74LVC162245A; 74LVCH162245A

16-bit transceiver with direction pin, 30 Ω series termination resistors; 5 V tolerant input/output; 3-state

Rev. 6 — 23 November 2011 Product data sheet

1. General description

The 74LVC162245A; 74LVCH162245A are 16-bit transceivers with non-inverting 3-state bus compatible outputs in both send and receive directions. Two send/receive (nDIR) inputs control direction, and two output enable ($n\overline{OE}$) inputs make cascading easy. The $n\overline{OE}$ inputs control the outputs so that the buses are effectively isolated. This device can be used as two 8-bit transceivers or one 16-bit transceiver.

Inputs can be driven from either 3.3 V or 5 V devices. When disabled, up to 5.5 V can be applied to the outputs. These features allow the use of these devices as translators in mixed 3.3 V and 5 V applications.

The 74LVCH162245A bus hold on data inputs eliminates the need for external pull-up resistors to hold unused inputs.

Both HIGH and LOW output stages include 30 Ω series termination resistors to reduce line noise.

2. Features and benefits

- 5 V tolerant inputs/outputs for interfacing with 5 V logic
- Wide supply voltage range from 1.2 V to 3.6 V
- CMOS low power consumption
- Multibyte flow-through standard pin-out architecture
- Low inductance multiple power and ground pins for minimum noise and ground bounce
- Direct interface with TTL levels
- Integrated 30 Ω termination resistors
- High-impedance when V_{CC} = 0 V
- All data inputs have bus hold (74LVCH162245A only)
- Complies with JEDEC standard:
  - JESD8-7A (1.65 V to 1.95 V)
  - JESD8-5A (2.3 V to 2.7 V)
  - JESD8-C/JESD36 (2.7 V to 3.6 V)
- ESD protection:
  - HBM JESD22-A114F exceeds 2000 V
  - MM JESD22-A115-B exceeds 200 V
  - CDM JESD22-C101E exceeds 1000 V
- Specified from −40 °C to +85 °C and from −40 °C to +125 °C

3. Ordering information

Table 1. Ordering information

Type number	Package			
	Temperature range	Name	Description	Version
74LVC162245ADL	–40 °C to +125 °C	SSOP48	plastic shrink small outline package; 48 leads; body width 7.5 mm	SOT370-1
74LVCH162245ADL				
74LVC162245ADGG	–40 °C to +125 °C	TSSOP48	plastic thin shrink small outline package; 48 leads; body width 6.1 mm	SOT362-1
74LVCH162245ADGG				

4. Functional diagram

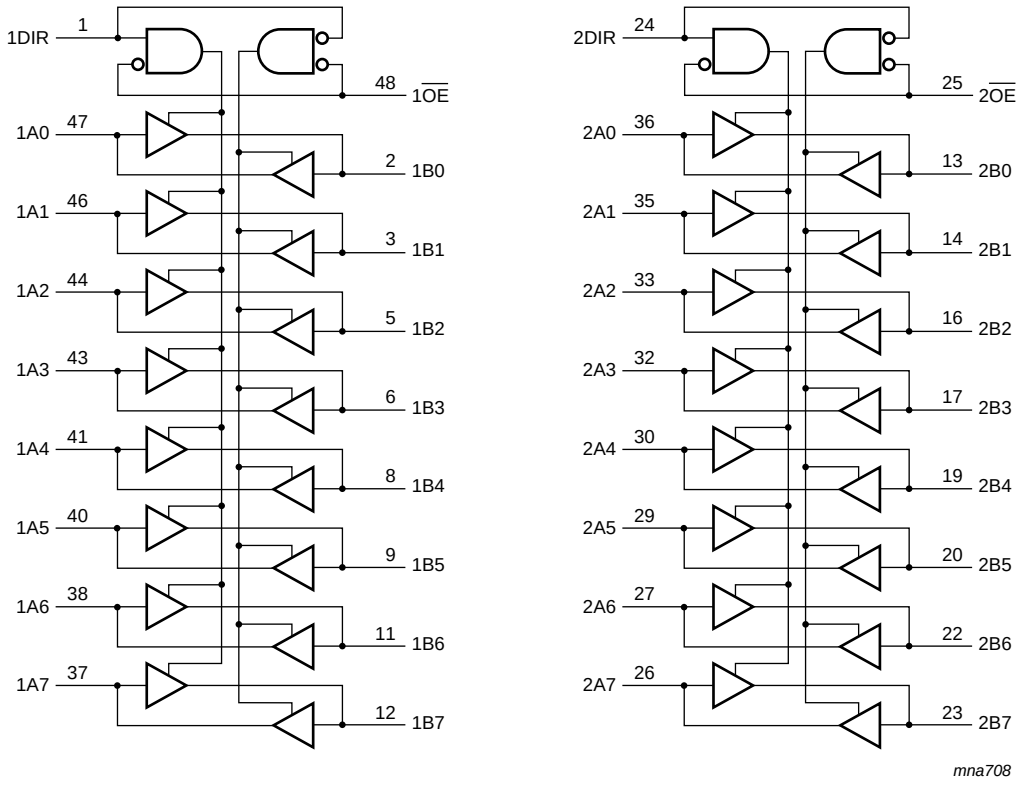


Fig 1. Logic symbol

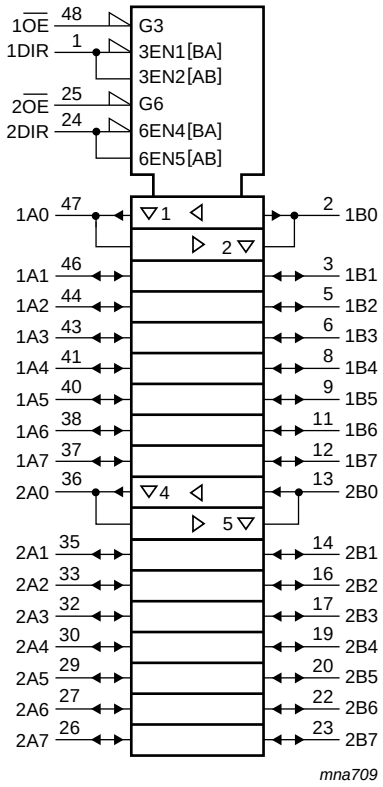


Fig 2. IEC logic symbol

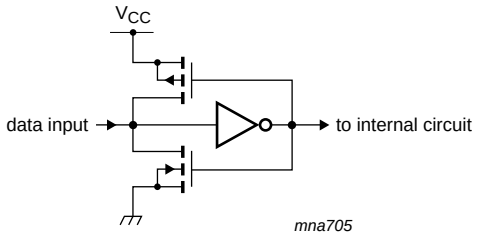


Fig 3. Bus hold circuit

5. Pinning information

5.1 Pinning

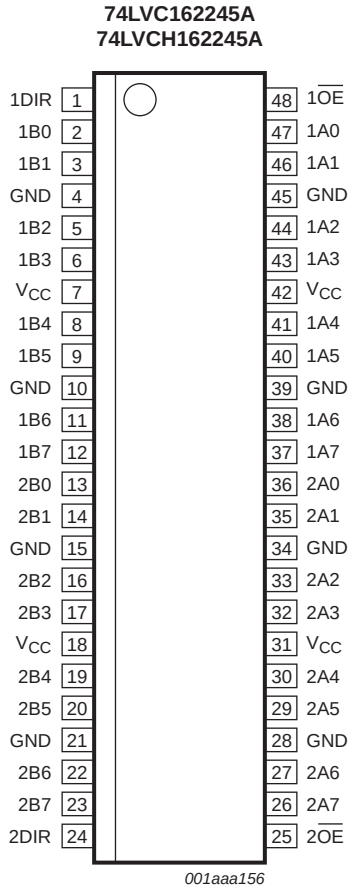


Fig 4. Pin configuration SSOP48 and TSSOP48

5.2 Pin description

Table 2. Pin description

Name	Pin	Description
1DIR	1	direction control input
2DIR	24	direction control input
GND	4, 10, 15, 21, 28, 34, 39, 45	ground (0 V)
V_{CC}	7, 18, 31, 42	supply voltage
$1\overline{OE}$	48	output enable input (active LOW)
$2\overline{OE}$	25	output enable input (active LOW)
1A[0:7]	47, 46, 44, 43, 41, 40, 38, 37	data input/output
2A[0:7]	36, 35, 33, 32, 30, 29, 27, 26	data input/output
1B[0:7]	2, 3, 5, 6, 8, 9, 11, 12	data input/output
2B[0:7]	13, 14, 16, 17, 19, 20, 22, 23	data input/output

6. Functional description

Table 3. Function table[1]

Input		Output	
$\overline{nOE}$	nDIR	nAn	nBn
L	L	A = B	inputs
L	H	inputs	B = A
H	X	Z	Z

[1] H = HIGH voltage level
L = LOW voltage level
X = don't care
Z = high-impedance OFF-state

7. Limiting values

Table 4. 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
I_{IK}	input clamping current	$V_I < 0$ V		−50	-	mA
V_I	input voltage		[1]	−0.5	+6.5	V
I_{OK}	output clamping current	$V_O > V_{CC}$ or $V_O < 0$ V		-	±50	mA
V_O	output voltage	output HIGH or LOW state	[2]	−0.5	V_{CC} + 0.5	V
		output 3-state	[2]	−0.5	+6.5	V
I_O	output current	V_O = 0 V to V_{CC}		-	±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]	-	500	mW

[1] The minimum input voltage ratings may be exceeded if the input current ratings are observed.

[2] The output voltage ratings may be exceeded if the output current ratings are observed.

[3] Above 60 °C the value of P_{tot} derates linearly with 5.5 mW/K.

8. Recommended operating conditions

Table 5. Recommended operating conditions

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{CC}	supply voltage		1.65	-	3.6	V
		functional	1.2	-	-	V
V_I	input voltage		0	-	5.5	V
V_O	output voltage	output HIGH or LOW state	0	-	V_{CC}	V
		output 3-state	0	-	5.5	V
T_{amb}	ambient temperature	in free air	−40	-	+125	°C
$\Delta t/\Delta V$	input transition rise and fall rate	V_{CC} = 1.65 V to 2.7 V	0	-	20	ns/V
		V_{CC} = 2.7 V to 3.6 V	0	-	10	ns/V

9. Static characteristics

Table 6. 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} = 1.2 V	1.08	-	-	1.08	-	V
		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_{IL}	LOW-level input voltage	V_{CC} = 1.2 V	-	-	0.12	-	0.12	V
		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_{OH}	HIGH-level output voltage	V_I = V_{IH} or V_{IL}						
		I_O = −100 μA; V_{CC} = 1.65 V to 3.6 V	V_{CC} − 0.2	V_{CC}	-	V_{CC} − 0.3	-	V
		I_O = −2 mA; V_{CC} = 1.65 V	1.2	-	-	1.05	-	V
		I_O = −4 mA; V_{CC} = 2.3 V	1.8	-	-	1.65	-	V
		I_O = −6 mA; V_{CC} = 2.7 V	2.2	-	-	2.05	-	V
		I_O = −12 mA; V_{CC} = 3.0 V	2.2	-	-	2.0	-	V
V_{OL}	LOW-level output voltage	V_I = V_{IH} or V_{IL}						
		I_O = 100 μA; V_{CC} = 1.65 V to 3.6 V	-	-	0.2	-	0.3	V
		I_O = 2 mA; V_{CC} = 1.65 V	-	-	0.45	-	0.65	V
		I_O = 4 mA; V_{CC} = 2.3 V	-	-	0.6	-	0.8	V
		I_O = 6 mA; V_{CC} = 2.7 V	-	-	0.4	-	0.6	V
		I_O = 12 mA; V_{CC} = 3.0 V	-	-	0.55	-	0.8	V
I_I	input leakage current	V_{CC} = 3.6 V; V_I = 5.5 V or GND [2]	-	±0.1	±5	-	±20	μA

Table 6. Static characteristics *…continued*

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	
I_{OZ}	OFF-state output current	$V_I = V_{IH}$ or V_{IL}; V_{CC} = 3.6 V; V_O = 5.5 V or GND;	[2][3]	-	±0.1	±5	-	±20	μA
I_{OFF}	power-off leakage current	V_{CC} = 0 V; V_I or V_O = 5.5 V		-	±0.1	±10	-	±20	μA
I_{CC}	supply current	V_{CC} = 3.6 V; $V_I = V_{CC}$ or GND; I_O = 0 A		-	0.1	20	-	80	μA
ΔI_{CC}	additional supply current	per input pin; V_{CC} = 2.7 V to 3.6 V; $V_I = V_{CC} - 0.6$ V; I_O = 0 A		-	5	500	-	5000	μA
C_I	input capacitance	V_{CC} = 0 V to 3.6 V; V_I = GND to V_{CC}		-	5.0	-	-	-	pF
$C_{I/O}$	input/output capacitance	V_{CC} = 0 V to 3.6 V; V_I = GND to V_{CC}		-	10.0	-	-	-	pF
I_{BHL}	bus hold LOW current	V_{CC} = 1.65 V; V_I = 0.58 V	[4][5]	10	-	-	10	-	μA
		V_{CC} = 2.3 V; V_I = 0.7 V		30	-	-	25	-	μA
		V_{CC} = 3.0 V; V_I = 0.8 V		75	-	-	60	-	μA
I_{BHH}	bus hold HIGH current	V_{CC} = 1.65 V; V_I = 1.07 V	[4][5]	–10	-	-	–10	-	μA
		V_{CC} = 2.3 V; V_I = 1.7 V		–30	-	-	–25	-	μA
		V_{CC} = 3.0 V; V_I = 2.0 V		–75	-	-	–60	-	μA
I_{BHLO}	bus hold LOW overdrive current	V_{CC} = 1.95 V	[4][6]	200	-	-	200	-	μA
		V_{CC} = 2.7 V		300	-	-	300	-	μA
		V_{CC} = 3.6 V		500	-	-	500	-	μA
I_{BHHO}	bus hold HIGH overdrive current	V_{CC} = 1.95 V	[4][6]	–200	-	-	–200	-	μA
		V_{CC} = 2.7 V		–300	-	-	–300	-	μA
		V_{CC} = 3.6 V		–500	-	-	–500	-	μA

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

[2] The bus hold circuit is switched off when $V_I > V_{CC}$ allowing 5.5 V on the input terminal.

[3] For I/O ports the parameter I_{OZ} includes the input leakage current.

[4] Valid for data inputs only. Control inputs do not have a bus hold circuit.

[5] The specified sustaining current at the data input holds the input below the specified V_I level.

[6] The specified overdrive current at the data input forces the data input to the opposite logic input state.

10. Dynamic characteristics

Table 7. Dynamic characteristics

Voltages are referenced to GND (ground = 0 V). For test circuit see Figure 7.

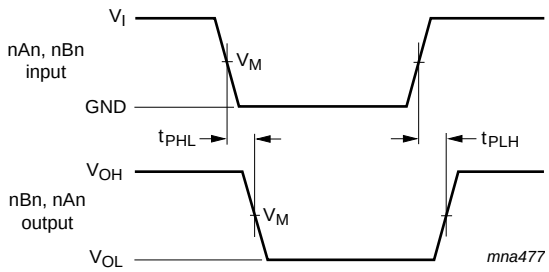
Symbol	Parameter	Conditions		T_{amb} = –40 °C to +85 °C			–40 °C to +125 °C		Unit
				Min	Typ[1]	Max	Min	Max	
t_{pd}	propagation delay	nAn to nBn; nBn to nAn; see Figure 5	[2]						
		V_{CC} = 1.2 V		-	12	-	-	-	ns
		V_{CC} = 1.65 V to 1.95 V		1.5	6.6	16.0	1.5	18.4	ns
		V_{CC} = 2.3 V to 2.7 V		1.0	3.5	7.8	1.0	9.1	ns
		V_{CC} = 2.7 V		1.0	3.5	6.7	1.0	9.5	ns
		V_{CC} = 3.0 V to 3.6 V		1.0	2.9	5.7	1.0	8.5	ns
t_{en}	enable time	$n\overline{OE}$ to nAn, nBn; see Figure 6	[2]						
		V_{CC} = 1.2 V		-	18	-	-	-	ns
		V_{CC} = 1.65 V to 1.95 V		2.0	7.7	17.2	2.0	19.8	ns
		V_{CC} = 2.3 V to 2.7 V		1.5	4.3	9.4	1.5	10.9	ns
		V_{CC} = 2.7 V		1.5	4.6	8.5	1.5	9.5	ns
		V_{CC} = 3.0 V to 3.6 V		1.0	3.5	7.5	1.0	7.5	ns
t_{dis}	disable time	$n\overline{OE}$ to nAn, nBn; see Figure 6	[2]						
		V_{CC} = 1.2 V		-	10	-	-	-	ns
		V_{CC} = 1.65 V to 1.95 V		2.8	4.6	11.0	2.8	12.7	ns
		V_{CC} = 2.3 V to 2.7 V		1.0	2.6	6.3	1.0	7.3	ns
		V_{CC} = 2.7 V		1.5	3.4	7.5	1.5	11.0	ns
		V_{CC} = 3.0 V to 3.6 V		1.5	3.2	6.5	1.5	8.5	ns
C_{PD}	power dissipation capacitance	per input; V_I = GND to V_{CC}	[3]						
		V_{CC} = 1.65 V to 1.95 V		-	10.4	-	-	-	pF
		V_{CC} = 2.3 V to 2.7 V		-	14.0	-	-	-	pF
		V_{CC} = 3.0 V to 3.6 V		-	17.2	-	-	-	pF

[1] Typical values are measured at T_{amb} = 25 °C and V_{CC} = 1.2 V, 1.8 V, 2.5 V, 2.7 V, and 3.3 V respectively.

[2] t_{pd} is the same as t_{PLH} and t_{PHL}.
t_{en} is the same as t_{PZL} and t_{PZH}.
t_{dis} is the same as t_{PLZ} and t_{PHZ}.

[3] C_{PD} is used to determine the dynamic power dissipation (P_D in μW).
$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$ where:
f_i = input frequency in MHz; f_o = output frequency in MHz
C_L = output load capacitance in pF
V_{CC} = supply voltage in Volts
N = number of inputs switching
$\Sigma(C_L \times V_{CC}^2 \times f_o)$ = sum of the outputs

11. Waveforms

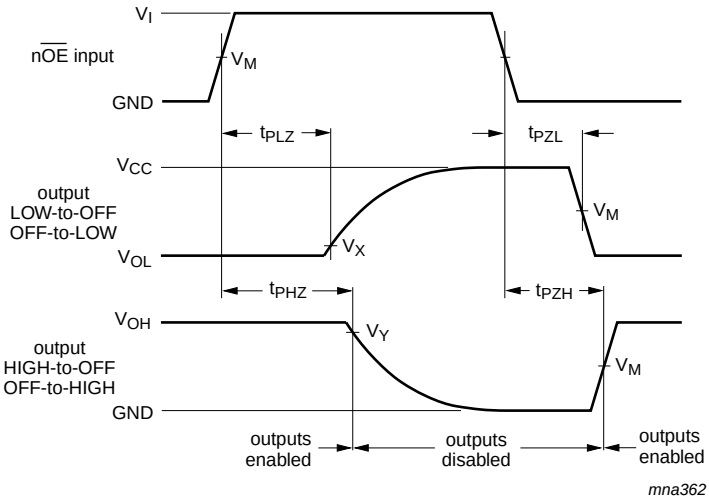


V_M = 1.5 V at $V_{CC} \geq$ 2.7 V.

V_M = 0.5 × V_{CC} at V_{CC} < 2.7 V.

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

Fig 5. The input (nAn, nBn) to outputs (nBn, nAn) propagation delays



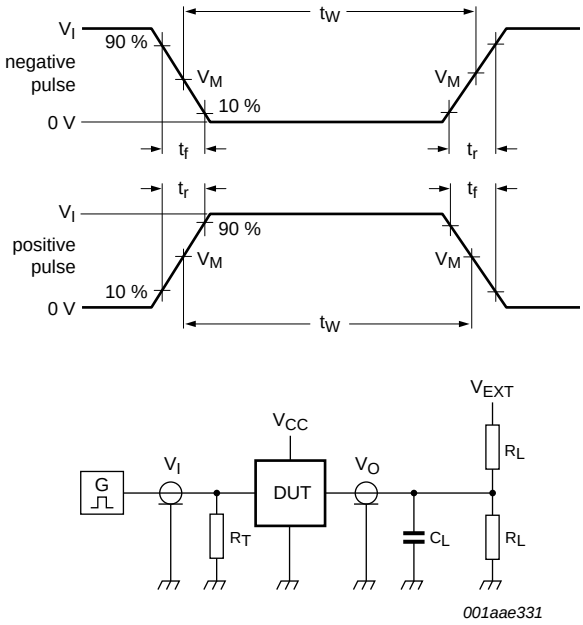
Measurement points are given in Table 8.

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

Fig 6. 3-state enable and disable times

Table 8. Measurement points

Supply voltage	V_M	Input			
V_{CC}		V_I	$t_r = t_f$	V_X	V_Y
1.2 V	0.5 × V_{CC}	V_{CC}	≤ 2.5 ns	V_{OL} + 0.15 V	V_{OH} − 0.15 V
1.65 V to 1.95 V	0.5 × V_{CC}	V_{CC}	≤ 2.5 ns	V_{OL} + 0.15 V	V_{OH} − 0.15 V
2.3 V to 2.7 V	0.5 × V_{CC}	V_{CC}	≤ 2.5 ns	V_{OL} + 0.15 V	V_{OH} − 0.15 V
2.7 V	1.5 V	2.7 V	≤ 2.5 ns	V_{OL} + 0.3 V	V_{OH} − 0.3 V
3.0 V to 3.6 V	1.5 V	2.7 V	≤ 2.5 ns	V_{OL} + 0.3 V	V_{OH} − 0.3 V



Test data is given in Table 9.

Definitions for test circuit:

R_L = Load resistance.

C_L = Load capacitance including jig and probe capacitance.

R_T = Termination resistance should be equal to output impedance Z_o of the pulse generator.

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

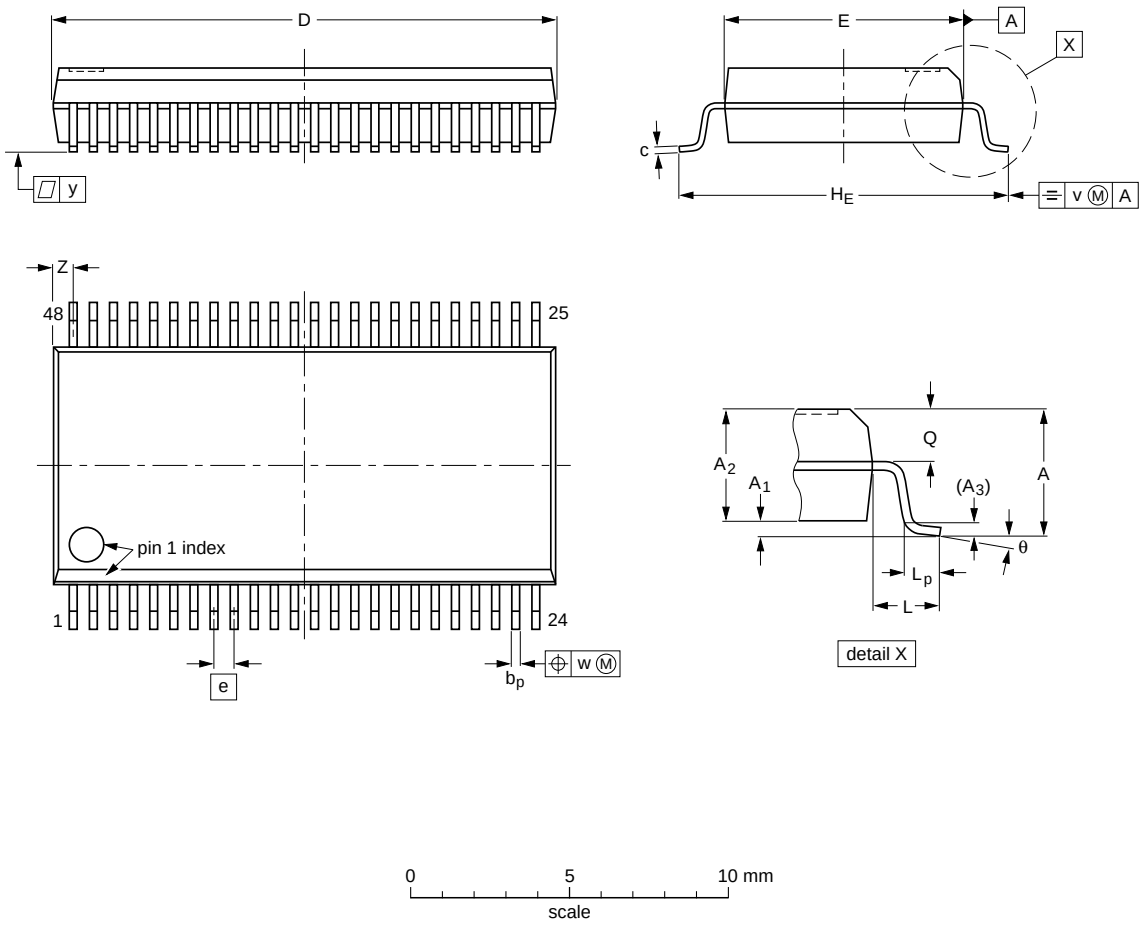
Fig 7. Test circuit for measuring switching times

Table 9. Test data

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

12. Package outline

SSOP48: plastic shrink small outline package; 48 leads; body width 7.5 mm **SOT370-1**



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A_1	A_2	A_3	b_p	c	D (1)	E (1)	e	H_E	L	L_p	Q	v	w	y	Z (1)	θ
mm	2.8	0.4 0.2	2.35 2.20	0.25	0.3 0.2	0.22 0.13	16.00 15.75	7.6 7.4	0.635	10.4 10.1	1.4	1.0 0.6	1.2 1.0	0.25	0.18	0.1	0.85 0.40	8^o 0^o

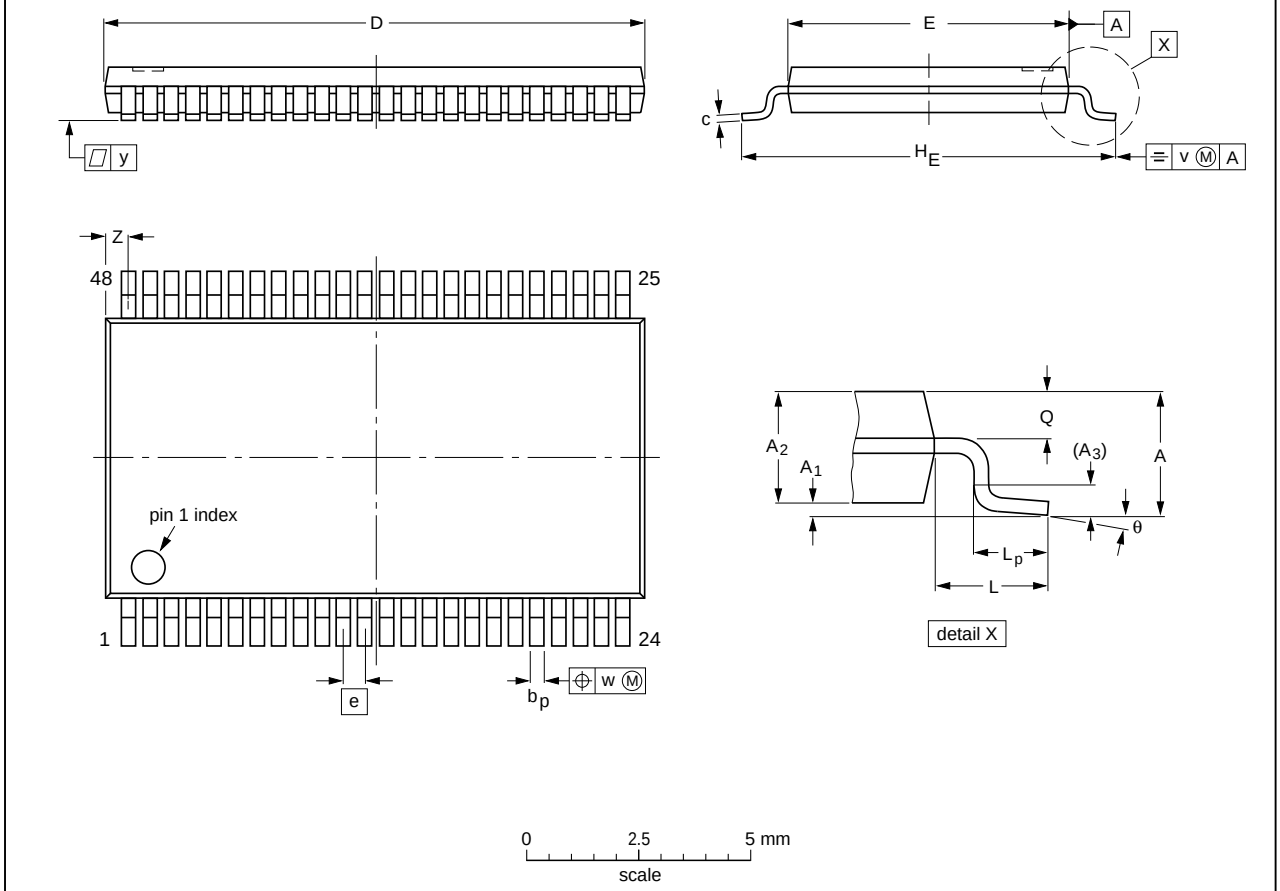
Note

1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT370-1		MO-118				~~99-12-27~~ 03-02-19

Fig 8. Package outline SOT370-1 (SSOP48)

TSSOP48: plastic thin shrink small outline package; 48 leads; body width 6.1 mm **SOT362-1**



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	θ
mm	1.2	0.15 0.05	1.05 0.85	0.25	0.28 0.17	0.2 0.1	12.6 12.4	6.2 6.0	0.5	8.3 7.9	1	0.8 0.4	0.50 0.35	0.25	0.08	0.1	0.8 0.4	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			
SOT362-1		MO-153				~~99-12-27~~ 03-02-19

Fig 9. Package outline SOT362-1 (TSSOP48)

13. Abbreviations

Table 10. Abbreviations

Acronym	Description
CDM	Charged Device Model
DUT	Device Under Test
ESD	ElectroStatic Discharge
HBM	Human Body Model
MM	Machine Model
TTL	Transistor-Transistor Logic

14. Revision history

Table 11. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74LVCH162245A v.6	20111123	Product data sheet	-	74LVC_LVCH162245A v.5
Modifications:	• The format of this document has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Table 5, Table 6, Table 7 and Table 9: values added for lower voltage ranges.			
74LVC_LVCH162245A v.5	20031208	Product specification	-	74LVC_H162245A v.4
74LVC_H162245A v.4	19980217	Product specification	-	74LVC162245A_74LVCH162245A v.3
74LVC162245A_ 74LVCH162245A v.3	19980217	Product specification	-	74LVC162245A v.2
74LVC162245A v.2	19970801	Product specification	-	74LVC162245A v.1
74LVC162245A v.1	-	-	-	-

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.nexperia.com.

15.2 Definitions

Draft — The document is a draft version only. The content is still under internal review and subject to formal approval, which may result in modifications or additions. Nexperia does not give any representations or warranties as to the accuracy or completeness of information included herein and shall have no liability for the consequences of use of such information.

Short data sheet — A short data sheet is an extract from a full data sheet with the same product type number(s) and title. A short data sheet is intended for quick reference only and should not be relied upon to contain detailed and full information. For detailed and full information see the relevant full data sheet, which is available on request via the local Nexperia sales office. In case of any inconsistency or conflict with the short data sheet, the full data sheet shall prevail.

Product specification — The information and data provided in a Product data sheet shall define the specification of the product as agreed between Nexperia and its customer, unless Nexperia and customer have explicitly agreed otherwise in writing. In no event however, shall an agreement be valid in which the Nexperia product is deemed to offer functions and qualities beyond those described in the Product data sheet.

15.3 Disclaimers

Limited warranty and liability — Information in this document is believed to be accurate and reliable. However, Nexperia does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information.

In no event shall Nexperia be liable for any indirect, incidental, punitive, special or consequential damages (including - without limitation - lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Notwithstanding any damages that customer might incur for any reason whatsoever, Nexperia's aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the *Terms and conditions of commercial sale* of Nexperia.

Right to make changes — Nexperia reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use — Nexperia products are not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or malfunction of a Nexperia product can reasonably be expected to result in personal injury, death or severe property or environmental damage. Nexperia accepts no liability for inclusion and/or use of Nexperia products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. Nexperia makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Customers are responsible for the design and operation of their applications and products using Nexperia products, and Nexperia accepts no liability for any assistance with applications or customer product design. It is customer's sole responsibility to determine whether the Nexperia product is suitable and fit for the customer's applications and products planned, as well as for the planned application and use of customer's third party customer(s). Customers should provide appropriate design and operating safeguards to minimize the risks associated with their applications and products.

Nexperia does not accept any liability related to any default, damage, costs or problem which is based on any weakness or default in the customer's applications or products, or the application or use by customer's third party customer(s). Customer is responsible for doing all necessary testing for the customer's applications and products using Nexperia products in order to avoid a default of the applications and the products or of the application or use by customer's third party customer(s). Nexperia does not accept any liability in this respect.

Limiting values — Stress above one or more limiting values (as defined in the Absolute Maximum Ratings System of IEC 60134) will cause permanent damage to the device. Limiting values are stress ratings only and (proper) operation of the device at these or any other conditions above those given in the Recommended operating conditions section (if present) or the Characteristics sections of this document is not warranted. Constant or repeated exposure to limiting values will permanently and irreversibly affect the quality and reliability of the device.

Terms and conditions of commercial sale — Nexperia products are sold subject to the general terms and conditions of commercial sale, as published at http://www.nexperia.com/profile/terms, unless otherwise agreed in a valid written individual agreement. In case an individual agreement is concluded only the terms and conditions of the respective agreement shall apply. Nexperia hereby expressly objects to applying the customer's general terms and conditions with regard to the purchase of Nexperia products by customer.

No offer to sell or license — Nothing in this document may be interpreted or construed as an offer to sell products that is open for acceptance or the grant, conveyance or implication of any license under any copyrights, patents or other industrial or intellectual property rights.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from competent authorities.

Non-automotive qualified products — Unless this data sheet expressly states that this specific Nexperia product is automotive qualified, the product is not suitable for automotive use. It is neither qualified nor tested in accordance with automotive testing or application requirements. Nexperia accepts no liability for inclusion and/or use of non-automotive qualified products in automotive equipment or applications.

In the event that customer uses the product for design-in and use in automotive applications to automotive specifications and standards, customer (a) shall use the product without Nexperia's warranty of the product for such automotive applications, use and specifications, and (b) whenever customer uses the product for automotive applications beyond Nexperia's specifications such use shall be solely at customer's own risk, and (c) customer fully indemnifies Nexperia for any liability, damages or failed product claims resulting from customer design and use of the product for automotive applications beyond Nexperia's standard warranty and Nexperia's product specifications.

15.4 Trademarks

Notice: All referenced brands, product names, service names and trademarks are the property of their respective owners.

16. Contact information

For more information, please visit: **http://www.nexperia.com**

For sales office addresses, please send an email to: **salesaddresses@nexperia.com**

17. Contents

For more information, please visit: http://www.nexperia.com
For sales office addresses, please send an email to: salesaddresses@nexperia.com
Date of release: 23 November 2011

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Bus Transmitters ***category:***

Click to view products by NXP ***manufacturer:***

Other Similar products are found below :

NLV7SB3257DTT1G 7SB3257DTT2G 7SB3257DTT1G 7SB385DTT1G 74HC1G125GW 74AHC125D.112 74AHC244D.112 74AHC245D.112 74AHC541D.112 74HC245D.652 74HCT365D.652 74ABT125D.602 74ABT16245BDGG.112 74AHCT245D.112 74HC245PW.112 74HC367D.652 74HC541D.652 74HC541D.653 74HC7541D.112 74HCT367D.652 74HCT541D.653 74LVC244AD.112 74LVC4245AD.112 74LVC541AD.112 74HC240D.652 74HC4049D.653 74HC540D.652 74HCT125D.652 74HCT244D.652 74HCT245PW.112 74HCT367N.652 74HC125D.652 74HC244D.652 74HC245DB.118 HEF4050BT.652 74HC05PW.112 74HC125PW.112 74HC2G16GVH 74LVC06AD.112 74LVC06APW.112 74LVC125APW.112 74LVC126APW.112 74VHC126FT(BE) 7SB3257MUTCG 7SB384MUTCG 7SB384DTT1G 74AHCT245PW.118 74HC126DB.118 74HC240PW.112 74HC241DB.118