Rochester Electronics

Datasheet

Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceed the OCM data sheet.

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
    - Class Q Military
    - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)

    - Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

SN74ALS244B, SN74AS244, SN54ALS244B, SN54AS244
OCTAL BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS

D2661, DECEMBER 1982 - REVISED JULY 1987

- **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**

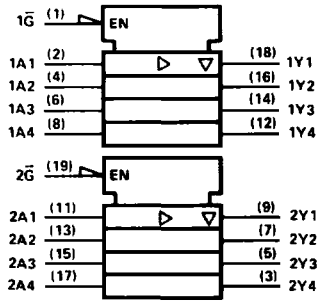
description

These octal buffers and line drivers are 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 'ALS240A, 'ALS241B, 'AS240, and 'AS241, these devices provide the choice of selected combinations of inverting outputs, symmetrical $\overline{G}$ (active-low input control) inputs, and complementary G and $\overline{G}$ inputs.

The SN74ALS244A-1 is similar to the standard version except that the recommended maximum I_{OL} is increased to 48 milliamperes. There is no -1 version of the SN54ALS244B.

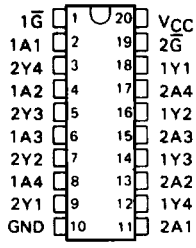
The SN54ALS244B and SN54AS244 are characterized for operation over the full military temperature range of −55°C to 125°C. The SN74ALS244B and SN74AS244 are characterized for operation from 0°C to 70°C.

logic symbol†

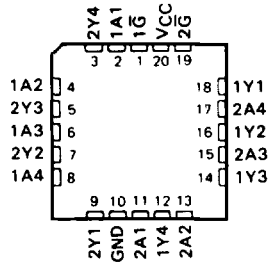


† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.
Pin numbers are for DW, J, and N packages.

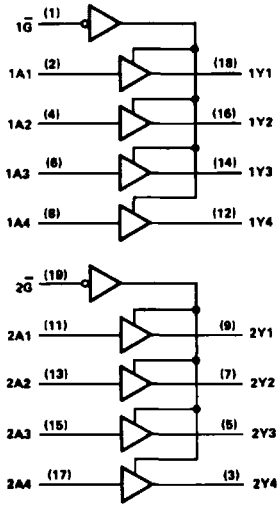
SN54ALS244B, SN54AS244 . . . J PACKAGE
SN74ALS244B, SN74AS244 . . . DW OR N PACKAGE
(TOP VIEW)



SN54ALS244B, SN54AS244 . . . FK PACKAGE
(TOP VIEW)



logic diagram (positive logic)



TEXAS INSTRUMENTS

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: SN54ALS244B . . . . . −55°C to 125°C
SN74ALS244B . . . . . 0°C to 70°C
Storage temperature range . . . . . −65°C to 150°C

recommended operating conditions

		SN54ALS244B			SN74ALS244B			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
				0.8†				
				0.7‡				
I_{OH}	High-level output current			−12			−15	mA
I_{OL}	Low-level output current			12			24	mA
							48§	
T_A	Operating free-air temperature	−55		125	0		70	°C

† Tested at −55°C to 70°C.
‡ Tested at 70°C to 125°C, per MIL-STD-883, method 5005, sub-group 1, 2, and 3. Static tests are performed at 25°C, 125°C, and −55°C.
§ The extended limits apply only if V_{CC} is maintained between 4.75 V and 5.25 V.
The 48-mA limit applies for the SN74ALS244A-1 only.

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

PARAMETER	TEST CONDITIONS		SN54ALS244B			SN74ALS244B			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} = 12 mA		0.25	0.4		0.25	0.4	V
	V_{CC} = 4.5 V, (I_{OL} = 48 mA for −1 version)	I_{OL} = 24 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_O = 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		9	15		9	15	mA
		Outputs low		15	24		15	24	
		Outputs disabled		17	27		17	27	

¶ 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}.

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
			SN54ALS244B		SN74ALS244B		
			MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	1	16	3	10	ns
t_{PHL}			3	12	3	10	
t_{PZH}	$\overline{G}$	Y	1	26	3	20	ns
t_{PZL}			1	24	3	20	
t_{PHZ}	$\overline{G}$	Y	2	10	2	10	ns
t_{PLZ}			1	26	1	13	

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

switching characteristics SN74ALS244A-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
			SN54ALS244A		SN74ALS244A		
			MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	3	13	3	10	ns
t_{PHL}			3	13	3	10	
t_{PZH}	$\overline{G}$	Y	7	25	7	20	ns
t_{PZL}			7	25	7	20	
t_{PHZ}	$\overline{G}$	Y	2	12	2	10	ns
t_{PLZ}			3	18	3	13	

NOTE 1: For load circuit and voltage waveforms see page 1-12.

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: SN54AS244 . . . . . −55°C to 125°C
SN74AS244 . . . . . 0°C to 70°C
Storage temperature range . . . . . −65°C to 150°C

recommended operating conditions

		SN54AS244			SN74AS244			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			−12			−15	mA
I_{OL}	Low-level output current			48			64	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		SN54AS244			SN74AS244			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} = −2 mA	V_{CC}−2			V_{CC}−2			V
		V_{CC} = 4.5 V,	I_{OH} = −3 mA	2.4	3.4		2.4	3.4		
		V_{CC} = 4.5 V,	I_{OH} = −12 mA	2.4						
		V_{CC} = 4.5 V,	I_{OH} = −15 mA				2.4			
V_{OL}		V_{CC} = 4.5 V,	I_{OL} = 48 mA			0.55				V
		V_{CC} = 4.5 V,	I_{OL} = 64 mA						0.55	
I_{OZH}		V_{CC} = 5.5 V,	V_O = 2.7 V			50			50	μA
I_{OZL}		V_{CC} = 5.5 V,	V_O = 0.4 V			−50			−50	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}	$\overline{G}$	V_{CC} = 5.5 V,	V_I = 0.4 V			−0.5			−0.5	mA
	A					−1			−1	
I_O‡		V_{CC} = 5.5 V,	V_O = 2.25 V	−50		−150	−50		−150	mA
I_{CC}		V_{CC} = 5.5 V	Outputs high		22	34		22	34	mA
			Outputs low		60	90		60	90	
			Outputs disabled		34	54		34	54	

† 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}.

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
			SN54AS244		SN74AS244		
			MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	2	9	2	6.2	ns
t_{PHL}			2	7	2	6.2	
t_{PZH}	$\overline{G}$	Y	2	10	2	9	ns
t_{PZL}			2	8	2	7.5	
t_{PHZ}	$\overline{G}$	Y	2	6.5	2	6	ns
t_{PLZ}			2	10.5	2	9	

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