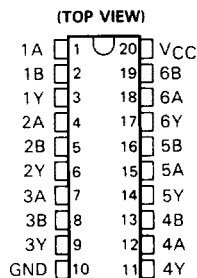


SN54ALS805A, SN54AS805B, SN74ALS805A, SN74AS805B HEX 2-INPUT NOR DRIVERS

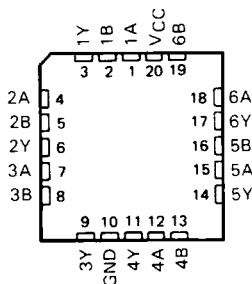
D2661, DECEMBER 1982 — REVISED MAY 1986

- High Capacitive Drive Capability
- 'ALS805A has Typical Delay Time of 4.2 ns ($C_L = 50$ pF) and Typical Power Dissipation of 4.2 mW per Gate
- 'AS805B has Typical Delay Time of 2.6 ns ($C_L = 50$ pF) and Typical Power Dissipation of 12 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

SN54ALS805A, SN54AS805B . . . J PACKAGE
SN74ALS805A, SN74AS805B . . . DW OR N PACKAGE



SN54ALS805A, SN54AS805B . . . FK PACKAGE
(TOP VIEW)



description

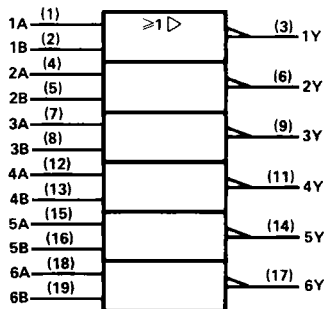
These devices contain six independent 2-input NOR drivers. They perform the Boolean functions $Y = A + B$ or $Y = \overline{A \cdot B}$ in positive logic.

The SN54ALS805A and SN54AS805B are characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ALS805A and SN74AS805B are characterized for operation from 0°C to 70°C .

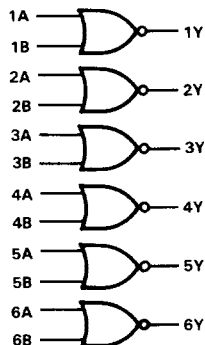
FUNCTION TABLE (each driver)

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

logic symbol†



logic diagram (positive logic)



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

SN54ALS805A, SN74ALS805A

HEX 2-INPUT NOR 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: SN54ALS805A	-55°C to 125°C
SN74ALS805A	0°C to 70°C
Storage temperature range	-65°C to 150°C

recommended operating conditions

		SN54ALS805A			SN74ALS805A			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	SN54ALS805A			SN74ALS805A			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}	$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}$, $I_{OH} = -0.4 \text{ mA}$	$V_{CC}-2$			$V_{CC}-2$			V
	$V_{CC} = 4.5 \text{ V}$, $I_{OH} = -3 \text{ mA}$	2.4	3.2		2.4	3.2		
	$V_{CC} = 4.5 \text{ V}$, $I_{OH} = -12 \text{ mA}$	2						
	$V_{CC} = 4.5 \text{ V}$, $I_{OH} = -15 \text{ mA}$				2			
V_{OL}	$V_{CC} = 4.5 \text{ V}$, $I_{OL} = 12 \text{ mA}$		0.25	0.4		0.25	0.4	V
	$V_{CC} = 4.5 \text{ V}$, $I_{OL} = 24 \text{ mA}$					0.35	0.5	
I_I	$V_{CC} = 5.5 \text{ V}$, $V_I = 7 \text{ V}$			0.1			0.1	mA
I_{IH}	$V_{CC} = 5.5 \text{ V}$, $V_I = 2.7 \text{ V}$			20			20	μA
I_{IL}	$V_{CC} = 5.5 \text{ V}$, $V_I = 0.4 \text{ V}$			-0.1			-0.1	mA
$I_O^{\ddagger}$	$V_{CC} = 5.5 \text{ V}$, $V_O = 2.25 \text{ V}$	-30		-112	-30		-112	mA
I_{CCH}	$V_{CC} = 5.5 \text{ V}$, $V_I = 0 \text{ V}$		2	4		2	4	mA
I_{CCL}	$V_{CC} = 5.5 \text{ V}$, $V_I = 4.5 \text{ V}$		8	14		8	14	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 V, C _L = 50 pF, R _L = 500 Ω, T _A = 25 °C		V _{CC} = 4.5 V to 5.5 V, C _L = 50 pF, R _L = 500 Ω, T _A = MIN to MAX		UNIT	
			ALS805A	SN54ALS805A	SN74ALS805A			
			TYP	MIN	MAX	MIN		MAX
t _{PLH}	A or B	Y	4	2	9	2	7	ns
t _{PHL}			4	2	9	2	8	

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

SN54AS805B, SN74AS805B HEX 2-INPUT NOR 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: SN54AS805B	-55°C to 125°C
SN74AS805B	0°C to 70°C
Storage temperature range	-65°C to 150°C

recommended operating conditions

		SN54AS805B			SN74AS805B			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

2

ALS and AS Circuits

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

PARAMETER	TEST CONDITIONS	SN54AS805B			SN74AS805B			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_{IH}	$V_{CC} = 5.5 \text{ V}$, $V_I = 2.7 \text{ V}$			20			20	μA
I_{IL}	$V_{CC} = 5.5 \text{ V}$, $V_I = 0.4 \text{ V}$			-0.5			-0.5	mA
$I_{O\pm}$	$V_{CC} = 5.5 \text{ V}$, $V_O = 2.25 \text{ V}$	-50		-200	-50		-200	mA
I_{CCH}	$V_{CC} = 5.5 \text{ V}$, $V_I = 0 \text{ V}$		6.5	10		6.5	10	mA
I_{CCL}	$V_{CC} = 5.5 \text{ V}$, $V_I = 4.5 \text{ V}$		20	32		20	32	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
			SN54AS805B		SN74AS805B		
			MIN	MAX	MIN	MAX	
t _{PLH}	A or B	Y	1	4.8	1	4.3	ns
t _{PHL}			1	4.8	1	4.3	

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

2 ALS and AS Circuits