

TYPES SN54ALS34, SN54AS34, SN74ALS34, SN74AS34 HEX NONINVERTERS

D2261, DECEMBER 1983

- Noninverters
- Package Options Include Both Plastic and Ceramic Chip Carriers in Addition to Plastic and Ceramic DIPs
- Dependable Texas Instruments Quality and Reliability

description

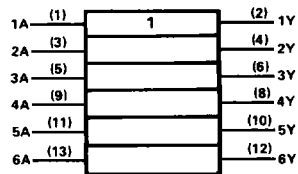
These devices contain six independent noninverters. They perform the Boolean functions $Y = A$.

The SN54ALS34 and SN54AS34 are characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ALS34 and SN74AS34 are characterized for operation from 0°C to 70°C .

FUNCTION TABLE (each buffer)

INPUT A	OUTPUT Y
H	H
L	L

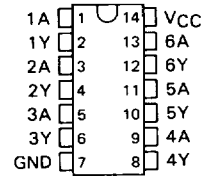
logic symbol



Pin numbers shown are for J and N packages.

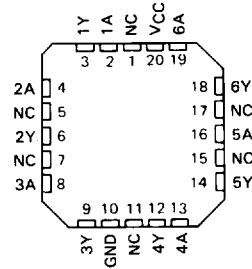
SN54ALS34, SN54AS34 . . . J PACKAGE
SN74ALS34, SN74AS34 . . . N PACKAGE

(TOP VIEW)



SN54ALS34, SN54AS34 . . . FH PACKAGE
SN74ALS34, SN74AS34 . . . FN PACKAGE

(TOP VIEW)



NC—No internal connection

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ALS AND AS CIRCUITS

TYPES SN54ALS34, SN74ALS34 HEX NONINVERTERS

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

Supply voltage, V_{CC}	7 V
Input voltage	7 V
Operating free-air temperature range: SN54ALS34	-55 °C to 125 °C
SN74ALS34	0 °C to 70 °C
Storage temperature range	-65 °C to 150 °C

recommended operating conditions

		SN54ALS34			SN74ALS34			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			-0.4			-0.4	mA
I_{OL}	Low-level output current			4			8	mA
T_A	Operating free-air temperature	-55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS	SN54ALS34			SN74ALS34			UNIT
		MIN	TYP†	MAX	MIN	TYP†	MAX	
V_{IK}	$V_{CC} = 4.5 V, I_I = -18 mA$			-1.5			-1.5	V
V_{OH}	$V_{CC} = 4.5 V \text{ to } 5.5 V, I_{OH} = -0.4 mA$	$V_{CC}-2$			$V_{CC}-2$			V
V_{OL}	$V_{CC} = 4.5 V, I_{OL} = 4 mA$	0.25	0.4		0.25	0.4		V
	$V_{CC} = 4.5 V, I_{OL} = 8 mA$				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}	$V_{CC} = 5.5 V, V_I = 0.4 V$		-0.1			-0.1	mA	
$I_{O\ddagger}$	$V_{CC} = 5.5 V, V_O = 2.25 V$	-30		-112	-30		-112	mA
I_{CCH}	$V_{CC} = 5.5 V, V_I = 4.5 V$		1			1	mA	
I_{CCL}	$V_{CC} = 5.5 V, V_I = 0 V$		3.5			3.5	mA	

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

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

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5 V \text{ to } 5.5 V,$ $C_L = 50 pF,$ $R_L = 500 \Omega,$ $T_A = \text{MIN to MAX}$						UNIT
			SN54ALS34			SN74ALS34			
			MIN	TYP†	MAX	MIN	TYP†	MAX	
t_{PLH}	A	Y	8			8			ns
t_{PHL}			6			6			

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

NOTE 1: For load circuit and voltage waveforms, see page 1-12.

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PRODUCT PREVIEW

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This page contains information on a product under development. Texas Instruments reserves the right to change or discontinue this product without notice.

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TYPES SN54AS34, SN74AS34 HEX NONINVERTERS

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

Supply voltage, V_{CC}	7 V
Input voltage	7 V
Operating free-air temperature range: SN54AS34	-55 °C to 125 °C
SN74AS34	0 °C to 70 °C
Storage temperature range	-65 °C to 150 °C

recommended operating conditions

	SN54AS34			SN74AS34			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			-2			-2	mA
I_{OL} Low-level output current			20			20	mA
T_A Operating free-air temperature	-55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS	SN54AS34			SN74AS34			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_{OL}	$V_{CC} = 4.5$ V, $I_{OL} = 20$ mA	0.35	0.5		0.35	0.5		V
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		-0.1			-0.1		mA
$I_{O‡}$	$V_{CC} = 5.5$ V, $V_O = 2.25$ V	-30	-112		-30	-112		mA
I_{CCH}	$V_{CC} = 5.5$ V, $V_I = 4.5$ V		7.4	12		7.4	12	mA
I_{CCL}	$V_{CC} = 5.5$ V, $V_I = 0$ V		21.3	34.6		21.3	34.6	mA

† All typical values are at $V_{CC} = 5$ V, $T_A = 25$ °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} .

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5$ V to 5.5 V, $C_L = 50$ pF, $R_L = 500$ Ω, $T_A = \text{MIN to MAX}$				UNIT
			SN54AS34		SN74AS34		
			MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	1	6.5	1	5.5	ns
t_{PHL}			1	7	1	6	

NOTE 1: For load circuit and voltage waveforms, see page 1-12.