

74ABT16244A

16-bit buffer/line driver; 3-state

Rev. 8 — 3 November 2011

Product data sheet

1. General description

The 74ABT16244A high-performance Bipolar CMOS (BiCMOS) device combines low static and dynamic power dissipation with high speed and high output drive.

The 74ABT16244A is a 16-bit buffer that is ideal for driving bus lines. The device features four output enable inputs ($\overline{1OE}$, $\overline{2OE}$, $\overline{3OE}$, $\overline{4OE}$), each controlling four of the 3-state outputs.

2. Features and benefits

- 16-bit bus interface
- Multiple V_{CC} and GND pins minimize switching noise
- Power-up 3-state
- 3-state buffers
- Output capability: +64 mA and -32 mA
- Live insertion and extraction permitted
- Latch-up performance: JESD 78 Class II
- ESD protection:
 - ◆ HBM JESD-A114E exceeds 2000 V
 - ◆ CDM JESD 22-C101-C exceeds 1000 V

3. Ordering information

Table 1. Ordering information

Type number	Package			
	Temperature range	Name	Description	Version
74ABT16244ADGG	-40 °C to +85 °C	TSSOP48	plastic thin shrink small outline package; 48 leads; body width 6.1 mm	SOT362-1
74ABT16244ADL	-40 °C to +85 °C	SSOP48	plastic shrink small outline package; 48 leads; body width 7.5 mm	SOT370-1



5. Pinning information

5.1 Pinning

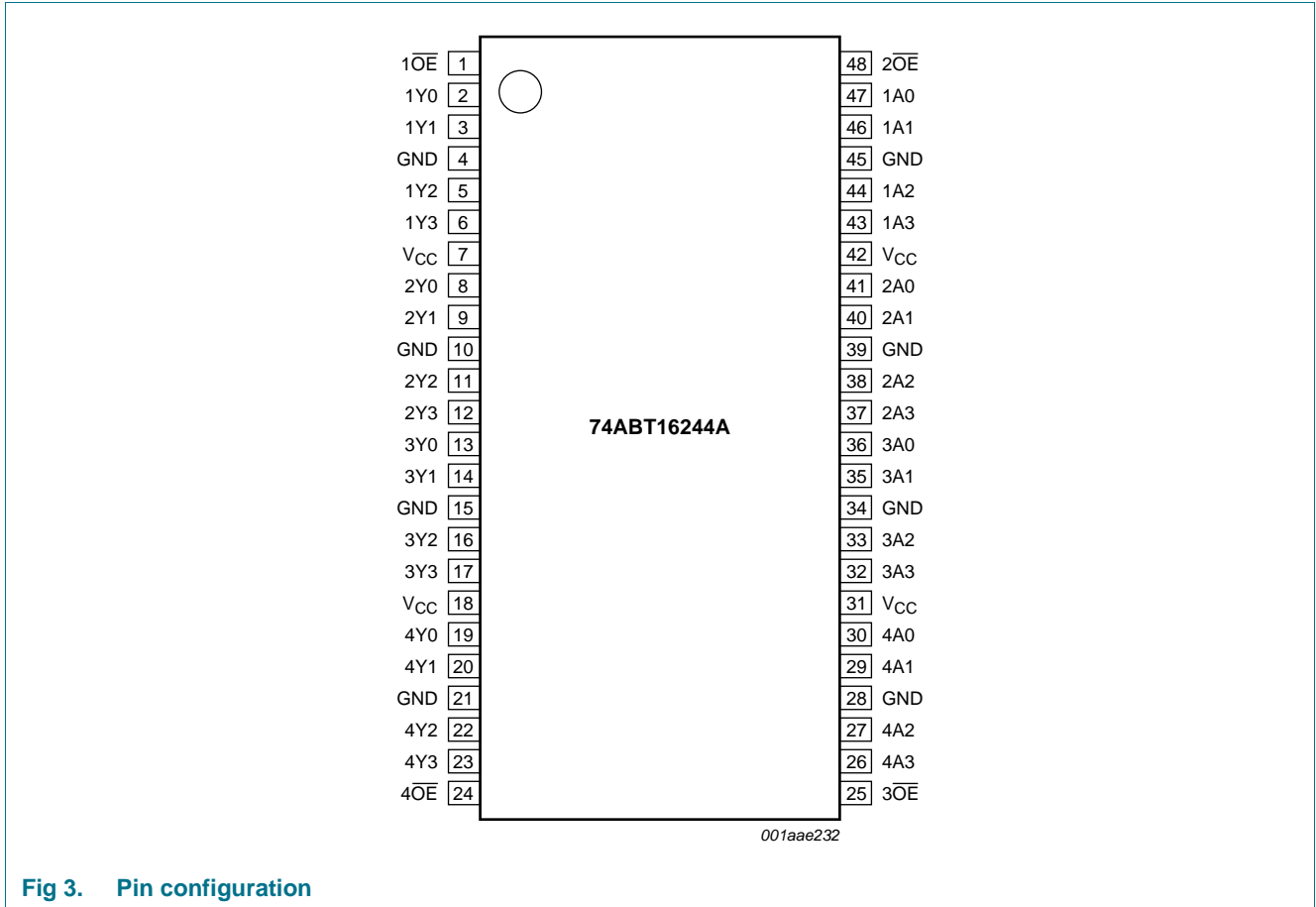


Fig 3. Pin configuration

5.2 Pin description

Table 2. Pin description

Symbol	Pin	Description
1OE	1	1 output enable (LOW active)
1Y[0:3]	2, 3, 5, 6	1 data output 0 to output 3
GND	4	ground (0 V)
V _{CC}	7	supply voltage
2Y[0:3]	8, 9, 11, 12	2 data output 0 to output 3
GND	10	ground (0 V)
3Y[0:3]	13, 14, 16, 17	3 data output 0 to output 3
GND	15	ground (0 V)
V _{CC}	18	supply voltage
4Y[0:3]	19, 20, 22, 23	4 data output 0 to output 3
GND	21	ground (0 V)

6. Functional description

Table 3. Function table^[1]

Control	Input	Output
nOE	nAn	nYn
L	L	L
	H	H
H	X	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).

Symbol	Parameter	Conditions	Min	Max	Unit
V_{CC}	supply voltage		-0.5	+7.0	V
V_I	input voltage		^[1] -1.2	+7.0	V
V_O	output voltage	output in OFF-state or HIGH-state	^[1] -0.5	+5.5	V
I_{IK}	input clamping current	$V_I < 0$ V	-18	-	mA
I_{OK}	output clamping current	$V_O < 0$ V	-50	-	mA
I_O	output current	output in LOW-state	-	128	mA
		output in HIGH-state	-	-64	mA
T_j	junction temperature		^[2] -	150	°C
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] The performance capability of a high-performance integrated circuit in conjunction with its thermal environment can create junction temperatures which are detrimental to reliability.

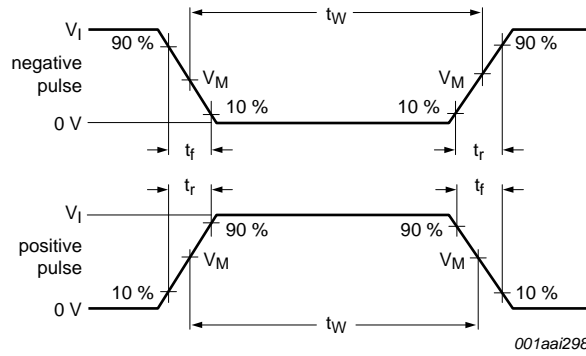
8. Recommended operating conditions

Table 5. Operating conditions

Voltages are referenced to GND (ground = 0 V).

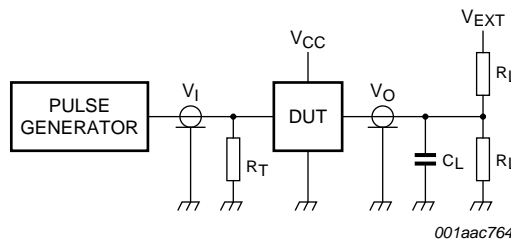
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{CC}	supply voltage		4.5	-	5.5	V
V_I	input voltage		0	-	V_{CC}	V
V_{IH}	HIGH-level input voltage		2.0	-	-	V
V_{IL}	LOW-level Input voltage		-	-	0.8	V
I_{OH}	HIGH-level output current		-32	-	-	mA
I_{OL}	LOW-level output current		-	-	64	mA
$\Delta t/\Delta V$	input transition rise and fall rate		-	-	10	ns/V
T_{amb}	ambient temperature	in free air	-40	-	+85	°C

12. Test information



$V_M = 1.5\text{ V}$

a. Input pulse definition



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

Definitions 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.

b. Test circuit for 3-state outputs

Fig 6. Load circuitry for switching times

Table 8. Test data

Input				Load		V_{EXT}		
V_I	f_i	t_w	t_r, t_f	C_L	R_L	t_{PHZ}, t_{PZH}	t_{PLZ}, t_{PZL}	t_{PLH}, t_{PHL}
3.0 V	1 MHz	500 ns	2.5 ns	50 pF	500 Ω	open	7.0 V	open

13. Package outline

TSSOP48: plastic thin shrink small outline package; 48 leads; body width 6.1 mm

SOT362-1

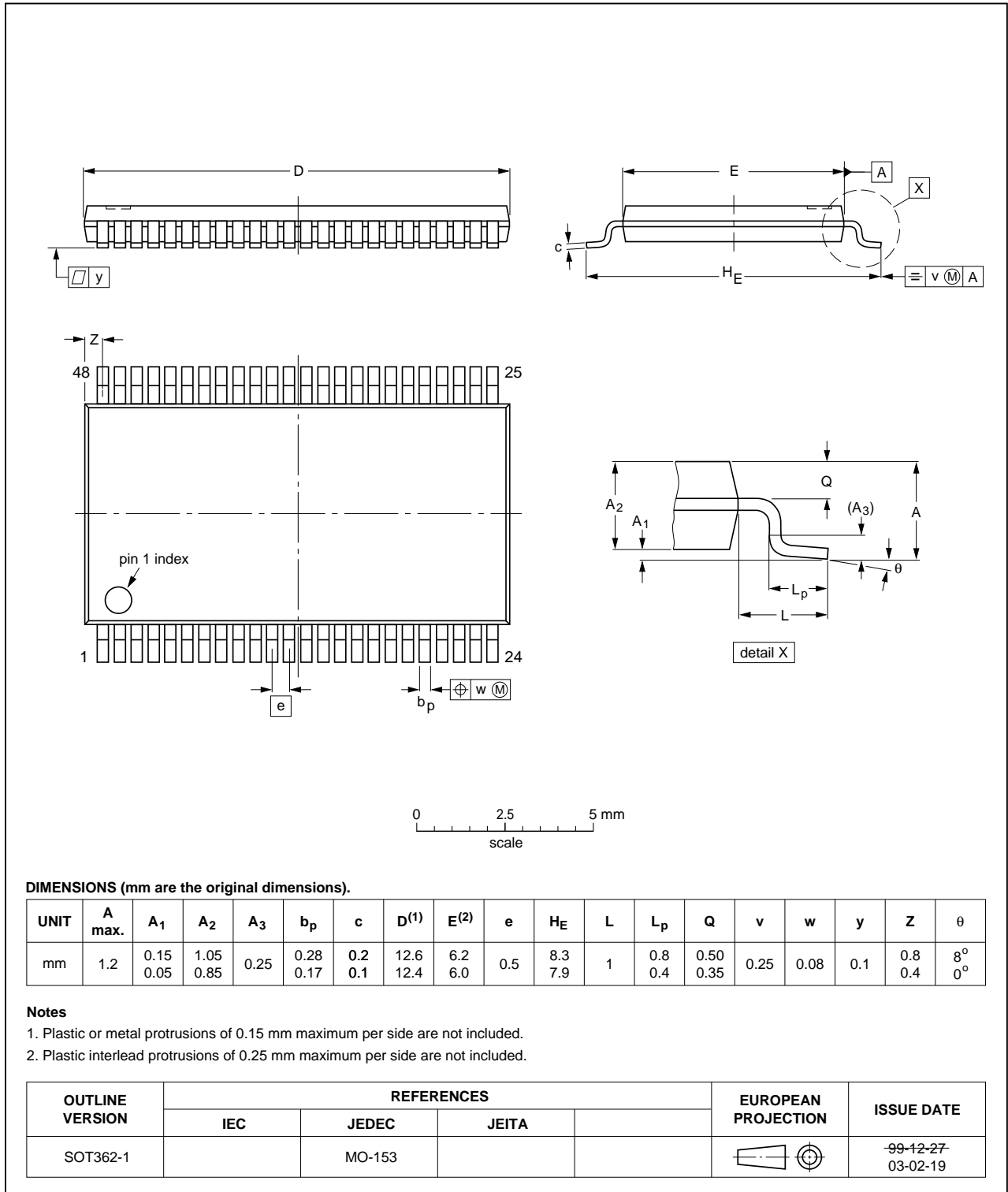


Fig 7. Package outline SOT362-1 (TSSOP48)

SSOP48: plastic shrink small outline package; 48 leads; body width 7.5 mm

SOT370-1

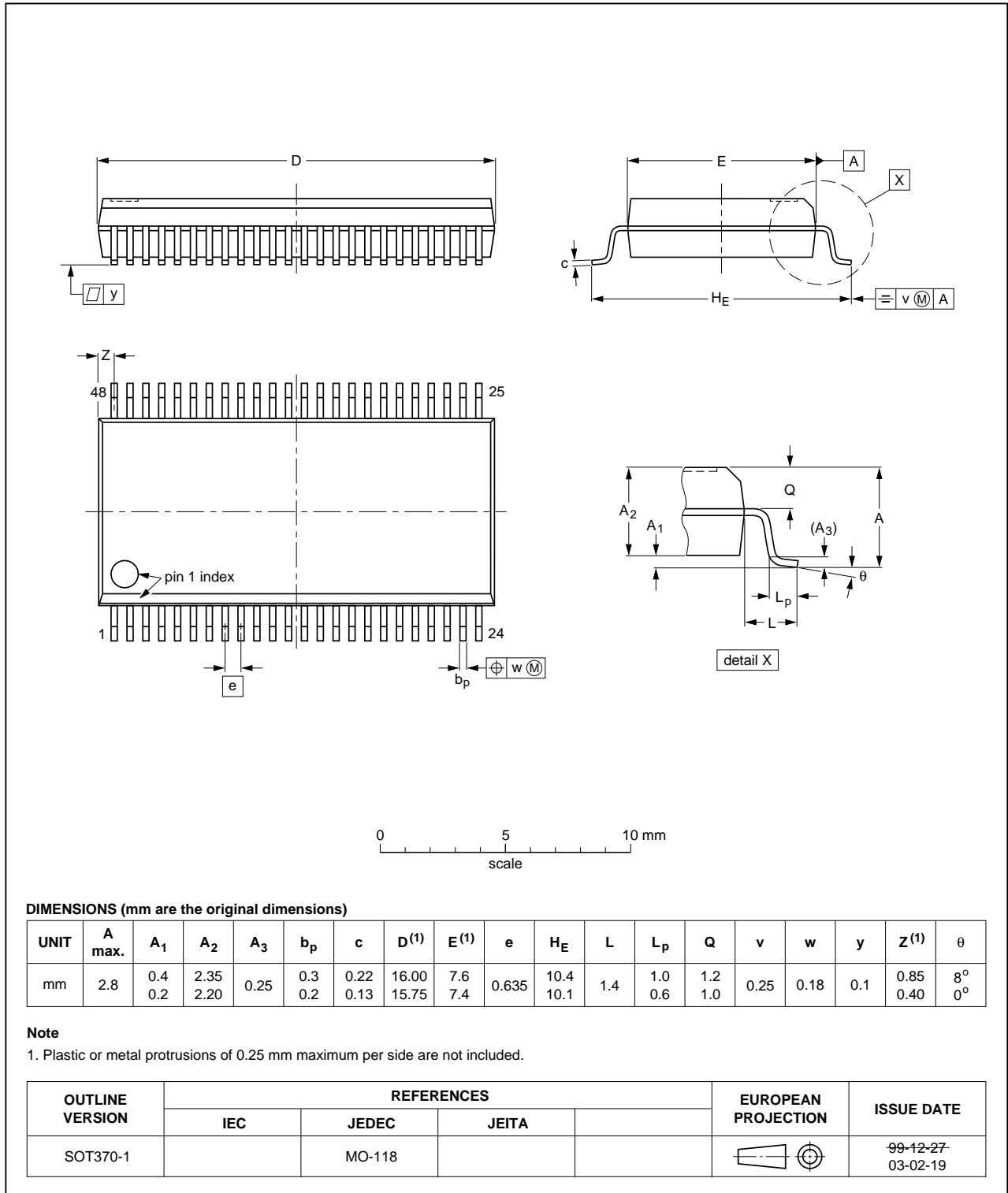


Fig 8. Package outline SOT370-1 (SSOP48)

14. Revision history

Table 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74ABT16244A v.8	20111103	Product data sheet	-	74ABT16244A v.7
Modifications:	• Legal pages updated			
74ABT16244A v.7	20100525	Product data sheet	-	74ABT16244A v.6
74ABT16244A v.6	20090323	Product data sheet	-	74ABT16244A v.5
74ABT16244A v.5	20060210	Product data sheet	-	74ABT_H16244A v.4
74ABT_H16244A v.4	19981007	Product specification	-	74ABT_H16244A v.3
74ABT_H16244A v.3	19980225	Product specification	-	74ABT_H16244A v.2

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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