

**SN54ALS35A, SN74ALS35A  
HEX NONINVERTERS WITH OPEN-COLLECTOR OUTPUTS**

D2661, DECEMBER 1983—REVISED MAY 1986

- Noninverters with Open-Collector Outputs
- Package Options Include Plastic "Small Outline" Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs
- Dependable Texas Instruments Quality and Reliability

**description**

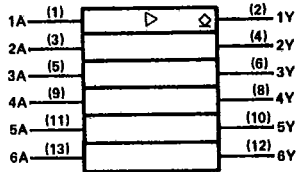
These devices contain six independent noninverters. They perform the Boolean functions  $Y = A$ . The open-collector outputs require pull-up resistors to perform correctly. They may be connected to other open-collector outputs to implement active-low wired-OR or active-high wired-AND functions. Open-collector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

The SN54ALS35A is characterized for operation over the full military temperature range of  $-55^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ . The SN74ALS35A is characterized for operation from  $0^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ .

FUNCTION TABLE (each buffer)

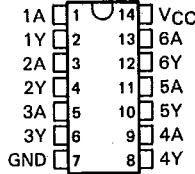
INPUT A	OUTPUT Y
H	H
L	L

**logic symbol†**



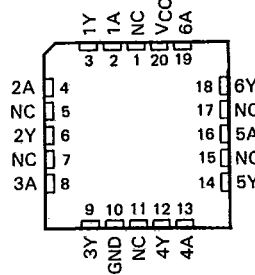
† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12. Pin numbers shown are for D, J and N packages.

SN54ALS35A . . . J PACKAGE  
SN74ALS35A . . . D OR N PACKAGE  
(TOP VIEW)



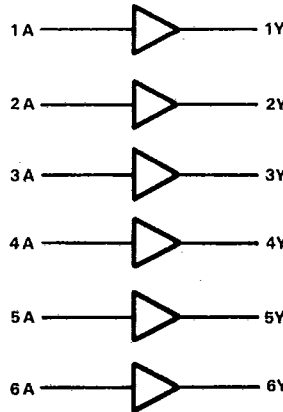
T-43-15

SN54ALS35A . . . FK PACKAGE  
(TOP VIEW)



NC—No internal connection

**logic diagram (positive logic)**



**2**  
ALS and AS Circuits

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PRODUCTION DATA documents contain information 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.

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**SN54ALS35A, SN74ALS35A  
HEX NONINVERTERS WITH OPEN-COLLECTOR OUTPUTS**

T-43-15

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: SN54ALS35A .....	-55°C to 125°C
SN74ALS35A .....	0°C to 70°C
Storage temperature range .....	-65°C to 150°C

recommended operating conditions

	SN54ALS35A			SN74ALS35A			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			0.7			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	SN54ALS35A		SN74ALS35A		UNIT	
		MIN	TYP†	MAX	MIN		TYP†
$V_{IK}$	$V_{CC} = 4.5 V, I_I = -18 mA$			-1.2		-1.2	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
$I_{CCH}$	$V_{CC} = 5.5 V, V_I = 4.5 V$		2.7	4.7		2.7 4.7	mA
$I_{CCL}$	$V_{CC} = 5.5 V, V_I = 0 V$		4.1	6.3		4.1 6.3	mA

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

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 5 V, C_L = 50 pF, R_L = 2 k\Omega, T_A = 25°C$		$V_{CC} = 4.5 V \text{ to } 5.5 V, C_L = 50 pF, R_L = 2 k\Omega, T_A = \text{MIN to MAX}$		UNIT		
			'ALS35A		SN54ALS35A			SN74ALS35A	
			TYP	MIN	MAX	MIN		MAX	
$t_{PLH}$	A	Y	34	20	60	20	50	ns	
$t_{PHL}$	A	Y	9	2	17	2	14	ns	

NOTE 1: Load circuit and voltage waveforms are shown in Section 1.

2 ALS and AS Circuits