

TYPES SN54ALS35, SN74ALS35 HEX NONINVERTERS WITH OPEN-COLLECTOR OUTPUTS

D2661, DECEMBER 1983

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

description

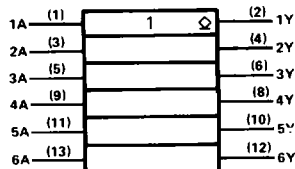
These devices contain six independent noninverters. They perform the Boolean functions $Y = A$. The open-collector outputs require pull-up resistors to perform correctly. They may be connected to other open-collector outputs to implement active-low wired-OR or active-high wired-AND functions. Open-collector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

The SN54ALS35 is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ALS35 is characterized for operation from 0°C to 70°C .

FUNCTION TABLE (each buffer)

INPUT A	OUTPUT Y
H	H
L	L

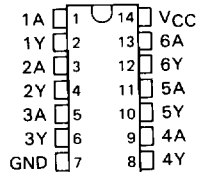
logic symbol



Pin numbers shown are for J and N packages.

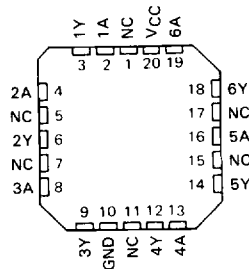
SN54ALS35 . . . J PACKAGE
SN74ALS35 . . . N PACKAGE

(TOP VIEW)



SN54ALS35 . . . FH PACKAGE
SN74ALS35 . . . FN PACKAGE

(TOP VIEW)



NC—No internal connection

2

ALS AND AS CIRCUITS

TYPES SN54ALS35, SN74ALS35 HEX NONINVERTERS WITH OPEN-COLLECTOR OUTPUTS

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

Supply voltage, V_{CC}	7 V
Input voltage	7 V
Off-state output voltage	7 V
Operating free-air temperature range: SN54ALS35	-55 °C to 125 °C
SN74ALS35	0 °C to 70 °C
Storage temperature range	-65 °C to 150 °C

recommended operating conditions

		SN54ALS35			SN74ALS35			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
V_{OH}	High-level output voltage			5.5			5.5	V
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	SN54ALS35			SN74ALS35			UNIT
		MIN	TYP†	MAX	MIN	TYP†	MAX	
V_{IK}	$V_{CC} = 4.5 V, I_I = -18 mA$			-1.5			-1.5	V
I_{OH}	$V_{CC} = 4.5 V, V_{OH} = 5.5 V$			0.1			0.1	mA
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_{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 $V_{CC} = 5 V, T_A = 25 °C$

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5 V$ to $5.5 V,$ $C_L = 50 pF,$ $R_L = 680 \Omega,$ $T_A = MIN$ to MAX				UNIT
			SN54ALS35		SN74ALS35		
			MIN	TYP†	MAX	MIN	
t_{PLH}	A	Y		25		25	ns
t_{PHL}	A	Y		8		8	ns

†All typical values are at $V_{CC} = 5 V, T_A = 25 °C$.
NOTE 1: For load circuit and voltage waveforms, see page 1-12.

2 ALS AND AS CIRCUITS