NX3L4051

Single low-ohmic 8-channel analog switch

Rev. 5.1 — 30 September 2020 Product data sheet

1 General description

The NX3L4051 is a low-ohmic 8-channel analog switch, suitable for use as an analog or digital multiplexer/demultiplexer. The NX3L4051 has three digital select inputs (S1 to S3), eight independent inputs/outputs (Y0 to Y7) and a common input/output (Z). All eight switches share an enable input ($\overline{E}$). A HIGH on $\overline{E}$ causes all switches into the high impedance OFF-state, independent of Sn.

Schmitt trigger action at the digital inputs makes the circuit tolerant to slower input rise and fall times. Low threshold digital inputs 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 NX3L4051 to switch 4.3 V signals with a 1.8 V digital controller, eliminating the need for logic level translation.The NX3L4051 allows signals with amplitude up to V_{CC} to be transmitted from Z to Yn or from Yn 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):
  - 1.7 Ω (typical) at V_{CC} = 1.4 V
  - 1.0 Ω (typical) at V_{CC} = 1.65 V
  - 0.6 Ω (typical) at V_{CC} = 2.3 V
  - 0.5 Ω (typical) at V_{CC} = 2.7 V
    0.5 Ω (typical) at V_{CC} = 4.3 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 JESD 78B 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

3 Applications

- Cell phone
- PDA
- Portable media player
- Analog multiplexing and demultiplexing
- Digital multiplexing and demultiplexing
- Signal gating

4 Ordering information

Table 1. Ordering information

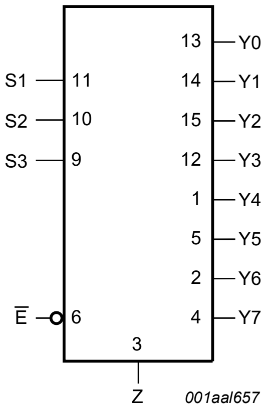
Type number	Topside mark	Package			
		Temperature range	Name	Description	Version
NX3L4051HR	M41	-40 °C to +125 °C	HXQFN16	plastic thermal enhanced extremely thin quad flat package; no leads; 16 terminals; body 3 × 3 × 0.5 mm	SOT1039-2
NX3L4051PW	X3L4051	-40 °C to +125 °C	TSSOP16	plastic thin shrink small outline package; 16 leads; body width 4.4 mm	SOT403-1

4.1 Ordering options

Table 2. Ordering options

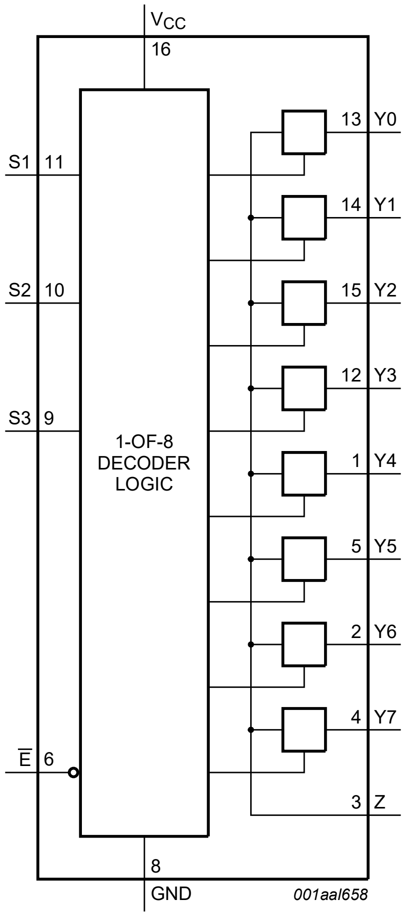
Type number	Orderable part number	Package	Packing method	Minimum order quantity	Temperature
NX3L4051HR	NX3L4051HRZ	HXQFN16	REEL 7" Q1 NDP SSB	1500	T_{amb} = -40 °C to 125 °C
NX3L4051PW	NX3L4051PW,118	TSSOP16	REEL 13" Q1 NDP	2500	T_{amb} = -40 °C to 125 °C

5 Functional diagram



Pin numbers are shown for TSSOP16 package only.

Figure 1. Logic symbol



Pin numbers are shown for TSSOP16 package only.

Figure 2. Functional diagram

6 Pinning information

6.1 Pinning

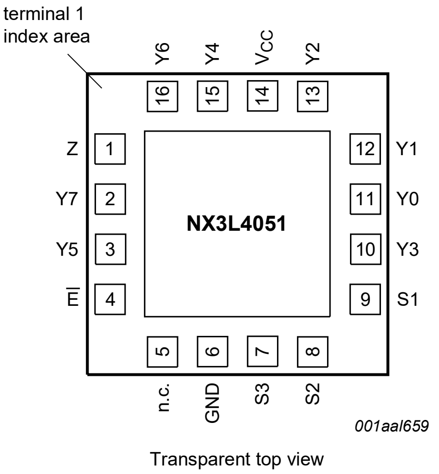


Figure 3. Pin configuration SOT1039-2 (HXQFN16)

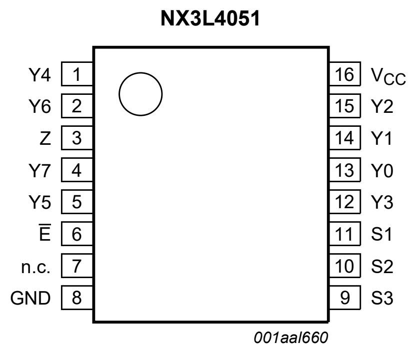


Figure 4. Pin configuration SOT403-1 (TSSOP16)

6.2 Pin description

Table 3. Pin description

Symbol	Pin		Description
	SOT1039-2	SOT403-1	
Y0, Y1, Y2, Y3, Y4, Y5, Y6, Y7	11, 12, 13, 10, 15, 3, 16, 2	13, 14, 15, 12, 1, 5, 2, 4	independent input or output
Z	1	3	independent output or input
$\overline{E}$	4	6	enable input (active LOW)
n.c.	5	7	not connected
GND	6	8	ground (0 V)
S1, S2, S3	9, 8, 7	11, 10, 9	select input
V_{CC}	14	16	supply voltage

7 Functional description

Table 4. Function table[1]

Input				Channel ON
$\overline{E}$	S3	S2	S1	
L	L	L	L	Y0 = Z
L	L	L	H	Y1 = Z
L	L	H	L	Y2 = Z
L	L	H	H	Y3 = Z
L	H	L	L	Y4 = Z
L	H	L	H	Y5 = Z

Input				Channel ON
$\overline{E}$	S3	S2	S1	
L	H	H	L	Y6 = Z
L	H	H	H	Y7 = Z
H	X	X	X	switches off

[1] H = HIGH voltage level; L = LOW voltage level; X = don't care.

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
V_I	input voltage	Sn and $\overline{E}$	[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				
		HXQFN16	[3]	-	250	mW
		TSSOP16	[4]	-	500	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 but may not exceed 4.6 V.
[3] For HXQFN16 package: above 135 °C the value of P_{tot} derates linearly with 16.9 mW/K.
[4] For TSSOP16 package: above 60 °C the value of P_{tot} derates linearly with 5.5 mW/K above.

9 Recommended operating conditions

Table 6. Recommended operating conditions

Symbol	Parameter	Conditions		Min	Max	Unit
V_{CC}	supply voltage			1.4	4.3	V
V_I	input voltage	Sn and $\overline{E}$		0	4.3	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	Sn and $\overline{E}$; V_{CC} = 1.4 V to 4.3 V		-	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.

10 Static characteristics

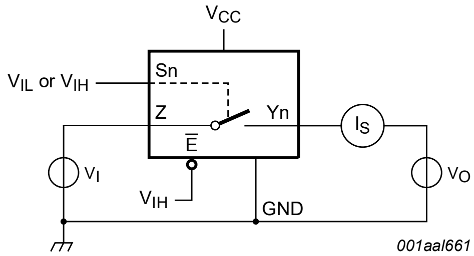
Table 7. Static characteristics

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_{CC} = 3.6 V to 4.3 V	1.4	-	-	1.4	-	-	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	-	-	0.4	-	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
I_I	input leakage current	Sn and $\overline{E}$; V_I = GND to 4.3 V; V_{CC} = 1.4 V to 4.3 V	-	-	-	-	±0.5	±1	μA
$I_{S(OFF)}$	OFF-state leakage current	Yn ports; see Figure 5							
		V_{CC} = 1.4 V to 3.6 V	-	-	±5	-	±50	±500	nA
		V_{CC} = 3.6 V to 4.3 V	-	-	±10	-	±50	±500	nA
$I_{S(ON)}$	ON-state leakage current	Z port; V_{CC} = 1.4 V to 3.6 V; see Figure 6							
		V_{CC} = 1.4 V to 3.6 V	-	-	±20	-	±200	±2000	nA
		V_{CC} = 3.6 V to 4.3 V	-	-	±40	-	±200	±2000	nA
I_{CC}	supply current	V_I = V_{CC} or GND; V_{SW} = GND or V_{CC}							
		V_{CC} = 3.6 V	-	-	100	-	500	5000	nA
		V_{CC} = 4.3 V	-	-	150	-	800	6000	nA
ΔI_{CC}	additional supply current	V_{SW} = GND or V_{CC}							
		V_I = 2.6 V; V_{CC} = 4.3 V	-	2.0	4.0	-	7	7	μA
		V_I = 2.6 V; V_{CC} = 3.6 V	-	0.35	0.7	-	1	1	μA
		V_I = 1.8 V; V_{CC} = 4.3 V	-	7.0	10.0	-	15	15	μA
		V_I = 1.8 V; V_{CC} = 3.6 V	-	2.5	4.0	-	5	5	μA
		V_I = 1.8 V; V_{CC} = 2.5 V	-	50	200	-	300	500	nA
C_I	input capacitance	Sn and $\overline{E}$	-	1.0	-	-	-	-	pF
$C_{S(OFF)}$	OFF-state capacitance		-	35	-	-	-	-	pF

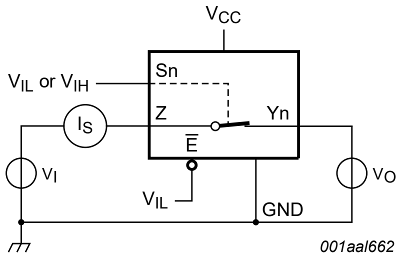
Symbol	Parameter	Conditions	T_{amb} = 25 °C			T_{amb} = -40 °C to +125 °C			Unit
			Min	Typ	Max	Min	Max (85 °C)	Max (125 °C)	
$C_{S(ON)}$	ON-state capacitance		-	350	-	-	-	-	pF

10.1 Test circuits



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

Figure 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.

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

10.2 ON resistance

Table 8. ON resistance[1]

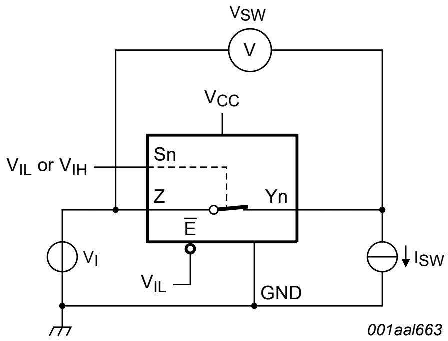
At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for graphs see Figure 8 to Figure 14.

Symbol	Parameter	Conditions	T_{amb} = -40 °C to +85 °C			T_{amb} = -40 °C to +125 °C		Unit
			Min	Typ[2]	Max	Min	Max	
$R_{ON(peak)}$	ON resistance (peak)	V_I = GND to V_{CC}; I_{SW} = 100 mA; see Figure 7						
		V_{CC} = 1.4 V	-	1.7	3.7	-	4.1	Ω
		V_{CC} = 1.65 V	-	1.0	1.6	-	1.7	Ω
		V_{CC} = 2.3 V	-	0.6	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

Symbol	Parameter	Conditions		T_{amb} = -40 °C to +85 °C			T_{amb} = -40 °C to +125 °C		Unit
				Min	Typ[2]	Max	Min	Max	
ΔR_{ON}	ON resistance mismatch between channels	V_I = GND to V_{CC}; I_{SW} = 100 mA	[3]						
		V_{CC} = 1.4 V; V_{SW} = 0.4 V		-	0.18	0.30	-	0.30	Ω
		V_{CC} = 1.65 V; V_{SW} = 0.5 V		-	0.18	0.20	-	0.30	Ω
		V_{CC} = 2.3 V; V_{SW} = 0.7 V		-	0.07	0.10	-	0.13	Ω
		V_{CC} = 2.7 V; V_{SW} = 0.8 V		-	0.07	0.10	-	0.13	Ω
		V_{CC} = 4.3 V; V_{SW} = 0.8 V		-	0.07	0.10	-	0.13	Ω
$R_{ON(flat)}$	ON resistance (flatness)	V_I = GND to V_{CC}; I_{SW} = 100 mA	[4]						
		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

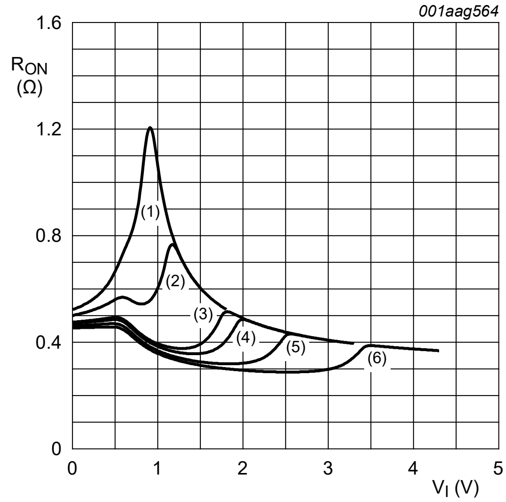
[1] For NX3L4051PW (TSSOP16 package), all ON resistance values are up to 0.05 Ω higher.
[2] Typical values are measured at T_{amb} = 25 °C.
[3] Measured at identical V_{CC}, temperature and input voltage.
[4] Flatness is defined as the difference between the maximum and minimum value of ON resistance measured at identical V_{CC} and temperature.

10.3 ON resistance test circuit and graphs



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

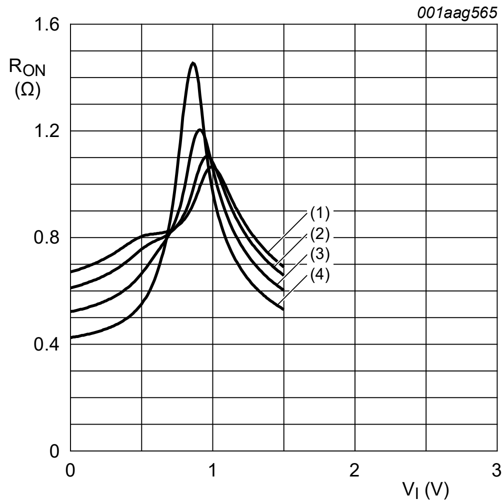
Figure 7. Test circuit for measuring ON resistance



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.
6. V_{CC} = 4.3 V.

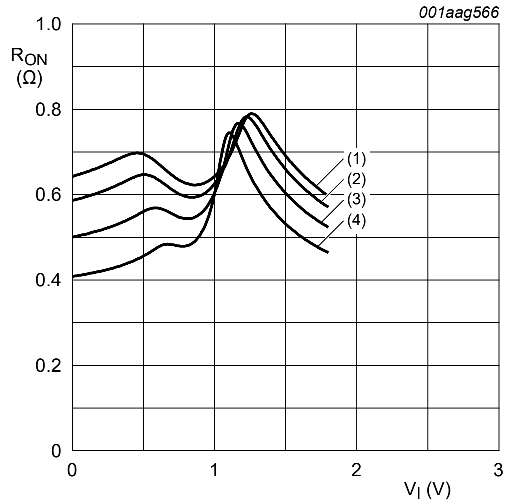
Measured at T_{amb} = 25 °C.

Figure 8. Typical ON resistance as a function of input voltage



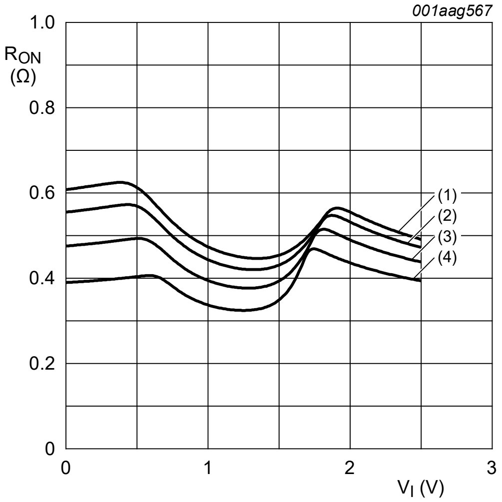
1. T_{amb} = 125 °C.
2. T_{amb} = 85 °C.
3. T_{amb} = 25 °C.
4. T_{amb} = -40 °C.

Figure 9. ON resistance as a function of input voltage; V_{CC} = 1.5 V



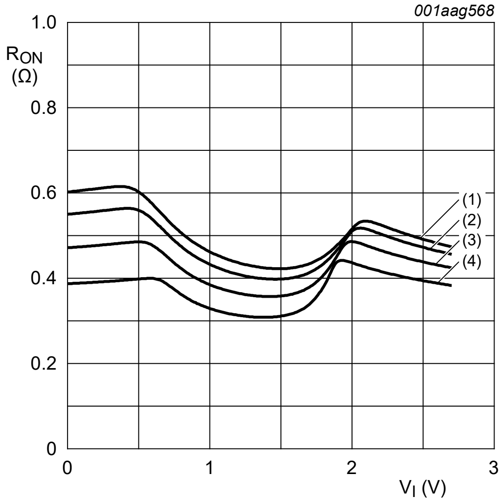
1. T_{amb} = 125 °C.
2. T_{amb} = 85 °C.
3. T_{amb} = 25 °C.
4. T_{amb} = -40 °C.

Figure 10. ON resistance as a function of input voltage; V_{CC} = 1.8 V



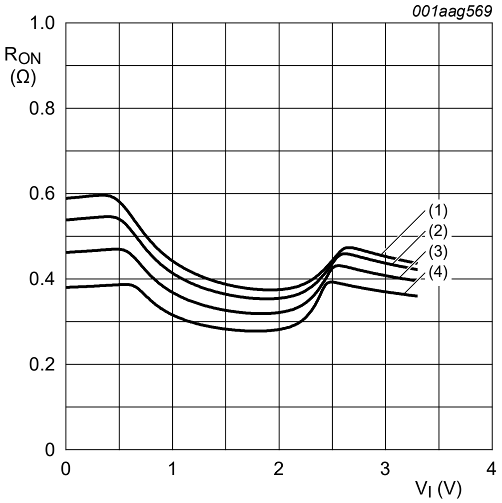
1. T_{amb} = 125 °C.
2. T_{amb} = 85 °C.
3. T_{amb} = 25 °C.
4. T_{amb} = -40 °C.

Figure 11. ON resistance as a function of input voltage; V_{CC} = 2.5 V



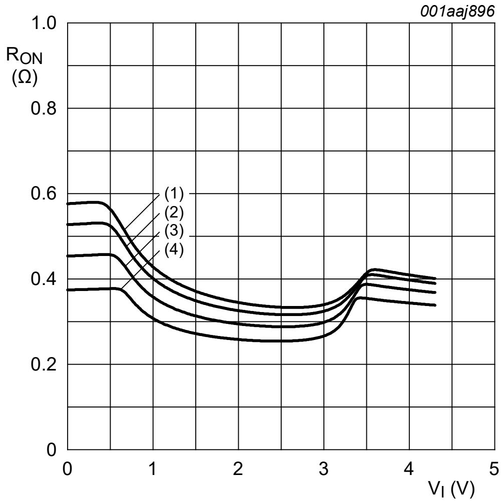
1. T_{amb} = 125 °C.
2. T_{amb} = 85 °C.
3. T_{amb} = 25 °C.
4. T_{amb} = -40 °C.

Figure 12. 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.

Figure 13. 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.

Figure 14. ON resistance as a function of input voltage; V_{CC} = 4.3 V

11 Dynamic characteristics

Table 9. Dynamic characteristics

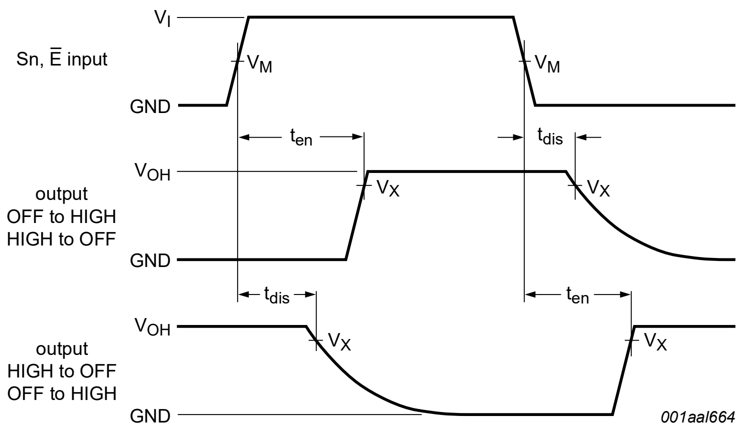
At recommended operating conditions; voltages are referenced to GND (ground = 0 V); for load circuit see Figure 17.

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	$\overline{E}$, Sn to Z or Yn; see Figure 15								
		V_{CC} = 1.4 V to 1.6 V		-	45	100	-	120	125	ns
		V_{CC} = 1.65 V to 1.95 V		-	32	75	-	85	95	ns
		V_{CC} = 2.3 V to 2.7 V		-	21	50	-	55	60	ns
		V_{CC} = 2.7 V to 3.6 V		-	19	45	-	45	50	ns
		V_{CC} = 3.6 V to 4.3 V		-	19	45	-	45	50	ns
t_{dis}	disable time	$\overline{E}$, Sn to Z or Yn; see Figure 15								
		V_{CC} = 1.4 V to 1.6 V		-	25	80	-	90	105	ns
		V_{CC} = 1.65 V to 1.95 V		-	15	65	-	70	75	ns
		V_{CC} = 2.3 V to 2.7 V		-	9	30	-	35	40	ns
		V_{CC} = 2.7 V to 3.6 V		-	8	25	-	30	35	ns
		V_{CC} = 3.6 V to 4.3 V		-	8	25	-	30	35	ns
t_{b-m}	break-before-make time	see Figure 16	[2]							
		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		-	12	-	4	-	-	ns
		V_{CC} = 2.7 V to 3.6 V		-	10	-	3	-	-	ns
		V_{CC} = 3.6 V to 4.3 V		-	9	-	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.

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

11.1 Waveform and test circuits



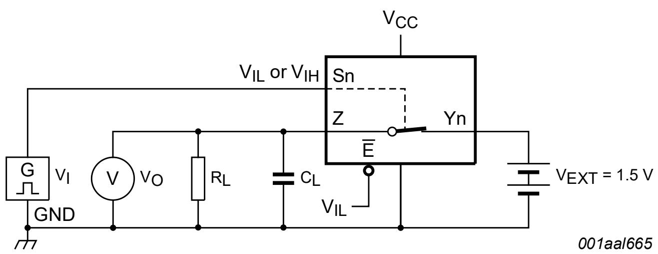
Measurement points are given in Table 10.

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

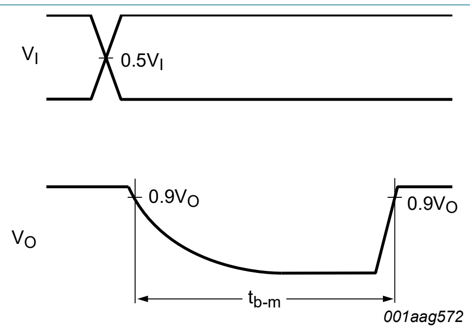
Figure 15. Enable and disable times

Table 10. Measurement points

Supply voltage	Input	Output
V_{CC}	V_M	V_X
1.4 V to 4.3 V	$0.5V_{CC}$	$0.9V_{OH}$

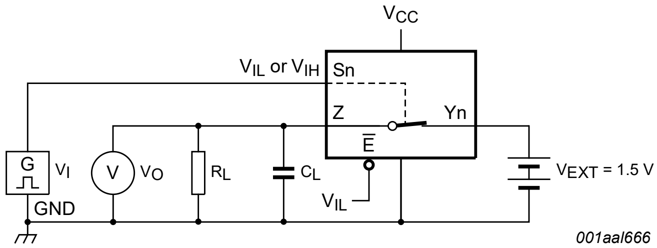


a. Test circuit



b. Input and output measurement points

Figure 16. 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.

V_I may be connected to Sn or $\overline{E}$.

Figure 17. Test circuit for measuring 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 = GND or V_{CC} (unless otherwise specified); $t_r = t_f \leq 2.5$ ns; T_{amb} = 25 °C.

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
THD	total harmonic distortion	f_i = 20 Hz to 20 kHz; R_L = 32 Ω; see Figure 18	[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 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} = 4.3 V; V_I = 2 V (p-p)		-	0.02	-	%
$f_{(-3dB)}$	-3 dB frequency response	R_L = 50 Ω; see Figure 19	[1]				
		V_{CC} = 1.4 V to 4.3 V		-	15	-	MHz
α_{iso}	isolation (OFF-state)	f_i = 100 kHz; R_L = 50 Ω; see Figure 20	[1]				
		V_{CC} = 1.4 V to 4.3 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 21					
		V_{CC} = 1.4 V to 3.6 V		-	0.2	-	V
		V_{CC} = 3.6 V to 4.3 V		-	0.3	-	V
Xtalk	crosstalk	between switches; f_i = 100 kHz; R_L = 50 Ω; see Figure 22	[1]				

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
		V_{CC} = 1.4 V to 4.3 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 23					
		V_{CC} = 1.5 V		-	3	-	pC
		V_{CC} = 1.8 V		-	4	-	pC
		V_{CC} = 2.5 V		-	6	-	pC
		V_{CC} = 3.3 V		-	9	-	pC
		V_{CC} = 4.3 V		-	15	-	pC

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

11.3 Test circuits

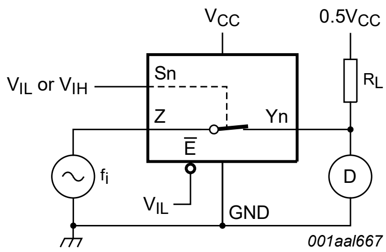
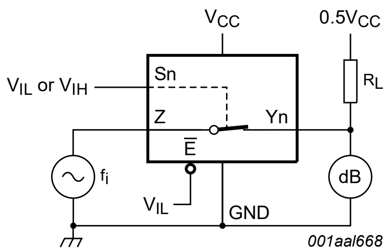
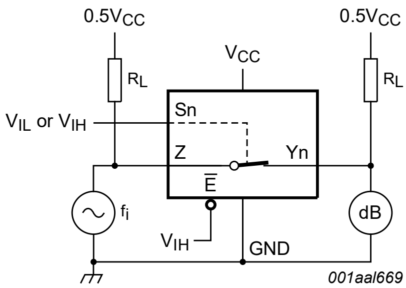


Figure 18. Test circuit for measuring total harmonic distortion



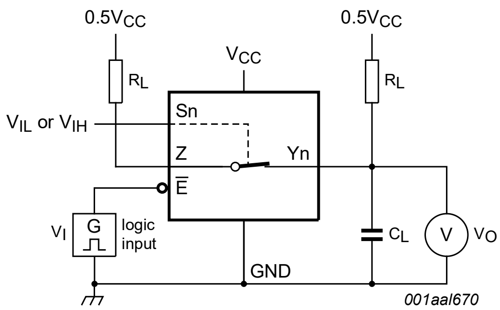
Adjust f_i voltage to obtain 0 dBm level at output. Increase f_i frequency until dB meter reads -3 dB.

Figure 19. Test circuit for measuring the frequency response when channel is in ON-state

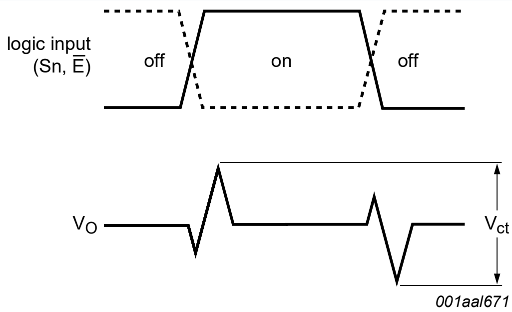


Adjust f_i voltage to obtain 0 dBm level at input.

Figure 20. Test circuit for measuring isolation (OFF-state)



a. Test circuit



b. Input and output pulse definitions

Figure 21. Test circuit for measuring crosstalk voltage between digital inputs and switch

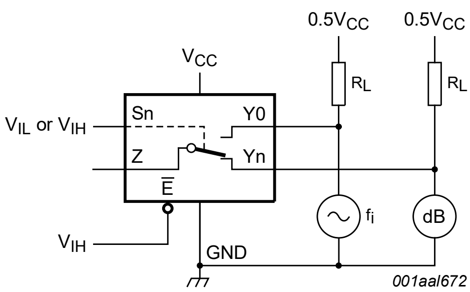
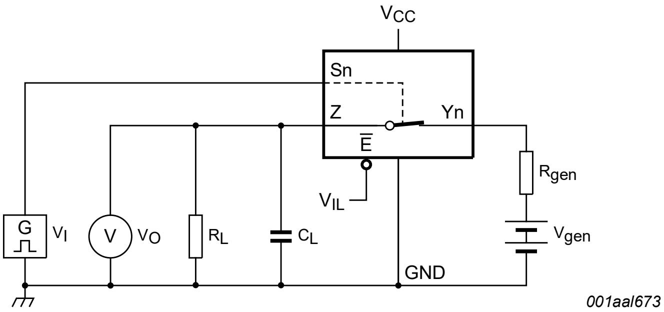
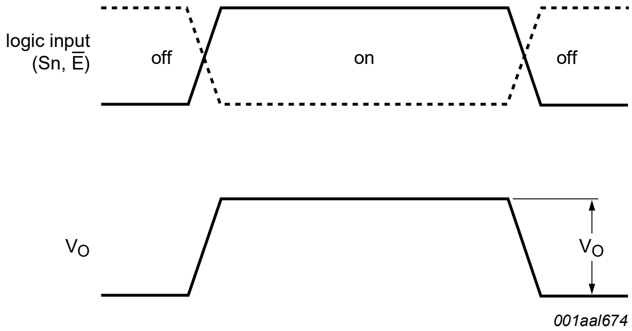


Figure 22. Test circuit for measuring crosstalk between switches



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.

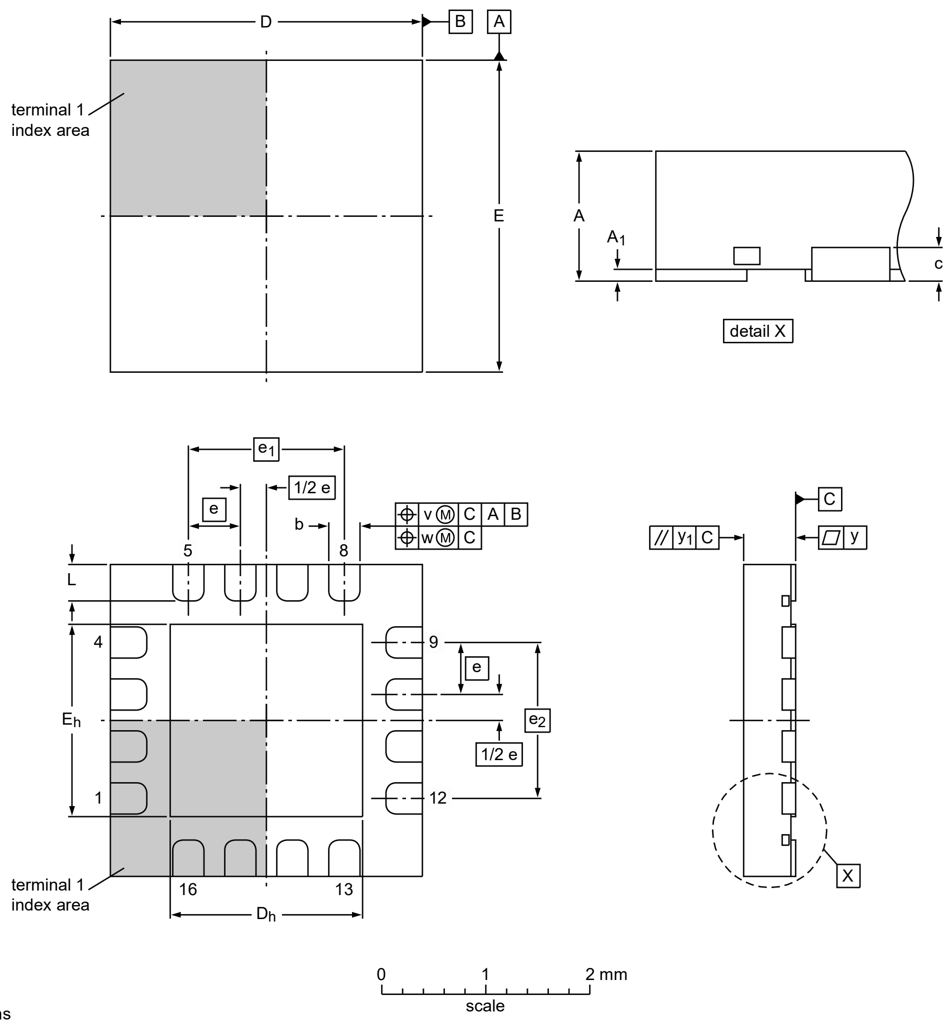
V_I may be connected to Sn or $\overline{E}$.

Figure 23. Test circuit for measuring charge injection

12 Package outline

HXQFN16 (U): plastic thermal enhanced extremely thin quad flat package; no leads; 16 terminals; body 3 x 3 x 0.5 mm

SOT1039-2



Dimensions

Unit		A	A_1	b	c	D	D_h	E	E_h	e	e_1	e_2	L	v	w	y	y_1
mm	max	0.5	0.05	0.35		3.1	1.95	3.1	1.95				0.40				
	nom			0.30	0.127	3.0	1.85	3.0	1.85	0.5	1.5	1.5	0.35	0.1	0.05	0.05	0.1
	min		0.00	0.25		2.9	1.75	2.9	1.75				0.30				

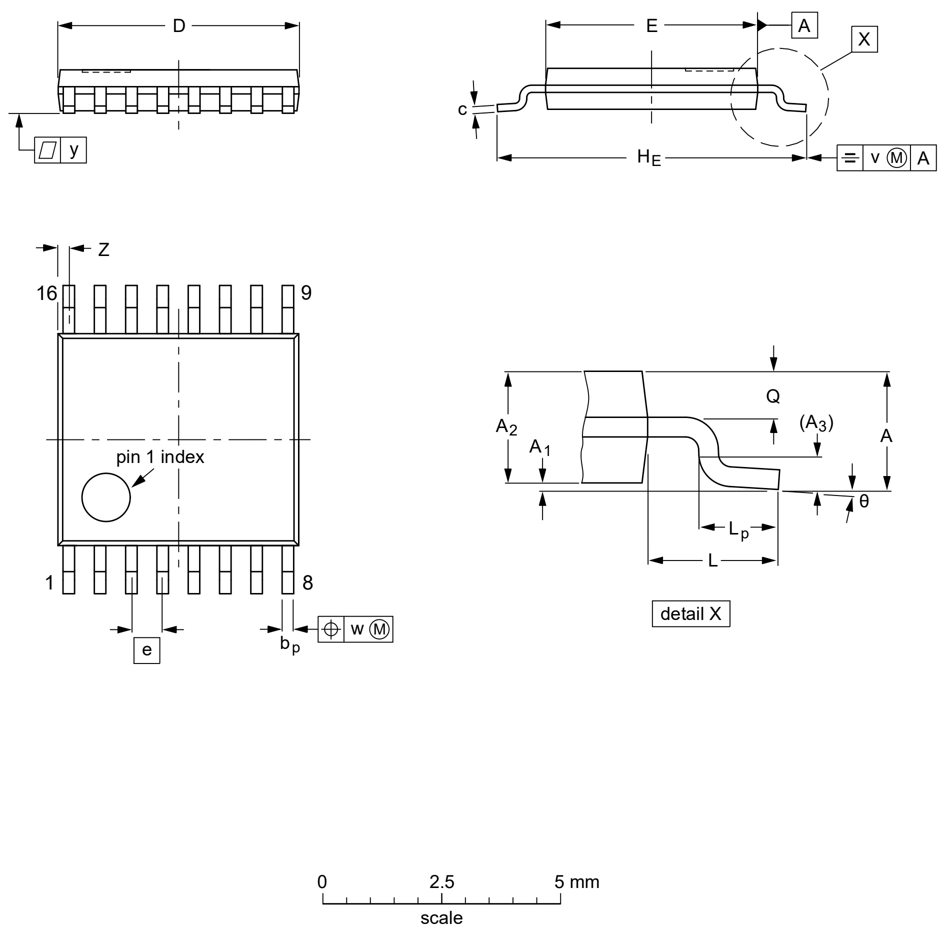
sot1039-2_po

Outline version	References				European projection	Issue date
	IEC	JEDEC	JEITA			
SOT1039-2	- - -		- - -			~~11-03-30~~ 17-10-31

Figure 24. Package outline SOT1039-2 (HXQFN16)

All information provided in this document is subject to legal disclaimers.

TSSOP16: plastic thin shrink small outline package; 16 leads; body width 4.4 mm **SOT403-1**



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 0.05	0.95 0.80	0.25	0.30 0.19	0.2 0.1	5.1 4.9	4.5 4.3	0.65	6.6 6.2	1	0.75 0.50	0.4 0.3	0.2	0.13	0.1	0.40 0.06	8^o 0^o

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			
SOT403-1		MO-153				~~99-12-27~~ 03-02-18

Figure 25. Package outline SOT403-1 (TSSOP16)

13 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
PDA	Personal Digital Assistant

14 Revision history

Table 14. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
NX3L4051 v.5.1	20200930	Product data sheet	-	NX3L4051 v.5
Modifications:	• Section 4: Added Section 4.1; NX3L4051HR,115 replaced with NX3L4051HRZ			
NX3L4051 v.5	20120703	Product data sheet	-	NX3L4051 v.4
Modifications:	• For type number NX3L4051HR the sot code has changed to SOT1039-2.			
NX3L4051 v.4	20111107	Product data sheet	-	NX3L4051 v.3
Modifications:	• Legal pages updated.			
NX3L4051 v.3	20101222	Product data sheet	-	NX3L4051 v.2
NX3L4051 v.2	20100812	Product data sheet	-	NX3L4051 v.1
NX3L4051 v.1	20100415	Product data sheet	-	-

15 Legal information

15.1 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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