



74LVC157A

Quad 2-input multiplexer

Rev. 13 — 9 May 2025

Product data sheet

1. General description

The 74LVC157A is a quad 2-input multiplexer. The device features select (S) and enable $\bar{E}$ inputs. A HIGH on S selects data source 1, a LOW data source 0. A HIGH on $\bar{E}$ forces all the outputs (1Y to 4Y) LOW. Inputs can be driven from either 3.3 V or 5 V devices. This feature allows the use of these devices as translators in mixed 3.3 V and 5 V applications.

Schmitt-trigger action at all inputs makes the circuit tolerant of slower input rise and fall times.

2. Features and benefits

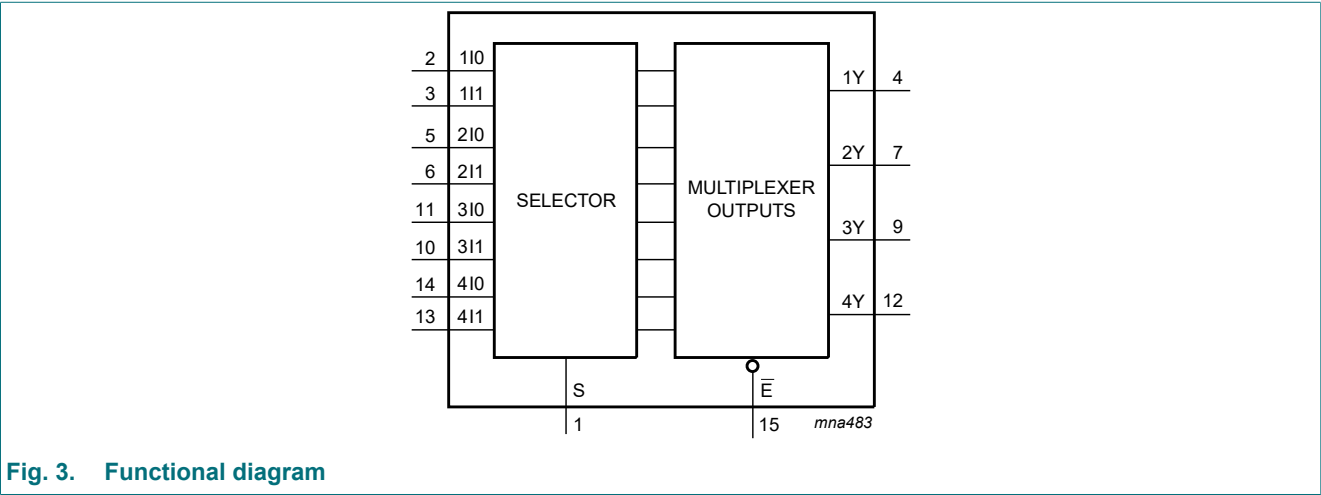
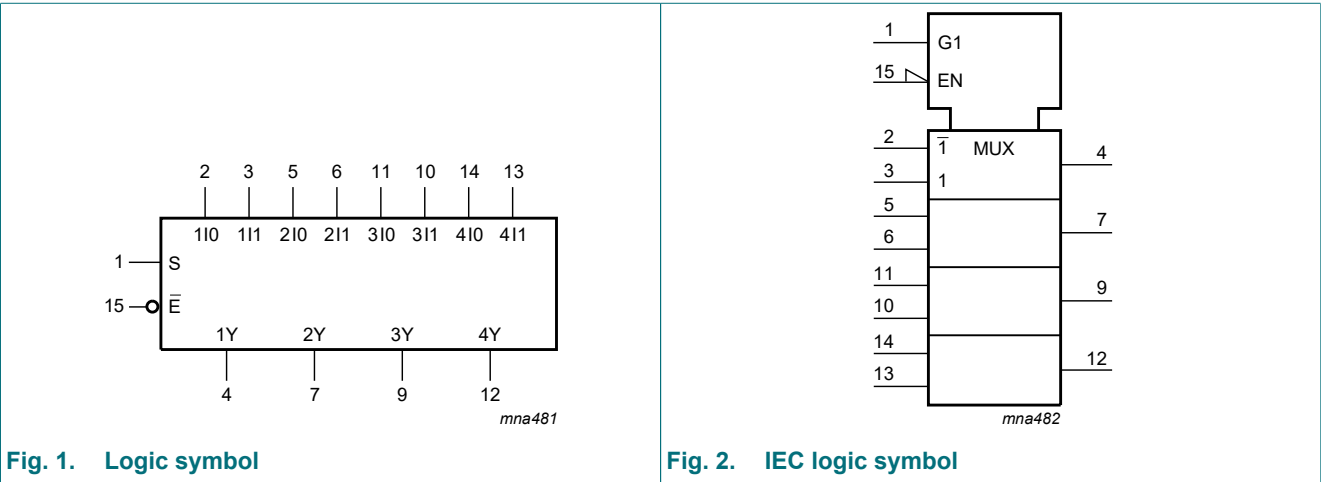
- Overvoltage tolerant inputs to 5.5 V
- Wide supply voltage range from 1.2 V to 3.6 V
- CMOS low power consumption
- Direct interface with TTL levels
- Complies with JEDEC standard:
 - JESD8-7A (1.65 V to 1.95 V)
 - JESD8-5A (2.3 V to 2.7 V)
 - JESD8-C/JESD36 (2.7 V to 3.6 V)
- ESD protection:
 - HBM: ANSI/ESDA/JEDEC JS-001 class 2 exceeds 2000 V
 - CDM: ANSI/ESDA/JEDEC JS-002 class C3 exceeds 1000 V
- Multiple package options
- Specified from -40 °C to +85 °C and -40 °C to +125 °C

3. Ordering information

Table 1. Ordering information

Type number	Package			
	Temperature range	Name	Description	Version
74LVC157AD	-40 °C to +125 °C	SO16	plastic small outline package; 16 leads; body width 3.9 mm	SOT109-1
74LVC157APW	-40 °C to +125 °C	TSSOP16	plastic thin shrink small outline package; 16 leads; body width 4.4 mm	SOT403-1
74LVC157ABQ	-40 °C to +125 °C	DHVQFN16	plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 16 terminals; body 2.5 × 3.5 × 0.85 mm	SOT763-1
74LVC157ABZ	-40 °C to +125 °C	DHXQFN16	plastic, leadless dual in-line compatible thermal enhanced extreme thin quad flat package; no leads; 16 terminals; 0.4 mm pitch; body 2 mm × 2.4 mm × 0.48 mm	SOT8016-1

3.1. Functional diagram



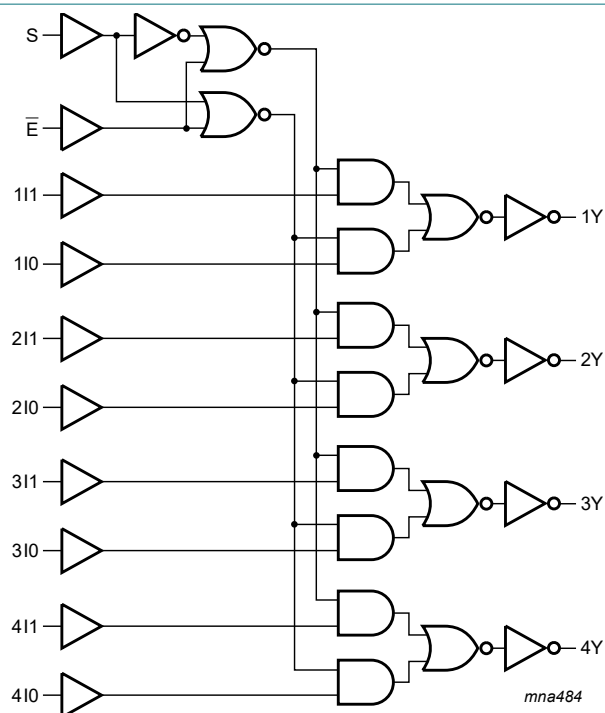
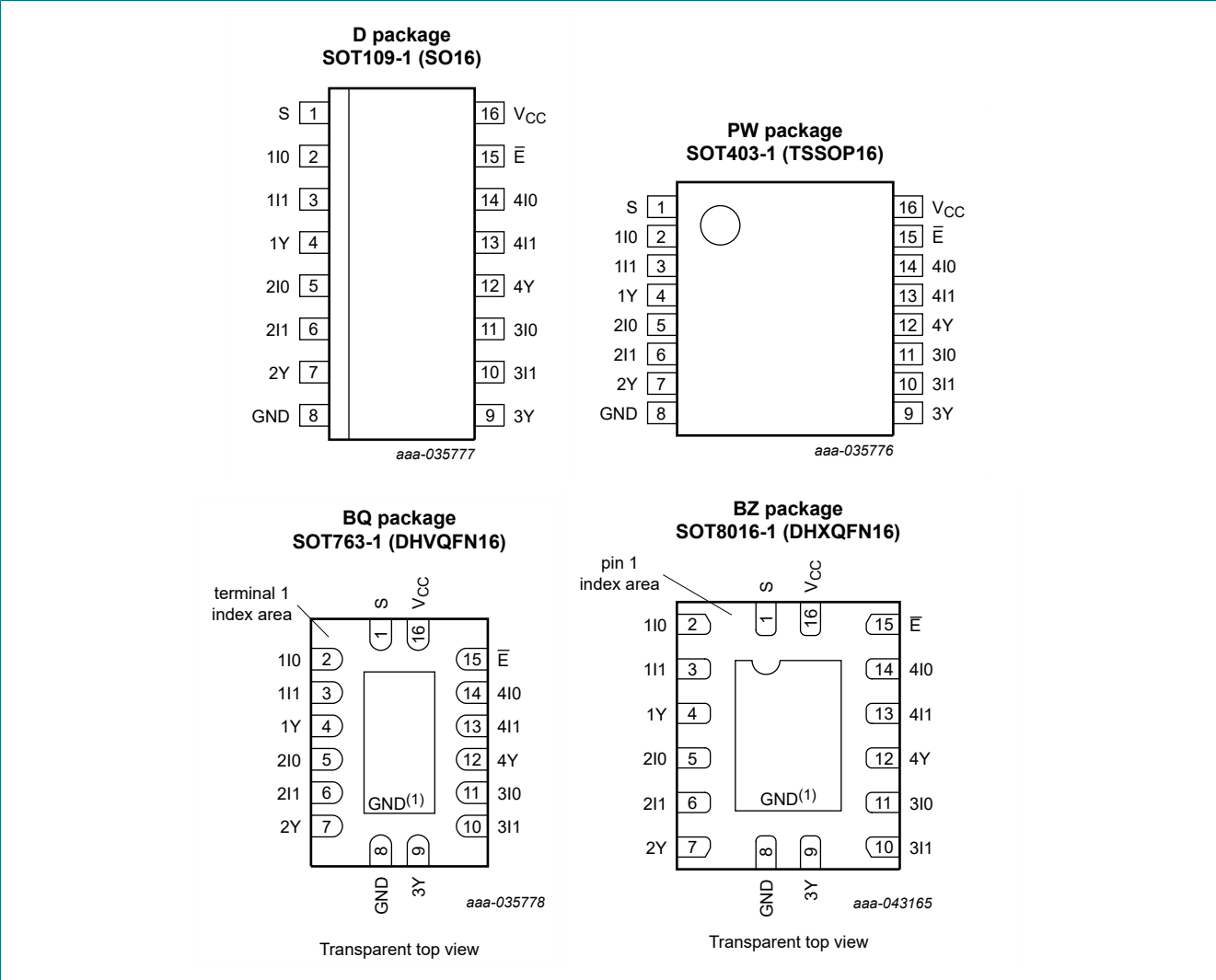


Fig. 4. Logic diagram

4. Pinning information

4.1. Pinning



4.2. Pin description

Table 2. Pin description

Symbol	Pin	Description
S	1	common data select input
1I0, 2I0, 3I0, 4I0	2, 5, 11, 14	data input from source 0
1I1, 2I1, 3I1, 4I1	3, 6, 10, 13	data input from source 1
1Y, 2Y, 3Y, 4Y	4, 7, 9, 12	multiplexer output
GND	8	ground (0 V)
E	15	enable input (active LOW)
VCC	16	supply voltage

5. Functional description

Table 3. Function table

H = HIGH voltage level; L = LOW voltage level; X = don't care

Input				Output
E	S	nI0	nI1	nY
H	X	X	X	L
L	L	L	X	L
L	L	H	X	H
L	H	X	L	L
L	H	X	H	H

6. 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	-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	-	±50	mA
V _O	output voltage	[2]	-0.5	V _{CC} + 0.5	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			
		SOT109-1 (SO16) [3]	-	500	mW
		SOT403-1 (TSSOP16) [4]			
		SOT763-1 (DHVQFN16) [5]			
		SOT8016-1 (DHXQFN16)	-	250	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] For SOT109-1 (SO16) package: P_{tot} derates linearly with 12.4 mW/K above 110 °C.
[4] For SOT403-1 (TSSOP16) package: P_{tot} derates linearly with 8.5 mW/K above 91 °C.
[5] For SOT763-1 (DHVQFN16) package: P_{tot} derates linearly with 11.2 mW/K above 106 °C.

7. 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		0	-	V _{CC}	V
T _{amb}	ambient temperature		-40	-	+125	°C

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$\Delta t/\Delta V$	input transition rise and fall rate	$V_{CC} = 1.65\text{ V to }2.7\text{ V}$	0	-	20	ns/V
		$V_{CC} = 2.7\text{ V to }3.6\text{ V}$	0	-	10	ns/V

8. 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	$V_{CC} = 1.2\text{ V}$	1.08	-	-	1.08	-	V
		$V_{CC} = 1.65\text{ V to }1.95\text{ V}$	$0.65 \times V_{CC}$	-	-	$0.65 \times V_{CC}$	-	V
		$V_{CC} = 2.3\text{ V to }2.7\text{ V}$	1.7	-	-	1.7	-	V
		$V_{CC} = 2.7\text{ V to }3.6\text{ V}$	2.0	-	-	2.0	-	V
V_{IL}	LOW-level input voltage	$V_{CC} = 1.2\text{ V}$	-	-	0.12	-	0.12	V
		$V_{CC} = 1.65\text{ V to }1.95\text{ V}$	-	-	$0.35 \times V_{CC}$	-	$0.35 \times V_{CC}$	V
		$V_{CC} = 2.3\text{ V to }2.7\text{ V}$	-	-	0.7	-	0.7	V
		$V_{CC} = 2.7\text{ V to }3.6\text{ V}$	-	-	0.8	-	0.8	V
V_{OH}	HIGH-level output voltage	$V_I = V_{IH}\text{ or }V_{IL}$						
		$I_O = -100\text{ }\mu\text{A}; V_{CC} = 1.65\text{ V to }3.6\text{ V}$	$V_{CC} - 0.2$	-	-	$V_{CC} - 0.3$	-	V
		$I_O = -4\text{ mA}; V_{CC} = 1.65\text{ V}$	1.2	-	-	1.05	-	V
		$I_O = -8\text{ mA}; V_{CC} = 2.3\text{ V}$	1.8	-	-	1.65	-	V
		$I_O = -12\text{ mA}; V_{CC} = 2.7\text{ V}$	2.2	-	-	2.05	-	V
		$I_O = -18\text{ mA}; V_{CC} = 3.0\text{ V}$	2.4	-	-	2.25	-	V
		$I_O = -24\text{ mA}; V_{CC} = 3.0\text{ V}$	2.2	-	-	2.0	-	V
V_{OL}	LOW-level output voltage	$V_I = V_{IH}\text{ or }V_{IL}$						
		$I_O = 100\text{ }\mu\text{A}; V_{CC} = 1.65\text{ V to }3.6\text{ V}$	-	-	0.2	-	0.3	V
		$I_O = 4\text{ mA}; V_{CC} = 1.65\text{ V}$	-	-	0.45	-	0.65	V
		$I_O = 8\text{ mA}; V_{CC} = 2.3\text{ V}$	-	-	0.6	-	0.8	V
		$I_O = 12\text{ mA}; V_{CC} = 2.7\text{ V}$	-	-	0.4	-	0.6	V
		$I_O = 24\text{ mA}; V_{CC} = 3.0\text{ V}$	-	-	0.55	-	0.8	V
I_I	input leakage current	$V_{CC} = 3.6\text{ V}; V_I = 5.5\text{ V or GND}$	-	± 0.1	± 5	-	± 20	μA
I_{CC}	supply current	$V_{CC} = 3.6\text{ V}; V_I = V_{CC}\text{ or GND}; I_O = 0\text{ A}$	-	0.1	10	-	40	μA
ΔI_{CC}	additional supply current	per input pin; $V_I = V_{CC} - 0.6\text{ V}; V_{CC} = 2.7\text{ V to }3.6\text{ V}; I_O = 0\text{ A}$	-	5	500	-	5000	μA
C_I	input capacitance	$V_{CC} = 0\text{ V to }3.6\text{ V}; V_I = \text{GND to }V_{CC}$	-	5.0	-	-	-	pF

[1] All typical values are measured at $V_{CC} = 3.3\text{ V}$ (unless stated otherwise) and $T_{amb} = 25\text{ }^\circ\text{C}$.

9. Dynamic characteristics

Table 7. Dynamic characteristics

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

Symbol	Parameter	Conditions	-40 °C to +85 °C			-40 °C to +125 °C		Unit
			Min	Typ[1]	Max	Min	Max	
t_{pd}	propagation delay	nI0, nI1 to nY; see Fig. 5 [2]						
		$V_{CC} = 1.2\text{ V}$	-	16	-	-	-	ns
		$V_{CC} = 1.65\text{ V to }1.95\text{ V}$	1.0	4.8	10.2	1.0	11.8	ns
		$V_{CC} = 2.3\text{ V to }2.7\text{ V}$	1.5	2.8	5.8	1.5	6.7	ns
		$V_{CC} = 2.7\text{ V}$	1.0	2.9	5.9	1.0	7.5	ns
		$V_{CC} = 3.0\text{ V to }3.6\text{ V}$	1.0	2.5	5.2	1.0	6.5	ns
		$\bar{E}$ to nY; see Fig. 6 [2]						
		$V_{CC} = 1.2\text{ V}$	-	17	-	-	-	ns
		$V_{CC} = 1.65\text{ V to }1.95\text{ V}$	0.5	4.8	12.8	0.5	14.7	ns
		$V_{CC} = 2.3\text{ V to }2.7\text{ V}$	1.5	2.8	7.2	1.5	8.3	ns
		$V_{CC} = 2.7\text{ V}$	1.0	2.9	7.8	1.0	10.0	ns
		$V_{CC} = 3.0\text{ V to }3.6\text{ V}$	1.0	2.6	6.5	1.0	8.5	ns
		S to nY; see Fig. 5 [2]						
		$V_{CC} = 1.2\text{ V}$	-	16	-	-	-	ns
		$V_{CC} = 1.65\text{ V to }1.95\text{ V}$	1.0	5.1	12.4	1.0	14.3	ns
		$V_{CC} = 2.3\text{ V to }2.7\text{ V}$	1.5	3.0	7.0	1.5	8.1	ns
		$V_{CC} = 2.7\text{ V}$	1.0	3.1	7.3	1.0	9.5	ns
		$V_{CC} = 3.0\text{ V to }3.6\text{ V}$	1.0	2.7	6.3	1.0	8.0	ns
$t_{sk(o)}$	output skew time	$V_{CC} = 3.0\text{ V to }3.6\text{ V}$ [3]	-	-	1.0	-	1.5	ns
C_{PD}	power dissipation capacitance	per input; $V_I = \text{GND to } V_{CC}$ [4]						
		$V_{CC} = 1.65\text{ V to }1.95\text{ V}$	-	9.4	-	-	-	pF
		$V_{CC} = 2.3\text{ V to }2.7\text{ V}$	-	12.8	-	-	-	pF
		$V_{CC} = 3.0\text{ V to }3.6\text{ V}$	-	15.9	-	-	-	pF

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

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

[3] Skew between any two outputs of the same package switching in the same direction. This parameter is guaranteed by design.

[4] C_{PD} is used to determine the dynamic power dissipation (P_D in μW).

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

f_i = input frequency in MHz; f_o = output frequency in MHz

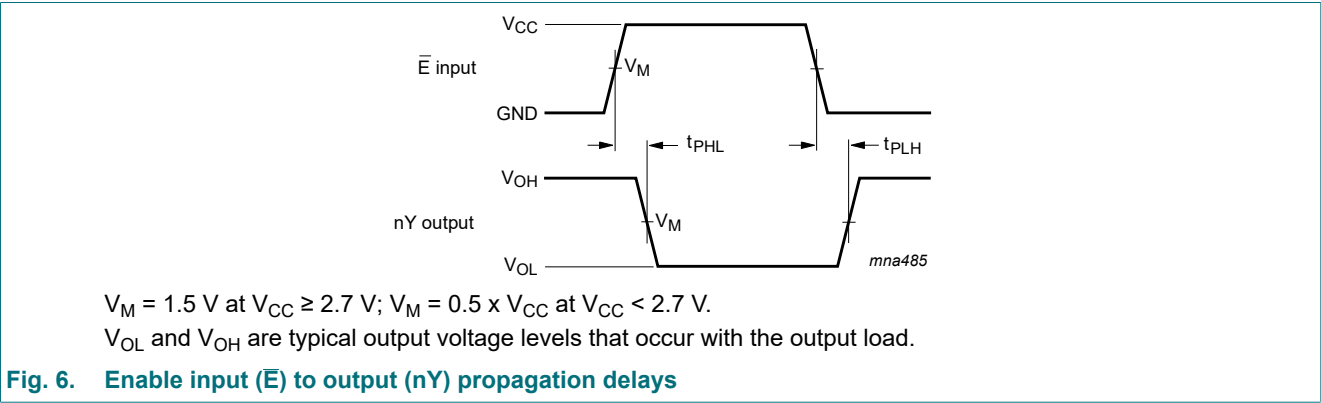
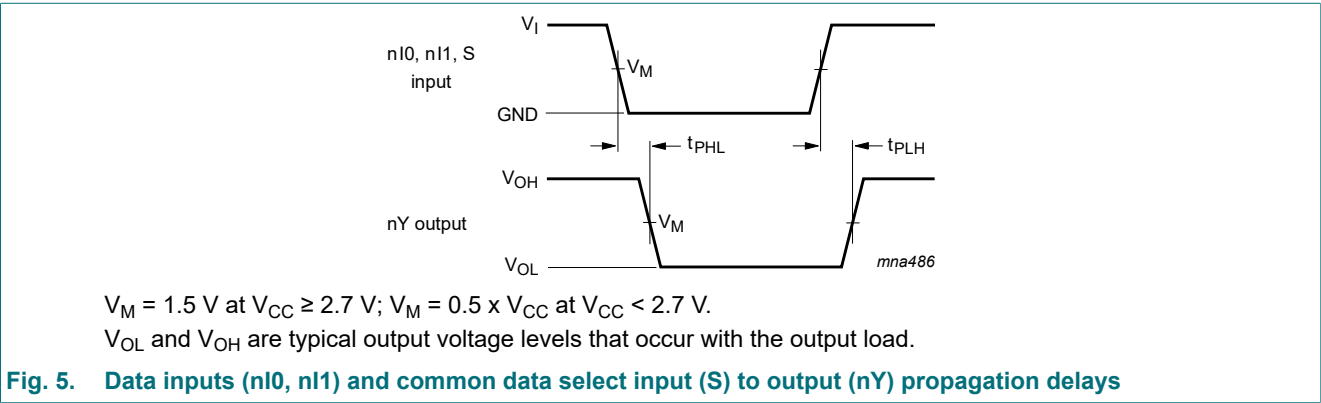
C_L = output load capacitance in pF

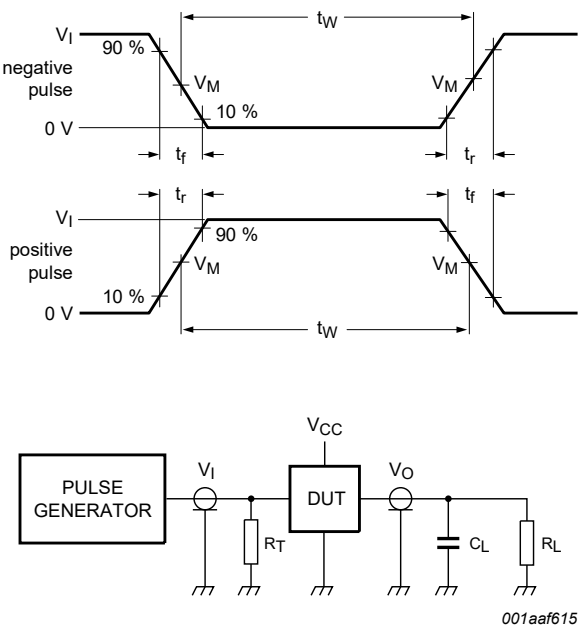
V_{CC} = supply voltage in V

N = number of inputs switching

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

9.1. Waveforms and test circuit





Test data is given in [Table 8](#).
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.

Fig. 7. Test circuit for measuring switching times

Table 8. Test data

Supply voltage	Input		Load	
	V_I	t_r, t_f	C_L	R_L
1.2 V	V_{CC}	≤ 2 ns	30 pF	1 k Ω
1.65 V to 1.95 V	V_{CC}	≤ 2 ns	30 pF	1 k Ω
2.3 V to 2.7 V	V_{CC}	≤ 2 ns	30 pF	500 Ω
2.7 V	2.7 V	≤ 2.5 ns	50 pF	500 Ω
3.0 V to 3.6 V	2.7 V	≤ 2.5 ns	50 pF	500 Ω

10. Package outline

SO16: plastic small outline package; 16 leads; body width 3.9 mm SOT109-1

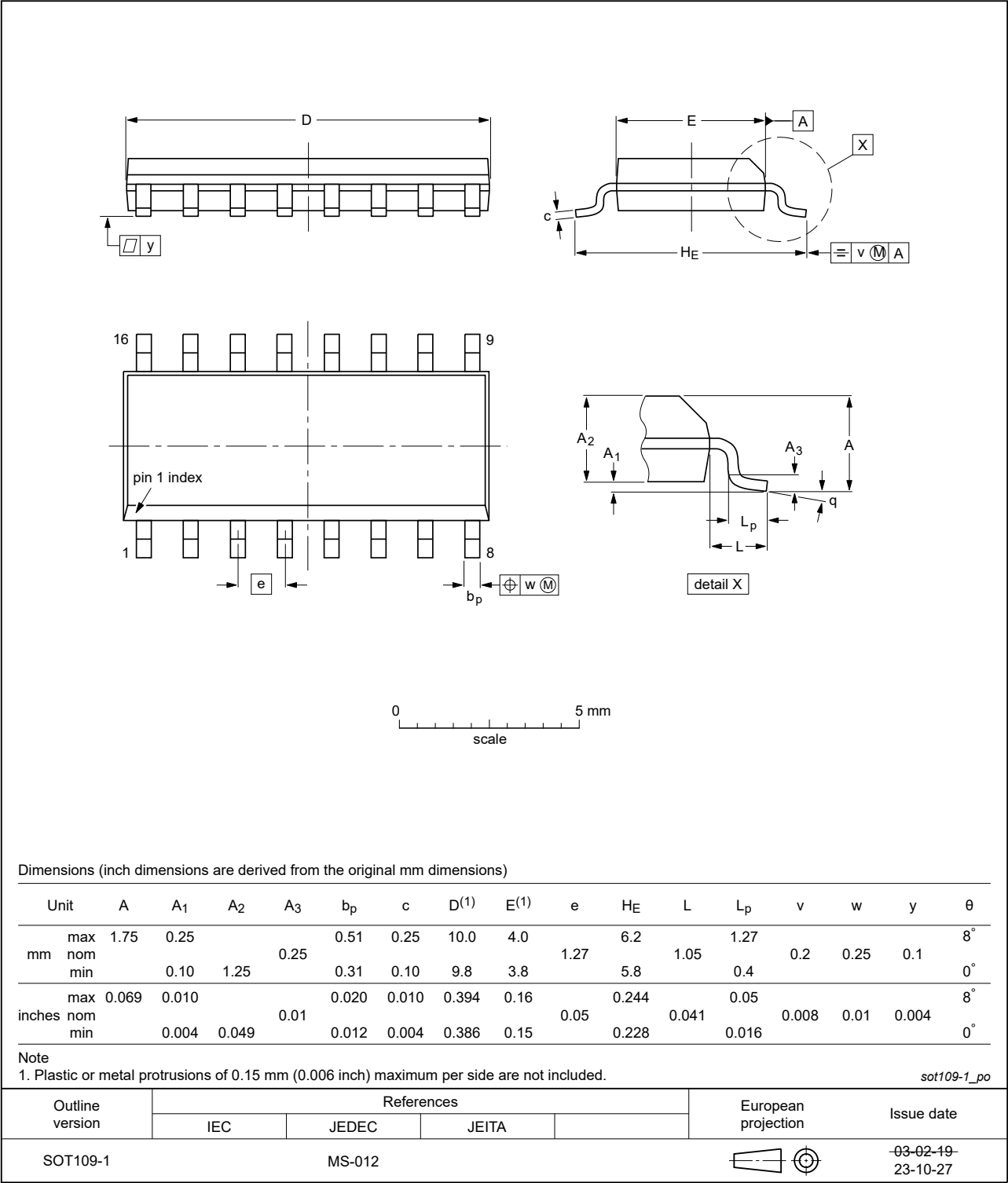


Fig. 8. Package outline SOT109-1 (SO16)

TSSOP16: plastic thin shrink small outline package; 16 leads; body width 4.4 mm

SOT403-1



Fig. 9. Package outline SOT403-1 (TSSOP16)

DHVQFN16: plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads;
16 terminals; body 2.5 x 3.5 x 0.85 mm SOT763-1

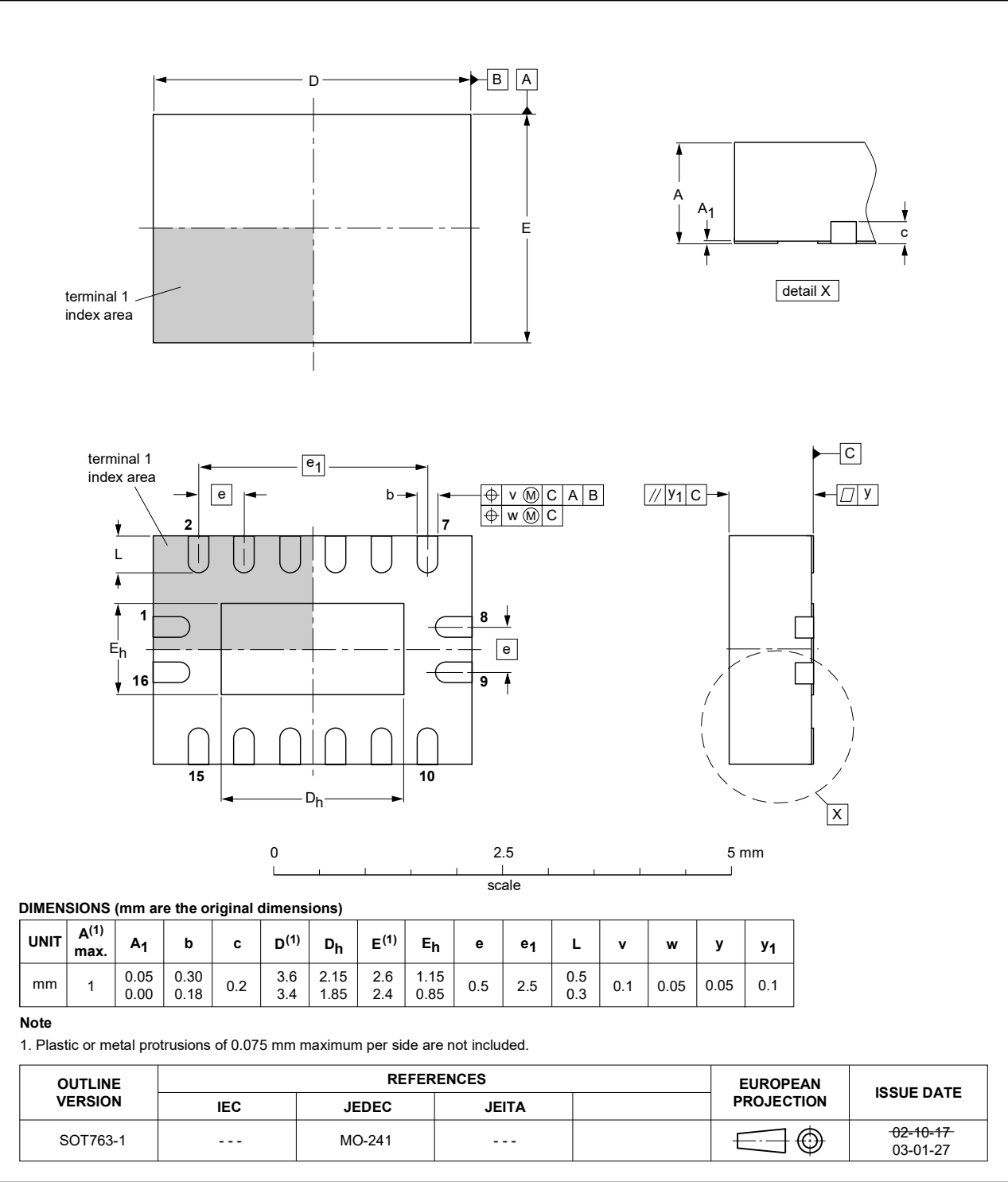


Fig. 10. Package outline SOT763-1 (DHVQFN16)

DHXQFN16: plastic, leadless dual in-line compatible thermal enhanced extreme thin quad flat package;
no leads; 16 terminals; 0.4 mm pitch; body 2 mm x 2.4 mm x 0.48 mm

SOT8016-1

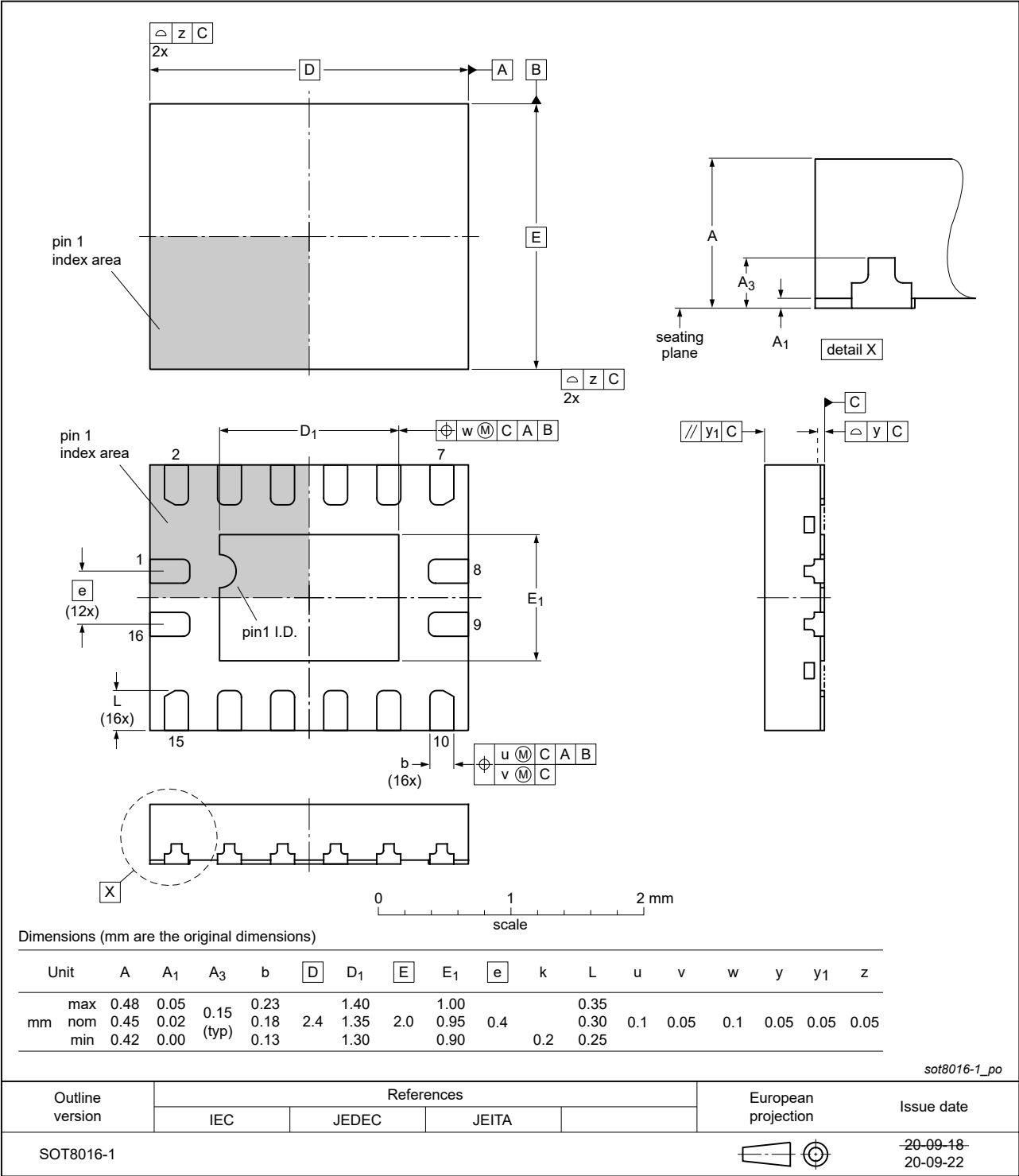


Fig. 11. Package outline SOT8016-1 (DHXQFN16)

11. Abbreviations

Table 9. Abbreviations

Acronym	Description
ANSI	American National Standards Institute
CDM	Charged Device Model
CMOS	Complementary Metal-Oxide Semiconductor
DUT	Device Under Test
ESD	ElectroStatic Discharge
ESDA	ElectroStatic Discharge Association
HBM	Human Body Model
JEDEC	Joint Electron Device Engineering Council
TTL	Transistor-Transistor Logic

12. Revision history

Table 10. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74LVC157A v.13	20250509	Product data sheet	-	74LVC157A v.12
Modifications:	• Type number 74LVC157ABZ (SOT8016-1/DHXQFN16 added.			
74LVC157A v.12	20240212	Product data sheet	-	74LVC157A v.11
Modifications:	• Fig. 8 , Fig. 9 : Aligned SO and TSSOP package outline drawings to JEDEC MS-012 and MO-153.			
74LVC157A v.11	20230804	Product data sheet	-	74LVC157A v.10
Modifications:	• Section 2 : ESD specification updated according to the latest JEDEC standard.			
74LVC157A v.10	20210920	Product data sheet	-	74LVC157A v.9
Modifications:	• Type number 74LVC157ADB (SOT338-1/SSOP16) removed. • Section 1 updated.			
74LVC157A v.9	20200319	Product data sheet	-	74LVC157A v.8
Modifications:	• Table 4 : Derating values for P _{tot} total power dissipation updated.			
74LVC157A v.8	20171011	Product data sheet	-	74LVC157A v.7
Modifications:	• The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia. • Legal texts have been adapted to the new company name where appropriate.			
74LVC157A v.7	20111125	Product data sheet	-	74LVC157A v.6
Modifications:	• Table 7 : maximum values for lower voltage ranges changed (errata).			
74LVC157A v.6	20111027	Product data sheet	-	74LVC157A 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 4 , Table 5 , Table 6 , Table 7 , and Table 8 : values added for lower voltage ranges.			
74LVC157A v.5	031202	Product specification	-	74LVC157A v.4
74LVC157A v.4	030617	Product specification	-	74LVC157A v.3
74LVC157A v.3	020315	Product specification	-	74LVC157A v.2
74LVC157A v.2	980729	Product specification	-	-

13. Legal information

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 <https://www.nexperia.com>.

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