NX3L1T5157

Low-ohmic single-pole double-throw analog switch

Rev. 6.2 — 3 December 2019

Product data sheet

1. General description

The NX3L1T5157 is a low-ohmic single-pole double-throw analog switch suitable for use as an analog or digital 2:1 multiplexer/demultiplexer. It has a digital select input (S), two independent inputs/outputs (Y0 and Y1) and a common input/output (Z).

Schmitt trigger action at the digital input makes the circuit tolerant to slower input rise and fall times. Low threshold digital input allows this device to be driven by 1.8 V logic levels in 3.3 V applications without significant increase in supply current I_{CC} . This makes it possible for the NX3L1T5157 to switch 4.3 V signals with a 1.8 V digital controller, eliminating the need for logic level translation. The NX3L1T5157 allows signals with amplitude up to V_{CC} to be transmitted from Z to Y0 or Y1, or from Y0 or Y1 to Z. Its low ON resistance (0.5 Ω) and flatness (0.13 Ω) ensures minimal attenuation and distortion of transmitted signals.

2. Features and benefits

- Wide supply voltage range from 1.4 V to 4.3 V
- Very low ON resistance (peak):
 - 1.6 Ω (typical) at $V_{CC} = 1.4 \text{ V}$
 - 1.0 Ω (typical) at $V_{CC} = 1.65 \text{ V}$
 - 0.55 Ω (typical) at $V_{CC} = 2.3 \text{ V}$
 - 0.50 Ω (typical) at V_{CC} = 2.7 V
 - 0.50 Ω (typical) at $V_{CC} = 4.3 \text{ V}$
- Break-before-make switching
- High noise immunity
- ESD protection:
 - HBM JESD22-A114F Class 3A exceeds 7500 V
 - MM JESD22-A115-A exceeds 200 V
 - ◆ CDM AEC-Q100-011 revision B exceeds 1000 V
 - ◆ IEC61000-4-2 contact discharge exceeds 8000 V for switch ports
- CMOS low-power consumption
- Latch-up performance exceeds 100 mA per JESD78 Class II Level A
- 1.8 V control logic at V_{CC} = 3.6 V
- Control input accepts voltages above supply voltage
- Very low supply current, even when input is below V_{CC}
- High current handling capability (350 mA continuous current under 3.3 V supply)
- Specified from -40 °C to +85 °C and from -40 °C to +125 °C



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3. Applications

- Cell phone
- PDA
- Portable media player

4. Ordering information

Table 1. Ordering information

| Type number | Topside | Package | | |
|--------------|------------|---------|---|---------|
| | marking[1] | Name | Description | Version |
| NX3L1T5157GM | DI | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body 1 x 1.45 x 0.5 mm | SOT886 |

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

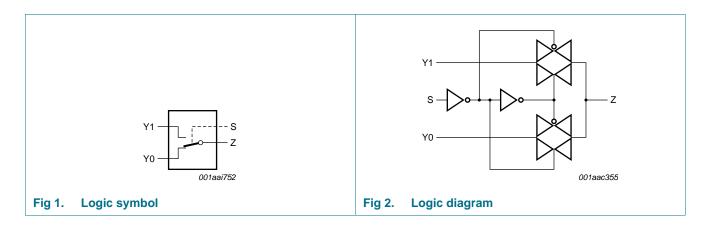
4.1 Ordering options

Table 2. Ordering options

| Type number | Orderable part number | Package | Packing method | Minimum order quantity | Temperature |
|--------------|-----------------------|---------|--------------------------|------------------------|--|
| NX3L1T5157GM | NX3L1T5157GM,115[1] | XSON6 | REEL 7" Q1 NDP | 5000 | $T_{amb} = -40 ^{\circ}\text{C} \text{ to } +125 ^{\circ}\text{C}$ |
| NX3L1T5157GM | NX3L1T5157GM,132[1] | XSON6 | REEL 7" Q3 NDP | 5000 | $T_{amb} = -40 ^{\circ}\text{C} \text{ to } +125 ^{\circ}\text{C}$ |
| NX3L1T5157GM | NX3L1T5157GMZ | XSON6 | REEL 7" Q1 NDP SSB[2] | 5000 | $T_{amb} = -40 ^{\circ}\text{C} \text{ to } +125 ^{\circ}\text{C}$ |
| NX3L1T5157GM | NX3L1T5157GMAZ | XSON6 | REEL 7" Q3 NDP SSB[2] | 5000 | $T_{amb} = -40 ^{\circ}\text{C} \text{ to } +125 ^{\circ}\text{C}$ |

^[1] Will go EOL - migrate to new leadframe orderable part number.

5. Functional diagram



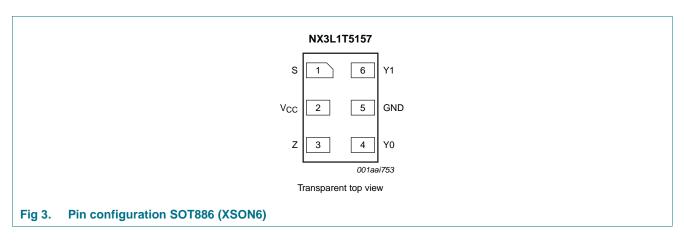
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^[2] This packing method uses a Static Shielding Bag (SSB) solution. Material is to be kept in the sealed bag between uses.

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6. Pinning information

6.1 Pinning



6.2 Pin description

Table 3. Pin description

| Symbol | Pin | Description |
|-----------------|-----|-----------------------------|
| S | 1 | select input |
| V _{CC} | 2 | supply voltage |
| Z | 3 | common input or output |
| Y0 | 4 | independent input or output |
| GND | 5 | ground (0 V) |
| Y1 | 6 | independent input or output |

7. Functional description

Table 4. Function table[1]

| Input S | Channel on |
|---------|------------|
| L | Y0 |
| Н | Y1 |

[1] H = HIGH voltage level; L = LOW voltage level.

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 | +4.6 | V |
| VI | input voltage | select input S | -0.5 | +4.6 | V |
| V_{SW} | switch voltage | [2] | -0.5 | $V_{CC} + 0.5$ | V |
| I _{IK} | input clamping current | $V_1 < -0.5 \text{ V}$ | -50 | - | mA |
| I _{SK} | switch clamping current | $V_{I} < -0.5 \text{ V or } V_{I} > V_{CC} + 0.5 \text{ V}$ | - | ±50 | mA |
| I _{SW} | switch current | $V_{SW} > -0.5 \text{ V or } V_{SW} < V_{CC} + 0.5 \text{ V};$ source or sink current | - | ±350 | mA |
| | | V_{SW} > -0.5 V or V_{SW} < V_{CC} + 0.5 V; pulsed at 1 ms duration, < 10 % duty cycle; peak current | - | ±500 | mA |
| T _{stg} | storage temperature | | -65 | +150 | °C |
| P _{tot} | total power dissipation | $T_{amb} = -40 ^{\circ}\text{C} \text{ to } +125 ^{\circ}\text{C}$ | - | 250 | mW |

^[1] The minimum input voltage rating may be exceeded if the input current rating is observed.

9. Recommended operating conditions

Table 6. Recommended operating conditions

| Symbol | Parameter | Conditions | Min | Max | Unit |
|------------------|-------------------------------------|--|-----|-----------------|------|
| V _{CC} | supply voltage | | 1.4 | 4.3 | V |
| VI | input voltage | select input S | 0 | 4.3 | V |
| V_{SW} | switch voltage | [1] | 0 | V _{CC} | V |
| T _{amb} | ambient temperature | | -40 | +125 | °C |
| Δt/ΔV | input transition rise and fall rate | $V_{CC} = 1.4 \text{ V to } 4.3 \text{ V}$ [2] | - | 200 | ns/V |

^[1] To avoid sinking GND current from terminal Z when switch current flows in terminal Yn, 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 Yn. In this case, there is no limit for the voltage drop across the switch.

^[2] The minimum and maximum switch voltage ratings may be exceeded if the switch clamping current rating is observed but may not exceed 4.6 V.

^[3] For XSON6 package: above 118 °C the value of Ptot derates linearly with 7.8 mW/K.

^[2] Applies to control signal levels.

10. Static characteristics

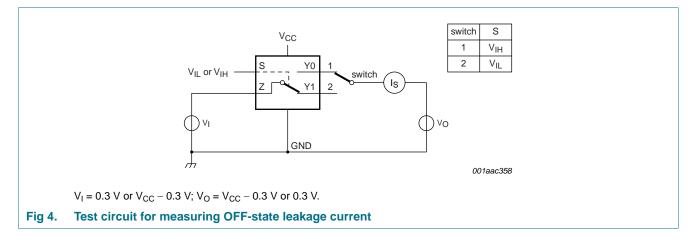
Table 7. Static characteristics

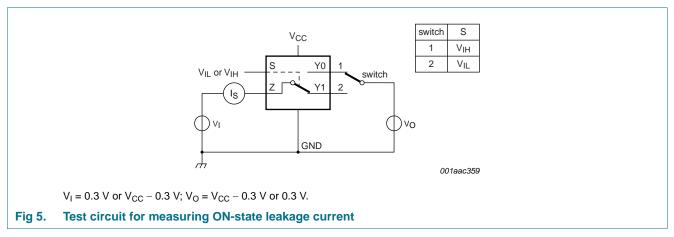
At recommended operating conditions; voltages are referenced to GND (ground 0 V).

| Symbol | Parameter | Conditions | Ta | _{amb} = 25 | °C | $T_{amb} = -40 ^{\circ}\text{C} \text{ to } +125 ^{\circ}\text{C}$ | | | Unit |
|---------------------|--------------------------|---|-----|---------------------|------|--|----------------|-----------------|------|
| | | | Min | Тур | Max | Min | Max (85 °C) | Max (125 °C) | |
| V _{IH} | HIGH-level | V _{CC} = 1.4 V to 1.6 V | 0.9 | - | - | 0.9 | - | - | V |
| | input voltage | V _{CC} = 1.65 V to 1.95 V | 0.9 | - | - | 0.9 | - | - | V |
| | | V _{CC} = 2.3 V to 2.7 V | 1.1 | - | - | 1.1 | - | - | V |
| | | V _{CC} = 2.7 V to 3.6 V | 1.3 | - | - | 1.3 | - | - | V |
| | | V _{CC} = 3.6 V to 4.3 V | 1.4 | - | - | 1.4 | - | - | V |
| V _{IL} | LOW-level | V _{CC} = 1.4 V to 1.6 V | - | - | 0.3 | - | 0.3 | 0.3 | V |
| | input voltage | V _{CC} = 1.65 V to 1.95 V | - | - | 0.4 | - | 0.4 | 0.3 | V |
| | | V _{CC} = 2.3 V to 2.7 V | - | - | 0.4 | - | 0.4 | 0.4 | V |
| | | V _{CC} = 2.7 V to 3.6 V | - | - | 0.5 | - | 0.5 | 0.5 | V |
| | | V _{CC} = 3.6 V to 4.3 V | - | - | 0.6 | - | 0.6 | 0.6 | V |
| l _l | input leakage current | select input S; V _I = GND to 4.3 V; V _{CC} = 1.4 V to 4.3 V | - | - | - | - | ±0.5 | ±1 | μА |
| I _{S(OFF)} | S(OFF) OFF-state leakage | Y0 and Y1 port; see Figure 4 | | | | | | | |
| | current | V _{CC} = 1.4 V to 3.6 V | - | - | ±5 | - | ±50 | ±500 | nΑ |
| | | $V_{CC} = 3.6 \text{ V to } 4.3 \text{ V}$ | - | - | ±10 | - | ±50 | ±500 | nΑ |
| I _{S(ON)} | ON-state | Z port; see Figure 5 | | | | | | | |
| | leakage | V _{CC} = 1.4 V to 3.6 V | - | - | ±5 | - | ±50 | ±500 | nΑ |
| | current | V _{CC} = 3.6 V to 4.3 V | - | - | ±10 | - | ±50 | ±500 | nΑ |
| I _{CC} | supply current | $V_I = V_{CC}$ or GND; $V_{SW} = GND$ or V_{CC} | | | | | | | |
| | | V _{CC} = 3.6 V | - | - | 100 | - | 690 | 6000 | nΑ |
| | | V _{CC} = 4.3 V | - | - | 150 | - | 800 | 7000 | nΑ |
| ΔI_{CC} | additional | V_{SW} = GND or V_{CC} | | | | | | | |
| | supply current | $V_I = 2.6 \text{ V}; V_{CC} = 4.3 \text{ V}$ | - | 2.0 | 4.0 | - | 7 | 7 | μΑ |
| | | V _I = 2.6 V; V _{CC} = 3.6 V | - | 0.35 | 0.7 | - | 1 | 1 | μΑ |
| | | V _I = 1.8 V; V _{CC} = 4.3 V | - | 7.0 | 10.0 | - | 15 | 15 | μΑ |
| | | V _I = 1.8 V; V _{CC} = 3.6 V | - | 2.5 | 4.0 | - | 5 | Max (125 °C) | μΑ |
| | | V _I = 1.8 V; V _{CC} = 2.5 V | - | 50 | 200 | - | 300 | 500 | nΑ |
| Cı | input capacitance | | - | 1.0 | - | - | - | - | pF |
| C _{S(OFF)} | OFF-state capacitance | | - | 35 | - | - | - | - | pF |
| C _{S(ON)} | ON-state capacitance | | - | 130 | - | - | - | - | pF |

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10.1 Test circuits





10.2 ON resistance

Table 8. ON resistance

At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for graphs see Figure 7 to Figure 13.

| Symbol | Parameter | Conditions | $T_{amb} = -40 ^{\circ}\text{C} \text{ to } +85 ^{\circ}\text{C}$ | | T _{amb} = -40 ° | Unit | | |
|-----------------------|----------------------|---|---|--------|--------------------------|------|-----|---|
| | | | Min | Typ[1] | Max | Min | Max | |
| R _{ON(peak)} | ON resistance (peak) | V_I = GND to V_{CC} ; I_{SW} = 100 mA; see <u>Figure 6</u> | | | | | | |
| | | V _{CC} = 1.4 V | - | 1.6 | 3.7 | - | 4.1 | Ω |
| | | V _{CC} = 1.65 V | - | 1.0 | 1.6 | - | 1.7 | Ω |
| | | V _{CC} = 2.3 V | - | 0.55 | 0.8 | - | 0.9 | Ω |
| | | V _{CC} = 2.7 V | - | 0.5 | 0.75 | - | 0.9 | Ω |
| | | V _{CC} = 4.3 V | - | 0.5 | 0.75 | - | 0.9 | Ω |

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Table 8. ON resistance ... continued

At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for graphs see Figure 7 to Figure 13.

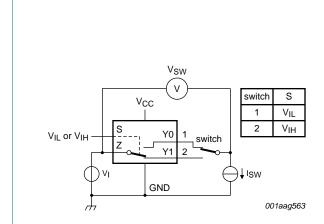
| Symbol Parameter | | Conditions | T _{amb} = | $T_{amb} = -40 ^{\circ}\text{C} \text{ to } +85 ^{\circ}\text{C}$ $T_{amb} = -40 ^{\circ}\text{C} \text{ to } +125 ^{\circ}\text{C}$ | | | | Unit |
|-----------------------|--------------------------|---|--------------------|--|-------|-----|------|------|
| | | | Min | Typ[1] | Max | Min | Max | |
| ΔR_{ON} | ON resistance mismatch | $V_I = GND \text{ to } V_{CC};$ $I_{SW} = 100 \text{ mA}$ | | | | | | |
| | between channels | V _{CC} = 1.4 V | - | 0.04 | 0.3 | - | 0.3 | Ω |
| | Chamileis | V _{CC} = 1.65 V | - | 0.04 | 0.2 | - | 0.3 | Ω |
| | V _{CC} = 2.3 V | - | 0.02 | 0.08 | - | 0.1 | Ω | |
| | | V _{CC} = 2.7 V | - | 0.02 | 0.075 | - | 0.1 | Ω |
| | | V _{CC} = 4.3 V | - | 0.02 | 0.075 | - | 0.1 | Ω |
| R _{ON(flat)} | ON resistance (flatness) | $V_I = GND \text{ to } V_{CC};$ $I_{SW} = 100 \text{ mA}$ | | | | | | |
| | | V _{CC} = 1.4 V | - | 1.0 | 3.3 | - | 3.6 | Ω |
| | | V _{CC} = 1.65 V | - | 0.5 | 1.2 | - | 1.3 | Ω |
| | | V _{CC} = 2.3 V | - | 0.15 | 0.3 | - | 0.35 | Ω |
| | | V _{CC} = 2.7 V | - | 0.13 | 0.3 | - | 0.35 | Ω |
| | | V _{CC} = 4.3 V | - | 0.2 | 0.4 | - | 0.45 | Ω |

^[1] Typical values are measured at T_{amb} = 25 °C.

^[2] Measured at identical V_{CC}, temperature and input voltage.

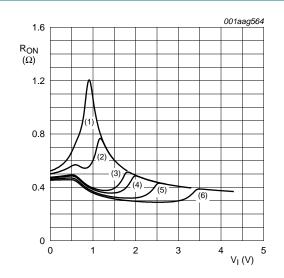
^[3] Flatness is defined as the difference between the maximum and minimum value of ON resistance measured at identical V_{CC} and temperature.

10.3 ON resistance test circuit and graphs



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

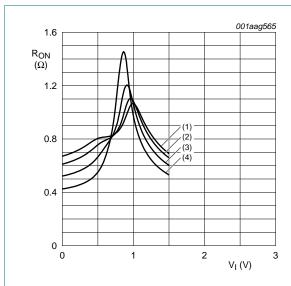
Fig 6. Test circuit for measuring ON resistance



- (1) $V_{CC} = 1.5 \text{ V}.$
- (2) $V_{CC} = 1.8 \text{ V}.$
- (3) $V_{CC} = 2.5 \text{ V}.$
- (4) $V_{CC} = 2.7 \text{ V}.$
- (5) $V_{CC} = 3.3 \text{ V}.$
- (6) $V_{CC} = 4.3 \text{ V.}$ Measured at $T_{amb} = 25 \,^{\circ}\text{C.}$

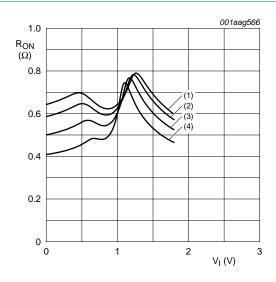
Fig 7. Typical ON resistance as a function of input voltage

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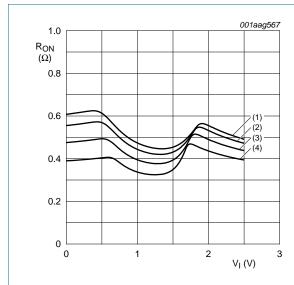
- (1) $T_{amb} = 125 \, ^{\circ}C$.
- (2) $T_{amb} = 85 \, ^{\circ}C$.
- (3) $T_{amb} = 25 \, ^{\circ}C$.
- (4) $T_{amb} = -40 \, ^{\circ}C$.

Fig 8. ON resistance as a function of input voltage; $V_{CC} = 1.5 \text{ V}$



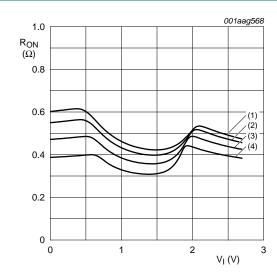
- (1) $T_{amb} = 125 \, ^{\circ}C$.
- (2) $T_{amb} = 85 \, ^{\circ}C$.
- (3) $T_{amb} = 25 \, ^{\circ}C$.
- (4) $T_{amb} = -40 \, ^{\circ}C$.

Fig 9. ON resistance as a function of input voltage; $V_{CC} = 1.8 \text{ V}$



- (1) $T_{amb} = 125 \, ^{\circ}C$.
- (2) $T_{amb} = 85 \, ^{\circ}C$.
- (3) $T_{amb} = 25 \, ^{\circ}C$.
- (4) $T_{amb} = -40 \, ^{\circ}C$.

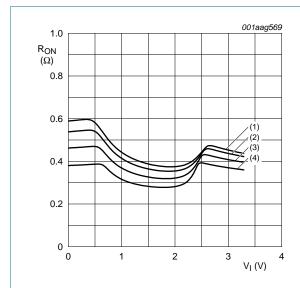
Fig 10. ON resistance as a function of input voltage; $V_{CC} = 2.5 \text{ V}$



- (1) $T_{amb} = 125 \, ^{\circ}C$.
- (2) $T_{amb} = 85 \, ^{\circ}C$.
- (3) $T_{amb} = 25 \, ^{\circ}C$.
- (4) $T_{amb} = -40 \, ^{\circ}C$.

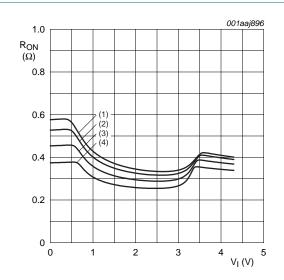
Fig 11. ON resistance as a function of input voltage; $V_{CC} = 2.7 \text{ V}$

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- (1) $T_{amb} = 125 \, ^{\circ}C$.
- (2) $T_{amb} = 85 \, ^{\circ}C$.
- (3) $T_{amb} = 25 \, ^{\circ}C$.
- (4) $T_{amb} = -40 \, ^{\circ}C$.

Fig 12. ON resistance as a function of input voltage; $V_{CC} = 3.3 \text{ V}$



- (1) $T_{amb} = 125 \, ^{\circ}C$.
- (2) $T_{amb} = 85 \, ^{\circ}C$.
- (3) $T_{amb} = 25 \, ^{\circ}C$.
- (4) $T_{amb} = -40 \, ^{\circ}C$.

Fig 13. ON resistance as a function of input voltage; $V_{CC} = 4.3 \text{ V}$

11. Dynamic characteristics

Table 9. Dynamic characteristics

At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for load circuit see Figure 16.

| Symbol Parameter | | Conditions | | 25 °C | | -40 | °C to +12 | 5 °C | Unit |
|------------------|--------------|--|-----|--------|-----|-----|----------------|-----------------|----------------------|
| | | | Min | Typ[1] | Max | Min | Max (85 °C) | Max (125 °C) | ns ns ns ns |
| t _{en} | enable time | S to Z or Yn; see Figure 14 | | | | | | | |
| | | $V_{CC} = 1.4 \text{ V to } 1.6 \text{ V}$ | - | 50 | 90 | - | 120 | 120 | ns |
| | | $V_{CC} = 1.65 \text{ V to } 1.95 \text{ V}$ | - | 36 | 70 | - | 80 | 90 | ns |
| | | $V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$ | - | 24 | 45 | - | 50 | 55 | ns |
| | | $V_{CC} = 2.7 \text{ V to } 3.6 \text{ V}$ | - | 22 | 40 | - | 45 | 50 | ns |
| | | $V_{CC} = 3.6 \text{ V to } 4.3 \text{ V}$ | - | 22 | 40 | - | 45 | 50 | ns |
| t _{dis} | disable time | S to Z or Yn; see Figure 14 | | | | | | | |
| | | $V_{CC} = 1.4 \text{ V to } 1.6 \text{ V}$ | - | 32 | 70 | - | 80 | 90 | ns |
| | | $V_{CC} = 1.65 \text{ V to } 1.95 \text{ V}$ | - | 20 | 55 | - | 60 | 65 | ns |
| | | $V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$ | - | 12 | 25 | - | 30 | 35 | ns |
| | | $V_{CC} = 2.7 \text{ V to } 3.6 \text{ V}$ | - | 10 | 20 | - | 25 | 30 | ns |
| | | $V_{CC} = 3.6 \text{ V to } 4.3 \text{ V}$ | - | 10 | 20 | - | 25 | 30 | ns |

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Table 9. Dynamic characteristics ... continued

At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for load circuit see Figure 16.

| Symbol | Parameter | Conditions | 25 °C | | -40 | Unit | | | |
|------------------|-------------------|------------------------------------|-------|--------|-----|------|----------------|-----------------|----|
| | | | Min | Typ[1] | Max | Min | Max (85 °C) | Max (125 °C) | |
| t _{b-m} | break-before-make | see Figure 15 [2] | | | | | | | |
| | time | V _{CC} = 1.4 V to 1.6 V | - | 19 | - | 9 | - | - | ns |
| | | V _{CC} = 1.65 V to 1.95 V | - | 17 | - | 7 | - | - | ns |
| | | V _{CC} = 2.3 V to 2.7 V | - | 13 | - | 4 | - | - | ns |
| | | V _{CC} = 2.7 V to 3.6 V | - | 10 | - | 3 | - | - | ns |
| | | V _{CC} = 3.6 V to 4.3 V | - | 10 | - | 2 | - | - | ns |

^[1] Typical values are measured at $T_{amb} = 25$ °C and $V_{CC} = 1.5$ V, 1.8 V, 2.5 V, 3.3 V and 4.3 V respectively.

11.1 Waveform and test circuits

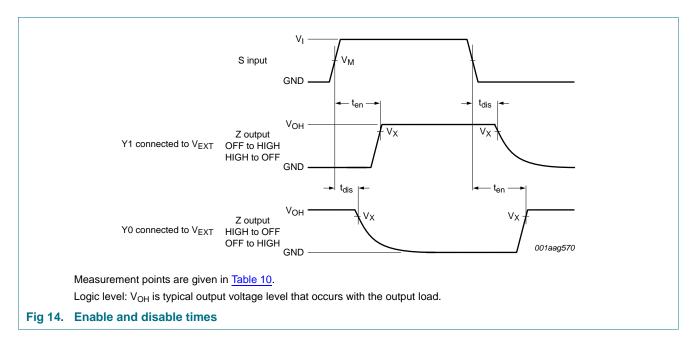
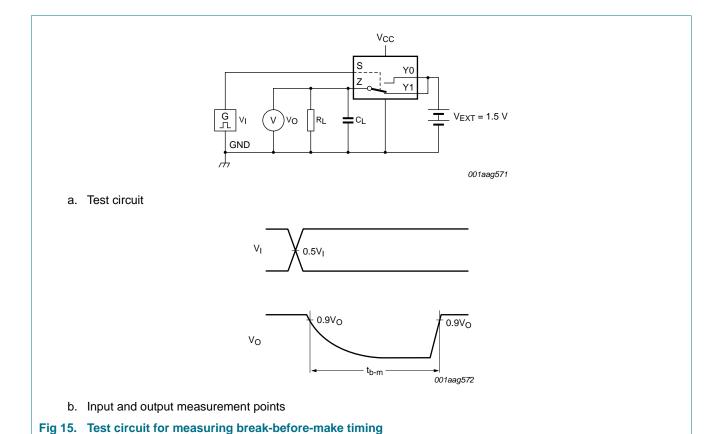


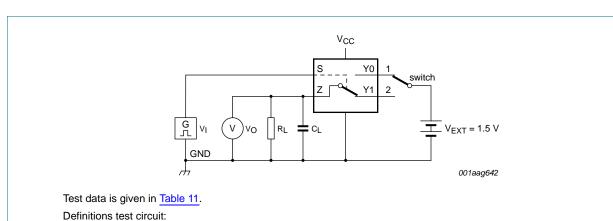
Table 10. Measurement points

| Supply voltage | Input | Output |
|----------------|--------------------|--------------------|
| Vcc | V _M | V _X |
| 1.4 V to 4.3 V | 0.5V _{CC} | 0.9V _{OH} |

^[2] Break-before-make guaranteed by design.

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R_L = Load resistance.

 C_L = Load capacitance including jig and probe capacitance.

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

Fig 16. Load circuit for switching times

Table 11. Test data

| Supply voltage | Input | | Load | | |
|-----------------|-----------------|---------------------------------|----------------|----------------|--|
| V _{cc} | V _I | t _r , t _f | C _L | R _L | |
| 1.4 V to 4.3 V | V _{CC} | ≤ 2.5 ns | 35 pF | 50 Ω | |

11.2 Additional dynamic characteristics

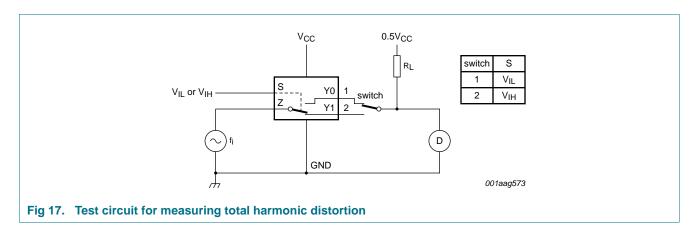
Table 12. Additional dynamic characteristics

At recommended operating conditions; voltages are referenced to GND (ground = 0 V); $V_I = \text{GND}$ or V_{CC} (unless otherwise specified); $t_r = t_f \le 2.5$ ns; $T_{amb} = 25$ °C.

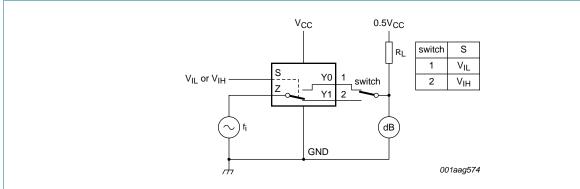
| Symbol | Parameter | Conditions | | Min | Тур | Max | Unit |
|----------------------------------|-----------------------|---|-----|-----|------|-----|------|
| THD total harmonic distortion | | f_i = 20 Hz to 20 kHz; R_L = 32 Ω ; see Figure 17 | [1] | | | | |
| | | V _{CC} = 1.4 V; V _I = 1 V (p-p) | | - | 0.15 | - | % |
| | | V _{CC} = 1.65 V; V _I = 1.2 V (p-p) | | - | 0.10 | - | % |
| | | $V_{CC} = 2.3 \text{ V}; V_{I} = 1.5 \text{ V (p-p)}$ | | - | 0.02 | - | % |
| | | $V_{CC} = 2.7 \text{ V}; V_{I} = 2 \text{ V (p-p)}$ | | - | 0.02 | - | % |
| | | $V_{CC} = 4.3 \text{ V}; V_{I} = 2 \text{ V (p-p)}$ | | - | 0.02 | - | % |
| f _(-3dB) | -3 dB frequency | $R_L = 50 \Omega$; see Figure 18 | [1] | | | | |
| | response | V _{CC} = 1.4 V to 4.3 V | | - | 60 | - | MHz |
| α_{iso} isolatio | isolation (OFF-state) | $f_i = 100 \text{ kHz}$; $R_L = 50 \Omega$; see Figure 19 | [1] | | | | |
| | | V _{CC} = 1.4 V to 4.3 V | | - | -90 | - | dB |
| V _{ct} crosstalk voltag | crosstalk voltage | between digital inputs and switch; f_i = 1 MHz; C_L = 50 pF; R_L = 50 Ω ; see Figure 20 | | | | | |
| | | V _{CC} = 1.4 V to 3.6 V | | - | 0.2 | - | V |
| | | V _{CC} = 3.6 V to 4.3 V | | - | 0.3 | - | V |
| Q _{inj} charge | charge injection | f_i = 1 MHz; C_L = 0.1 nF; R_L = 1 M Ω ; V_{gen} = 0 V; R_{gen} = 0 Ω ; see Figure 21 | | | | | |
| | | V _{CC} = 1.5 V | | - | 3 | - | рС |
| | | V _{CC} = 1.8 V | | - | 4 | - | рС |
| | | V _{CC} = 2.5 V | | - | 6 | - | рС |
| | | V _{CC} = 3.3 V | | - | 9 | - | рС |
| | | V _{CC} = 4.3 V | | - | 15 | - | рС |

^[1] f_i is biased at $0.5V_{CC}$.

11.3 Test circuits



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

Fig 18. Test circuit for measuring the frequency response when channel is in ON-state

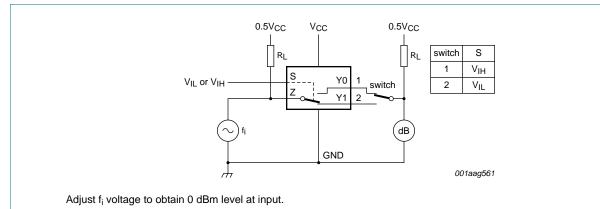
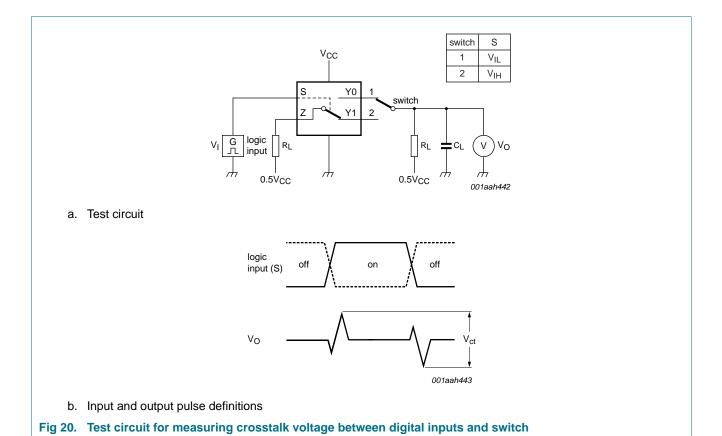
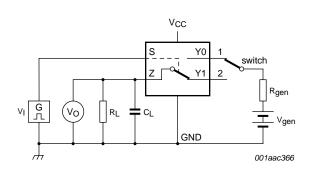


Fig 19. Test circuit for measuring isolation (OFF-state)

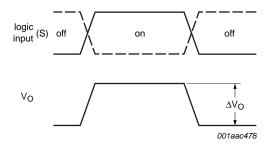
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a. Test circuit



b. Input and output pulse definitions

Definition: $Q_{inj} = \Delta V_O \times C_L$.

 ΔV_{O} = output voltage variation.

R_{gen} = generator resistance.

 V_{gen} = generator voltage.

Fig 21. Test circuit for measuring charge injection

12. Package outline

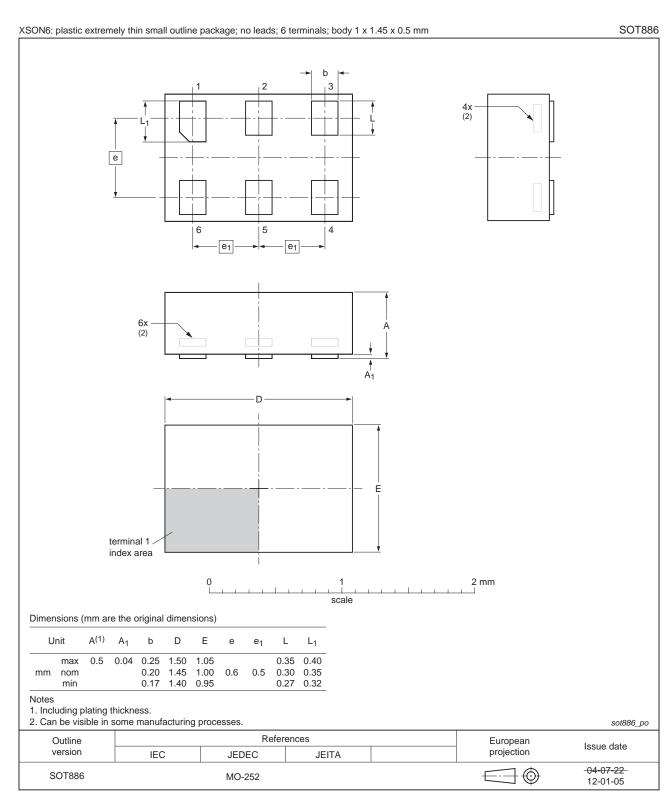


Fig 22. Package outline SOT886 (XSON6)

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13. Abbreviations

Table 13. Abbreviations

| Acronym | Description |
|---------|---|
| CDM | Charged Device Model |
| CMOS | Complementary Metal-Oxide Semiconductor |
| ESD | ElectroStatic Discharge |
| НВМ | Human Body Model |
| MM | Machine Model |
| PDA | Personal Digital Assistant |

14. Revision history

Table 14. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|------------------|--------------|--|---------------|------------------|
| NX3L1T5157 v.6.2 | 20191203 | Product data sheet | - | NX3L1T5157 v.6.1 |
| Modifications: | | OT886 requiring SSB added Assembly/Test Transfer from | | |
| NX3L1T5157 v.6.1 | 20161130 | Product data sheet | - | NX3L1T5157 v.6 |
| Modifications: | Added Sec | tion 13 "Packing information | <u>"</u> | |
| NX3L1T5157 v.6 | 20111108 | Product data sheet | - | NX3L1T5157 v.5 |
| Modifications: | Legal page | s updated. | | |
| NX3L1T5157 v.5 | 20110728 | Product data sheet | - | NX3L1T5157 v.4 |
| NX3L1T5157 v.4 | 20100324 | Product data sheet | - | NX3L1T5157 v.3 |
| NX3L1T5157 v.3 | 20100208 | Product data sheet | - | NX3L1T5157 v.2 |
| NX3L1T5157 v.2 | 20090417 | Product data sheet | - | NX3L1T5157 v.1 |
| NX3L1T5157 v.1 | 20080916 | Product data sheet | - | - |

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15. Legal information

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| Document status[1][2] | Product status[3] | Definition |
|--------------------------------|-------------------|---|
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| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
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