

SN54ALS1035, SN74ALS1035 HEX NONINVERTING BUFFERS WITH OPEN-COLLECTOR OUTPUTS

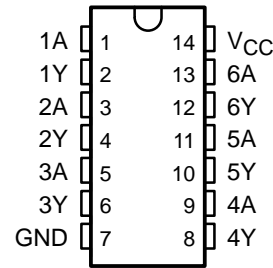
SDAS243B – APRIL 1982 – REVISED AUGUST 2001

- **Noninverting Buffers With Open-Collector Outputs**

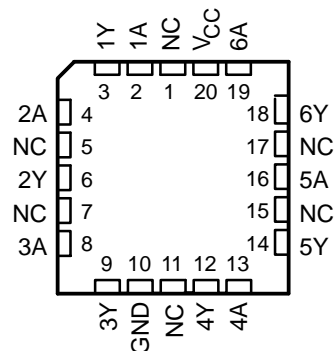
description

These devices contain six independent noninverting buffers. They perform the Boolean function $Y = A$. The open-collector outputs require pullup resistors to perform correctly. They can be connected to other open-collector outputs to implement active-low wired-OR or active-high wired-AND functions. Open-collector devices are often used to generate higher V_{OH} levels.

SN54ALS1035 . . . J OR W PACKAGE SN74ALS1035 . . . D OR N PACKAGE (TOP VIEW)



SN54ALS1035 . . . FK PACKAGE (TOP VIEW)



NC – No internal connection

ORDERING INFORMATION

T_A	PACKAGE†		ORDERABLE PART NUMBER	TOP-SIDE MARKING
0°C to 70°C	SOIC – D	Tube	SN7ALS1035D	ALS1035
		Tape and reel	SN7ALS1035DR	
–55°C to 125°C	PDIP – N	Tube	SN74ALS1035N	SN74ALS1035N
	CDIP – J	Tube	SNJ54ALS1035J	SNJ54ALS1035J
	CFP – W	Tube	SNJ54ALS1035W	SNJ54ALS1035W
	LCCC - FK	Tube	SNJ54ALS1035FK	SNJ54ALS1035FK

† Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.

FUNCTION TABLE (each buffer)

INPUT A	OUTPUT Y
H	H
L	L



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

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.

 **TEXAS
INSTRUMENTS**

POST OFFICE BOX 655303 • DALLAS, TEXAS 75265

Copyright © 2001, Texas Instruments Incorporated
On products compliant to MIL-PRF-38535, all parameters are tested unless otherwise noted. On all other products, production processing does not necessarily include testing of all parameters.

SN54ALS1035, SN74ALS1035
HEX NONINVERTING BUFFERS
WITH OPEN-COLLECTOR OUTPUTS

SDAS243B – APRIL 1982 – REVISED AUGUST 2001

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

PARAMETER	TEST CONDITIONS	SN54ALS1035		SN74ALS1035		UNIT		
		MIN	TYP†	MAX	MIN		TYP†	MAX
V_{IK}	$V_{CC} = 4.5\text{ V}$, $I_I = -18\text{ mA}$			-1.5		-1.5	V	
V_{OL}	$V_{CC} = 4.5\text{ V}$		0.25	0.4		0.25	0.4	V
		$I_{OL} = 12\text{ mA}$				0.35	0.5	
I_{OH}	$V_{CC} = 4.5\text{ V}$, $V_{OH} = 5.5\text{ V}$			0.1		0.1	mA	
I_I	$V_{CC} = 5.5\text{ V}$, $V_I = 7\text{ V}$			0.1		0.1	mA	
I_{IH}	$V_{CC} = 5.5\text{ V}$, $V_I = 2.7\text{ V}$			20		20	μA	
I_{IL}	$V_{CC} = 5.5\text{ V}$, $V_I = 0.4\text{ V}$			-0.1		-0.1	mA	
I_{CCH}	$V_{CC} = 5.5\text{ V}$, $V_I = 4.5\text{ V}$		3	6		3	6	mA
I_{CCL}	$V_{CC} = 5.5\text{ V}$, $V_I = 0$		8	14		8	14	mA

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

switching characteristics (see Figure 1)

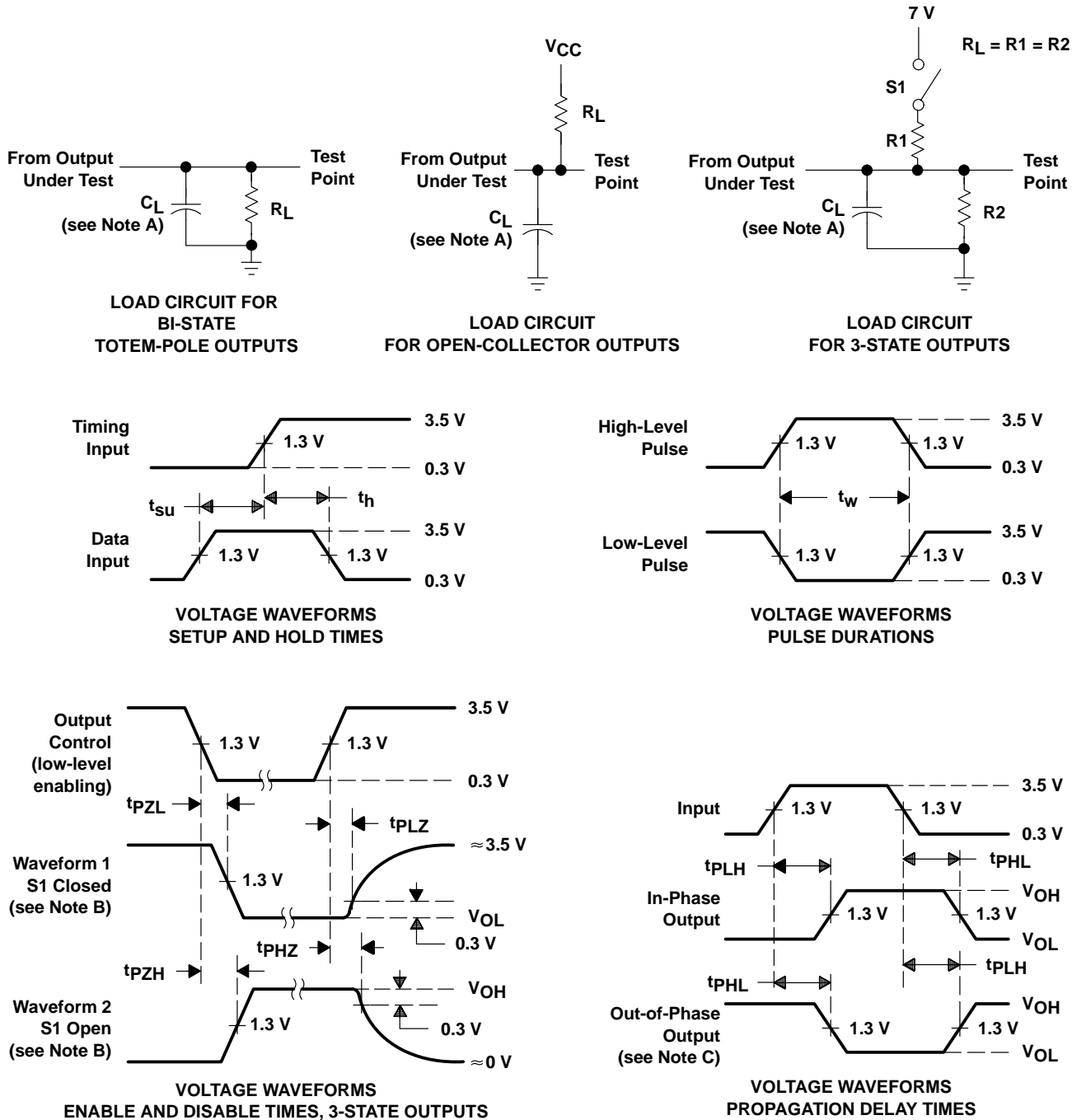
PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5\text{ V to }5.5\text{ V}$, $C_L = 50\text{ pF}$, $R_L = 680\ \Omega$, $T_A = \text{MIN to MAX}^\ddagger$				UNIT
			SN54ALS1035		SN74ALS1035		
			MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	5	35	5	30	ns
t_{PHL}			2	14	2	12	

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

SN54ALS1035, SN74ALS1035 HEX NONINVERTING BUFFERS WITH OPEN-COLLECTOR OUTPUTS

SDAS243B – APRIL 1982 – REVISED AUGUST 2001

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



- NOTES: A. C_L includes probe and jig capacitance.
 B. 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.
 C. When measuring propagation delay items of 3-state outputs, switch S1 is open.
 D. All input pulses have the following characteristics: $PRR \leq 1$ MHz, $t_r = t_f = 2$ ns, duty cycle = 50%.
 E. The outputs are measured one at a time with one transition per measurement.

Figure 1. Load Circuits and Voltage Waveforms

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
5962-88742012A	ACTIVE	LCCC	FK	20	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-88742012A SNJ54ALS 1035FK	Samples
5962-8874201CA	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-8874201CA SNJ54ALS1035J	Samples
SN54ALS1035J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SN54ALS1035J	Samples
SN74ALS1035D	ACTIVE	SOIC	D	14	50	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	ALS1035	Samples
SN74ALS1035DR	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	ALS1035	Samples
SN74ALS1035N	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN74ALS1035N	Samples
SNJ54ALS1035FK	ACTIVE	LCCC	FK	20	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-88742012A SNJ54ALS 1035FK	Samples
SNJ54ALS1035J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-8874201CA SNJ54ALS1035J	Samples

(1) The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSELETE: TI has discontinued the production of the device.

(2) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".

RoHS Exempt: TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.

Green: TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead finish/Ball material - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

Important Information and Disclaimer:The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

OTHER QUALIFIED VERSIONS OF SN54ALS1035, SN74ALS1035 :

- Catalog : [SN74ALS1035](#)
- Military : [SN54ALS1035](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

TAPE AND REEL INFORMATION

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74ALS1035DR	SOIC	D	14	2500	330.0	16.4	6.5	9.0	2.1	8.0	16.0	Q1

TAPE AND REEL BOX DIMENSIONS


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74ALS1035DR	SOIC	D	14	2500	356.0	356.0	35.0

TUBE


*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (μm)	B (mm)
5962-88742012A	FK	LCCC	20	1	506.98	12.06	2030	NA
SN74ALS1035D	D	SOIC	14	50	506.6	8	3940	4.32
SN74ALS1035N	N	PDIP	14	25	506	13.97	11230	4.32
SN74ALS1035N	N	PDIP	14	25	506	13.97	11230	4.32
SNJ54ALS1035FK	FK	LCCC	20	1	506.98	12.06	2030	NA

GENERIC PACKAGE VIEW

FK 20

LCCC - 2.03 mm max height

8.89 x 8.89, 1.27 mm pitch

LEADLESS CERAMIC CHIP CARRIER

This image is a representation of the package family, actual package may vary.
Refer to the product data sheet for package details.



4229370VA\

J 14

GENERIC PACKAGE VIEW
CDIP - 5.08 mm max height
CERAMIC DUAL IN LINE PACKAGE



Images above are just a representation of the package family, actual package may vary.
Refer to the product data sheet for package details.

4040083-5/G

J0014A



PACKAGE OUTLINE

CDIP - 5.08 mm max height

CERAMIC DUAL IN LINE PACKAGE



4214771/A 05/2017

NOTES:

1. All controlling linear dimensions are in inches. Dimensions in brackets are in millimeters. Any dimension in brackets or parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This package is hermetically sealed with a ceramic lid using glass frit.
4. Index point is provided on cap for terminal identification only and on press ceramic glass frit seal only.
5. Falls within MIL-STD-1835 and GDIP1-T14.

EXAMPLE BOARD LAYOUT

J0014A

CDIP - 5.08 mm max height

CERAMIC DUAL IN LINE PACKAGE



LAND PATTERN EXAMPLE
NON-SOLDER MASK DEFINED
SCALE: 5X



4214771/A 05/2017

D (R-PDSO-G14)

PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - $\triangle C$ Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.006 (0,15) each side.
 - $\triangle D$ Body width does not include interlead flash. Interlead flash shall not exceed 0.017 (0,43) each side.
 - E. Reference JEDEC MS-012 variation AB.

D (R-PDSO-G14)

PLASTIC SMALL OUTLINE



4211283-3/E 08/12

- NOTES:
- All linear dimensions are in millimeters.
 - This drawing is subject to change without notice.
 - Publication IPC-7351 is recommended for alternate designs.
 - Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525 for other stencil recommendations.
 - Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.

N (R-PDIP-T**)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN



4040049/E 12/2002

- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - (C) Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
 - (D) The 20 pin end lead shoulder width is a vendor option, either half or full width.

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on [ti.com](https://www.ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

TI objects to and rejects any additional or different terms you may have proposed.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2023, Texas Instruments Incorporated