

- Member of the Texas Instruments *Widebus*™ Family
- State-of-the-Art *EPIC-II B*™ BiCMOS Design Significantly Reduces Power Dissipation
- Typical V_{OLP} (Output Ground Bounce) $< 1\text{ V}$ at $V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$
- Distributed V_{CC} and GND Pin Configuration Minimizes High-Speed Switching Noise
- Flow-Through Architecture Optimizes PCB Layout
- High-Drive Outputs ($-32\text{-mA } I_{OH}$, $64\text{-mA } I_{OL}$)
- Packaged in Plastic 300-mil Shrink Small-Outline (SSOP) Packages

description

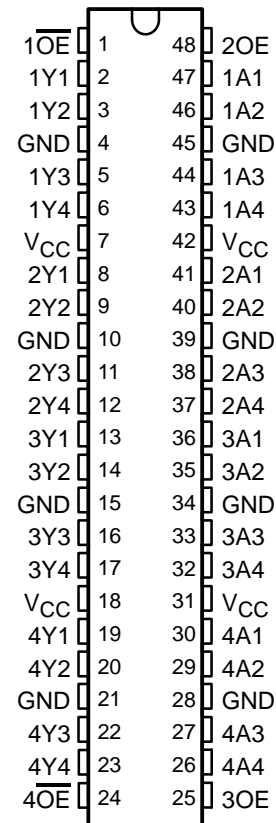
The SN74ABT16241 is a 16-bit buffer and line driver designed specifically to improve both the performance and density of 3-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters. The device can be used as four 4-bit buffers, two 8-bit buffers, or one 16-bit buffer. This device provides true outputs and complementary output-enable (\overline{OE} and \overline{OE}) inputs.

To ensure the high-impedance state during power up or power down, \overline{OE} should be tied to V_{CC} through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver. OE should be tied to GND through a pulldown resistor; the minimum value of the resistor is determined by the current-sourcing capability of the driver.

The SN74ABT16241 is available in TI's shrink small-outline package (DL), which provides twice the I/O pin count and functionality of standard small-outline packages in the same printed-circuit-board area.

The SN74ABT16241 is characterized for operation from -40°C to 85°C .

DL PACKAGE
(TOP VIEW)



FUNCTION TABLE

INPUTS		OUTPUTS 1Y, 4Y	INPUTS		OUTPUTS 2Y, 3Y
$\overline{1OE}$, $\overline{4OE}$	1A, 4A		$\overline{2OE}$, $\overline{3OE}$	2A, 3A	
L	H	H	H	H	H
L	L	L	H	L	L
H	X	Z	L	X	Z

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PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

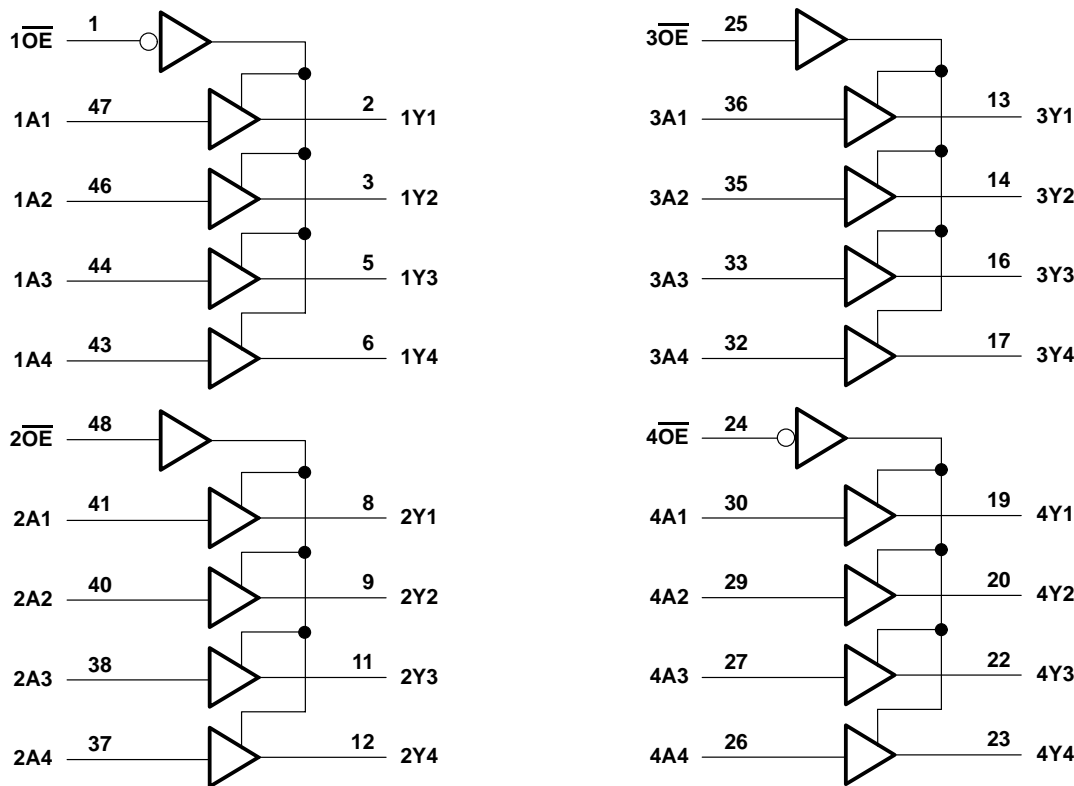


SN74ABT16241
16-BIT BUFFER/DRIVER
WITH 3-STATE OUTPUTS

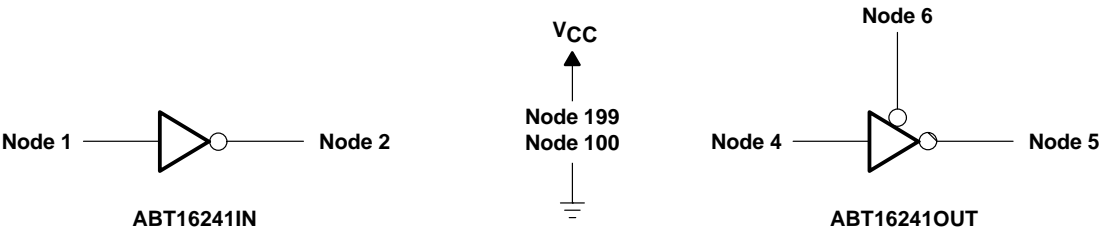
SCBS347 – MAY 1994

SPICE I/O MODEL

logic diagram (positive logic)



SPICE block diagram



SPICE FUNCTION TABLE

NODE		OPERATION	NODE			OPERATION
1	2		4	5	6	
L	H	Input	L	H	L	Output
H	L	Input	H	L	L	Output
			X	Z	H	Hi-Z

SPICE netlist

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*      ABT16241 SPICE I/O MODEL SUBCIRCUIT
*      ADVANCED BUS INTERFACE
*      ADVANCED SYSTEM LOGIC, TEXAS INSTRUMENTS
*
*      SUBCIRCUITS:  ABT16241IN, ABT16241OUT
*
*      PACKAGE PARASITICS
*        .LIB 'PKGS.LIB'    SSOP48
*
*      PROCESS MODELS
*        .LIB 'EPIC2B.LIB'  NOMINAL_L13
*        .LIB 'EPIC2B.LIB'  STRONG_L13
*        .LIB 'EPIC2B.LIB'  WEAK_L13
*
*      ABT16241 INPUT SUBCIRCUIT
*      NODES:          INPUT NODE
*                      |
*                      | INTERNAL OUTPUT NODE
*                      |
*                      | VCC
*                      |
*                      | GND
*
*      .SUBCKT ABT16241IN
*      X_PKGIN      1      1001      2      199      100      SSOP48_47
*      X_PKGVCC     199     1199      1199     1100      SSOP48_07
*      X_PKG_GND    100     1100      1100     1100      SSOP48_04
*      XABT16241IN 1001    2      1199     1100      ABT16241__IN
*      .ENDS ABT16241IN
*
*      ABT16241 OUTPUT SUBCIRCUIT
*      NODES:          INTERNAL INPUT NODE
*                      |
*                      | OUTPUT NODE
*                      |
*                      | INTERNAL OE NODE
*                      |
*                      | VCC
*                      |
*                      | GND
*
*      .SUBCKT ABT16241OUT
*      X_PKGOUT     5      1005      5      6      199      100      SSOP48_02
*      X_PKGVCC     199     1199      1199     1100      SSOP48_07
*      X_PKG_GND    100     1100      1100     1100      SSOP48_04
*      XABT16241OUT 4      1005      6      1199     1100      ABT16241__OUT
*      .ENDS ABT16241OUT
*
*      .SUBCKT ABT16241__IN
*      XP1          502     504     506     599     500      WP=200U      LP=0.8U
*      XP2          509     502     599     599     PM        WP=20U       LP=0.8U
*      XP3          506     509     599     599     PM        WP=85U       LP=0.8U
*      XP4          508     500     599     599     PM        WP=50U       LP=0.8U
*      XN1          502     504     500     500     NM        WN=220U      LN=0.8U
*      XN2          509     502     500     500     NM        WN=20U       LN=0.8U
*      XN4          599     500     508     500     NM        WN=20U       LN=0.8U
*      QA          599     508     507     Q2_NPN    10
*      QB          599     507     506     Q5_NPN    60
*      Q_ESD1       501     500     500     Q7_NPN    200
*      Q_ESD        504     505     500     Q5_NPN    46
*      XR1          506     507     507     507     RMOS      WR=4U        RES=6K
*      RESD1        501     504     50
*      RESD2        505     500     1K
*      CBP          501     500     0.3P
*      CL           502     500     0.2P
*      .ENDS ABT16241__IN
*
*      .SUBCKT ABT16241__OUT
*      XP1          605     603     699     699     PM        WP=200U      LP=0.8U
*      XP4          601     603     621     699     PM        WP=40U       LP=0.8U
*      XP5          613     601     605     699     PM        WP=30U       LP=0.8U
*      XP10         618     603     699     699     PM        WP=50U       LP=0.8U
*      XP11         607     612     605     699     PM        WP=60U       LP=0.8U
*      XN1          607     601     608     600     NM        WN=100U      LN=0.8U

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SN74ABT16241

16-BIT BUFFER/DRIVER

WITH 3-STATE OUTPUTS

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SPICE I/O MODEL

SPICE netlist (continued)

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XN2      606  619  607  600  NM      WN=50U      LN=0.8U
XN3      608  609  600  600  NM      WN=25U      LN=0.8U
XN4      608  603  600  600  NM      WN=80U      LN=0.8U
XN6      613  603  600  600  NM      WN=25U      LN=0.8U
XN7      602  621  600  600  NM      WN=100U     LN=0.8U
XN8      621  603  600  600  NM      WN=10U      LN=0.8U
XN9      601  622  621  600  NM      WN=20U      LN=0.8U
XN10     619  619  620  600  NM      WN=25U      LN=0.8U
XN11     620  604  602  600  NM      WN=25U      LN=0.8U
XN12     613  601  600  600  NM      WN=40U      LN=0.8U
QM1      616  615  602      Q9_NPN      200
QM2      602  608  600      Q11_NPN     600
QM3      614  613  615      Q4_NPN      15
QD4      614  614  616      Q2_NPN      8
QDR1     615  615  613      Q2_NPN      8
D1       613  614      D1_GDS     156
D2       699  617      D9_GSD     4700
XR1      606  605  605  605  RMOS     WR=6U      RES=1K
XR2      607  606  606  606  RMOS     WR=4U      RES=3K
XR3      614  605  605  605  RMOS     WR=6U      RES=1K
R4       616  617      10
XR10     619  618  618  618  RMOS     WR=3U      RES=20K
XPVREF   670  603  699  699  PM       WP=50U      LP=0.8U
XNVREF   671  671  600  600  NM       WN=30U      LN=0.8U
XRVREF1  604  670  670  670  RMOS     WR=3U      RES=20K
XRVREF2  671  604  604  604  RMOS     WR=3U      RES=1.5K
XNCLAMP  673  612  674  600  NM       WN=250U     LN=0.8U
DCLAMP1  608  673      D6_GSD     800
DCLAMP2  674  602      D6_GSD     800
XPNOR1   675  609  699  699  PM       WP=30U      LP=0.8U
XPNOR2   612  611  675  699  PM       WP=30U      LP=0.8U
XNNOR1   612  611  600  600  NM       WN=6U      LN=0.8U
XNNOR2   612  609  600  600  NM       WN=6U      LN=0.8U
XP_INV1  609  601  699  699  PM       WP=20U      LP=0.8U
XN_INV1  609  601  600  600  NM       WN=10U      LN=0.8U
XP_INV2  622  603  699  699  PM       WP=15U      LP=0.8U
XN_INV2  622  603  600  600  NM       WN=5U      LN=0.8U
XP_INV3  610  603  699  699  PM       WP=4U      LP=0.8U
XN_INV3  610  603  600  600  NM       WN=4U      LN=0.8U
XP_INV4  611  610  699  699  PM       WP=4U      LP=0.8U
XN_INV4  611  610  600  600  NM       WN=4U      LN=0.8U
CBP      602  600      0.3P
.ENDS ABT16241__OUT
*
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