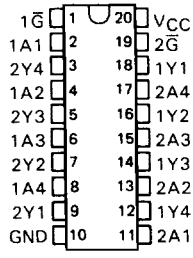
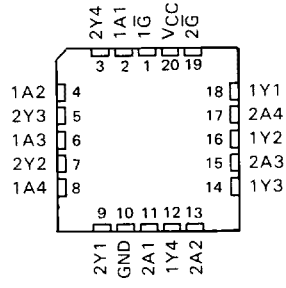
D2661, DECEMBER 1982—REVISED MAY 1986

- Low-Power Version of 'ALS244A
- 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers
- P-N-P Inputs Reduce DC Loading
- Package Options Include Plastic "Small Outline" Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs
- Dependable Texas Instruments Quality and Reliability

SN54ALS1244A . . . J PACKAGE
SN74ALS1244A . . . DW OR N PACKAGE
(TOP VIEW)



SN54ALS1244A . . . FK PACKAGE
(TOP VIEW)



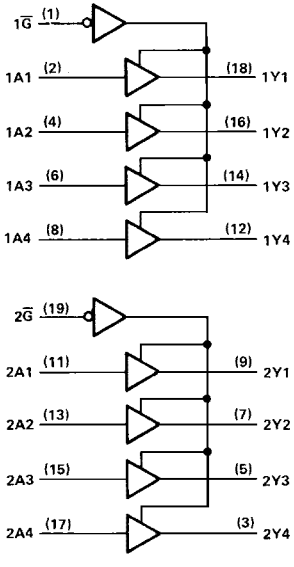
description

This octal buffer and line driver is designed specifically to improve both the performance and density of three-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters. Taken together with the 'ALS1240 this device provides the choice of selected combinations of inverting and noninverting outputs symmetrical $\overline{G}$ (active-low input control) inputs, and complementary G and $\overline{G}$ inputs.

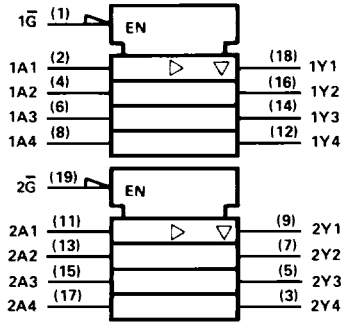
The -1 version of the SN74ALS1244A is identical to the standard version except that the recommended maximum I_{OL} is increased to 24 milliamperes. There is no -1 version of the SN54ALS1244A.

The SN54ALS1244A is characterized for operation over the full military temperature range of −55°C to 125°C. The SN74ALS1244A is characterized for operation from 0°C to 70°C.

logic diagram (positive logic)



logic symbol†



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

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

Supply voltage, V_{CC} . . . . . 7 V
Input voltage . . . . . 7 V
Voltage applied to a disabled 3-state output . . . . . 5.5 V
Operating free-air temperature range: SN54ALS1244A . . . . . −55°C to 125°C
SN74ALS1244A . . . . . 0°C to 70°C
Storage temperature range . . . . . −65°C to 150°C

recommended operating conditions

		SN54ALS1244A			SN74ALS1244A			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			8			16	mA
							24†	
T_A	Operating free-air temperature	−55		125	0		70	°C

†The extended limits apply only if V_{CC} is maintained between 4.75 V and 5.25 V.
The 24-mA limit applies for the SN74ALS1244A-1 only.

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

PARAMETER	TEST CONDITIONS		SN54ALS1244A			SN74ALS1244A			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}	V_{CC} = 4.5 V,	I_I = −18 mA			−1.5			−1.5	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_{OH} = −15 mA				2			
V_{OL}	V_{CC} = 4.5 V,	I_{OL} = 8 mA		0.25	0.4		0.25	0.4	V
	V_{CC} = 4.5 V, (I_{OL} = 24 mA for -1 versions)	I_{OL} = 16 mA					0.35	0.5	
I_{OZH}	V_{CC} = 5.5 V,	V_O = 2.7 V			20			20	μA
I_{OZL}	V_{CC} = 5.5 V,	V_I = 0.4 V			−20			−20	μA
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_O§	V_{CC} = 5.5 V,	V_O = 2.25 V	−30		−112	−30		−112	mA
I_{CC}	V_{CC} = 5.5 V	Outputs high		6	15		6	11	mA
		Outputs low		10	20		10	17	
		Outputs disabled		11	25		11	20	

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

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switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R1 = 500 Ω, R2 = 500 Ω, T_A = MIN to MAX				UNIT
			SN54ALS1244A		SN74ALS1244A		
			MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	3	21	3	14	ns
t_{PHL}			3	16	3	14	
t_{PZH}	$\overline{G}$	Y	6	28	6	22	ns
t_{PZL}			6	26	6	22	
t_{PHZ}	$\overline{G}$	Y	2	15	2	10	ns
t_{PLZ}			3	25	3	13	

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