

SN54ALS808A, SN54AS808B, SN74ALS808A, SN74AS808B HEX 2-INPUT AND DRIVERS

D2661, DECEMBER 1982 — REVISED MAY 1986

- High Capacitive Drive Capability
- 'ALS808A has Typical Delay Time of 4.8 ns ($C_L = 50$ pF) and Typical Power Dissipation of 4.5 mW per Gate
- 'AS808B has Typical Delay Time of 3.2 ns ($C_L = 50$ pF) and Typical Power Dissipation of Less than 13 mW per Gate
- 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

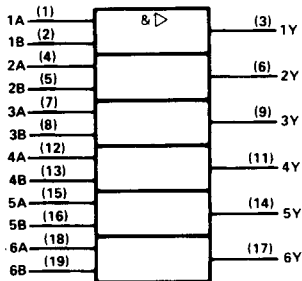
These devices contain six independent 2-input AND drivers. They perform the Boolean functions $Y = A \cdot B$ or $Y = \bar{A} \cdot \bar{B}$ in positive logic.

The SN54ALS808A and SN54AS808B are characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ALS808A and SN74AS808B are characterized for operation from 0°C to 70°C .

FUNCTION TABLE (each driver)

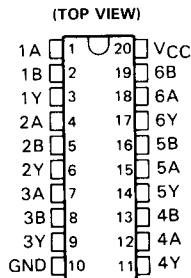
INPUTS		OUTPUT
A	B	Y
H	H	H
L	X	L
X	L	L

logic symbol†



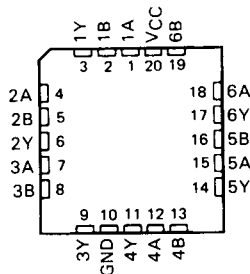
† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

SN54ALS808A, SN54AS808B . . . J PACKAGE
SN74ALS808A, SN74AS808B . . . DW OR N PACKAGE

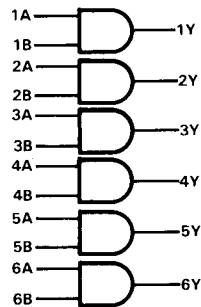


SN54ALS808A, SN54AS808B . . . FK PACKAGE

(TOP VIEW)



logic diagram (positive logic)



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.

TEXAS
INSTRUMENTS

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ALS and AS Circuits

SN54ALS808A, SN74ALS808A HEX 2-INPUT AND DRIVERS

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: SN54ALS808A	-55°C to 125°C
SN74ALS808A	0°C to 70°C
Storage temperature range	-65°C to 150°C

recommended operating conditions

		SN54ALS808A			SN74ALS808A			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
I_{OH}	High-level output current			-12			-15	mA
I_{OL}	Low-level output current			12			24	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	SN54ALS808A		SN74ALS808A		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 $5.5 V$, $I_{OH} = -0.4 mA$	$V_{CC}-2$		$V_{CC}-2$		V	
	$V_{CC} = 4.5 V$, $I_{OH} = -3 mA$	2.4	3.2	2.4	3.2		
	$V_{CC} = 4.5 V$, $I_{OH} = -12 mA$	2					
	$V_{CC} = 4.5 V$, $I_{OL} = -15 mA$			2			
V_{OL}	$V_{CC} = 4.5 V$, $I_{OL} = 12 mA$	0.25	0.4	0.25	0.4	V	
	$V_{CC} = 4.5 V$, $I_{OL} = 24 mA$			0.35	0.5		
I_I	$V_{CC} = 5.5 V$, $V_I = 7 V$		0.1		0.1	mA	
I_H	$V_{CC} = 5.5 V$, $V_I = 2.7 V$		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}	$V_{CC} = 5.5 V$, $V_I = 4.5 V$		4.5	7	4.5	7	mA
I_{CCL}	$V_{CC} = 5.5 V$, $V_I = 0 V$		8	16	8	16	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)	$V_{CC} = 5 V$, $C_L = 50 pF$, $R_L = 500 \Omega$, $T_A = 25^\circ C$	$V_{CC} = 4.5 V$ to $5.5 V$, $C_L = 50 pF$, $R_L = 500 \Omega$, $T_A = \text{MIN to MAX}$				UNIT		
				ALS808A		SN54ALS808A			SN74ALS808A	
				TYP	MIN	MAX	MIN		MAX	
t_{PLH}	A or B	Y	6	2	11	2	9	ns		
t_{PHL}			4	1	10	1	8			

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

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ALS and AS Circuits

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: SN54AS808B	-55°C to 125°C
SN74AS808B	0°C to 70°C
Storage temperature range	-65°C to 150°C

recommended operating conditions

		SN54AS808B			SN74AS808B			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			V
I_{OH}	High-level output current				-40			mA
I_{OL}	Low-level output current				40			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	SN54AS808B			SN74AS808B			UNIT
		MIN	TYP [†]	MAX	MIN	TYP [†]	MAX	
V_{IK}	$V_{CC} = 4.5\text{ V}$, $I_I = -18\text{ mA}$	-1.2			-1.2			V
V_{OH}	$V_{CC} = 4.5\text{ V to } 5.5\text{ V}$, $I_{OH} = -2\text{ mA}$	$V_{CC}-2$			$V_{CC}-2$			V
	$V_{CC} = 4.5\text{ V}$, $I_{OH} = -3\text{ mA}$	2.4	3.2		2.4	3.2		
	$V_{CC} = 4.5\text{ V}$, $I_{OH} = -40\text{ mA}$	2						
	$V_{CC} = 4.5\text{ V}$, $I_{OH} = -48\text{ mA}$				2			
V_{OL}	$V_{CC} = 4.5\text{ V}$, $I_{OL} = 40\text{ mA}$	0.25			0.5			V
	$V_{CC} = 4.5\text{ V}$, $I_{OL} = 48\text{ mA}$				0.35			
I_I	$V_{CC} = 5.5\text{ V}$, $V_I = 7\text{ V}$	0.1			0.1			mA
I_H	$V_{CC} = 5.5\text{ V}$, $V_I = 2.7\text{ V}$	20			20			μA
I_{IL}	$V_{CC} = 5.5\text{ V}$, $V_I = 0.4\text{ V}$	-0.5			-0.5			mA
$I_{O^{\dagger}}$	$V_{CC} = 5.5\text{ V}$, $V_O = 2.25\text{ V}$	-50		-200	-50		-200	mA
I_{CCH}	$V_{CC} = 5.5\text{ V}$, $V_I = 4.5\text{ V}$	8			8			mA
I_{CCL}	$V_{CC} = 5.5\text{ V}$, $V_I = 0\text{ V}$	20			20			mA

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

[‡]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)	$V_{CC} = 4.5\text{ V to } 5.5\text{ V}$, $C_L = 50\text{ pF}$, $R_L = 500\ \Omega$, $T_A = \text{MIN to MAX}$				UNIT
			SN54AS808B		SN74AS808B		
			MIN	MAX	MIN	MAX	
t_{PLH}	A or B	Y	1	6.5	1	6	ns
t_{PHL}			1	6.5	1	6	

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