

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

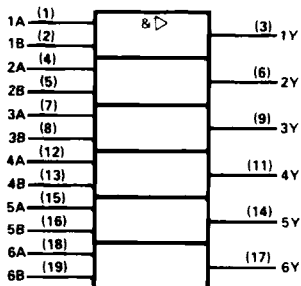
These devices contain six independent 2-input AND drivers. They perform the Boolean functions $Y = A \cdot B$ or $Y = \overline{A} \cdot B$ in positive logic.

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

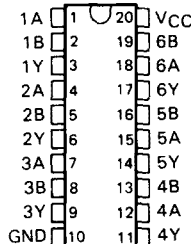
logic symbol†



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

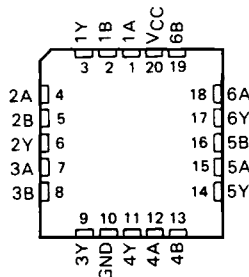
SN54ALS808A, SN54AS808B . . . J PACKAGE
SN74ALS808A, SN74AS808B . . . DW OR N PACKAGE

(TOP VIEW)

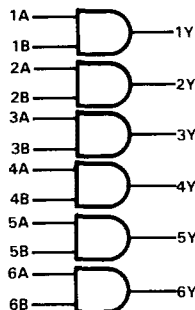


SN54ALS808A, SN54AS808B . . . FK PACKAGE

(TOP VIEW)



logic diagram (positive logic)



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 †	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 $V_{CC} = 5 \text{ V}$, $T_A = 25^\circ\text{C}$

[‡]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)	$V_{CC} = 5 \text{ V}$, $C_L = 50 \text{ pF}$, $R_L = 500 \Omega$, $T_A = 25^\circ\text{C}$	$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}$, $C_L = 50 \text{ pF}$, $R_L = 500 \Omega$, $T_A = \text{MIN to MAX}$		UNIT		
			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.

SN54AS808B, SN74AS808B 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: 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			0.8	V
I_{OH}	High-level output current			-40			-48	mA
I_{OL}	Low-level output current			40			48	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	0.5		
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^+}	$V_{CC} = 5.5 \text{ V}$, $V_O = 2.25 \text{ V}$	-50		-200	-50		-200	mA
I_{CCH}	$V_{CC} = 5.5 \text{ V}$, $V_I = 4.5 \text{ V}$		8	13		8	13	mA
I_{CCL}	$V_{CC} = 5.5 \text{ V}$, $V_I = 0 \text{ V}$		20	33		20	33	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 V to 5.5 V, C _L = 50 pF, R _L = 500 Ω T _A = 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.

