1. General description

The 74LVC2G34 provides two buffers.

Inputs can be driven from either 3.3 V or 5 V devices. These features allow the use of these devices in a mixed 3.3 V and 5 V environment.

This device is fully specified for partial power-down applications using I_{OFF} . The I_{OFF} circuitry disables the output, preventing the damaging backflow current through the device when it is powered down.

2. Features and benefits

- Wide supply voltage range from 1.65 V to 5.5 V
- 5 V tolerant inputs for interfacing with 5 V logic
- High noise immunity
- Complies with JEDEC standard:
 - JESD8-7 (1.65 V to 1.95 V)
 - JESD8-5 (2.3 V to 2.7 V)
 - ◆ JESD8B/JESD36 (2.7 V to 3.6 V)
- ESD protection:
 - ◆ HBM JESD22-A114F exceeds 2000 V
 - MM JESD22-A115-A exceeds 200 V
- ± 24 mA output drive (V_{CC} = 3.0 V)
- CMOS low power consumption
- Latch-up performance exceeds 250 mA
- Direct interface with TTL levels
- Multiple package options
- Specified from -40 °C to +85 °C and -40 °C to +125 °C.



Dual buffer gate

Ordering information 3.

Table 1. **Ordering information**

Type number	Package			
	Temperature range	Name	Description	Version
74LVC2G34GW	–40 °C to +125 °C	SC-88	plastic surface-mounted package; 6 leads	SOT363
74LVC2G34GV	–40 °C to +125 °C	TSOP6	plastic surface-mounted package (TSOP6); 6 leads	SOT457
74LVC2G34GM	–40 °C to +125 °C	XSON6	plastic extremely thin small outline package; no leads; 6 terminals; body 1 \times 1.45 \times 0.5 mm	SOT886
74LVC2G34GF	–40 °C to +125 °C	XSON6	plastic extremely thin small outline package; no leads; 6 terminals; body 1 \times 1 \times 0.5 mm	SOT891
74LVC2G34GN	–40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body $0.9 \times 1.0 \times 0.35$ mm	SOT1115
74LVC2G34GS	–40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body $1.0 \times 1.0 \times 0.35$ mm	SOT1202
74LVC2G34GX	–40 °C to +125 °C	X2SON6	plastic thermal extremely thin small outline package; no leads; 6 terminals; body $1 \times 0.8 \times 0.35$ mm	SOT1255

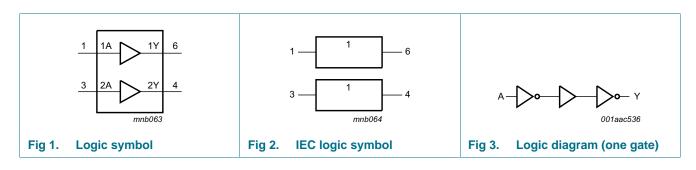
Marking 4.

Table 2. Marking

Type number	Marking code ^[1]
74LVC2G34GW	YA
74LVC2G34GV	Y34
74LVC2G34GM	YA
74LVC2G34GF	YA
74LVC2G34GN	YA
74LVC2G34GS	YA
74LVC2G34GX	YA

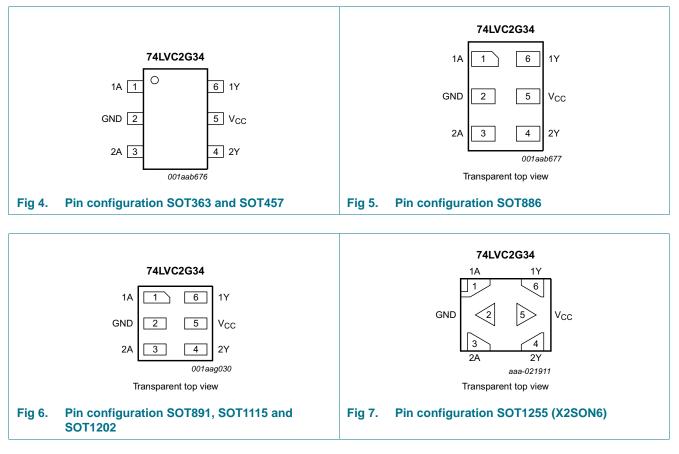
[1] The pin 1 indicator is located on the lower left corner of the device, below the marking code.

Functional diagram 5.



6. Pinning information

6.1 Pinning



6.2 Pin description

Table 3. Pin description				
Symbol	Pin	Description		
1A	1	data input		
GND	2	ground (0 V)		
2A	3	data input		
2Y	4	data output		
V _{CC}	5	supply voltage		
1Y	6	data output		

7. Functional description

Table 4. Function table	[1]
-------------------------	-----

Input	Output
nA	nY
L	L
Н	Н

[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	+6.5	V
I _{IK}	input clamping current	V _I < 0 V		-50	-	mA
VI	input voltage		<u>[1]</u>	-0.5	+6.5	V
I _{OK}	output clamping current	$V_{O} > V_{CC}$ or $V_{O} < 0$ V		-	±50	mA
Vo	output voltage	Active mode	<u>[1][2]</u>	-0.5	V _{CC} + 0.5	V
		Power-down mode	<u>[1][2]</u>	-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
P _{tot}	total power dissipation	$T_{amb} = -40 \text{ °C to } +125 \text{ °C}$	<u>[3]</u>	-	250	mW
T _{stg}	storage temperature			-65	+150	°C

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

[2] When $V_{CC} = 0 V$ (Power-down mode), the output voltage can be 5.5 V in normal operation.

[3] For SC-88 and SC-74A packages: above 87.5 °C the value of P_{tot} derates linearly with 4.0 mW/K. For X2SON6 and XSON6 packages: above 118 °C the value of P_{tot} derates linearly with 7.8 mW/K.

9. Recommended operating conditions

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
V _{CC}	supply voltage		1.65	-	5.5	V
VI	input voltage		0	-	5.5	V
Vo	output voltage	Active mode	0	-	V _{CC}	V
		Power-down mode; V _{CC} = 0 V	0	-	5.5	V
T _{amb}	ambient temperature		-40	-	+125	°C
$\Delta t/\Delta V$	input transition rise and fall rate	V_{CC} = 1.65 V to 2.7 V	-	-	20	ns/V
		V _{CC} = 2.7 V to 5.5 V	-	-	10	ns/V

Dual buffer gate

10. Static characteristics

Table 7. Static characteristics

At recommended operating conditions. Voltages are referenced to GND (ground = 0 V).

Symbol	Parameter	Conditions	-40	–40 °C to +85 °C			–40 °C to +125 °C		
			Min	Typ <mark>[1]</mark>	Max	Min	Max		
V _{IH}	HIGH-level	V _{CC} = 1.65 V to 1.95 V	0.65V _{CC}	-	-	0.65V _{CC}	-	V	
	input voltage	V_{CC} = 2.3 V to 2.7 V	1.7	-	-	1.7	-	V	
		V_{CC} = 2.7 V to 3.6 V	2.0	-	-	2.0	-	V	
		V_{CC} = 4.5 V to 5.5 V	0.7V _{CC}	-	-	0.7V _{CC}	-	V	
V _{IL}	LOW-level	$V_{CC} = 1.65 \text{ V} \text{ to } 1.95 \text{ V}$	-	-	0.35V _{CC}	-	$0.35V_{CC}$	V	
	input voltage	V_{CC} = 2.3 V to 2.7 V	-	-	0.7	-	0.7	V	
		$V_{CC} = 2.7 \text{ V to } 3.6 \text{ V}$	-	-	0.8	-	0.8	V	
		V_{CC} = 4.5 V to 5.5 V	-	-	0.3V _{CC}	-	$0.3V_{CC}$	V	
√ _{он}	HIGH-level	$V_{I} = V_{IH} \text{ or } V_{IL}$							
	output voltage	I _O = -100 μA; V _{CC} = 1.65 V to 5.5 V	V _{CC} - 0.1	-	-	$V_{CC}-0.1$	-	V	
	$I_{O} = -4 \text{ mA}; V_{CC} = 1.65 \text{ V}$	1.2	-	-	0.95	-	V		
		$I_{O} = -8 \text{ mA}; V_{CC} = 2.3 \text{ V}$	1.9	-	-	1.7	-	V	
		$I_{O} = -12 \text{ mA}; V_{CC} = 2.7 \text{ V}$	2.2	-	-	1.9	-	V	
		$I_{O} = -24 \text{ mA}; V_{CC} = 3.0 \text{ V}$	2.3	-	-	2.0	-	V	
	$I_{O} = -32 \text{ mA}; V_{CC} = 4.5 \text{ V}$	3.8	-	-	3.4	-	V		
V _{OL}	LOW-level	$V_{I} = V_{IH} \text{ or } V_{IL}$							
	output voltage	I _O = 100 μA; V _{CC} = 1.65 V to 5.5 V	-	-	0.10	-	0.10	V	
		I _O = 4 mA; V _{CC} = 1.65 V	-	-	0.45	-	0.70	V	
		I _O = 8 mA; V _{CC} = 2.3 V	-	-	0.30	-	0.45	V	
		$I_0 = 12 \text{ mA}; V_{CC} = 2.7 \text{ V}$	-	-	0.40	-	0.60	V	
		$I_0 = 24 \text{ mA}; V_{CC} = 3.0 \text{ V}$	-	-	0.55	-	0.80	V	
		$I_0 = 32 \text{ mA}; V_{CC} = 4.5 \text{ V}$	-	-	0.55	-	0.80	V	
I	input leakage current	V _I = 5.5 V or GND; V _{CC} = 0 V to 5.5 V	-	±0.1	±1	-	±1	μA	
OFF	power-off leakage current	$V_{CC} = 0$ V; V_1 or $V_0 = 5.5$ V	-	±0.1	±2	-	±2	μA	
СС	supply current	$V_{I} = 5.5 V \text{ or GND; } I_{O} = 0 \text{ A;}$ $V_{CC} = 1.65 V \text{ to } 5.5 V$	-	0.1	4	-	4	μΑ	
Al _{CC}	additional supply current	per pin; V_{CC} = 2.3 V to 5.5 V; V _I = V _{CC} - 0.6 V; I _O = 0 A	-	5	500	-	500	μΑ	
Cı	input capacitance	V_{CC} = 3.3 V; V_{I} = GND to V_{CC}	-	2.5	-	-	-	pF	

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

11. Dynamic characteristics

Table 8. Dynamic characteristics

Voltages are referenced to GND (ground = 0 V); for test circuit see <u>Figure 9</u>.

Symbol	Parameter	Conditions	-40	°C to +85	S°C	–40 °C to	+125 °C	Unit
			Min	Typ <mark>[1]</mark>	Max	Min	Max	
t _{pd}	propagation delay	nA to nY; see Figure 8 [2]						
		V _{CC} = 1.65 V to 1.95 V	1.0	3.8	8.6	1.0	10.8	ns
		V_{CC} = 2.3 V to 2.7 V	0.5	2.4	4.4	0.5	5.5	ns
		V _{CC} = 2.7 V	0.5	2.5	5.0	0.5	6.3	ns
		V _{CC} = 3.0 V to 3.6 V	0.5	2.2	4.1	0.5	5.1	ns
		V_{CC} = 4.5 V to 5.5 V	0.5	1.9	3.2	0.5	4.0	ns
C _{PD}	power dissipation capacitance	$V_{I} = GND \text{ to } V_{CC}; V_{CC} = 3.3 \text{ V}$ [3]	-	20	-	-	-	pF

[1] Typical values are measured at T_{amb} = 25 °C and V_{CC} = 1.8 V, 2.5 V, 2.7 V, 3.3 V and 5.0 V respectively.

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

[3] C_{PD} is used to determine the dynamic power dissipation (P_D in μ W).

 $\mathsf{P}_{\mathsf{D}} = C_{\mathsf{PD}} \times V_{CC}{}^2 \times f_i \times \mathsf{N} + \sum (C_L \times V_{CC}{}^2 \times f_o)$ where:

 f_i = input frequency in MHz;

 f_o = output frequency in MHz;

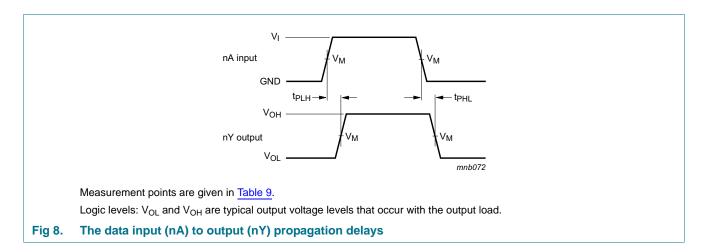
 C_L = output load capacitance in pF;

 V_{CC} = supply voltage in V;

N = number of inputs switching;

 $\Sigma(C_L \times V_{CC}^2 \times f_o)$ = sum of outputs.

12. Waveforms



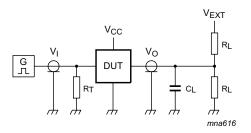
Nexperia

74LVC2G34

Dual buffer gate

Supply voltage	Input	Output		
V _{CC}	V _M	V _M		
1.65 V to 1.95 V	0.5V _{CC}	0.5V _{CC}		
2.3 V to 2.7 V	0.5V _{CC}	0.5V _{CC}		
2.7 V	1.5 V	1.5 V		
3.0 V to 3.6 V	1.5 V	1.5 V		
4.5 V to 5.5 V	0.5V _{CC}	0.5V _{CC}		

Table 9.Measurement points



Test data is given in <u>Table 10</u>.

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 the output impedance Z_0 of the pulse generator.

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

Fig 9. Test circuit for measuring switching times

Table 10. Test data

Supply voltage	Input	Input I		Load		
V _{CC}	VI	$t_r = t_f$	CL	RL	t _{PLH} , t _{PHL}	
1.65 V to 1.95 V	V _{CC}	\leq 2.0 ns	30 pF	1 kΩ	open	
2.3 V to 2.7 V	V _{CC}	≤ 2.0 ns	30 pF	500 Ω	open	
2.7 V	2.7 V	≤ 2.5 ns	50 pF	500 Ω	open	
3.0 V to 3.6 V	2.7 V	≤ 2.5 ns	50 pF	500 Ω	open	
4.5 V to 5.5 V	V _{CC}	≤ 2.5 ns	50 pF	500 Ω	open	

74LVC2G34

Dual buffer gate

13. Package outline

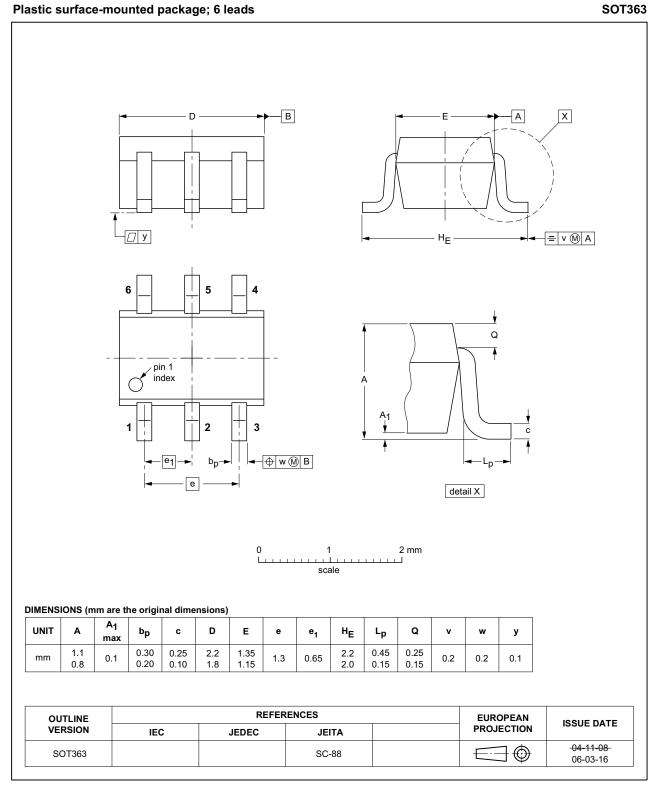


Fig 10. Package outline SOT363 (SC-88)

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

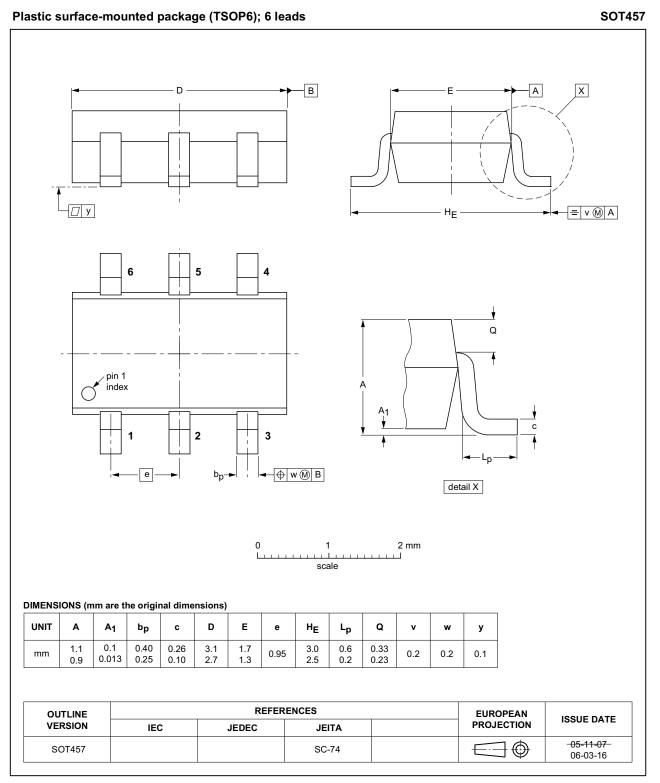
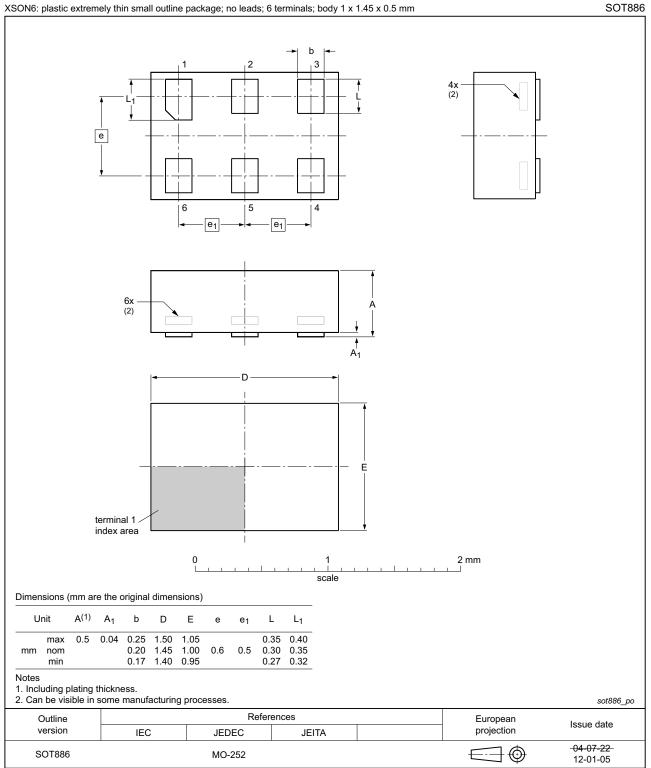


Fig 11. Package outline SOT457 (TSOP6)

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



XSON6: plastic extremely thin small outline package; no leads; 6 terminals; body 1 x 1.45 x 0.5 mm

Fig 12. Package outline SOT886 (XSON6)

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

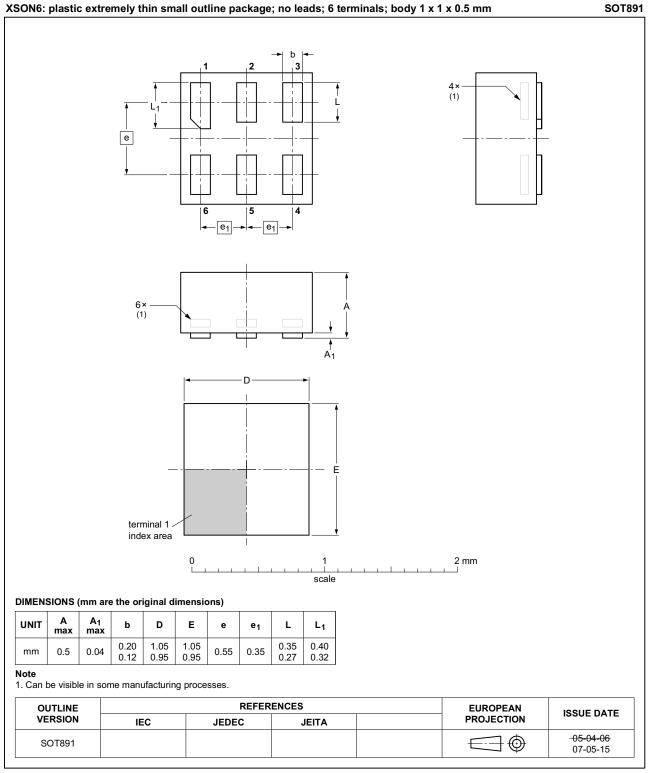
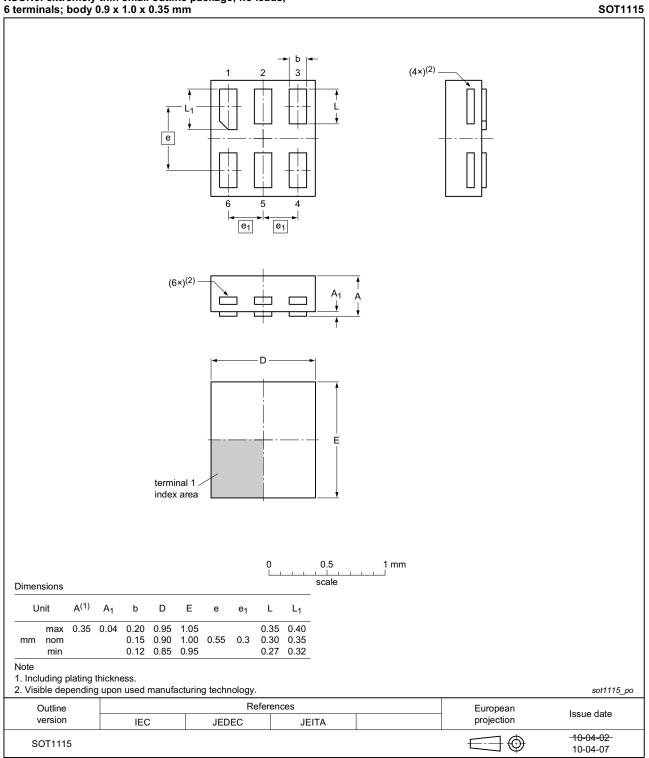


Fig 13. Package outline SOT891 (XSON6)

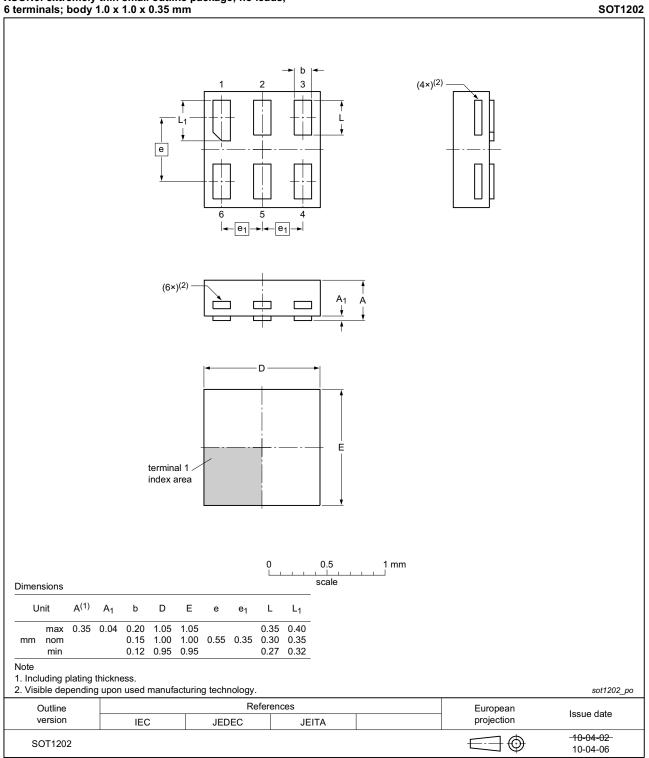
All information provided in this document is subject to legal disclaimers.



XSON6: extremely thin small outline package; no leads; 6 terminals; body 0.9 x 1.0 x 0.35 mm

Fig 14. Package outline SOT1115 (XSON6)

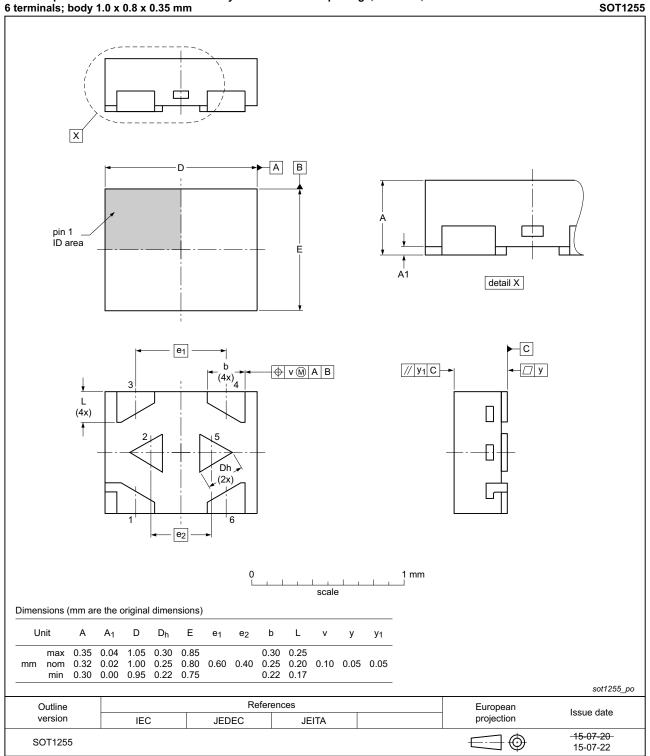
All information provided in this document is subject to legal disclaimers.



XSON6: extremely thin small outline package; no leads; 6 terminals; body 1.0 x 1.0 x 0.35 mm

Fig 15. Package outline SOT1202 (XSON6)

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



X2SON6: plastic thermal enhanced extremely thin small outline package; no leads; 6 terminals; body 1.0 x 0.8 x 0.35 mm

Fig 16. Package outline SOT1255 (X2SON6)

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

14. Abbreviations

Table 11. Abbreviations				
Acronym	Description			
CMOS	Complementary Metal Oxide Semiconductor			
DUT	Device Under Test			
ESD	ElectroStatic Discharge			
HBM	Human Body Model			
MM	Machine Model			
TTL	Transistor-Transistor Logic			

15. Revision history

Table 12. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74LVC2G34 v.9	20161215	Product data sheet	-	74LVC2G34 v.8
Modifications:	• <u>Table 7</u> : The maximum limits for leakage current and supply current have changed.			
74LVC2G34 v.8	20160210	Product data sheet	-	74LVC2G34 v.7
Modifications:	 Added type number 74LVC2G34GX (SOT1255/X2SON6). 			
74LVC2G34 v.7	20120704	Product data sheet	-	74LVC2G34 v.6
Modifications:	 Package outline drawing of SOT886 (Figure 12) modified. 			
74LVC2G34 v.6	20111129	Product data sheet	-	74LVC2G34 v.5
Modifications:	Legal pages updated.			
74LVC2G34 v.5	20100902	Product data sheet	-	74LVC2G34 v.4
74LVC2G34 v.4	20070720	Product data sheet	-	74LVC2G34 v.3
74LVC2G34 v.3	20070321	Product data sheet	-	74LVC2G34 v.2
74LVC2G34 v.2	20040910	Product specification	-	74LVC2G34 v.1
74LVC2G34 v.1	20030725	Product specification	-	-

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.nexperia.com.

16.2 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.

16.3 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. Nexperia takes no responsibility for the content in this document if provided by an information source outside of Nexperia.

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 and its suppliers accept 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.

Nexperia

74LVC2G34

Dual buffer gate

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.

Translations — A non-English (translated) version of a document is for reference only. The English version shall prevail in case of any discrepancy between the translated and English versions.

16.4 Trademarks

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

17. Contact information

For more information, please visit: <u>http://www.nexperia.com</u>

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

74LVC2G34

18. Contents

1	General description 1
2	Features and benefits 1
3	Ordering information 2
4	Marking 2
5	Functional diagram 2
6	Pinning information 3
6.1	Pinning 3
6.2	Pin description 3
7	Functional description 4
8	Limiting values 4
9	Recommended operating conditions 4
10	Static characteristics 5
11	Dynamic characteristics 6
12	Waveforms
13	Package outline 8
14	Abbreviations 15
15	Revision history 15
16	Legal information 16
16.1	Data sheet status 16
16.2	Definitions
16.3	Disclaimers
16.4	Trademarks 17
17	Contact information 17
18	Contents 18

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for nxp manufacturer:

Other Similar products are found below :

MC13211R2 PCA9518PW,112 LFSTBEB865X MIMXRT1064DVL6A MC33399PEFR2 PCA9551PW,112 MC34825EPR2 CBTW28DD14AETJ PCF8583P MC68340AB16E MC8640DTVJ1250HE EVBCRTOUCH MC9S08PT8AVTG MC9S08SH32CTL MCF54415CMJ250 MCIMX6Q-SDB MCIMX6S5EVM10ACR MCIMX6SX-SDB 74ALVC125BQ,115 74HC4050N 74HC4514N MK21FN1M0AVLQ12 MKV30F128VFM10 FRDM-K66F FRDM-KW40Z FRDM-MC-LVBLDC PESD18VF1BSFYL PMF63UNEX PSMN4R0-60YS,115 HEF4028BPN RAPPID-567XFSW MPC565MVR56 MPC574XG-176DS MPC8548VJAUJD MPC860PCVR66D4 BCV61A,215 BFU520XAR BT137-600E BUK7628-100A118 P5020NSE7VNB S12ZVML12EVBLIN SCC2692AC1N40 LPC1785FBD208K LPC2124FBD64/01 LS1020ASN7KQB LS1020AXN7HNB LS1020AXN7KQB LS1043ASE7PQA T1023RDB-PC FRDM-KW24D512