NX3L4684

Low-ohmic dual single-pole double-throw analog switch

Rev. 01 — 11 December 2008 **Product data sheet**

1. General description

The NX3L4684 provides two low-ohmic single-pole double-throw analog switches, suitable for use as an analog or digital multiplexer/demultiplexer. It has a digital select input (nS) with Schmitt trigger action, two independent inputs/outputs (nY0, nY1) and a common input/output (nZ).

Schmitt trigger action at the select input (nS) makes the circuit tolerant to slower input rise and fall times across the entire V_{CC} range from 1.4 V to 3.6 V.

A low input voltage threshold allows pin S to be driven by lower level logic signals without a significant increase in supply current I_{CC}. This makes it possible for the NX3L4684 to switch 3.6 V signals with a 1.8 V digital controller, eliminating the need for logic level translation.

The NX3L4684 allows signals with amplitude up to V_{CC} to be transmitted from nZ to nY0 or nY1; or from nY0 or nY1 to nZ. Its low ON resistance (0.3 Ω for Y0 port , 0.5 Ω for Y1 port) and flatness (0.1 Ω) ensures minimal attenuation and distortion of transmitted signals.

2. Features

- Wide supply voltage range from 1.4 V to 3.6 V
- Very low ON resistance (peak) for Y0 port:
  - 0.8 Ω (typical) at V_{CC} = 1.4 V
  - 0.5 Ω (typical) at V_{CC} = 1.65 V
  - 0.3 Ω (typical) at V_{CC} = 2.3 V
  - 0.25 Ω (typical) at V_{CC} = 2.7 V
- Break-before-make switching
- High noise immunity
- ESD protection:
  - HBM JESD22-A114E Class 3A exceeds 4000 V
  - MM JESD22-A115-A exceeds 200 V
  - CDM AEC-Q100-011 revision B exceeds 1000 V
- CMOS low-power consumption
- Latch-up performance exceeds 100 mA per JESD 78 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	Package			
	Temperature range	Name	Description	Version
NX3L4684GM	–40 °C to +125 °C	XQFN10U	plastic extremely thin quad flat package; no leads; 10 terminals; UTLP based; body 2 × 1.55 × 0.5 mm	SOT1049-2
NX3L4684TK	–40 °C to +125 °C	HVSON10	plastic thermal enhanced very thin small outline package; no leads; 10 terminals; body 3 × 3 × 0.85 mm	SOT650-1

5. Marking

Table 2. Marking

Type number	Marking code
NX3L4684GM	D84
NX3L4684TK	D84

6. Functional diagram

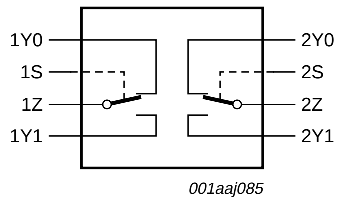


Fig 1. Logic symbol

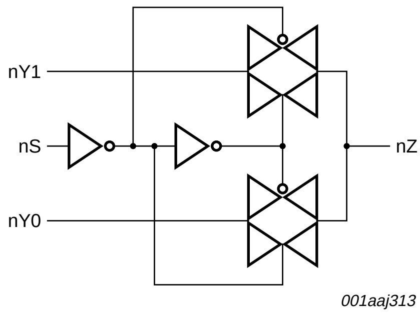


Fig 2. Logic diagram (one switch)

7. Pinning information

7.1 Pinning

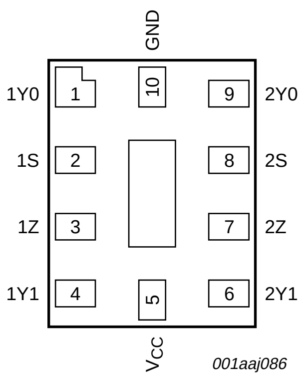


Fig 3. Pin configuration SOT1049-2 (XQFN10U)

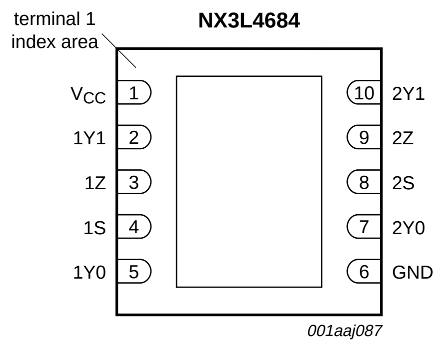


Fig 4. Pin configuration SOT650-1 (HVSON10)

7.2 Pin description

Table 3. Pin description

Symbol	Pin		Description
	SOT1049-2	SOT650-1	
1Y0	1	5	independent input or output
1S	2	4	select input
1Z	3	3	common output or input
1Y1	4	2	independent input or output
V_{CC}	5	1	supply voltage
2Y1	6	10	independent input or output
2Z	7	9	common output or input
2S	8	8	select input
2Y0	9	7	independent input or output
GND	10	6	ground (0 V)

8. Functional description

Table 4. Function table[1]

Input nS	Channel on
L	nY0
H	nY1

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

9. 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
V_I	input voltage	select input nS	[1]	–0.5	+4.6	V
V_{SW}	switch voltage		[2]	–0.5	V_{CC} + 0.5	V
I_{IK}	input clamping current	V_I < –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
I_{SW}	switch current	V_{SW} > –0.5 V or V_{SW} < V_{CC} + 0.5 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 °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 XQFN10U packages: above 132 °C the value of P_{tot} derates linearly with 14.1 mW/K.
For HVSON10 packages: above 135 °C the value of P_{tot} derates linearly with 17.2 mW/K.

10. Recommended operating conditions

Table 6. Recommended operating conditions

Symbol	Parameter	Conditions		Min	Max	Unit
V_{CC}	supply voltage			1.65	3.6	V
V_I	input voltage	select input nS		0	V_{CC}	V
V_{SW}	switch voltage	switch input nY0 or nY1	[1]	0	V_{CC}	V
T_{amb}	ambient temperature			–40	+125	°C
$\Delta t/\Delta V$	input transition rise and fall rate	V_{CC} = 1.4 V to 3.6 V	[2]	-	200	ns/V

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

[2] Applies to select input nS signal levels.

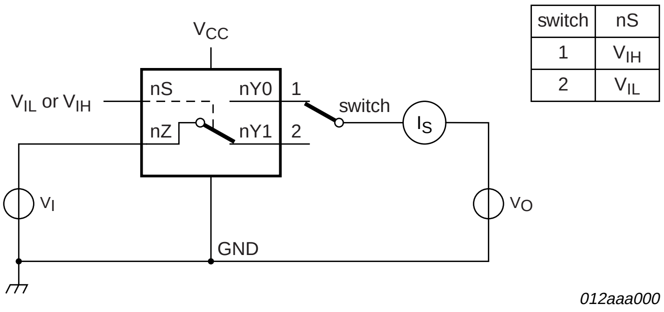
11. Static characteristics

Table 7. Static characteristics

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

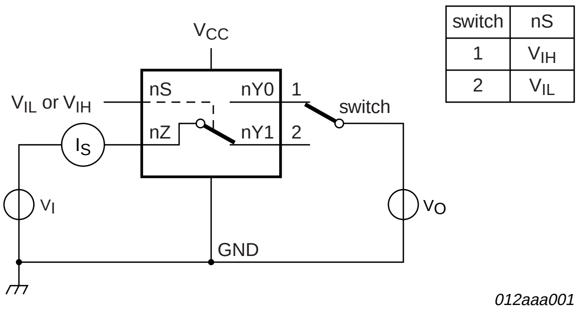
Symbol	Parameter	Conditions	T_{amb} = 25 °C			T_{amb} = −40 °C to +125 °C			Unit
			Min	Typ	Max	Min	Max (85 °C)	Max (125 °C)	
V_{IH}	HIGH-level input voltage	V_{CC} = 1.4 V to 1.6 V	0.9	-	-	0.9	-	-	V
		V_{CC} = 1.65 V to 1.95 V	0.9	-	-	0.9	-	-	V
		V_{CC} = 2.3 V to 2.7 V	1.1	-	-	1.1	-	-	V
		V_{CC} = 2.7 V to 3.6 V	1.3	-	-	1.3	-	-	V
V_{IL}	LOW-level input voltage	V_{CC} = 1.4 V to 1.6 V	-	-	0.3	-	0.3	0.3	V
		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	-	-	0.5	-	0.5	0.4	V
		V_{CC} = 2.7 V to 3.6 V	-	-	0.5	-	0.5	0.5	V
I_I	input leakage current	select input nS; V_I = GND to 3.6 V; V_{CC} = 1.4 V to 3.6 V	-	-	-	-	±0.5	±1	µA
$I_{S(OFF)}$	OFF-state leakage current	nY0 and nY1 port; V_{CC} = 1.4 V to 3.6 V; see Figure 5	-	-	±5	-	±10	±100	nA
$I_{S(ON)}$	ON-state leakage current	nZ port; V_{CC} = 1.4 V to 3.6 V; see Figure 6	-	-	±5	-	±20	±200	nA
I_{CC}	supply current	V_I = V_{CC} or GND; V_{CC} = 3.6 V; V_{SW} = GND or V_{CC}	-	-	100	-	300	3000	nA
ΔI_{CC}	additional supply current	V_I = 2.6 V; V_{CC} = 3.6 V; V_{SW} = GND or V_{CC}	-	0.35	0.7	-	1	1	µA
		V_I = 1.8 V; V_{CC} = 3.6 V; V_{SW} = GND or V_{CC}	-	2.5	4.0	-	5	5	µA
		V_I = 1.8 V; V_{CC} = 2.5 V; V_{SW} = GND or V_{CC}	-	50	200	-	300	500	nA
C_I	input capacitance		-	1.0	-	-	-	-	pF
$C_{S(OFF)}$	OFF-state capacitance	port nY0	-	65	-	-	-	-	pF
		port nY1	-	35	-	-	-	-	pF
$C_{S(ON)}$	ON-state capacitance	port nY0	-	260	-	-	-	-	pF
		port nY1	-	160	-	-	-	-	pF

11.1 Test circuits



V_I = 0.3 V or V_{CC} – 0.3 V; V_O = V_{CC} – 0.3 V or 0.3 V.

Fig 5. Test circuit for measuring OFF-state leakage current



V_I = 0.3 V or V_{CC} – 0.3 V; V_O = V_{CC} – 0.3 V or 0.3 V.

Fig 6. Test circuit for measuring ON-state leakage current

11.2 ON resistance

Table 8. ON resistance

At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for graphs see Figure 9 to Figure 19.

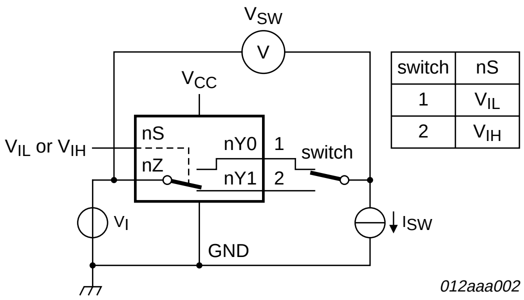
Symbol	Parameter	Conditions		−40 °C to +85 °C			−40 °C to +125 °C		Unit
				Min	Typ[1]	Max	Min	Max	
$R_{ON(peak)}$	ON resistance (peak)	port nY0; V_I = GND to V_{CC}; I_{SW} = 100 mA; see Figure 7							
		V_{CC} = 1.4 V		-	0.85	2.0	-	2.2	Ω
		V_{CC} = 1.65 V		-	0.55	0.8	-	0.9	Ω
		V_{CC} = 2.3 V		-	0.35	0.5	-	0.6	Ω
		V_{CC} = 2.7 V		-	0.30	0.45	-	0.5	Ω
		port nY1; V_I = GND to V_{CC}; I_{SW} = 100 mA; see Figure 7							
		V_{CC} = 1.4 V		-	1.65	3.7	-	4.1	Ω
		V_{CC} = 1.65 V		-	0.95	1.6	-	1.7	Ω
		V_{CC} = 2.3 V		-	0.55	0.8	-	0.9	Ω
		V_{CC} = 2.7 V		-	0.50	0.75	-	0.9	Ω
ΔR_{ON}	ON resistance mismatch between channels	V_I = GND to V_{CC}; I_{SW} = 100 mA	[2]						
		V_{CC} = 1.4 V		-	0.15	0.3	-	0.3	Ω
		V_{CC} = 1.65 V		-	0.15	0.2	-	0.3	Ω
		V_{CC} = 2.3 V		-	0.04	0.08	-	0.1	Ω
		V_{CC} = 2.7 V		-	0.04	0.075	-	0.1	Ω
$R_{ON(flat)}$	ON resistance (flatness)	port nY0; V_I = GND to V_{CC}; I_{SW} = 100 mA	[3]						
		V_{CC} = 1.4 V		-	0.5	1.7	-	1.8	Ω
		V_{CC} = 1.65 V		-	0.25	0.6	-	0.7	Ω
		V_{CC} = 2.3 V		-	0.1	0.2	-	0.2	Ω
		V_{CC} = 2.7 V		-	0.1	0.15	-	0.2	Ω
		port nY1; V_I = GND to V_{CC}; I_{SW} = 100 mA	[3]						
		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

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

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

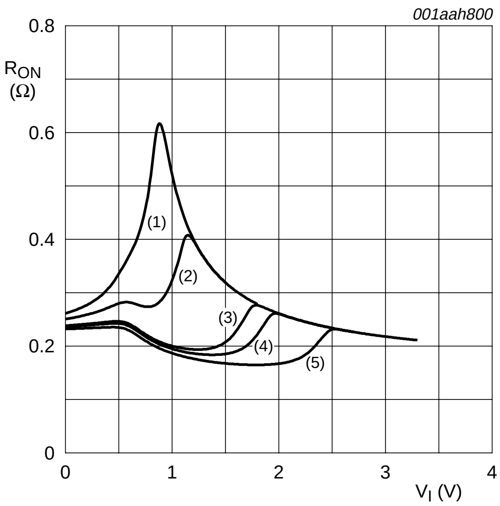
[3] Flatness is defined as the difference between the maximum and minimum value of ON resistance measured at identical V_{CC} and temperature.

11.3 ON resistance test circuit and graphs



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

Fig 7. Test circuit for measuring ON resistance



(1) V_{CC} = 1.5 V.

(2) V_{CC} = 1.8 V.

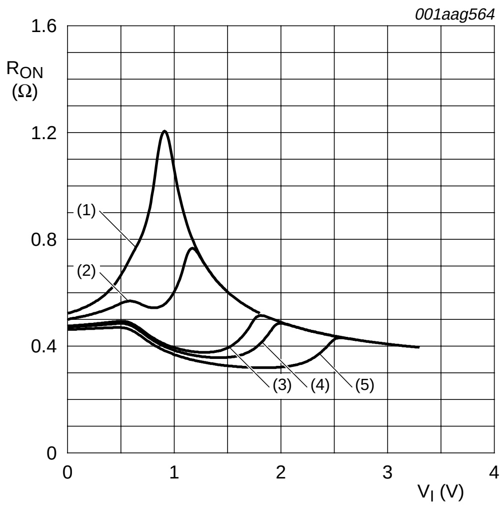
(3) V_{CC} = 2.5 V.

(4) V_{CC} = 2.7 V.

(5) V_{CC} = 3.3 V.

Measured at T_{amb} = 25 °C.

Fig 8. Typical ON resistance as a function of input voltage (nY0 port)



(1) V_{CC} = 1.5 V.

(2) V_{CC} = 1.8 V.

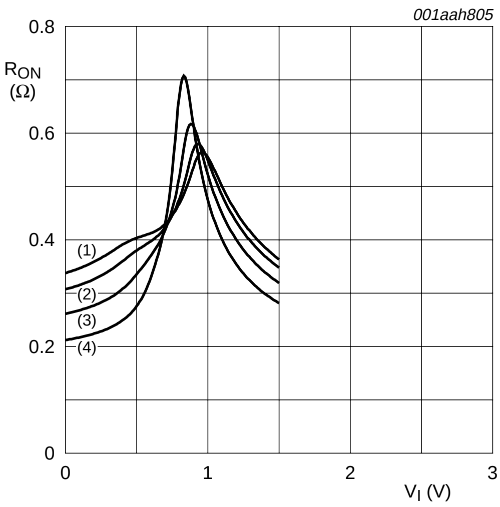
(3) V_{CC} = 2.5 V.

(4) V_{CC} = 2.7 V.

(5) V_{CC} = 3.3 V.

Measured at T_{amb} = 25 °C.

Fig 9. Typical ON resistance as a function of input voltage (nY1 port)



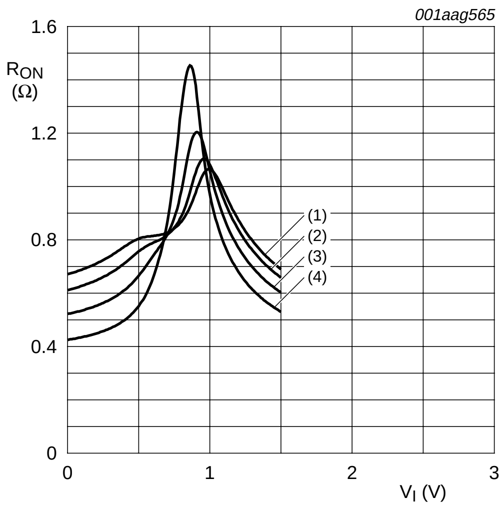
(1) T_{amb} = 125 °C.

(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} = 1.5 V (nY0 port)



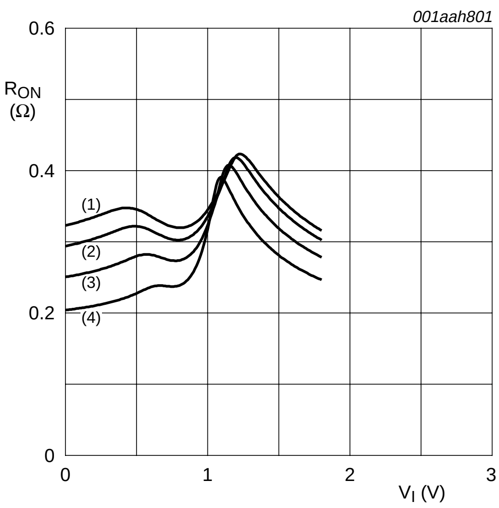
(1) T_{amb} = 125 °C.

(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} = 1.5 V (nY1 port)



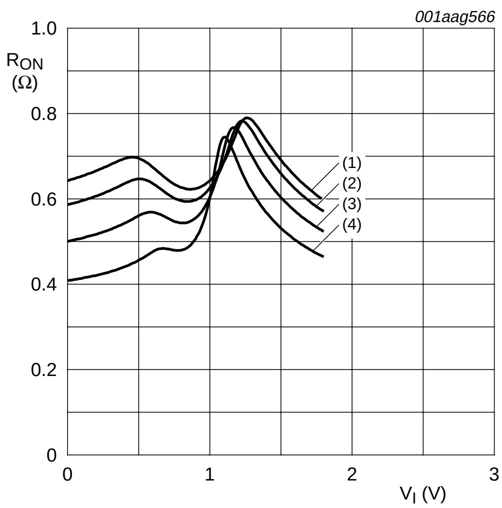
(1) T_{amb} = 125 °C.

(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} = 1.8 V (nY0 port)



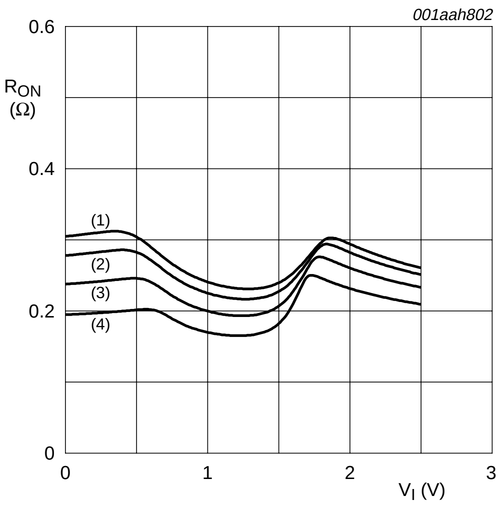
(1) T_{amb} = 125 °C.

(2) T_{amb} = 85 °C.

(3) T_{amb} = 25 °C.

(4) T_{amb} = −40 °C.

Fig 13. ON resistance as a function of input voltage; V_{CC} = 1.8 V (nY1 port)



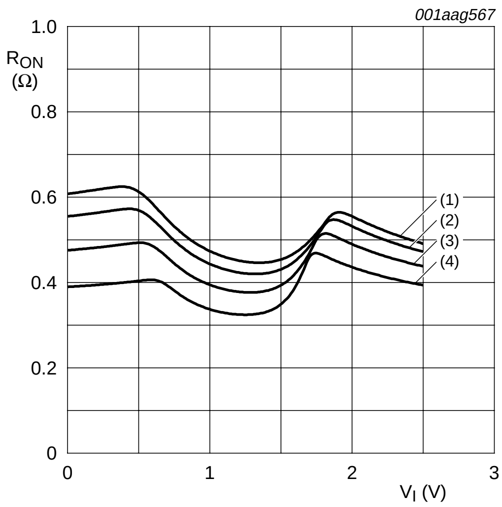
(1) T_{amb} = 125 °C.

(2) T_{amb} = 85 °C.

(3) T_{amb} = 25 °C.

(4) T_{amb} = −40 °C.

Fig 14. ON resistance as a function of input voltage; V_{CC} = 2.5 V (nY0 port)



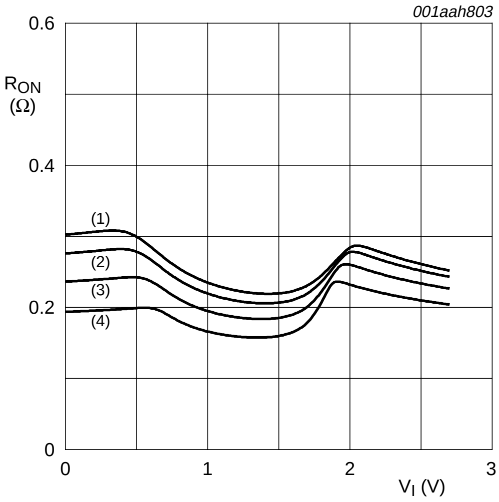
(1) T_{amb} = 125 °C.

(2) T_{amb} = 85 °C.

(3) T_{amb} = 25 °C.

(4) T_{amb} = −40 °C.

Fig 15. ON resistance as a function of input voltage; V_{CC} = 2.5 V (nY1 port)



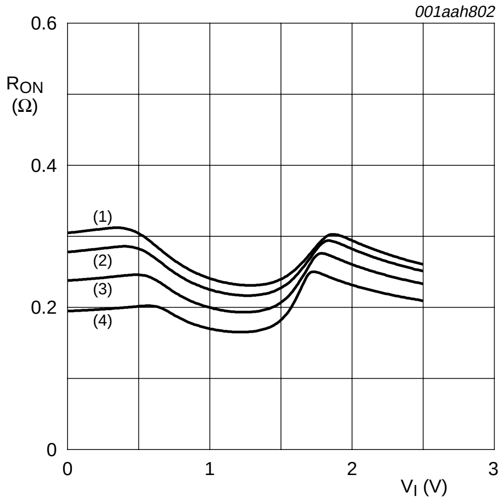
(1) T_{amb} = 125 °C.

(2) T_{amb} = 85 °C.

(3) T_{amb} = 25 °C.

(4) T_{amb} = −40 °C.

Fig 16. ON resistance as a function of input voltage; V_{CC} = 2.7 V (nY0 port)



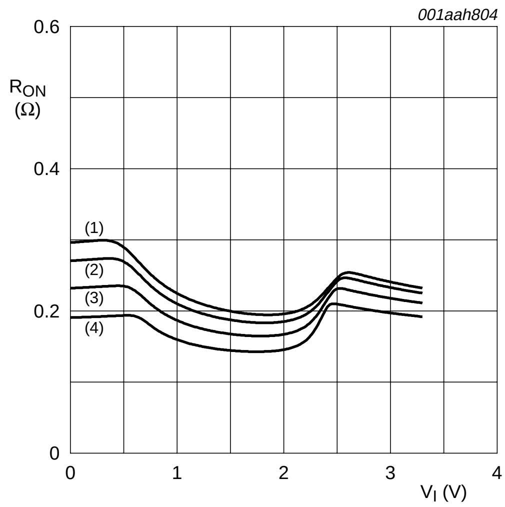
(1) T_{amb} = 125 °C.

(2) T_{amb} = 85 °C.

(3) T_{amb} = 25 °C.

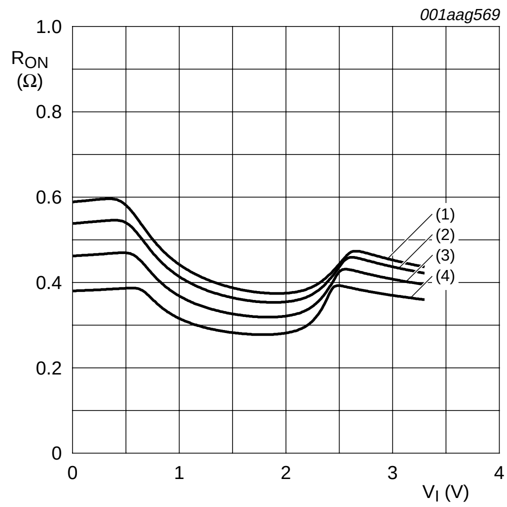
(4) T_{amb} = −40 °C.

Fig 17. ON resistance as a function of input voltage; V_{CC} = 2.7 V (nY1 port)



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

Fig 18. ON resistance as a function of input voltage; V_{CC} = 3.3 V (nY0 port)



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

Fig 19. ON resistance as a function of input voltage; V_{CC} = 3.3 V (nY1 port)

12. Dynamic characteristics

Table 9. Dynamic characteristics

At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for load circuit see Figure 22.

Symbol	Parameter	Conditions	T_{amb} = 25 °C			T_{amb} = −40 °C to +125 °C			Unit
			Min	Typ[1]	Max	Min	Max (85 °C)	Max (125 °C)	
t_{en}	enable time	nS to nZ or nYn; see Figure 20							
		V_{CC} = 1.4 V to 1.6 V	-	50	100	-	130	130	ns
		V_{CC} = 1.65 V to 1.95 V	-	35	80	-	85	95	ns
		V_{CC} = 2.3 V to 2.7 V	-	24	50	-	55	60	ns
		V_{CC} = 2.7 V to 3.6 V	-	20	45	-	50	55	ns
t_{dis}	disable time	nS to nZ or nYn; see Figure 20							
		V_{CC} = 1.4 V to 1.6 V	-	30	70	-	80	90	ns
		V_{CC} = 1.65 V to 1.95 V	-	18	55	-	60	65	ns
		V_{CC} = 2.3 V to 2.7 V	-	11	25	-	30	35	ns
		V_{CC} = 2.7 V to 3.6 V	-	9	20	-	25	30	ns

Table 9. Dynamic characteristics *...continued*

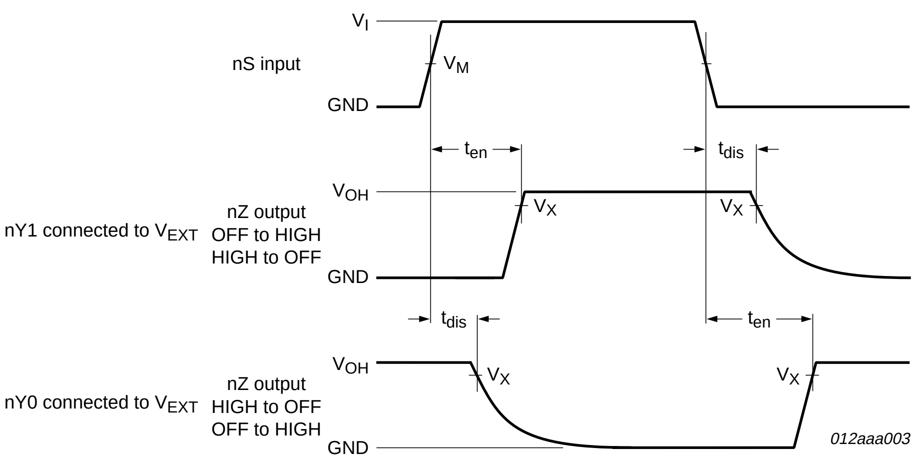
At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for load circuit see Figure 22.

Symbol	Parameter	Conditions	T_{amb} = 25 °C			T_{amb} = −40 °C to +125 °C			Unit
			Min	Typ[1]	Max	Min	Max (85 °C)	Max (125 °C)	
t_{b-m}	break-before-make time	see Figure 21 [2]							
		V_{CC} = 1.4 V to 1.6 V	-	20	-	9	-	-	ns
		V_{CC} = 1.65 V to 1.95 V	-	19	-	7	-	-	ns
		V_{CC} = 2.3 V to 2.7 V	-	13	-	4	-	-	ns
		V_{CC} = 2.7 V to 3.6 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 and 3.3 V respectively.

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

12.1 Waveform and test circuits



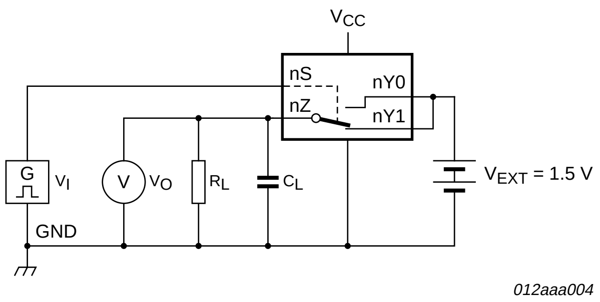
Measurement points are given in Table 10.

Logic level: V_{OH} is typical output voltage level that occurs with the output load.

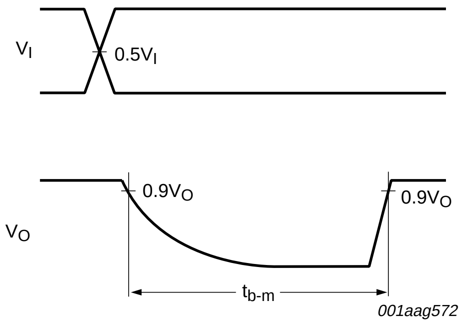
Fig 20. Enable and disable times

Table 10. Measurement points

Supply voltage	Input	Output
V_{CC}	V_M	V_X
1.4 V to 3.6 V	$0.5V_{CC}$	$0.9V_{OH}$

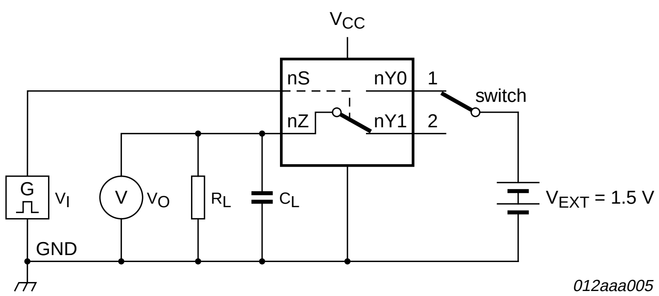


a. Test circuit.



b. Input and output measurement points

Fig 21. Test circuit for measuring break-before-make timing



Test data is given in Table 11.

Definitions test circuit:

R_L = Load resistance.

C_L = Load capacitance including jig and probe capacitance.

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

Fig 22. 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 3.6 V	V_{CC}	≤ 2.5 ns	35 pF	50 Ω

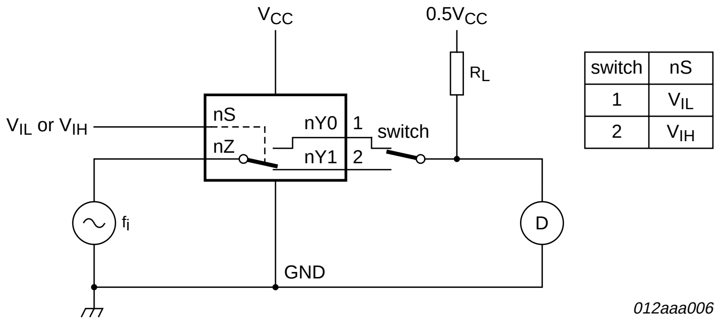
12.2 Additional dynamic characteristics

Table 12. Additional dynamic characteristics
At recommended operating conditions; voltages are referenced to GND (ground = 0 V); V_I = GND or V_{CC} (unless otherwise specified); $t_r = t_f \leq 2.5$ ns.

Symbol	Parameter	Conditions		Tamb = 25 °C			Unit
				Min	Typ	Max	
THD	total harmonic distortion	f_i = 20 Hz to 20 kHz; R_L = 32 Ω; see Figure 23	[1]				
		V_{CC} = 1.4 V; V_I = 1 V (p-p)		-	0.06	-	%
		V_{CC} = 1.65 V; V_I = 1.2 V (p-p)		-	0.02	-	%
		V_{CC} = 2.3 V; V_I = 1.5 V (p-p)		-	0.02	-	%
		V_{CC} = 2.7 V; V_I = 2 V (p-p)		-	0.02	-	%
		V_{CC} = 3.0 V; V_I = 1 V (p-p); R_L = 600 Ω		-	0.01	-	%
$f_{(-3dB)}$	–3 dB frequency response	R_L = 50 Ω; see Figure 24	[1]				
		port nY0; V_{CC} = 1.4 V to 3.6 V		-	15	-	MHz
		port nY1; V_{CC} = 1.4 V to 3.6 V		-	20	-	MHz
α_{iso}	isolation (OFF-state)	f_i = 100 kHz; R_L = 50 Ω; see Figure 25	[1]				
		V_{CC} = 1.4 V to 3.6 V		-	–90	-	dB
V_{ct}	crosstalk voltage	between digital inputs and switch; f_i = 1 MHz; C_L = 50 pF; R_L = 50 Ω; see Figure 26					
		V_{CC} = 1.4 V to 3.6 V		-	0.5	-	V
Xtalk	crosstalk	between switches; f_i = 100 kHz; R_L = 50 Ω; see Figure 27	[1]				
		V_{CC} = 1.4 V to 3.6 V		-	–90	-	dB
Q_{inj}	charge injection	f_i = 1 MHz; C_L = 0.1 nF; R_L = 1 MΩ; V_{gen} = 0 V; R_{gen} = 0 Ω; see Figure 28					
		V_{CC} = 1.5 V		-	10	-	pC
		V_{CC} = 1.8 V		-	14	-	pC
		V_{CC} = 2.5 V		-	21	-	pC
		V_{CC} = 3.3 V		-	30	-	pC

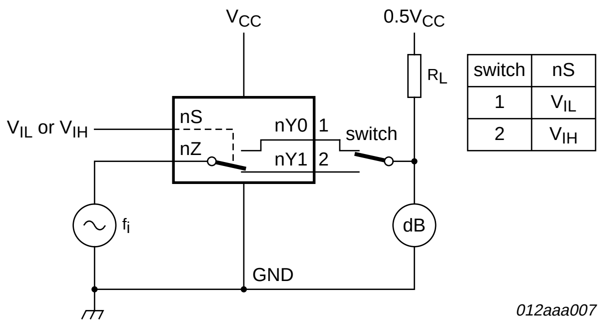
[1] f_i is biased at $0.5V_{CC}$.

12.3 Test circuits



switch	nS
1	V_{IL}
2	V_{IH}

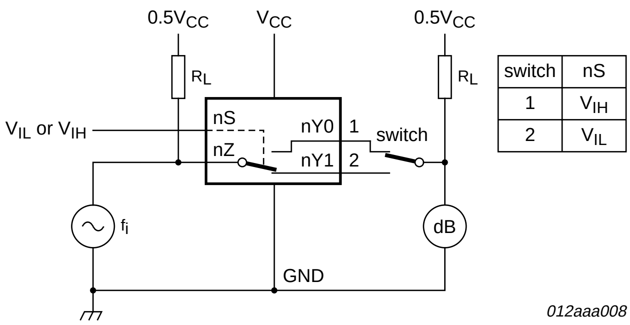
Fig 23. Test circuit for measuring total harmonic distortion



switch	nS
1	V_{IL}
2	V_{IH}

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

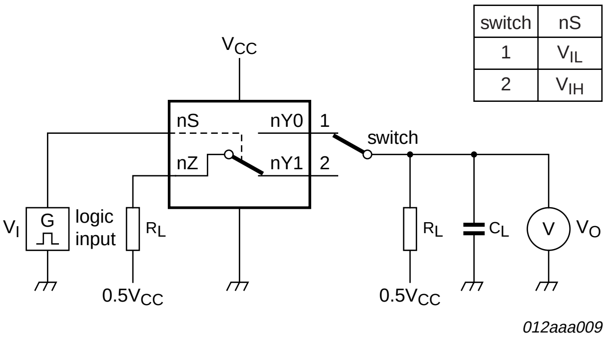
Fig 24. Test circuit for measuring the frequency response when channel is in ON-state



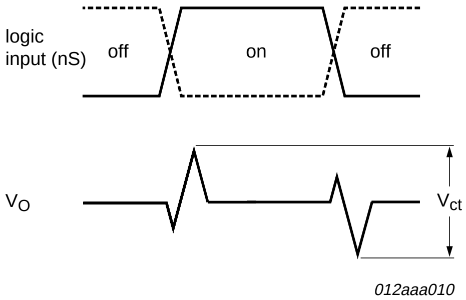
switch	nS
1	V_{IH}
2	V_{IL}

Adjust f_i voltage to obtain 0 dBm level at input.

Fig 25. Test circuit for measuring isolation (OFF-state)

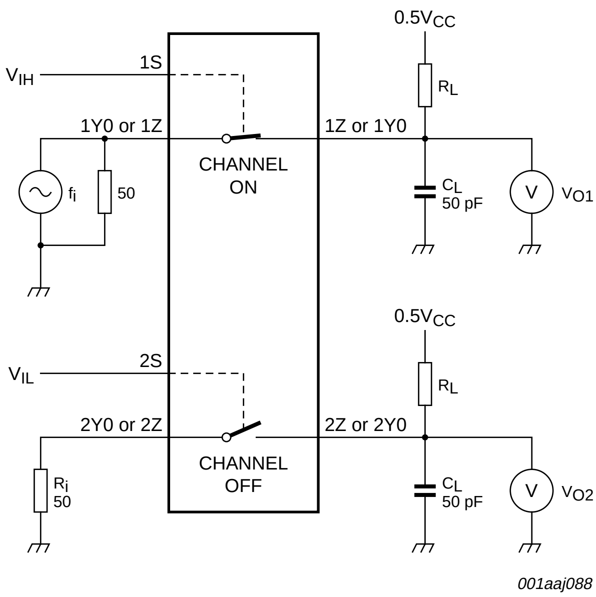


a. Test circuit



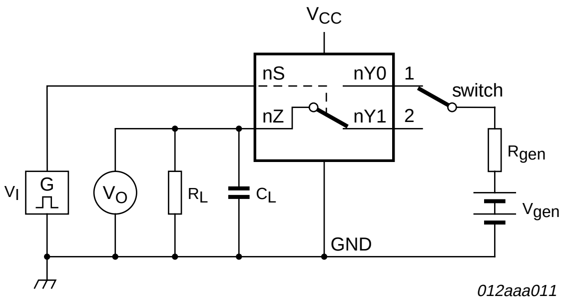
b. Input and output pulse definitions

Fig 26. Test circuit for measuring crosstalk voltage between digital inputs and switch

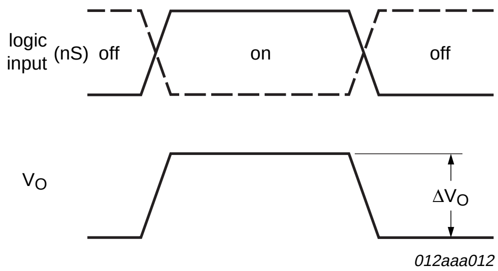


20 $\log_{10}$ (V_{O2} / V_{O1}) or 20 $\log_{10}$ (V_{O1} / V_{O2}).

Fig 27. Test circuit for measuring crosstalk between switches



a. Test circuit.



b. Input and output pulse definitions

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

ΔV_O = output voltage variation.

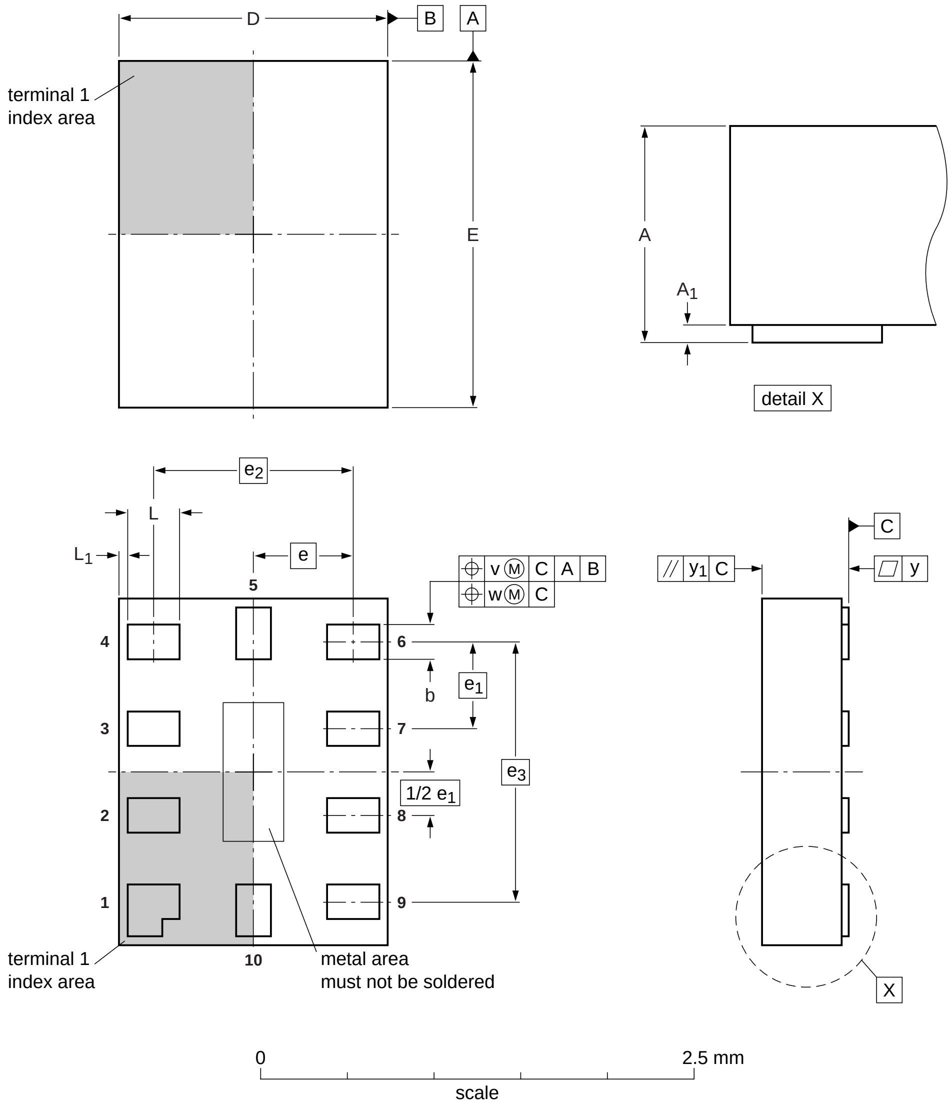
R_{gen} = generator resistance.

V_{gen} = generator voltage.

Fig 28. Test circuit for measuring charge injection

13. Package outline

XQFN10U: plastic extremely thin quad flat package; no leads; 10 terminals; UTLP based; body 2 x 1.55 x 0.5 mm **SOT1049-2**



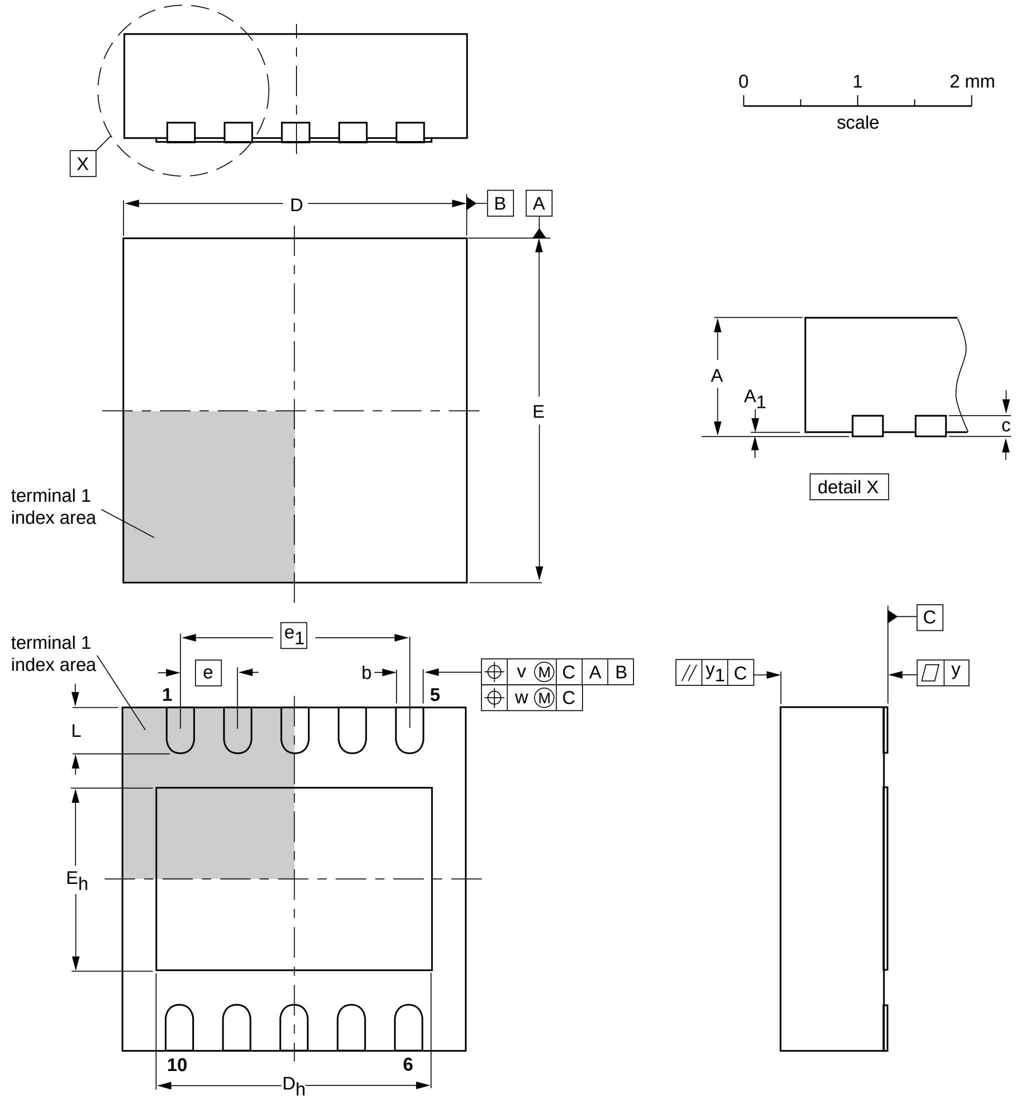
DIMENSIONS (mm are the original dimensions)

UNIT		A	A_1	b	D	E	e	e_1	e_2	e_3	L	L_1	v	w	y	y_1
mm	max	0.55	0.05	0.30	1.65	2.1	0.58	0.5	1.16	1.5	0.4	0.15	0.1	0.05	0.1	0.05
	nom	0.50	0.03	0.23	1.55	2.0					0.3	0.08				
	min	0.45	0.00	0.15	1.45	1.9					0.2	0.00				

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT1049-2	- - -	MO-255	- - -			~~08-04-09~~ 08-04-22

Fig 29. Package outline SOT1049-2 (XQFN10U)

HVSON10: plastic thermal enhanced very thin small outline package; no leads; 10 terminals; body 3 x 3 x 0.85 mm **SOT650-1**



DIMENSIONS (mm are the original dimensions)

UNIT	A(1) max.	A_1	b	c	D(1)	D_h	E(1)	E_h	e	e_1	L	v	w	y	y_1
mm	1	0.05 0.00	0.30 0.18	0.2	3.1 2.9	2.55 2.15	3.1 2.9	1.75 1.45	0.5	2	0.55 0.30	0.1	0.05	0.05	0.1

Note

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

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT650-1	- - -	MO-229	- - -			01-01-22 02-02-08

Fig 30. Package outline SOT650-1 (HVSON10)

14. Abbreviations

Table 13. Abbreviations

Acronym	Description
CDM	Charged Device Model
CMOS	Complementary Metal-Oxide Semiconductor
ESD	ElectroStatic Discharge
HBM	Human Body Model
MM	Machine Model
TTL	Transistor-Transistor Logic

15. Revision history

Table 14. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
NX3L4684_1	20081211	Product data sheet	-	-

16. Legal information

16.1 Data sheet status

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

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

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

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

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18. Contents

1 General description 1
2 Features 1
3 Applications 2
4 Ordering information 2
5 Marking 2
6 Functional diagram 2
7 Pinning information 3
7.1 Pinning 3
7.2 Pin description 3
8 Functional description 4
9 Limiting values 4
10 Recommended operating conditions 4
11 Static characteristics 5
11.1 Test circuits 6
11.2 ON resistance 7
11.3 ON resistance test circuit and graphs 8
12 Dynamic characteristics 11
12.1 Waveform and test circuits 12
12.2 Additional dynamic characteristics 14
12.3 Test circuits 15
13 Package outline 18
14 Abbreviations 20
15 Revision history 20
16 Legal information 21
16.1 Data sheet status 21
16.2 Definitions 21
16.3 Disclaimers 21
16.4 Trademarks 21
17 Contact information 21
18 Contents 22

Date of release: 11 December 2008
Document identifier: NX3L4684_1