V_{CC}$ = 3.0 V | - | 0.006 | - | % |
| | | $V_{CC}$ = 4.5 V | - | 0.001 | - | % |
| | | $R_L$ = 10 kΩ; $C_L$ = 50 pF; $f_i$ = 10 kHz; see Fig. 16 | | | | |
| | | $V_{CC}$ = 1.65 V | - | 0.068 | - | % |
| | | $V_{CC}$ = 2.3 V | - | 0.009 | - | % |
| | | $V_{CC}$ = 3.0 V | - | 0.008 | - | % |
| | | $V_{CC}$ = 4.5 V | - | 0.006 | - | % |

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $f_{(-3dB)}$ | -3 dB frequency response | $R_L$ = 600 Ω; $C_L$ = 50 pF; see Fig. 17 | | | | |
| | | $V_{CC}$ = 1.65 V | - | 135 | - | MHz |
| | | $V_{CC}$ = 2.3 V | - | 145 | - | MHz |
| | | $V_{CC}$ = 3.0 V | - | 150 | - | MHz |
| | | $V_{CC}$ = 4.5 V | - | 155 | - | MHz |
| | | $R_L$ = 50 Ω; $C_L$ = 5 pF; see Fig. 17 | | | | |
| | | $V_{CC}$ = 1.65 V | - | > 500 | - | MHz |
| | | $V_{CC}$ = 2.3 V | - | > 500 | - | MHz |
| | | $V_{CC}$ = 3.0 V | - | > 500 | - | MHz |
| | | $V_{CC}$ = 4.5 V | - | > 500 | - | MHz |
| | | $R_L$ = 50 Ω; $C_L$ = 10 pF; see Fig. 17 | | | | |
| | | $V_{CC}$ = 1.65 V | - | 200 | - | MHz |
| | | $V_{CC}$ = 2.3 V | - | 350 | - | MHz |
| | | $V_{CC}$ = 3.0 V | - | 410 | - | MHz |
| | | $V_{CC}$ = 4.5 V | - | 440 | - | MHz |
| $\alpha_{iso}$ | isolation (OFF-state) | $R_L$ = 600 Ω; $C_L$ = 50 pF; $f_i$ = 1 MHz; see Fig. 18 | | | | |
| | | $V_{CC}$ = 1.65 V | - | -46 | - | dB |
| | | $V_{CC}$ = 2.3 V | - | -46 | - | dB |
| | | $V_{CC}$ = 3.0 V | - | -46 | - | dB |
| | | $V_{CC}$ = 4.5 V | - | -46 | - | dB |
| | | $R_L$ = 50 Ω; $C_L$ = 5 pF; $f_i$ = 1 MHz; see Fig. 18 | | | | |
| | | $V_{CC}$ = 1.65 V | - | -37 | - | dB |
| | | $V_{CC}$ = 2.3 V | - | -37 | - | dB |
| | | $V_{CC}$ = 3.0 V | - | -37 | - | dB |
| | | $V_{CC}$ = 4.5 V | - | -37 | - | dB |
| $V_{ct}$ | crosstalk voltage | between digital input and switch; $R_L$ = 600 Ω; $C_L$ = 50 pF; $f_i$ = 1 MHz; $t_r = t_f$ = 2 ns; see Fig. 19 | | | | |
| | | $V_{CC}$ = 1.65 V | - | 69 | - | mV |
| | | $V_{CC}$ = 2.3 V | - | 87 | - | mV |
| | | $V_{CC}$ = 3.0 V | - | 156 | - | mV |
| | | $V_{CC}$ = 4.5 V | - | 302 | - | mV |
| $Q_{inj}$ | charge injection | $C_L$ = 0.1 nF; $V_{gen}$ = 0 V; $R_{gen}$ = 0 Ω; $f_i$ = 1 MHz; $R_L$ = 1 MΩ; see Fig. 20 | | | | |
| | | $V_{CC}$ = 1.8 V | - | 3.3 | - | pC |
| | | $V_{CC}$ = 2.5 V | - | 4.1 | - | pC |
| | | $V_{CC}$ = 3.3 V | - | 5.0 | - | pC |
| | | $V_{CC}$ = 4.5 V | - | 6.4 | - | pC |
| | | $V_{CC}$ = 5.5 V | - | 7.5 | - | pC |

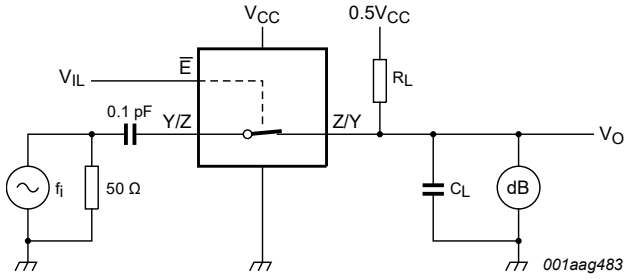
## 11.3. Test circuits




**Test conditions:**

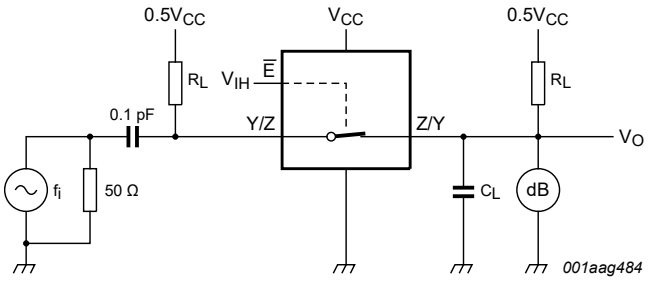
$V_{CC}$ = 1.65 V: $V_I$ = 1.4 V (p-p)
$V_{CC}$ = 2.3 V: $V_I$ = 2 V (p-p)
$V_{CC}$ = 3 V: $V_I$ = 2.5 V (p-p)
$V_{CC}$ = 4.5 V: $V_I$ = 4 V (p-p)

**Fig. 16. Test circuit for measuring total harmonic distortion**




Adjust $f_i$ voltage to obtain 0 dBm level at output. Increase $f_i$ frequency until dB meter reads -3 dB.

**Fig. 17. Test circuit for measuring the frequency response when switch is in ON-state**




Adjust $f_i$ voltage to obtain 0 dBm level at input.

**Fig. 18. Test circuit for measuring isolation (OFF-state)**

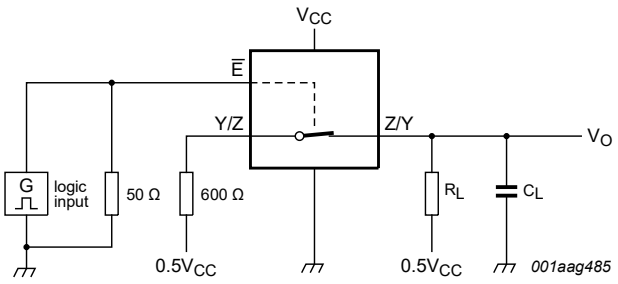
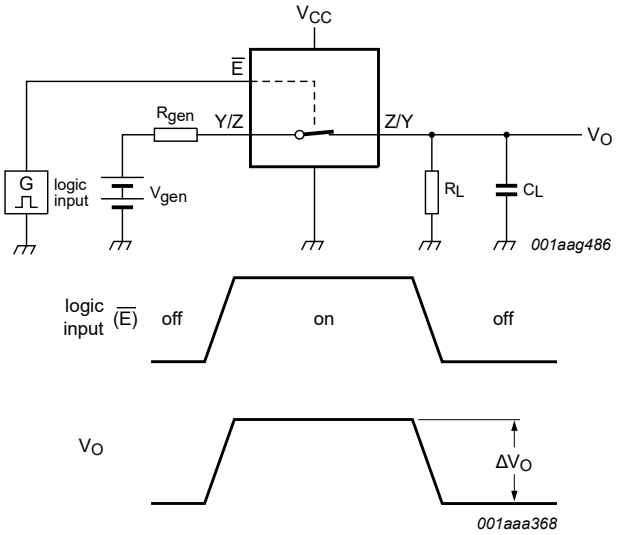



**Fig. 19. Test circuit for measuring crosstalk between digital inputs and switch**

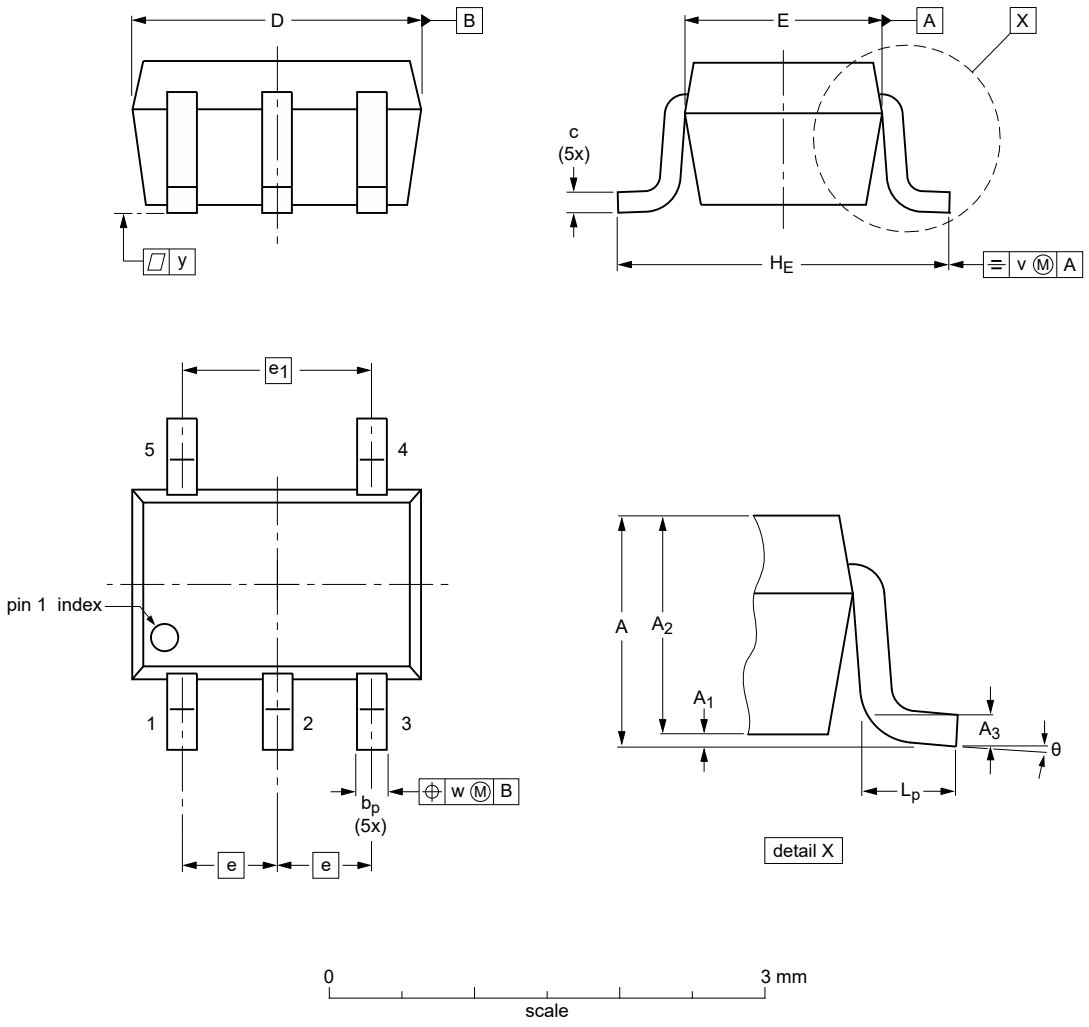



$Q_{inj} = \Delta V_O \times C_L$
$\Delta V_O$ = output voltage variation
$R_{gen}$ = generator resistance
$V_{gen}$ = generator voltage

**Fig. 20. Test circuit for measuring charge injection**

## 12. Package outline

**TSSOP5: plastic thin shrink small outline package; 5 leads; body width 1.25 mm** **SOT353-1**




Dimensions (mm are the original dimensions)

| Unit | | A | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | $D^{(1)}$ | $E^{(1)}$ | e | $e_1$ | $H_E$ | $L_p$ | v | w | y | θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 1.1 | 0.1 | 1.0 | 0.15 | 0.30 | 0.25 | 2.2 | 1.35 | 0.65 | 1.3 | 2.4 | 0.46 | 0.3 | 0.1 | 0.1 | 8° |
| | min | 0.8 | 0 | 0.8 | | 0.15 | 0.08 | 1.8 | 1.15 | | | 1.8 | 0.26 | | | | 0° |

Note

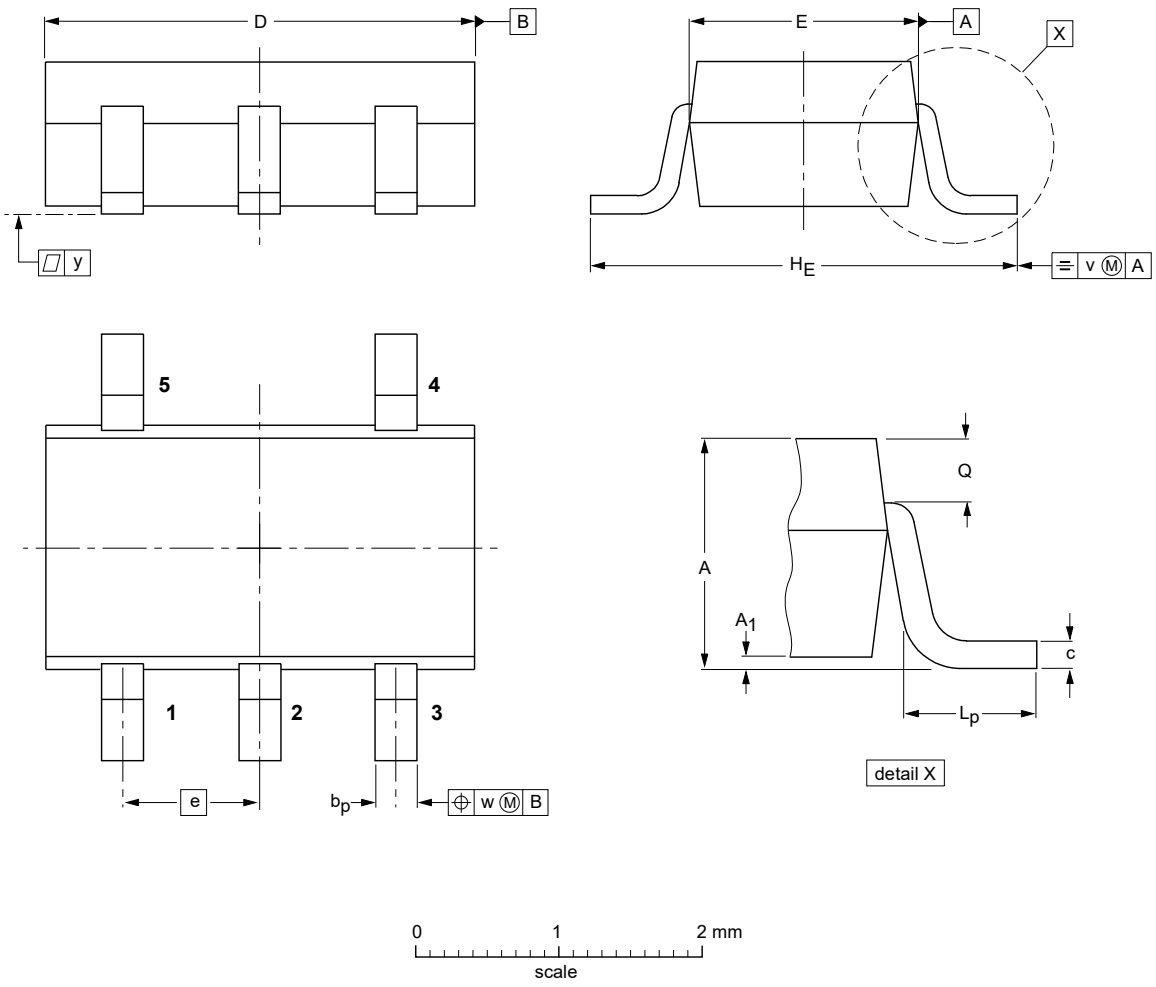
1. Plastic or metal protrusions of 0.2 mm maximum per side are not included.

*sot353-1_po*

| Outline version | References | | | | European projection | Issue date |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT353-1 | | MO-203 | SC-88A | | | ~~21-12-15~~ 21-12-16 |

**Fig. 21. Package outline SOT353-1 (TSSOP5)**

**Plastic surface-mounted package; 5 leads** **SOT753**




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

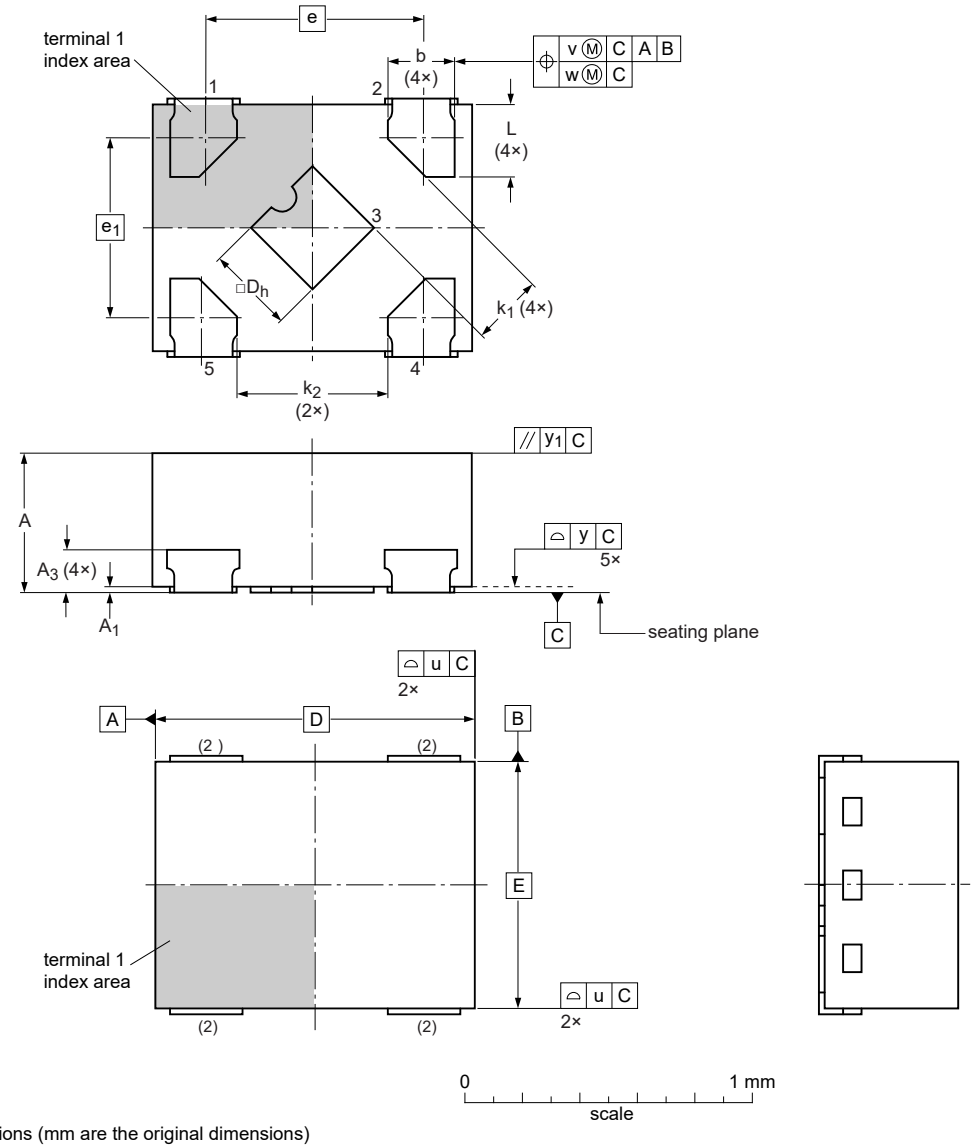
| UNIT | A | $A_1$ | $b_p$ | c | D | E | e | $H_E$ | $L_p$ | Q | v | w | y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1<br>0.9 | 0.100<br>0.013 | 0.40<br>0.25 | 0.26<br>0.10 | 3.1<br>2.7 | 1.7<br>1.3 | 0.95 | 3.0<br>2.5 | 0.6<br>0.2 | 0.33<br>0.23 | 0.2 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT753 | | | SC-74A | | | ~~02-04-16~~<br>06-03-16 |

**Fig. 22. Package outline SOT753 (SC-74A)**

**XSON5: Plastic thermal enhanced extremely thin small outline package with side-wettable flanks (SWF); no leads; 5 terminals; body 1.1 × 0.85 × 0.5 mm**

**SOT8065-1**




Dimensions (mm are the original dimensions)

| Unit | | A(1) | A1 | A3 | b | D(1) | Dh | E(1) | e | e1 | k1 | k2 | L | u | v | w | y | y1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 0.50 | 0.040 | 0.135 (typ) | 0.28 | 1.10 | 0.35 | 0.85 | 0.75 | 0.6 | | | 0.30 | 0.05 | 0.1 | 0.05 | 0.05 | 0.05 |
| | nom | 0.47 | 0.020 | | 0.23 | | 0.30 | | | | 0.2 | 0.45 | 0.25 | | | | | |
| | min | 0.44 | 0.005 | | 0.20 | | 0.27 | | | | | | 0.22 | | | | | |

Note:
1. Plastic or metal protrusions per side are not included.
2. Side wettable flanks (SWF), protrusion max. 0.02 mm.

*sot8065-1_po*

| Outline version | References | | | | European projection | Issue date |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT8065-1 | | MO-340 | | | | ~~24-07-09~~ 24-08-27 |

**Fig. 23. Package outline SOT8065-1 (XSON5)**

# 13. Abbreviations

**Table 13. Abbreviations**

| Acronym | Description |
|---|---|
| ANSI | American National Standards Institute |
| CDM | Charged Device Model |
| CMOS | Complementary Metal Oxide Semiconductor |
| DUT | Device Under Test |
| ESD | ElectroStatic Discharge |
| ESDA | ElectroStatic Discharge Association |
| HBM | Human Body Model |
| JEDEC | Joint Electron Device Engineering Council |
| TTL | Transistor-Transistor Logic |

# 14. Revision history

**Table 14. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| 74LVC1G384_Q100 v.5 | 20250909 | Product data sheet | - | 74LVC1G384_Q100 v.4 |
| Modifications: | • Type number 74LVC1G384GZ-Q100 (SOT8065-1/XSON5) added. | | | |
| 74LVC1G384_Q100 v.4 | 20230823 | Product data sheet | - | 74LVC1G384_Q100 v.3 |
| Modifications: | • Section 2: ESD specification updated according to the latest JEDEC standard. | | | |
| 74LVC1G384_Q100 v.3 | 20220208 | Product data sheet | - | 74LVC1G384_Q100 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>• Section 1 and Section 2 updated.<br>• Table 5: Derating values for $P_{tot}$ total power dissipation updated.<br>• Fig. 21: Package outline drawing SOT353-1 (TSSOP5) has changed. | | | |
| 74LVC1G384_Q100 v.2 | 20161209 | Product data sheet | - | 74LVC1G384_Q100 v.1 |
| Modifications: | • Table 7: The maximum limits for leakage current and supply current have changed. | | | |
| 74LVC1G384_Q100 v.1 | 20130219 | Product data sheet | - | - |

# 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: 9 September 2025**