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- Buffer Versions of 'ALS05A
- Package Options Include Plastic Small-Outline (D) Packages, Ceramic Chip Carriers (FK), and Standard Plastic (N) and Ceramic (J) 300-mil DIPs

description

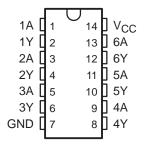
These devices contain six independent inverting buffers. They perform the Boolean function $Y = \overline{A}$. The open-collector outputs require pullup resistors to perform correctly. These outputs can be connected to other open-collector outputs to implement active-low wired-OR or active-high wired-AND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

The SN54ALS1005 is characterized for operation over the full military temperature range of -55° C to 125°C. The SN74ALS1005 is characterized for operation from 0°C to 70°C.

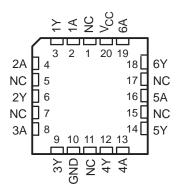
FUNCTION TABLE (each inverter)

INPUT A	OUTPUT Y
Н	L
L	Н

SN54ALS1005...J PACKAGE SN74ALS1005...D OR N PACKAGE (TOP VIEW)

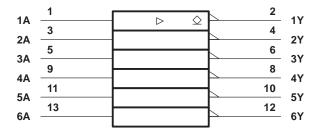


SN54ALS1005 . . . FK PACKAGE (TOP VIEW)



NC - No internal connection

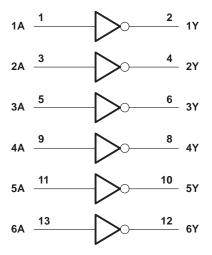
logic symbol†



[†] 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.

logic diagram (positive logic)



SN54ALS1005, SN74ALS1005 **HEX INVERTING BUFFERS** WITH OPEN-COLLECTOR OUTPUTS

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

Supply voltage, V _{CC}	7 \
Input voltage, V _I	
Off-state output voltage	
Operating free-air temperature range, TA: SN54ALS1005	–55°C to 125°C
SN74ALS1005	0°C to 70°C
Storage temperature range	65°C to 150°C

recommended operating conditions

		SN54ALS1005		SN74ALS1005			UNIT	
		MIN	NOM	MAX	MIN	NOM	MAX	UNIT
VCC	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			0.7			0.8	V
Vон	High-level output voltage			5.5			5.5	V
IOL	Low-level output current			12			24	mA
TA	Operating free-air temperature	-55		125	0		70	°C

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

DADAMETED	TEST COMPLIANC		SN	SN54ALS1005			SN74ALS1005		
PARAMETER	163	TEST CONDITIONS		TYP [‡]	MAX	MIN	TYP [‡]	MAX	UNIT
VIK	V _{CC} = 4.5 V,	I _I = -18 mA			-1.5			-1.5	V
Va	V _{CC} = 4.5 V	I _{OL} = 12 mA		0.25	0.4		0.25	0.4	V
V _{OL}		$I_{OL} = 24 \text{ mA}$					0.35	0.5	V
loн	$V_{CC} = 4.5 \text{ V},$	V _{OH} = 5.5 V			0.1			0.1	mA
lį	$V_{CC} = 5.5 \text{ V},$	V _I = 7 V			0.1			0.1	mA
lН	$V_{CC} = 5.5 \text{ V},$	V _I = 2.7 V			20			20	μΑ
I _Ι L	$V_{CC} = 5.5 \text{ V},$	V _I = 0.4 V			-0.1			-0.1	mA
ICCH	$V_{CC} = 5.5 \text{ V},$	V _I = 0		0.9	3		0.9	3	mA
^I CCL	$V_{CC} = 5.5 \text{ V},$	V _I = 4.5 V		7	12		7	12	mA

[‡] All typical values are at V_{CC} = 5 V, T_A = 25°C.

switching characteristics (see Figure 1)

	•	, ,						
	PARAMETER	FROM (INPUT)	TO (OUTPUT)	T. MINIA MAVS		V _{CC} = 4.5 C _L = 50 pF R _L = 680 G T _A = MIN t	UNIT	
L				MIN	MAX	MIN	MAX]
	^t PLH	Λ	V	2	32	5	30	
	^t PHL	А	ſ	2	12	2	10	ns

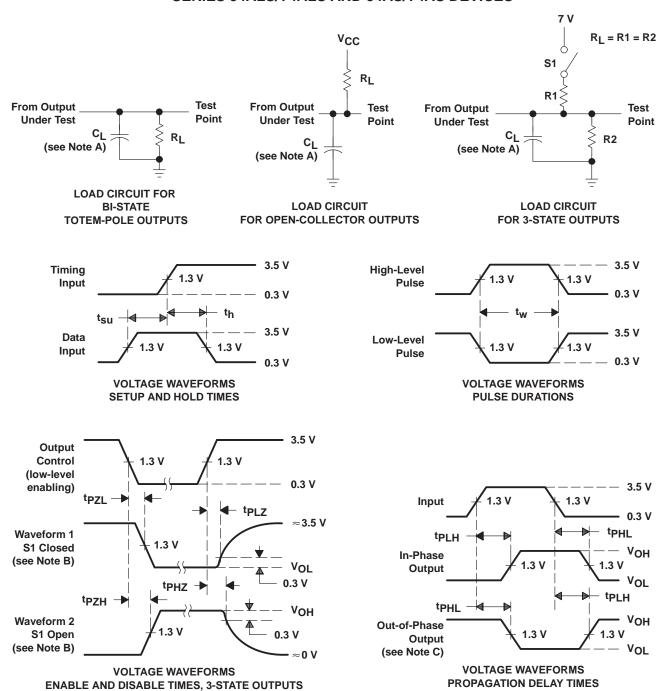
[§] For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.



[†] 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.

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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: $PRR \le 1$ MHz, $t_f = t_f = 2$ 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



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