

SN54AS1032A, SN74AS1032A QUADRUPLE 2-INPUT POSITIVE-OR BUFFERS/DRIVERS

SDAS072B – DECEMBER 1982 – REVISED JANUARY 1995

- Driver Version of 'AS32
- High Capacitive-Drive Capability
- Package Options Include Plastic Small-Outline (D) Packages, Ceramic Chip Carriers (FK), and Standard Plastic (N) and Ceramic (J) 300-mil DIPs

description

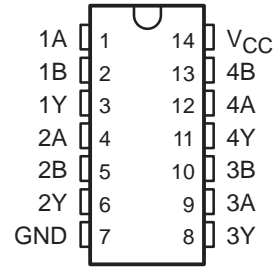
These devices contain four independent 2-input positive-OR buffers/drivers. They perform the Boolean functions $Y = A + B$ or $Y = \overline{A} \cdot \overline{B}$ in positive logic.

The SN54AS1032A is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74AS1032A is characterized for operation from 0°C to 70°C .

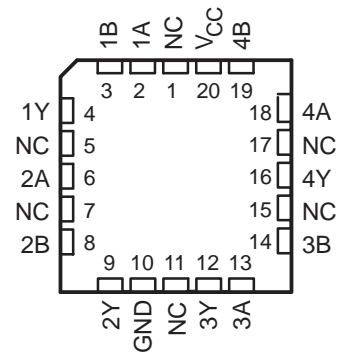
FUNCTION TABLE
(each gate)

INPUTS		OUTPUT
A	B	Y
H	X	H
X	H	H
L	L	L

SN54AS1032A . . . J PACKAGE
SN74AS1032A . . . D OR N PACKAGE
(TOP VIEW)

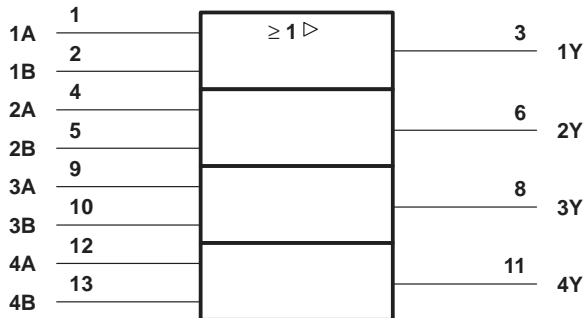


SN54AS1032A . . . FK PACKAGE
(TOP VIEW)

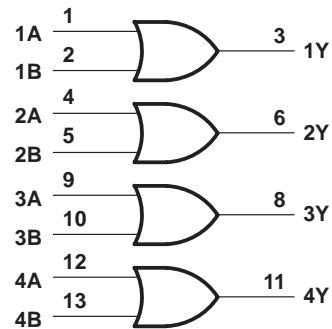


NC – No internal connection

logic symbol†



logic diagram (positive logic)



† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

Pin numbers shown are for the D, J, and N packages.

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absolute maximum ratings over operating free-air temperature range (unless otherwise noted)†

Supply voltage, V_{CC}	7 V
Input voltage, V_I	7 V
Operating free-air temperature range, T_A : SN54AS1032A	-55°C to 125°C
SN74AS1032A	0°C to 70°C
Storage temperature range	-65°C to 150°C

† Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

recommended operating conditions‡

		SN54AS1032A			SN74AS1032A			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC}	Supply voltage	4.5	5	5.5	4.5	5	5.5	V
V_{IH}	High-level input voltage	2			2			V
V_{IL}	Low-level input voltage			0.8			0.8	V
I_{OH}	High-level output current			-40			-48	mA
I_{OL}	Low-level output current			40			48	mA
T_A	Operating free-air temperature	-55		125	0		70	°C

‡ These high sink- or source-current devices are not recommended for use above 40 MHz.

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER	TEST CONDITIONS	SN54AS1032A			SN74AS1032A			UNIT
		MIN	TYP§	MAX	MIN	TYP§	MAX	
V_{IK}	$V_{CC} = 4.5$ V, $I_I = -18$ mA			-1.2			-1.2	V
V_{OH}	$V_{CC} = 4.5$ V to 5.5 V, $I_{OH} = -2$ mA	$V_{CC} - 2$			$V_{CC} - 2$			V
	$V_{CC} = 4.5$ V, $I_{OH} = -3$ mA	2.4	3.2		2.4	3.2		
	$V_{CC} = 4.5$ V, $I_{OH} = -40$ mA	2						
	$V_{CC} = 4.5$ V, $I_{OH} = -48$ mA				2			
V_{OL}	$V_{CC} = 4.5$ V, $I_{OL} = 40$ mA	0.25 0.5						V
	$V_{CC} = 4.5$ V, $I_{OL} = 48$ mA				0.35 0.5			
I_I	$V_{CC} = 5.5$ V, $V_I = 7$ V			0.1			0.1	mA
I_{IH}	$V_{CC} = 5.5$ V, $V_I = 2.7$ V			20			20	μA
I_{IL}	$V_{CC} = 5.5$ V, $V_I = 0.4$ V			-0.5			-0.5	mA
I_{O}^{\parallel}	$V_{CC} = 5.5$ V, $V_O = 2.25$ V	-50		-200	-50		-200	mA
I_{CCH}	$V_{CC} = 5.5$ V, $V_I = 4.5$ V		7.7	11.5		7.7	11.5	mA
I_{CCL}	$V_{CC} = 5.5$ V, $V_I = 0$		14.7	24		14.7	24	mA

§ All typical values are at $V_{CC} = 5$ V, $T_A = 25^\circ\text{C}$.

¶ The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I_{OS} .

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switching characteristics (see Figure 1)

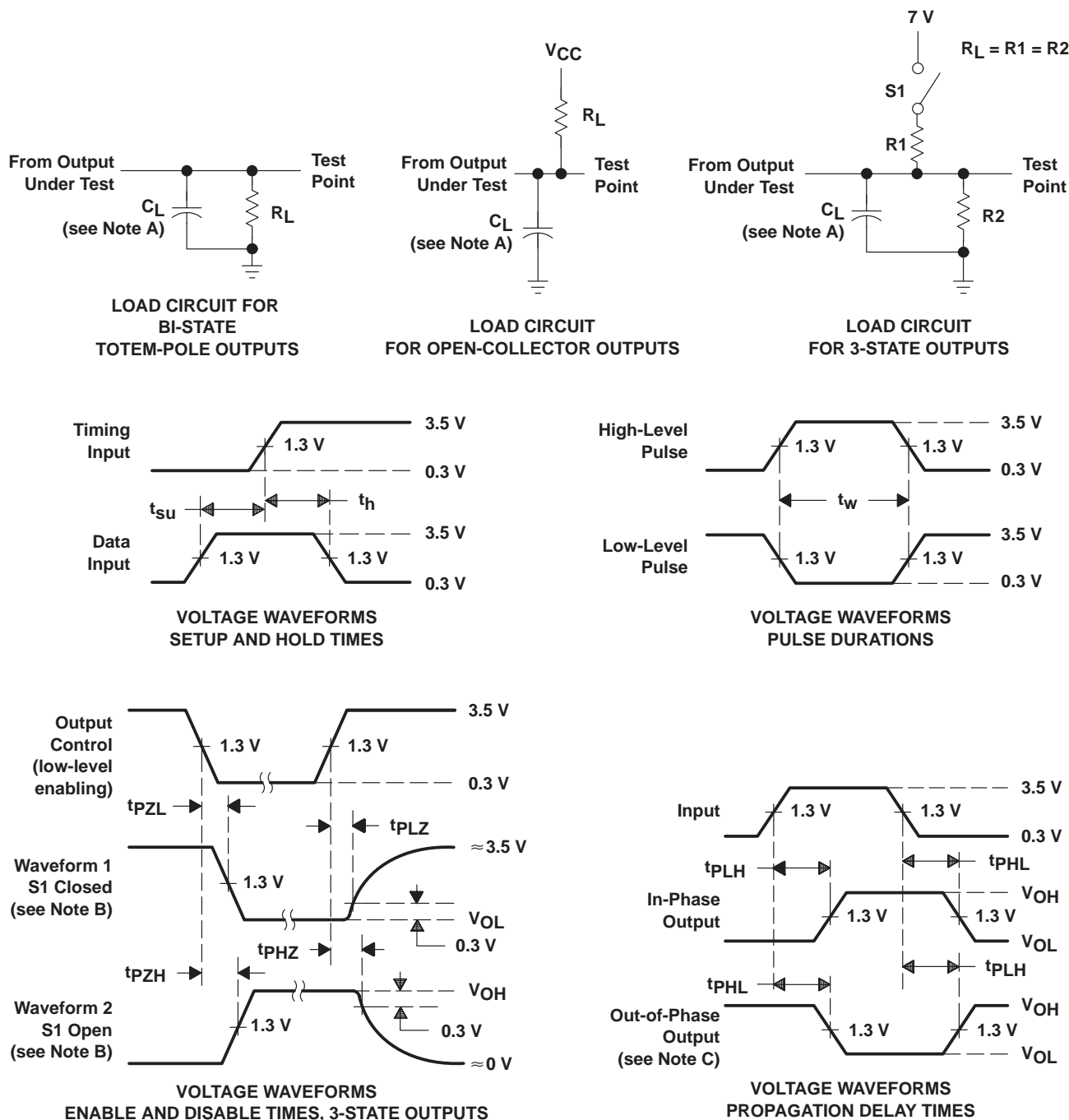
PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V},$ $C_L = 50 \text{ pF},$ $R_L = 500 \Omega,$ $T_A = \text{MIN to MAX}^\dagger$				UNIT
			SN54AS1032A		SN74AS1032A		
			MIN	MAX	MIN	MAX	
t_{PLH}	A or B	Y	1	7	1	6.3	ns
t_{PHL}			1	7	1	6.3	

[†] For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

SN54AS1032A, SN74AS1032A QUADRUPLE 2-INPUT POSITIVE-OR BUFFERS/DRIVERS

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PARAMETER MEASUREMENT INFORMATION SERIES 54ALS/74ALS AND 54AS/74AS DEVICES



- NOTES:
- C_L includes probe and jig capacitance.
 - Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.
 - When measuring propagation delay items of 3-state outputs, switch S1 is open.
 - All input pulses have the following characteristics: $PRR \leq 1$ MHz, $t_r = t_f = 2$ ns, duty cycle = 50%.
 - The outputs are measured one at a time with one transition per measurement.

Figure 1. Load Circuits and Voltage Waveforms

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SN54AS1032A, Quadruple 2-Input Positive-OR Buffers/Drivers

Device Status: Active

- > [Description](#)
- > [Features](#)
- > [Datasheets](#)
- > [Pricing/Samples/Availability](#)
- > [Application Notes](#)
- > [Related Documents](#)
- > [Training](#)

Parameter Name	SN54AS1032A
Voltage Nodes (V)	5
Output Level	TTL

Description

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To view the following documents, [Acrobat Reader 3.x](#) is required.

To download a document to your hard drive, right-click on the link and choose 'Save'.

Datasheets

Full datasheet in Acrobat PDF: [sdas072b.pdf](#) (79 KB)

Full datasheet in Zipped PostScript: [sdas072b.psz](#) (74 KB)

Pricing/Samples/Availability

<u>Orderable Device</u>	<u>Package</u>	<u>Pins</u>	<u>Temp (°C)</u>	<u>Status</u>	<u>Price/unit USD (100-999)</u>	<u>Pack Qty</u>	<u>DSCC Number</u>	<u>Availability / Samples</u>
5962-88730012A	<u>FK</u>	20	-55 TO 125	OBSOLETE				
5962-8873001CA	<u>J</u>	14	-55 TO 125	ACTIVE	5.51	1		Check stock or order
5962-8873001DA	<u>W</u>	14	-55 TO 125	OBSOLETE				
SN54AS1032AJ	<u>J</u>	14	-55 TO 125	OBSOLETE				
SNJ54AS1032AFK	<u>FK</u>	20	-55 TO 125	OBSOLETE				
SNJ54AS1032AJ	<u>J</u>	14	-55 TO 125	ACTIVE	5.51	1		Check stock or order

Application Reports

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- [Advanced Schottky \(ALS and AS\) Logic Families \(SDAA010 - Updated: 08/01/1995\)](#)
- [Advanced Schottky Load Management \(SDYA016 - Updated: 02/01/1997\)](#)
- [Designing With Logic \(SDYA009C - Updated: 06/01/1997\)](#)
- [Input And Output Characteristics Of Digital Integrated Circuits \(SDYA010 - Updated: 10/01/1996\)](#)
- [Live Insertion \(SDYA012 - Updated: 10/01/1996\)](#)

Related Documents

- [Documentation Rules \(SAP\) And Ordering Information \(SZZU001B, 4 KB - Updated: 05/06/1999\)](#)
- [Logic Selection Guide Second Half 2000 \(SDYU001N, 5035 KB - Updated: 04/17/2000\)](#)
- [MicroStar Junior BGA Design Summary \(SCET004, 284 KB - Updated: 07/28/2000\)](#)
- [More Power In Less Space - Technical Article \(SCAU001A, 850 KB - Updated: 03/01/1996\)](#)

Table Data Updated on: 9/1/2000